



Assessment of consumption-targeted measures based on True Cost Accounting (TCA)

Stakeholders' perspective on their acceptability, effectiveness, fairness and feasibility in the Swiss context.

Orianne Pauli

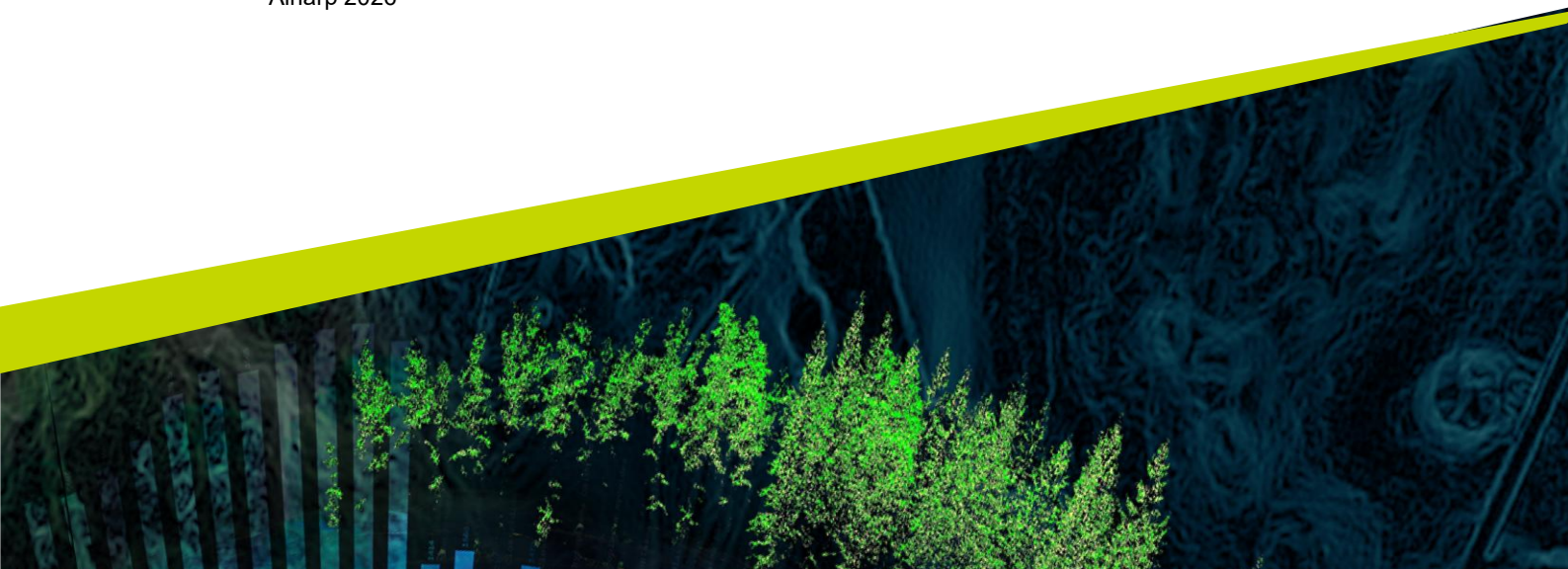
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Swedish University of Agricultural Sciences, SLU

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Abstract

The current food system is dysfunctional, unsustainable, not resilient and fails to provide everyone with a healthy diet. True Cost Accounting (TCA) is suggested as a holistic approach to move toward a healthier and more sustainable food system. The aim of this thesis is to identify the strengths and weaknesses of nine consumption-targeted measures based on TCA, through Swiss food system stakeholders' assessment of them, via an online survey. The quantitative data, from the closed questions, was analyzed with linear regressions and pairwise comparison tests. A thematic analysis was used for the qualitative data, from the open-ended questions. The results show an overall positive assessment of the measures in terms of acceptability, perceived effectiveness, perceived fairness and perceived feasibility. Some measures are significantly more acceptable, perceived as effective, fair and feasible than others. From the analysis of the written comments, the responses are probably influenced by the impact of the measures on low-income populations, the lack of support and opposition from relevant stakeholders, the need of a policy mix, the interference in freedom and free market and the difficulty with the data collection and/or calculation. The stakeholders whose activities would be the most impacted by the measures are usually the less positive, but without significant difference. The years of experience working in the food sector do not influence the responses. The more the respondents are familiar with TCA and the more they assess the measures positively, but most of the time without significant differences. The effectiveness and fairness have a significant influence on the acceptability. The influence of the feasibility on the acceptability is less clear. When classified into four policy categories (information-based, nudge, market-based and regulatory), the results show that market-based measures come last in terms of acceptability, fairness and feasibility. Information-based comes last for the effectiveness. Nudge and regulatory are in general having good results. Key takeaways from this thesis are the positivity of the assessments, the need of a policy mix including different types of measures, especially socially supportive and educational ones, the relevance of state intervention in the food system and the importance of multi-stakeholders' collaboration.

Keywords: True Cost Accounting (TCA), hidden costs, food system transformation, consumption-targeted policies, stakeholders' assessment

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1. Introduction

1.1. Broad picture of the current food system

The food system, on the one hand, provides many benefits to human and society by producing food, as well as providing jobs, environmental services and public goods (for example landscapes of recreational value) (FAO 2023; De Luca & Muller 2025). On the other hand, it contributes to climate change (for example by increasing the net greenhouse gas emissions), natural resource degradation, loss of natural ecosystems and decline in biodiversity (IPCC 2019; FAO 2023). Moreover, access to a healthy diet is no guarantee to everyone (FAO 2023), with more than 2 billion of the world population being overweight or obese and around 700 million people undernourished (FAO et al. 2025; World Obesity Federation 2025).

These two contradictory sides are well illustrated by the interactions between the food system and the four capitals (natural, human, social and produced) it is based on (see fig. 1).

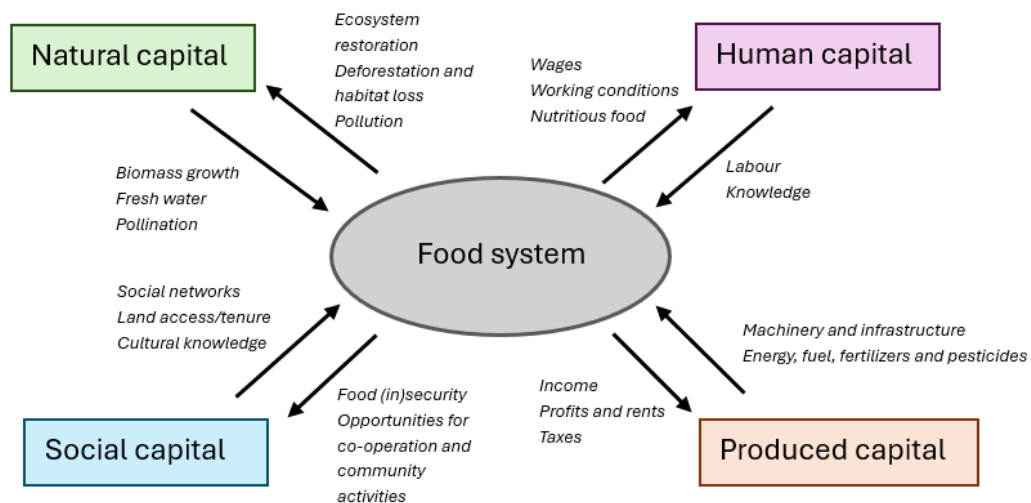


Figure 1: Interactions between the food system and the four capitals (own elaboration, based on TEEB 2018)

Firstly, the natural capital is “the stock of renewable and non-renewable natural resources that combine to yield a flow of benefits to people” (Capitals Coalition 2026). Regarding the food system, it provides it with, for example, fresh water and pollination. In return, the food system impacts negatively the natural capital with deforestation and habitat loss, but can also, with certain types of agriculture, contribute to ecosystem restoration (FAO 2023).

Secondly, the human capital refers to “the knowledge, skills, competencies and attributes embodied in individuals that contribute to improved performance and well-being” (Capitals Coalition 2026). It provides the food system with labour and knowledge, and wages and nutritious food is returned by the food system (FAO 2023).

Thirdly, the social capital is “the networks, together with shared norms, values and understanding, that facilitate cooperation within and among groups” (Capitals Coalition 2026). This capital contributes to the food system through social networks and cultural knowledge, and in the other direction receive food security (or insecurity) (FAO 2023).

Fourthly, the produced capital is “the human-made goods and financial assets that are used to produce goods and services consumed by society” (Capitals Coalition 2026). The food system needs the produced capital for the machinery and infrastructure, as well as energy, fuel, fertilizers and pesticides, and the food system generates income, profits and rents, and taxes (FAO 2023).

Despite the benefits the food system provides, it is dysfunctional, unsustainable and not resilient. As mentioned above, it contributes to degrading the planet and fails to provide every human with a healthy diet (FAO 2023). Moreover, it is impacted by the damage it causes (for example climate change). Extreme events, which are becoming increasingly frequent, such as droughts, heat waves and changes in precipitation patterns are affecting food security, by disrupting crop yields and food supplies (IPCC 2019).

Against this backdrop there is an urgent – but not new – need for changes in the food system (Willett et al. 2019; Baker et al. 2020). As written by Baker et al. (2020), there is a need to move toward a food system that “nourish[es] the global population while ensuring human, ecological, and animal health and well-being” and find ways to overcome the current public health, economic and environmental crises. One suggested approach is to take a more holistic view of the food system, considering not only the economic aspects (such as productivity), but also the multiple interactions, interdependencies and interconnectedness of its elements (Baker et al. 2020; FAO 2023; Contor et al. 2026). An example of such an approach is True Cost Accounting (TCA) (Baker et al. 2020; Contor et al. 2026), which is

going to be explained in more details in the following chapters and will form the backdrop to the rest of this thesis.

1.2. Hidden costs and True Cost Accounting (TCA)

The True Cost Accounting approach is based on the fact that, currently, there is a discrepancy between food prices and their true societal cost. Indeed, many costs (called hidden costs), for example environmental, social and related to human health, are not included in the price of food (FAO 2023). Some of the costs of the food systems are direct and visible and are considered in the decision-making process. Other costs, these hidden costs, are not taken into account by decision-makers, hence are not borne by the those causing them, but by society (De Luca & Muller 2025).

Hidden costs are defined by the FAO (2023) as “any cost to individuals or society that (...) [are] not reflected in the market price of a product or service. It refers to external costs (that is, a negative externality) or economic losses triggered by other market, institutional or policy failures”.

An example of environmental hidden costs are greenhouse gases emissions that are released during the production of a food product. These emissions are not priced into the product itself, yet they impose negative impact on future generations, who will ultimately bear the associated costs (True Price™ 2019). An example for social hidden costs could be for instance underpayment of workers along the food chain (ibid.). Health-related hidden costs include, for example, the loss of labor productivity caused by unhealthy diets (FAO 2023).

Some hidden costs take the form of hidden benefits, such as agricultural practices that enhance biodiversity. These positive externalities are often not captured by those who create them, for example, farmers who maintain a clean environment may not benefit from the tourism it attracts (FAO 2024).

Built on the reality of hidden costs, TCA can be defined as “a holistic and systemic approach to measuring and valuing the environmental, social, health and economic costs and benefits generated by agrifood systems to facilitate improved decisions by policymakers, businesses, farmers, investors and consumers” (definition of FAO 2023, based on UNEP et al. 2021).

1.2.1. Origin of TCA

The notion TCA is relatively recent (the terminology started to be used about ten years ago), but it is built on different already existing concepts and methodologies (de Adelhart Toorop et al. 2023; FAO 2023; Contor et al. 2026).

TCA takes its intellectual roots in welfare economics, environmental economics and ecological economics (Contor et al. 2026). These three fields were already well documented in the 20th century, for example by Pigou in 1920, who was writing about internalising external costs (Pigou 1920 see Contor et al. 2026). The methodological part of TCA is influenced by various methods: Cost-Benefit Analysis (CBA), Social Cost-Benefit Analysis (S-CBA), Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), Life Cycle Assessment (LCA), Social-LCA (S-LCA), Life Cycle Costing (LCC), Multi-Criteria Decision Analysis (MCDA) and Integrated Assessment Models (IAMs). As frameworks, Natural Capital Accounting, Ecosystem Service Valuation and the TEEBAgriFood Evaluation Framework have also influenced TCA.

TCA is not about inventing something new but using already existing approaches and methodologies and unifying them into a “cohesive tool for systemic change” that makes previously unaccounted-for impacts visible (Contor et al. 2026). Regardless of how TCA is exactly understood and used, to shed light on the hidden costs (and benefits) could help decision-makers to have a better understanding of the agrifood system and use the levers at their disposal to move toward more sustainable and healthier food production and consumption (Baker et al. 2020; FAO 2023).

1.2.2. Calculation of food systems hidden costs

TCA is used as a base for the 2023 and 2024 editions of the *State of Food and Agriculture* by the Food and Agriculture Organization of the United Nations (FAO). The 2023 edition contains an estimation of the hidden costs of the food system of 154 countries. Key findings for the year 2020 include (FAO 2023):

- The estimation of the global hidden costs of the food system is 12.7 trillion dollars.
- Out of these 12.7 trillion dollars, more than 73 per cent stem from health-related costs (mainly productivity losses induced by dietary patterns), about 20 per cent from environmental costs (nitrogen emissions and contribution of greenhouse gas emissions to climate change, land-use change costs and water use) and 4 per cent from social costs (mainly poverty).
- Upper-middle-income and high-income countries are the ones generating the largest share of hidden costs (resp. 39% and 36%), while lower-middle-income and low-income countries account for 22 per cent and 3 per cent respectively.
- When calculated per person, the people living in high-income countries are the ones generating the largest share of hidden costs, followed by the

population of upper-middle-income countries. The ones from lower-middle-income and low-income countries come far after.

- When comparing the value of hidden costs with the gross domestic product (GDP), globally they are equivalent to 10% of the 2020 GDP with substantial differences across income categories (8% in high-income countries, 11% in upper-middle-income countries, 12% in lower-middle-income countries and 27% in lower-income countries).
- In high-income countries, most costs are health-related costs, driven by unhealthy dietary patterns. Environmental costs follow, arising from a range of issues such as greenhouse gas and nitrogen emissions.

1.2.3. Limitations and criticisms

TCA faces several limitations and has been subject to various criticisms. The limitations and criticisms discussed in the following paragraphs draw on the analysis provided by Contors et al. (2026) study.

First, there are several practical limitations, such as the complex and resource-intensive process of gathering all the data needed to calculate hidden costs and benefits. Furthermore, the lack of uniform standards of data collection leads to difficulty to compare different analyses. This also leads to differences in methodologies and scope, with currently more than thirty divergent methodologies existing. It also seems that some social impacts, like cultural right and community well-being, are difficult to quantify and therefore rarely included. In addition, the nutritional dimensions considered are often insufficiently linked to actual health outcomes.

Second, foundational criticisms have been raised, like the monetization of some ethical and cultural values. It is argued that these values cannot be measured financially. Furthermore, it has also been argued that equity across generations and cultures is not always respected, with the present generation being often more considered than the following ones and Western scientific knowledge being predominant. Power asymmetries are also identified as a potential weakness of TCA, as some actors' perspectives (for example expert panels and institutional actors) tend to dominate, while others, including community voices, are not taken into consideration. There is also concern that the measures adopted may have only limited effects, even though long-term benefits are promised. Related to this, one criticism of TCA is that food prices could rise if no accompanying measures are introduced, with the burden falling disproportionately on low-income populations.

1.3. Food policies

In parallel to the development of TCA and its foundations, the notion of sustainability has also started to appear in the global development agendas and influencing agri-food policies (Contor et al. 2026). In the integration of sustainability into agri-food policies, TCA has a role to play as it makes visible where the impacts are, considering as much as possible the multiple components of the food system (FAO 2023). It allows decision-makers of these policies to make informed decisions, based on concrete valued-anchored metrics (Contor et al. 2026).

FAO (2023) lists several levers for food system transformation, such as trade and market interventions, (de)coupled subsidies, general service support, laws and regulations, behavioural policies, private capital, voluntary standards, etc. Figure 2 shows different levers for transforming the agrifood system, based on tree impact areas: agrifood supply chain, food consumption and general services. As visible with the yellow dots, the governments have an important role to play but are not the only actors that can influence the food system. Research institutions, civil society organizations, business and financial institutions are also being impactful (FAO 2023). Not pictured on the image are the consumers, who also have potential influential power through their purchase choices (Johnston et al. 2014). As written by FAO (2023), none of these levers are new, but the news is to use them based on information provided by TCA.

As this thesis is on consumption-targeted policies, the rest of the work will focus on those.

IMPACT AREA	LEVER	POTENTIAL TRANSFORMATION PATHWAYS
AGRIFOOD SUPPLY CHAINS	Trade and market interventions	Generate price incentives or disincentives to stimulate production of sustainable and nutritious foods
	Fiscal subsidies to producers	Stimulate production of specific sustainable and nutritious foods and influence input use
	Laws and regulations	Restrict environmental impact, safeguard labour well-being, manage food safety, food labelling and food fortification
	Public and private capital	Facilitate investment in sustainable and transparent production processes and businesses
FOOD CONSUMPTION	Fiscal subsidies to consumers	Incentivize the consumption of sustainable and healthy diets
	Taxes on foods that constitute unhealthy and unsustainable diets	Disincentivize the consumption of foods that constitute unhealthy and unsustainable diets
	Consumer purchasing power	Prioritize products with clear information, reflecting values
	Marketing and promotion	Promote the consumption of nutritious foods
GENERAL SERVICES	Labelling and certification	Enable consumers to choose nutritious and sustainable foods
	Infrastructure expenditure	Target bottlenecks contributing to inefficiencies, expensive foods and food loss and waste (e.g. invest in cold storage)
	Research and development	Advance science, innovations and technologies that improve the sustainability of agrifood systems
	Knowledge transfer services	Disseminate knowledge on sustainable agrifood systems practices and technologies
	Inspection services	Manage food safety
DECISION-MAKER OR STAKEHOLDER INFLUENCING CONTROL OF LEVER		
Government Research and civil society organizations Businesses and financial institutions		

Figure 2: Levers for agrifood systems transformation (FAO 2023)

1.3.1. Consumption-targeted policies

Changes in food consumption, i.e. a shift in people's diet, is part of the changes needed to move toward a more sustainable food system (Willett et al. 2019; European Union 2020). Hence, there is a need of more consumption-targeted policies supporting consumers in their food choices, steering and helping them to make sustainable and healthy choices (Fesenfeld et al. 2020; Ammann et al. 2023; Fernqvist et al. 2024).

Food choices and food environment

Food choices, i.e. what consumers decide to buy and eat, influence the sustainability of the whole food system (Ammann et al. 2023). Indeed, even if the choice of what food to buy and to eat is personal, the consequences of these decisions are borne by the entire society and not (only) by the person making the choice (Spiller et al. 2017 see Ammann et al. 2023). For example, the consequences of the greenhouse gas emitted by the food one buys are not only impacting the individual but affects society as a whole (ibid). Another example is the consumption

of unhealthy food whose consequences also impact the society as it increases health costs (ibid).

Furthermore, in addition to making food choices based on personal factors, for example the taste, the convenience or the culture consumers are also influenced by the food environment (HLPE 2017). The food environment can be defined as:

“the physical, economic, political and socio-cultural context in which consumers engage with the food system to acquire, prepare and consume food. The food environment consists of: “food entry points”, i.e. the physical spaces where food is obtained; the built environment that allows consumers to access these spaces; personal determinants of food choices (including income, education, values, skills, etc.); and the political, social and cultural norms that underlie these interactions. The key elements of the food environment that influence food choices, food acceptability and diets are: physical and economic access to food (proximity and affordability); food promotion, advertising and information; and food quality and safety.” (ibid).

According to Ammann et al. (2023), unhealthy and unsustainable products are predominant in the current food environment. These products are most of the time cheaper than more healthy and sustainable products (Barosh et al. 2014; Headey & Alderman 2019). As the food environment influences consumers’ choices, “policies should make healthy and sustainable foods the easy, affordable, and preferred choice” (Amman et al. 2023).

Resistance to policy changes

Although it is clear that shifting toward more healthy and sustainable food diets is one element to make the whole food system more sustainable (Willett et al. 2019; European Union 2020; Green et al. 2022), policy changes in this field often encounter resistance (Green et al. 2022). In their study, Green et al. (2022), regrouped some reasons for this resistance: first, the complexity of food system and food consumption is mentioned as a challenge. Second, trying to influence consumer behavior, i.e. intervening in consumption choice, can be seen as a delicate topic as it comes to individuals’ freedom and contrary to neo-liberal choices. Further reasons which discourage stakeholders from taking actions are the uncertainty that the implementation of new policies and strategies will be successful and the potential opposition of powerful groups.

1.4. The case of Switzerland

1.4.1. Hidden costs

As expected from the FAO results of chapter 1.2.2, Switzerland and its food system are also concerned by the topic of hidden costs, and the concept of TCA is part of the debates around the transformation of the Swiss food system (De Lucas & Muller 2025).

Here are some relevant facts from the quantification of the hidden costs for Switzerland (ibid.):

- The total of hidden costs for Switzerland equal to 31.8 billion CHF
 - Health costs: about 17 billion CHF
 - Environmental costs: almost 14 billion CHF (with biodiversity being the main factor and accounting for 7.5 billion)
 - Social costs: 0.57 billion CHF (poverty and undernourishment/malnourishment)
 - Animal welfare: 0.11 billion CHF
- Some other costs are not counted as hidden but there are discussions about them because of their relevance in the Swiss context:
 - Direct and immaterial costs of unhealthy diets worth 17 billion CHF (resp. 8 and 9 billion CHF)
 - Hidden costs of imports are equal to 6.7 billion CHF
 - Costs arising from subsidies, border protection and other incentives worth 12.6 billion CHF
- Some hidden costs are low (for example antimicrobial resistances, 0.15 billion CHF) but should be monitored because they could increase in the future

From their analysis of the hidden costs of the Swiss food system, De Luca & Muller (2025) suggest the following key entry points for action: unhealthy diets and biodiversity as the two main fields, GHG and nitrogen emissions following. Food and feed imports and existing regulatory and payment schemes of agricultural policy should also be act upon.

1.4.2. Policy context

The idea of TCA is included in several Swiss strategic/policy documents (De Luca & Muller (2025)).

The Agriculture and Food Climate Strategy 2050 is the basis document to guide the food system toward more sustainability as it “aims to adapt the food system to

climate change and reduce the volume of emissions it produces” (FOAG 2025). One of the measures of the sub-objective “consumption pattern” is to “develop reform proposals to promote greater cost transparency in the food value chain”. It is stated as something new (on the contrary of other measures that are already implemented) and the purpose is to enrich knowledge (FOAG et al. 2023). The “truth of costs” is also mentioned in the measure about the customs protection system and it is written that “factoring both positive and negative externalities into the prices of plant and animal products is an important prerequisite for steering consumption in the direction desired by society” (ibid).

In a 2022 report on the future direction of agricultural policy, the projection for 2050 contains the following: “Environmental and social costs are accounted into food prices, and consumers are aware of the environmental and social impacts of food products thanks to transparent information” (The Federal Council 2022a). However, the newest information (February 2026) about the new agricultural policy 2030 does not state anything about hidden costs, only the increase of prices transparency is mentioned as goal (FOAG 2026).

In the 2030 Sustainable Development Strategy, the three main themes are “sustainable consumption and production”, “climate, energy and biodiversity” and “equal opportunity and social cohesion”. In the first one “sustainable consumption and production”, it is written that “the federal government is committed to cost transparency through the internalization of external costs” (The Federal Council 2022b). The second theme, “climate, energy and biodiversity”, also mentions the internalization of external costs (“emissions reduction measures should (...) contribute to the internalization of external costs”) (ibid.).

In the Swiss Long-Term Climate Strategy, the internalization of the external costs is mentioned in one of the principles of the strategy: “The Confederation ensures that the transition to the net-zero target is carried out in an economically sustainable manner and as cost-effectively as possible, while adhering as closely as possible to the polluter-pays principle and contributing to the internalization of external costs.” (The Federal Council 2021).

The Swiss nutrition strategy 2025-2032 mentions the amount of indirect and direct health costs caused by non-transmissible diseases, but does not include anything about hidden costs or TCA (FDHA 2025).

Although these documents show a willingness to use the ideas behind TCA (i.e. costs transparency and the internalization of externalities) and more generally to move toward a more sustainable food system, De Luca & Muller (2025) write that

“embark[ing] on a path of agrifood system transformation is (...) unclear and past developments – or lack of such – indicate that transformation has not yet begun or is very slow”.

1.4.3. TRUE-COST-CH project

The interdisciplinary project TRUE-COST-CH is an attempt to move from policy documents toward actionable pathways, thus, moving toward a more sustainable Swiss food system. The project is a consortium of Swiss academic institutions working in collaboration with stakeholder across the food value chain, policymakers and NGOs and financed by The Swiss National Science Foundation (SNSF) (TRUE-COST-CH, n.d.a). The main objective of the project is to “propose options for implementing True Cost Accounting for Food (TCAF), (...). By applying this method to a number of food chains, the aim of the project is to bring stakeholders together to discuss the levers for the transition to a healthy, sustainable, resilient and fair food system” (ibid.).

The work is divided between five different work packages (WP), working all in collaboration (TRUE-COST-CH, n.d.b):

- Coordination & Knowledge Transfer (WP 1);
- Calculator & Economic Modelling (WP 2);
- Theory of Change & Policy-Making (WP 3);
- Value-Chain & Business Practices (WP 4);
- Consumers’ Perceptions & Behaviors (WP 5).

This thesis is done in collaboration with WP3 whose main tasks are (ibid.):

- “Develop a theory of change for a more sustainable, equitable and resilient Swiss food system.
- Create different transition paths and acceptable scenarios.
- Analyze the impact of compensation mechanisms on the various players in the Swiss food system.
- Test different levers using the web tool developed in WP2.
- Analyze the policy framework of the Swiss food system and provide policy recommendations for reducing external costs.”

As part of this project, two multi-stakeholders’ workshops have already taken place, in October 2024 and March 2025. During these workshops, the participants have discussed measures and changes related to TCA and the Swiss food system. From these discussions, researchers from the project have created a vision for 2050 (fig. 18 in Appendix 1), as well as pathways (fig. 19 in Appendix 1) that include the measures and changes brought up during the workshops. The pathways have also been completed by looking at other projects about TCA (mainly True Price

Foundation and TMG Think Tank for Sustainability) and more generally in the literature about sustainable food policy instruments (for example, Reisch et al. 2013; Swensson & Tartanac 2020; Rööß et al. 2021; Bryant et al. 2024; Dagevos & Onwezen 2025; Krampe et al. 2025). The measures are here meant to be used specifically in context of reducing hidden costs in the Swiss food system.

As part of my thesis, I contributed to the creation of the vision and the pathways ‘Transparency & Choice Architecture’ and ‘Pricing Mechanisms’, by synthesizing the outcome of the workshops that were fitting in these two pathways, as well as searching for some literature about it. My contribution has been reviewed and completed by Rolf Arnold, a researcher of the project and one of my co-supervisors.

The next step (for the project) with these pathways and measures is to gather opinions, feedback and willingness to participate in the implementation of these pathways from different stakeholders. This thesis is contributing to this by gathering and analyzing the assessment from Swiss stakeholders on consumption-targeted measures coming from the pathways ‘Transparency & Choice Architecture’ and ‘Pricing Mechanisms’.

The opinions and feedback about measures from the other pathways and the willingness to participate in the implementation are out of the scope of this thesis.

1.5. Aim and research questions

The aim of this thesis is to identify the strengths and weaknesses of consumption-targeted measures based on TCA, through stakeholders’ assessment of them. This thesis thus fits more broadly into paving the way to their potential implementation, which would contribute to moving toward a more sustainable and healthier food system.

The main research question is the following:

1. How do food system stakeholders in Switzerland evaluate different consumption-targeted measures to reduce hidden costs in terms of acceptability, perceived effectiveness, perceived fairness, and perceived feasibility?

Followed by three sub-questions:

2. How does the assessment of measures vary across stakeholders’ groups, working fields, years of experience and familiarity with TCA?
3. To what extent do perceived effectiveness, perceived fairness and perceived feasibility predict stakeholders’ acceptability of the measures?

4. Which policy instrument categories (information-based, nudge, market-based, regulatory) received better scoring with respect to acceptability, perceived effectiveness, perceived fairness and perceived feasibility?

1.6. Disposition

The next chapter reviews relevant literature regarding the survey, i.e. about policy assessment by stakeholders, criteria for policy assessment and different policy typologies, as well as results from the literature on these themes. Chapter 3 describes the employed method and includes the sample, procedure, construction and content of the survey, as well as the measures used in it, how the data were analyzed and how artificial intelligence has been used. Chapter 4 presents the results and analysis. Chapter 5 discusses the results as well as compares them with literature, the structure following the four research questions. Additionally, the discussion contains key findings, a de-zoom to discuss the results from a broader perspective, suggestions for further research, as well as reflections about this thesis and TCA. Chapter 6 concludes the work.

2. Literature review

To my knowledge, no study has investigated stakeholders' opinions of policy based on TCA. However, as mentioned before, the TCA measures studied in this thesis can be associated with sustainable and health consumption-oriented policies. Therefore, studies from this field are used in this literature review (for example Ammann et al. 2023). Furthermore, other studies on resemblant topics have been conducted and serve as basis for this literature review (for example stakeholders' acceptance of meat reduction policy (Richter et al. 2023), scientists' opinion on instruments of climate policy (Drews et al. 2024), or determinants of public opinion about climate changes taxes and laws (Bergquist et al. 2022)).

2.1. Policies assessment by stakeholders

2.1.1. Importance

The process of policy implementation includes various steps for it to be successful (United Nations Environment Programme 2024). United Nations Environment Programme (2024) describes an integrated policymaking process with 6 steps: Problem identification; Policy formulation; Policy assessment; Decision making; Implementation and Monitoring and evaluation. In the case of measures based on TCA, it is important to know the size of the costs and where they are generated to formulate policies to tackle this issue. Then, the potential policy must be assessed, for example what are potential barriers (political, technical, cultural, etc.) to its implementation (De Lucas & Muller 2025).

Consulting with stakeholders is an important part of policy assessment (Pasteur 2001 see González-Zapata et al. 2009). A stakeholders can be define as such: "any individual or group, who has an interest in or is impacted by a project or policy" (Kalfagianni & Kuik 2017).

Recruiting a multi-disciplinary team for the policy analysis is essential, because involving "participants from different fields" in the process can "help to build consensus and support for the policy recommendations, which is essential for their effective implementation" (United Nations Environment Programme 2024).

Aligned with this, Richter et al. (2023) write that “in general, addressing the reservations and concerns of (...) [stakeholders] in the design and implementation of policy measures is of particular importance”. For example, collecting the opinion of stakeholders before implementing a policy can help to understand what the key points of conflict are and to try to work around them (Richter et al. 2023). Building on several other sources (for example Burstein 2003; Kammermann & Ingold 2019), Richter et al. (2023) write that “a sound knowledge of the socio-political acceptance of policy measures is therefore crucial for their successful implementation and long-term establishment”.

Conducting stakeholders’ assessment of policies can therefore help overcome the resistance to policy changes mentioned in the introduction (see Resistance to policy changes in 1.3.1).

2.1.2. Results of the literature

Stakeholders’ groups and working areas

Richter et al. (2023) concluded that in general, the more the stakeholders’ activities will be influenced by a policy, the less they would find it acceptable. On the contrary, stakeholders whose operations are more socially oriented, and therefore less directly affected by the policy, would probably find it more acceptable. In their study about acceptance of meat reduction policies in Switzerland, their results showed that stakeholders from the food industry, interest groups and political parties generally accepted less the measures than stakeholders from NGOs, research institutes and state institutions. However, they also added that several different organizations are part of the diverse stakeholders’ categories, and the acceptance level between those organizations sometimes vary considerably.

Years of experience

In their study about scientists’ opinions on instruments of climate policy, Drews et al. (2024) reported that the years of experience does not influence significantly the policy views of the respondents. This is aligned with the findings of Drupp et al. (2022), who concluded that expert characteristics is only limitedly correlated with their answers (in their case: experts’ opinion on carbon pricing).

Familiarity with TCA

In the study of Bergquist et al. (2022) about determinants of public opinion about climate change’s taxes and laws, the results showed that knowledge about climate change has weak correlations with acceptance. Furthermore, as mentioned before, the results of Drupp et al. (2022) showed limited correlation between expert characteristics and their answers (context: experts’ opinion on carbon pricing).

This is only hypothetical as these studies are quite different from this thesis, but it is here assumed that the familiarity with TCA will have no significant influence on the answers.

2.1.3. Hypothesis

The hypothesis to the second research question (*How does the assessment of measures vary across stakeholders' groups, working fields, years of experience and familiarity with TCA?*) are the following:

Stakeholders' group and working field:

- Stakeholders whose activities are directly affected by the measures find them less acceptable than stakeholders whose activities are indirectly related to the measures.

Years of experience:

- Experience does not influence the acceptability of the measures.

Familiarity with TCA:

- The familiarity with TCA does not influence the acceptability of the measures.

2.2. Policy assessment criteria

Several criteria can be used for policy assessment, for example, effectiveness, efficiency, political feasibility, acceptance, support, acceptability, fairness, political trust, ideology, cost perception, etc. (Dreyer & Walker 2013; Drews & van den Bergh 2016; Rhodes et al. 2017; Bergquist et al. 2022; Döhlen Wedin 2024; Poortinga 2025). The notions of support, acceptance, acceptability, effectiveness, fairness and political feasibility are going to be explained in the next sub-chapters.

2.2.1. Support, acceptance and acceptability

Kyselá et al. (2019) reported that asking participants about support, favor, acceptability or agreement is often done. According to their study, these words/criteria are in the literature often used interchangeably or as equivalent terms and definitions of the terms are rarely provided. However, studies from Dreyer & Walker (2013) and Dreyer et al. (2015) have proven that when asking to the same participants about acceptance and support, the results are not the same. Therefore, they concluded that there are differences between these terms. Dreyer & Walker (2013) argued that the differences between these terms are, first, the behavior regarding the policy and, second, the time frame. From the behavioral point of view,

acceptance and acceptability differ from support as they implicate less engagement and are therefore more a passive attitude toward the policy. Support includes a more active dimension, with intention of action or action (ibid.). From the timeframe point of view, acceptability is before the implementation of the policy, while acceptance is after the implementation. Support can be used for before and after implementation, but Kyselá et al. (2019) argued that if the support is asked before, it is then the potential to support that is measured. Kyselá et al. (2019) summarized as such: acceptability is a “passive evaluative response to proposals (potential to accept); acceptance is a “passive evaluative response to existing policy”; support is a “conative evaluative response to existing policy (behavior or intention)”; potential to support is a “conative evaluative response to a proposal (behavior or intention)”. The results from Dreyer & Walker (2013) and Dreyer et al. (2015) always showed a higher score for acceptance in comparison to support.

In their meta-analyses of fifteen determinants of public support for climate change policies, Bergquist et al. (2022) concluded that fairness and effectiveness are the determinant influencing the support the most. They included studies that measured attitude (negative or positive) toward a policy, acceptance, acceptability, support or voting intention or voting. Their study did not make the distinction between the three different terms (acceptability, acceptance and support), but Dreyer & Walker (2013), who made the distinction, also found some similar result, i.e. that fairness and effectiveness have an influence on support and acceptance. The notions of effectiveness and fairness are going to be further developed in the next two sub-chapters.

2.2.2. Effectiveness

In the context of sustainable consumption, Rööß et al. (2021) wrote that “policy effectiveness refers to how well an instrument fulfils the goal of steering food consumption in a more sustainable direction”. They made the distinction between “how effective an instrument is in reducing the overall environmental impact of food consumption” and “how effective is it for achieving a set target” (Rööß et al. 2021).

As mentioned above, effectiveness influences acceptability, acceptance and support (Dreyer & Walker 2013; Bergquist et al. 2022; Poortinga 2025).

2.2.3. Fairness

Building on the works of Jagers et al. (2010) and Maestre-Andrés et al. (2019), Bergquist et al. (2022) defined fairness as “a multicomponent construct referring to the extent that people, a process or a distribution, are treated or implemented equally or according to a criteria such as need or merit”. Fairness is two folded, first it refers

to the costs and benefits being shared across different groups and second to the decision around the policy, or the process, that it is transparent and consider the point of views of the people concerned by it (Greenberg 1998 see Poortinga 2024). The first one is linked to distributive justice and the second one to procedural justice (Dreyer & Walker 2013; Poortinga 2025). According to Dreyer & Walker (2013), they are conceptually independent, but in general correlated.

As mentioned above, fairness influences acceptability, acceptance and support (Dreyer & Walker 2013; Bergquist et al. 2022; Poortinga 2025).

2.2.4. Feasibility

Döhlen Wedin (2024) wrote that feasibility is often mentioned in the climate change debate, but that there is not a consensus on the understanding of this concept. Feasibility is also used, for example by Cleland et al. (2013) and Johnson et al. (2013), to assess policies on healthy food or obesity prevention. In these fields, the definition of feasibility is not the same in every scientific paper.

In their study, Drews et al. (2024) asked scientists to assess instruments of climate policy, and defined feasibility as “taking into account public and political support for, and opposition to, a policy”. Johnson et al. (2013), in their assessment of strategies to improve access to healthy food, measured the political and implementation feasibilities. The question related to the political feasibility was “To what extent could this policy be adopted or enacted within the next 5 years?” and the one about implementation feasibility “To what extent could this policy be implemented as described if adopted or enacted?” (ibid.).

Based on this observation, that feasibility does not always mean the same, Döhlen Wedin (2024) stressed the importance of a common understanding of this term (in her paper regarding climate change). Her proposition is based on the three following points:

“First, an account of feasibility must capture what can be done in practice, i.e. what can be achieved given our present starting point. Second, it must be sensitive to various practical constraints, but must not give them undue weight. Third, an account of feasibility must be of use in the practical deliberation of climate change goals and actions.” (ibid.).

She stressed out that feasible should not mean possible, desirable, or probable to happen.

Building on the theory of others (See Brennan & Southwood 2007; Cohen, 2009; Gilabert & Lawford-Smith 2012), Döhlen Wedin (2024) presented the ‘conditional probability account of feasibility’ as a way of understanding feasibility. It measures

the degree of success if the actors furnish the efforts needed for it to happen. This has been criticized because it can lead to calling feasible policies that agents are unlikely going to implement, but the reasoning behind it is to avoid placing too much emphasis on a lack of human motivation and unwillingness.

There can be hard and soft constraints to policy feasibility (Gilabert & Lawford-smith 2012). Hard constraints are permanent and absolute, for example biological constraints, while soft constraints are malleable, for example economic, institutional and cultural constraints. As they are malleable, if a soft constraint is a barrier to policy implementation now, it might evolve in the future. Therefore, Gilabert & Lawford-smith (2012) suggested that the feasibility should be tested either binary, i.e. are there hard constraints or not, or gradually/scalarly, i.e. the more a policy accommodates soft constraints and the more feasible it is. The second option makes it possible to identify low-hanging fruits while not rejecting policies directly, but discussing how the constraints can be addressed (Döhlen Wedin 2024).

2.2.5. Hypothesis

The hypotheses to the third research question (*To what extent do perceived effectiveness, perceived fairness and perceived feasibility predict stakeholders' acceptability of the measures?*) are the following:

- The perceived effectiveness and perceived fairness influence the acceptability: the more a measure is perceived as effective and fair, the more it is acceptable.
- The feasibility does not influence the acceptability.

2.3. Typology of policies

Policy instruments (also called policies and measures in this thesis) can be classified in different categories. These categories can be based on different criteria, for example on the administrative design, on the level of intervention of the state, on the level of compulsoriness or on the level of coerciveness. These categorizations often overlap and some originate from others (see for example Vedung 1998; Reisch et al. 2013; Rhodes et al. 2017; Ejelöv et al. 2022; Ammann et al. 2023).

One categorization based on the level of intervention of the state, also formulated as the amount of power the state is exerting, is the one from Vedung (1998). The measures are classified as regulatory, market-based or informational. Regulatory instrument uses laws and standards, to limit the choice or the possibility (Vedung

1998; Poortinga 2025). Market-based (or economic) instruments are for example financial incentives or disincentives, which do not influence accessibility, but the price of the good or action (Vedung 1998). Informational instruments provide “knowledge or persuasive reasoning” with the goal to influence peoples’ behavior (ibid.). This typology has been cited and used by many other authors since its publication (for example Ejelöv et al. 2022 and Poortinga 2025).

In their document about policies options for sustainable consumption, Rööf et al. (2021) based their categories on this model, but named them “Regulation and requirements”, “Changed relative price” and “Knowledge and support”.

Policies categorized based on their level of coerciveness are often classified either as push or pull policy (Ejelöv et al. 2022). A pull policy rewards a certain behavior and, on the contrary, a push policy punishes a certain behavior (ibid.). From their results Ejelöv et al. (2022), came up with three categories: push (regulations and market-based disincentives), pull (market-based incentives) and informative.

Another way of categorizing policies is to classify them depending on their level of compulsoriness, that means “the extent to which (...) actions are required by government or some other external agent” (Rhodes et al. 2017 based on Jaccard 2006). For example, taxes and regulations have a high level of compulsoriness, unlike voluntary educational programs and subsidies (Rhodes et al. 2017; Ejelöv et al. 2022). A similar approach is to separate policies depending on the level of intrusiveness. Ammann et al. (2025) gave the examples of taxes that are mandatory for everyone (very intrusive) and labels that can be ignored by consumers (not very intrusive).

Policies can also be based on their administrative design, with regulation versus market-based instruments. This is close from categorizations mentioned before but, in this case, market-based instruments can include both push and pull measures (for example taxes and subsidies) (Ejelöv et al. 2022).

Reisch et al. (2013), discussed in their paper policies categorized with the following framework: information-based; self-commitment, public procurement and nudging; market-based; regulatory. Although not mentioned as such by the authors, we can describe this typology as based on the administrative design of the policies, as well as their level of intrusiveness. Ammann et al. (2023) have adopted this framework in their study, naming the categories ‘information-based’, ‘nudging’, ‘market-based’ and ‘regulatory’. This typology is the one that is going to be used in this thesis.

2.3.1. Information-based instruments

Information-based instruments are, as also mentioned with other categorizations, tools that provide knowledge. In the case of sustainable consumption, they aim to guide consumers with their food decisions, which includes for example labels, education and campaigns (Ammann et al. 2023). Information-based instruments leave the choice to consumers to use or ignore them (ibid.). In the case of food consumption, these are instruments often used and studied (Röös et al. 2021; Ammann et al. 2023).

2.3.2. Nudging instruments

Using nudging instruments is another way of supporting consumer choices, by encouraging a certain behavior through implementing changes in the choice architecture (Röös et al. 2021). They are slightly more intrusive than information-based instruments (Ammann et al. 2023). Example of nudges are to make the most sustainable and healthier option as default or as the most visible one, offer more choice of a certain type of food, change the size of packaging, etc. (Garnett et al. 2015; Röös et al. 2021; Bryant et al. 2024; Dagevos & Onwezen 2025). Ammann et al. (2023) make a distinction between “nudge”, that “unconsciously drive consumers towards more sustainable choices” and “interventions” that “consciously try to establish new food habits”. Based on the literature review of Ammann et al. (2023), nudge instruments are less studied than information-based instruments and many studies only looked at consumption of meat or meat alternatives.

2.3.3. Market-based instruments

Market-based (or financial) instruments influences prices, for example via taxes, fees or subsidies (Reisch et al. 2013; Ammann et al. 2023). In the field of sustainable food consumption, it aims to change the relative prices between goods (Röös et al. 2021), i.e. that the more sustainable and healthier food products have prices relatively lower compared to less sustainable and healthy alternatives. The intended goal of these instruments is to change consumption, i.e. decrease the demand for less sustainable and healthy products and increase the one of more sustainable and healthier products, as price is an important decisional factor when it comes to food choices (Reisch et al. 2013). Market-based instruments are more intrusive than nudging and less studied (Ammann et al. 2023). In the case of taxes and fees, the revenues can also be used to promote and support sustainable and healthy food (EEA 2008 see Reisch et al. 2013).

2.3.4. Regulatory instruments

Regulatory instruments related to food consumption include bans or limits, for example of unsustainable and unhealthy products (Röös et al. 2021; Ammann et al. 2023). This could concern the availability of a food products, but also the marketing around it (Röös et al. 2021). Regulatory instruments are the most intrusive and least studied ones (Ammann et al. 2021).

2.4. Results of assessment based on typology

Overall, the results of assessment based on typology are not consistent in the literature. Ammann et al. (2023), from their literature review, reported that “less intrusive policy instruments (i.e., information-based, nudging) are more popular and widespread than more intrusive instruments”. Findings from Kwon et al. (2019) go in that direction with policies that impose restrictions receiving lower support than the ones providing incentives and information. However, results from Rhodes et al. (2017) showed that regulation and voluntary policies receive higher support than market-based instruments. This is not aligned with the previous evidence, as regulatory policies are considered more intrusive than information-based and nudge instruments (Ammann et al. 2023).

About the comparison of acceptability between market-based and regulatory instruments, studies also have different results. For example, Ejelöv et al. (2022) found similar level of acceptability between those two categories, while Kirchgässner & Schneider (2003) and Stadelmann-Steffen (2011) reported that market-based instruments are less acceptable than regulatory ones.

About the effectiveness, findings are usually more consistent. The more the instruments are restrictive and intrusive and the more they are (perceived) effective (for example see Kwon et al. 2019; Ammann et al. 2023). Several authors agreed that a combination of different policies could enhance their individual effectiveness (Panzone et al. 2011; Röös et al. 2021; Richter et al. 2023). Panzone et al. (2011) stressed out that information-based instruments are particularly important to combine with others, as they can contribute to educate consumers. Ejelöv et al. (2022) suggested that a combination of push and pull measures could enhance their political support.

It is to be noted that most of the studies mentioned above are about public/consumer opinion. In a Swiss study about the acceptance of meat reduction policies from stakeholders, Richter et al. (2023) found that non-coercive voluntary and information measures are less rejected than market-based and regulatory ones. Between market-based and regulatory instruments, their results showed that the

lowest level of acceptance is for market-based measures of the positive and negative incentive type. However, some market-based measures, such as the removal of positive incentives, are more accepted than regulatory ones. They concluded that in between the same category (here market-based instruments) the variation of acceptance is too importance to deduct a clear pattern of acceptance.

2.4.1. Hypotheses

The hypothesis to the fourth research question (*Which policy instrument categories (information-based, nudge, market-based, regulatory) received better scoring with respect to acceptability, perceived effectiveness, perceived fairness and perceived feasibility?*) is the following:

- The more intrusive the category is, the less acceptable it is
- The more intrusive the category is, the more perceived as effective it is
- The more intrusive the category is, the less perceived as fair it is
- The more intrusive the category is, the less perceived as feasible it is.

As mentioned above, results from literature are not all coherent, but I chose to base these hypotheses on the study of Ammann et al. (2023). Figure 3 shows the intrusiveness of the categories.



Figure 3: Categorization of policy instruments according to intrusiveness (own elaboration, based on Ammann et al. 2023)

3. Methodology

In this thesis, the method used was an online survey, created with Qualtrics. The questions were chosen based on the literature (see chapter 2 Literature review) and the measures assessed came from the pathways ‘Transparency & Choice Architecture’ and ‘Pricing Mechanisms’ developed during workshops from the TRUE-COST-CH project (see chapter 1.4.3 TRUE-COST-CH project). The following paragraphs contain information about the sample, how the people have been contacted (procedure), how the survey was developed and what the content was, as well as information about the measures. Then the information about the analysis of the data is provided and the chapter concludes with a sub-chapter on how artificial intelligence (AI) has been used for this thesis.

3.1. Sample

The target group of the survey was stakeholders of the Swiss food system, i.e. people working directly, but also indirectly in and/or with the food system. The stakeholders can be classified in eight categories: academia and knowledge institutions, civil society, international community, media, organizations representing small, medium and large producers, other food systems workers, private sector and public sector. The subcategories relevant to the Swiss food system are to be seen in figure 4.



Figure 4: Categories of stakeholders (Arnold et al. under review). Used with permission.

As part of the project TRUE-COST-CH, a list of stakeholders (organizations and individuals) that have a link with the Swiss food system was created. The ways to build this list was multiple¹, first the experts of the consortium and of the advisory board of the project started by identifying key stakeholders based on their expertise and knowledge. Second, a desk study was conducted. Third, stakeholders included in the list could also suggest others. The aim was to represent the entire food system as completely as possible, but the focus was not on representative distribution between the different stakeholders' categories.

120 people responded to the survey, including 99 who filled it in entirely. 72 responded in German and 27 in French.

3.2. Procedure

The link to the survey and explanations were distributed to stakeholders via different ways (by the people of the project, not by me). The main way (approx. 450 recipients) was via an email that was sent to the stakeholders' list mentioned before, excluding some who had been contacted for another survey as part of the TRUE-COST-CH project a few weeks before. Second, the link was shared in a

¹ Rolf Arnold, PhD Candidate, Centre for Development and Environment (CDE), personal communication 2026-03-27

communication group with stakeholders related to The Sustainable Development Solutions Networks (SDSN) Switzerland. Third, the survey was shared with members of the Ernährungsforum Bern. Fourth, a workshop was held as part of the project with stakeholders from private sector and NGO and the link of the survey was included in the thank-you email after the workshop. Finally, some researchers of the projects also send the link to stakeholders from their professional network.

In total, the link has been shared with approximately 500 people, but as some recipients of the email forwarded it to other contacts, the exact number of people who received the email could not be determined. The aim was to obtain the highest number of responses possible.

As well as receiving the link to the survey, the potential respondents also received some brief information about its content, that it was part of the TRUE-COST-CH project, the approximate duration (15 minutes), information regarding the anonymity and the deadline for their responses (between two and three weeks depending when they received it). The stakeholders from the list received a reminder 12 days after the first email.

3.3. Survey

3.3.1. Creation and development

The survey was created by me, in collaboration with Rolf Arnold (researcher from the TRUE-COST-CH project and one of my co-supervisors), to ensure that it was consistent with the project's objectives. Throughout the development of the survey, other people working in the project also gave their opinions via discussion during team meetings and individually written comments. The questions were chosen based on the literature, while keeping in mind the practical usefulness the questionnaire was intended to serve within the context of the project.

As highlighted by Ruel et al. (2016, 101), pretesting a survey is an important step to know if it functions properly and to improve it. Two rounds of expert-driven pretest (n=2 for each round) and one round of respondent-driven pretest (n=4) were conducted. The first round of expert-driven pretest consisted in sending the draft version of the survey (as a raw version in a Word document) to two people working on the project and asking for their opinion, comments, improvement suggestions and control of the language. The second round of expert-driven pretest consisted of two other people from the project assessing the newly developed version of the survey (in the survey tool). One expert was German-speaking and the other one French-speaking so both verified the survey in their language.

After the expert-driven tests, one round of respondent-driven pretest was conducted, with two German speakers and two French speakers. Both Rolf Arnold and I took care of two respondent-driven pretests, asking friends and family members. Three of them were part of the target group of respondents (working in the Swiss food system) and the fourth one was working as an engineer in nature management. The method chosen for these respondent-driven test was a cognitive interview. According to Ruel et al. (2016, 106) (who refers to DeMaio et al. 1998) it is a form of interview during which “the researcher encourages pretest respondents to think out loud and voice their ongoing mental reactions, essentially narrating their thought processes while they take the survey”. The pretesters were therefore asked to think out loud while responding to the survey and if needed, some points were further discussed after the end of the test. After the pretests, the last changes were implemented and the survey was published.

3.3.2. Content

The survey was available in German and in French, the two main languages of Switzerland. At any time of the survey, the participants had the opportunity to change the language. The survey opened on a welcome and consent page. The participants were thanked for their participation, informed that this survey was part of the TRUE-COST-CH project, with the support of a student master (me), that the participation was anonymous, that the data would be used for research purposes and where it would be stored. An important information, highlighted in bold, was that they should respond in their individual capacity, based on their professional experience in their current role. The aim was not that they answer in the name of the organization, and not as a citizen/consumer. The contact information (email) of the project was also provided. For them to continue the survey, they had to consent to take part in the survey and agree their answers to be processed in the manner explained. See Appendix 2 for the full survey.

Next, the participants were asked three mandatory questions about their professional background. The first one asked about which stakeholders group they belonged to. The second was about which working fields described their main professional activities the best. For these first two questions, possible answers were provided, as well as an “other” option, to type an answer if needed. The third question asked how many years of professional experience related to the field of food they had, with possible intervals provided.

Then, they were asked about their perceived familiarity with the concept of true costs/hidden costs (mandatory question). They could choose from five options, ranging from “I have never heard of this concept” to “I have an in-depth understanding of it”.

The next page contained the instructions for the main part of the survey. The participants were informed that they would be asked to assess nine consumption-targeted measures that aim to reduce the hidden costs of food. A brief definition of hidden costs was provided, as well as an example of hidden costs of a chocolate bar. The text ended with an important note, saying that they should assume that robust and reliable information on hidden costs was available, and assess the measures independently of current data limitations. The reason for this note was to prevent the participant from assessing the measures only based on the, for now, limited data.

The participants had then to evaluate the nine measures (see the measures in chapter 3.3.3 Measures). The order of the measures was randomized, to limit the reflection of a decrease attention span in the results (Neuert 2024). For each measure, they got five identical questions about effectiveness, fairness, acceptability, feasibility and an optional open-ended question.

The question about effectiveness was ‘How effective do you think this measure is in reducing hidden costs in the food system?’ (answers: not effective; rather not effective; rather effective; effective; I cannot judge). About fairness, they were asked ‘How fair do you think the outcome of this measure would be for everyone affected (by fairness we mean that cost and benefits are shared appropriately and no group is systematically disadvantaged)?’ (answers: unfair; rather unfair; rather fair; fair; I cannot judge). After was the question about acceptability ‘To what extend are you in favor or against the implementation of this measure in Switzerland?’ (answers: against; rather against; neither against nor in favor; rather in favor; in favor). Coming next, the question about feasibility was ‘Assuming that all key actors are willing to actively support and work to implement this measure, how feasible do you consider it under current conditions (e.g. existing laws and regulations, financial and human resources, administrative requirements, or available technologies)?’ (answers: not feasible; rather not feasible; rather feasible; feasible; I cannot judge). The fifth question for each measure was an open-ended question, not mandatory, where the participants had the chance to explain their assessment or write any comments that they would find important.

After assessing the nine measures, there was a mandatory question about which of these measures they would prioritize for implementation in Switzerland. They could select up to three measures, as well as “None of these measures would be among my priorities for implementation”.

After this, there was a last opportunity to add any comment, with an optional open-ended question.

At the end the participants could see a submission confirmation page that also included a link to another survey if they were interested in participating in the next workshop organized as part of the project. This second survey is only for the project and not for this thesis. The link to the newsletter of the project was also provided, as well as the email in case of question about the study.

3.3.3. Measures

The measures come from the pathways that themselves come from the workshops. See table 1 for their formulation (the French and German formulation used in the survey are in table 5 in Appendix 2). It has been decided to focus on the consumption-targeted measures, mainly for two reasons: first the extended length to include all measures from the pathways in the survey and second, the following workshop of the project will be on consumption. All measures included in the survey are similar to already existing ones and can be found either in other TCA projects or in the literature about sustainable food consumption policies (see table 1). The measures have also been classified regarding their typology (see chapter 2.3 Typology of policies).

Table 1: Measures used in the survey, their category and relevant literature

Measure	Policy instrument category	Literature on similar policy/measure
Introduce a mandatory national front-of-pack label that shows a product's true costs in a simple, consumer-friendly format – covering health, environmental, and social impacts.	Information-based	• Provide product-based consumer information with food labeling (on the front of the pack) and/or certification schemes that help to make sustainable and healthy food choices easier¹ • Positive and negative labelling² • Voluntary product labeling³
Use information from hidden cost calculations to steer consumers towards healthier and more sustainable food choices (also known as nudging) – for example through product placement, menu design in public catering, or preconfigured online shopping baskets.	Nudge	• Establish rules, guidelines, protocols, or voluntary agreements to change food provisioning to encourage food retailing and food-service industry to nudge consumer choice by, for instance, reversing the default option from the meaty choice to the plant-based, vegetarian options on restaurant menus or by positioning of products: increase the prominence of plant-based alternatives or low-meat,

		“hybrid” options (i.e. meat content is reduced by adding plant-based ingredients) on the menu or supermarket shelves.¹ • Challenge retail, restaurants and catering to provide information on the behavior of other customers’ or restaurant patrons’ flexitarian or vegetarian choices (dynamic social norm).¹ • Challenge supermarkets and the catering sector to deploy nudging “by stealth” through reduction of the meat portion size in a package or a dish and/or replace animal-based ingredients in recipes by plant-based ingredients (i.e. “hybrid” meat alternatives).¹ • Presentation & positioning: Plant-based options could be highlighted and encouraged by placing them first in buffets, by positioning them amongst meat options, or by framing them as the default option.⁴ • Altering food options: The quality and/or quantity of plant-based options could be increased, for example by having mostly vegetarian menus or adding appealing plant-based dishes in public catering.⁴ • Nudging in public or private restaurants² • Nudging in shop²
Introduce bonus schemes based on hidden cost information that reward healthy and sustainable food choices – for example through loyalty programs in retail in which only products with low hidden costs receive points.	Nudge	• Sustainable temporary loyalty programs⁵
Introduce fiscal measures based on hidden cost calculations to shift food prices toward healthier and	Market-based	• Enact and implement pricing policies: discourage consumption of animal-based foods and incentivize the plant-based choice

more sustainable options – for example by applying higher VAT or targeted taxes to products with high hidden costs and using the revenue to reduce prices for healthier, more sustainable foods (revenue recycling).		by increasing the price of meat or animal-based sources of proteins generally (e.g., implement a meat-consumption tax at point-of-sale), or decrease the price of plant-based protein foods (e.g., lowering VAT on plant-based foods), and/or change the relative prices of animal-sourced protein products and plant-based protein foods (e.g., stop price promotions for meat) to encourage plant-based food consumption.¹ • Taxes: Consumer price increases² • Subsidies: Consumer price reductions² • Increase VAT on meat products or fat (fat tax, junk-food tax)⁶ • Lower VAT for organic products⁶ • Tax food products with high emissions, e.g., higher VAT on meat and dairy products⁶ • VAT adjustment³
Voluntary adjustments of prices by actors in the supply chain so that products with high hidden costs become relatively more expensive, while allocating a proportionate share of revenues to remediation – i.e., funding measures that reduce, restore or compensate for the social and environmental harms linked to those products.	Market-based	• Apply true pricing by true cost accounting in retail prices, as a result of which planetary and people’s health costs are captured and foods with higher social and ecological costs, like meat, become more expensive and foods with lower true costs, such as whole plant-based products like pulses and beans, become (relatively) cheaper.¹ • Adjusting the pricing strategies in order to make the option with a lower true price gap the cheapest one. It involves redesigning margins and prices of selected products and their more or less sustainable alternatives⁷ • Sales price includes premium for remediation of hidden costs⁷
Introduction of regulations on promotions based on hidden costs—for example, by limiting discounts, “sales,” or bundled offers	Regulatory	• Restrict or discourage the promotion of animal-based products by, for instance, mandatory advertising regulation or marketing restrictions on low

(e.g., “buy one, get one free” deals) for products with high hidden costs.		pricing of meat products or multi-buy promotions (e.g., 2-for-1 promotion deals).¹ • Regulation of marketing²
Introduce regulations on advertising and/or product placement based on hidden cost information – for example by restricting advertising for products with high hidden costs and limiting their prominent placement (e.g., checkout displays).	Regulatory	• Regulation of marketing² • Limit advertising and other forms of stealth marketing for unhealthy food and drink⁶
Introduction of (more) stringent standards for public procurement of food products (e.g., for cafeterias in public institutions and other publicly funded institutions), based on information regarding hidden costs (e.g., limits on sugary drinks).	Regulatory	• Include restrictions on animal foods from public procurement and expand non-meat food alternatives to facilitate plant-based food options (on both “special” vegetarian days and “ordinary” days) in the setting of dining options in government buildings and (semi-) public facilities (e.g., offices, barracks, prisons, hospitals).¹ • Restricting animal consumption: Some or all animal products could be completely or partially restricted in public food outlets, such as red meat-free campuses, or meat-free Mondays.⁴ • Guidelines and environmental criteria for public sector meal services² • Reduce the number of meat dishes in public sector cafeterias⁶ • Increase share of organic and vegetarian food in public sector cafeterias⁶ • Increase share of organic food in public sector cafeterias⁶ • Public food procurement programs⁸
Set binding sustainability targets for retailers based on hidden cost calculations (e.g. minimum targets for the share of wholegrain products	Regulatory	• Restrict, limit, or exclude the supply and/or sale of particular animal-based foods (e.g., ultra-processed red meat products), for

in the offer, as these are beneficial for health).		instance, via explicit ratios in animal-based and plant-based products supermarkets need to follow, which, in the long run, could be a first step toward moving into the direction of some sort of equivalent of the Swedish alcohol-monopoly system (“Systembolaget”) for handling all sales of meat: only a restricted number of (state-owned) retail stores are allowed to sell portion cuts or cold cuts of fresh meats.¹ • Regulation of choice² • Requirements for improved sustainability of food sold² • Establish voluntary agreements with retailers and main industry players on choice editing⁶ • Simplify distribution of organic products and foodstuffs⁶ • Increase range of organic food available in retail markets⁶ • Stimulate retailers to develop sustainable food strategies⁶ • Increase range of regional food available in retail markets⁶
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¹ From Dagevos and Onwezen (2025) on food policies to encourage the protein transition;

² From Rööß et al. (2021) on policy options for sustainable food consumption;

³ From Steinmetz et al. (2026) on use cases for TCA;

⁴ From Bryant et al. (2024) on policy levers to reduce meat production and consumption;

⁵ From Krampe et al. (2025) about consumer preference in sustainable temporary programs;

⁶ From Reisch et al. (2013) on policy instruments to promote sustainable food systems;

⁷ From True Price™ (2024) on using true pricing in food retail and food service;

⁸ From Swensson and Tartanac (2020) on public food procurement for sustainable diets and food systems

3.4. Data analysis

Before starting the analysis, the data was cleaned. First, the incomplete answers were deleted (n=21). Then, based on Curran (2016), the response time and the repetition of same answers (‘long-string analysis’) were scrutinized. Regarding the response time, any questionnaire completed in less than 5 minutes and 30 seconds was deleted (n=4). Regarding the long-string analysis, every questionnaire filled in in less than 10 minutes have been verified and deleted if there was a minimum of four blocks of answers (1 block = all the questions regarding one measure) which

were the same at the end (n=2). In addition, the responses of one participant were deleted because the person chose every category of working fields. After these steps, the total of answers used for the analysis was 92.

The open answers “other” to the question about the stakeholders’ group and working fields have been verified. The answers that fitted into an already existing category have been counted in it and the others have been kept as ‘other’.

Quantitative

For the quantitative analysis, Excel and RStudio have been used. First descriptive analysis has been conducted with bar plots. Second, linear regressions were conducted (simple linear regression, multiple linear regression and linear mixed-effects models), as well as pairwise comparison test. Shapiro-Wilk test was used to verify the normality. When needed, Friedman tests and Kruskal Wallis tests were conducted to confirm the results from the linear regressions.

Qualitative

The answers to the open-ended questions were translation in English with the help of DeepL and a thematic analysis was conducted (Braun & Clarke 2006). First, the comments for each measure were analyzed to identify similarities and grouped by themes. Next, since certain themes recurred across multiple measures, those responses were also compared across the measures, and the common themes were refined.

3.5. Use of AI

Artificial intelligence was used (ChatGPT and Claude) for the translation of the questions for the survey, as well as a discussion partner during the creation of the survey (for example to help formulate the question in the clearer way possible). It was also used to help with the coding during the analysis. I did not use it to tell me what test to use nor to interpret the results, but as a help with writing the code, detecting and correcting errors.

4. Results

Out of the 92 respondents, 23% (n=21) answered belonging to the stakeholders' group 'academic or knowledge institutions', 27% (n=25) to 'civil society organization / NGO', 14% (n=13) to 'producer organization', 14% (n=13) to 'private sector organization', 15% (n=14) to 'public sector organization' and none of them chose 'international organization' (see fig. 5). 7% (n=6) answered 'other' and 5 of them wrote an answer: 4 wrote to be part of 'sectoral organizations' (translation from '*Verband*', '*Verband der Gemeinschaftsgastronomie*', '*Branchenorganisation*' and '*Branchenverband*') and 1 wrote 'Cross-Food-System Networker' (translation from '*Vernetzender Akteur Lebensmittelsystemübergreifend*').

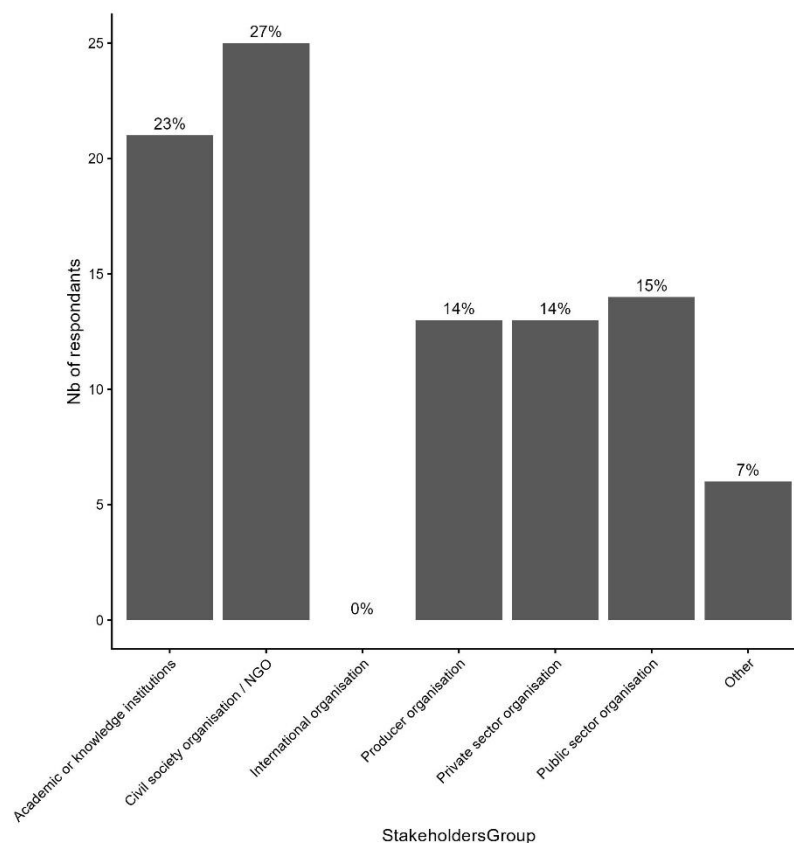


Figure 5: Repartition in the stakeholders' groups (n=92)

About the working fields (the respondents could chose several answers), 36% (n=33) answered ‘Agriculture and primary production’, 32% (n=29) ‘Nutrition & public health’, 23% (n=21) ‘Environment’, 20% (n=18) ‘Policy and public administration’, 17% (n=16) ‘Food processing and manufacturing’, 13% (n=12) ‘Food service and gastronomy’, 11% (n=10) ‘Food retail’, 8% (n=7) ‘Consumer protection’, 5% (n=5) ‘Livelihoods, poverty and equity’, 3% (n=3) ‘Finance, investment and business services’, 2% (n=2) ‘Input and support services for production’ (see fig. 6). 7% (n=6) answered ‘other’ (written responses: ‘Public affairs’, ‘Research’ (*‘Forschung’*), ‘Certification’, ‘Development of alternative social and economic models’ (*‘Entwicklung von alternativen gesellschaftlichen und wirtschaftlichen Modellen’*), ‘Investigative Research and Advocacy’ (*‘Investigative Recherchen und Advocacy’*) and ‘Sectoral organization’ (*‘Branchenverband’*)).

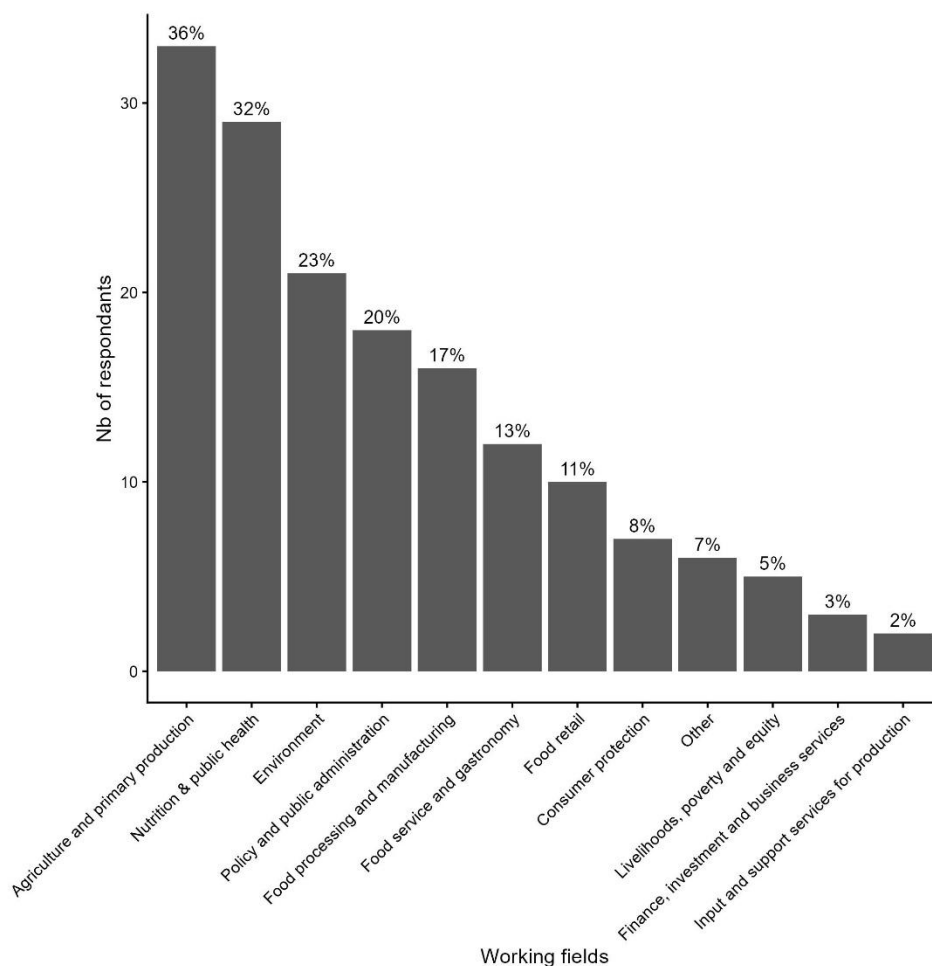


Figure 6: Proportions of respondents' working fields (n=92, multiple answers possible)

About the years of experience related to food and nutrition, 12% (n=11) answered '0-2 years', 11% (n=10) '3-5 years', 13% (n=12) '6-10 years', 20% (n=18) '11-15 years', 16% (n=15) '16-20 years' and 28% (n=26) 'More than 20 years' (see fig. 7).

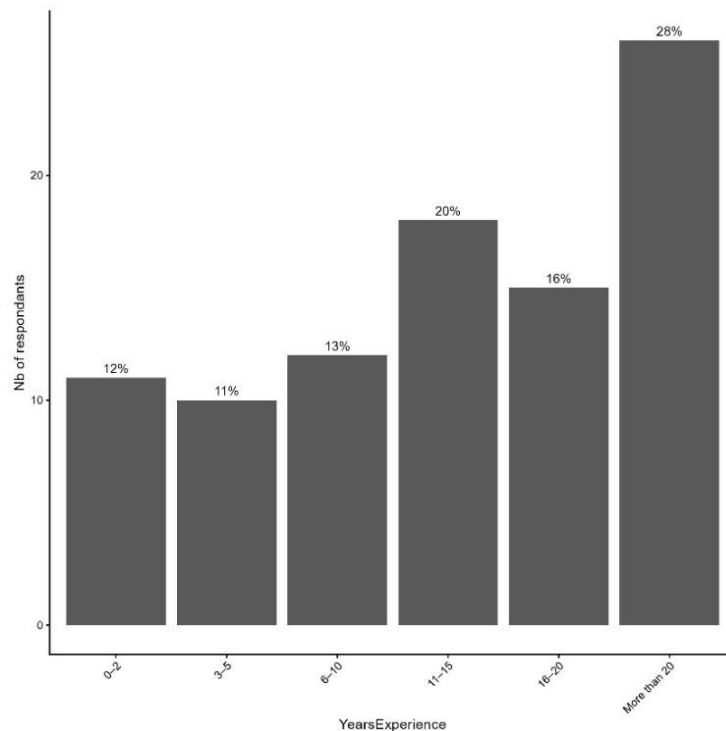


Figure 7: Years of experience (n=92)

About their level of familiarity with TCA, 1% (n=1) answered 'I have never heard of this concept', 8% (n=7) 'I have heard of it, but I could not really explain it', 35% (n=32) 'I have a basic understanding of it', 45% (n=41) 'I have a good understanding of it' and 12% (n=11) 'I have an in-depth understanding of it' (fig. 8).

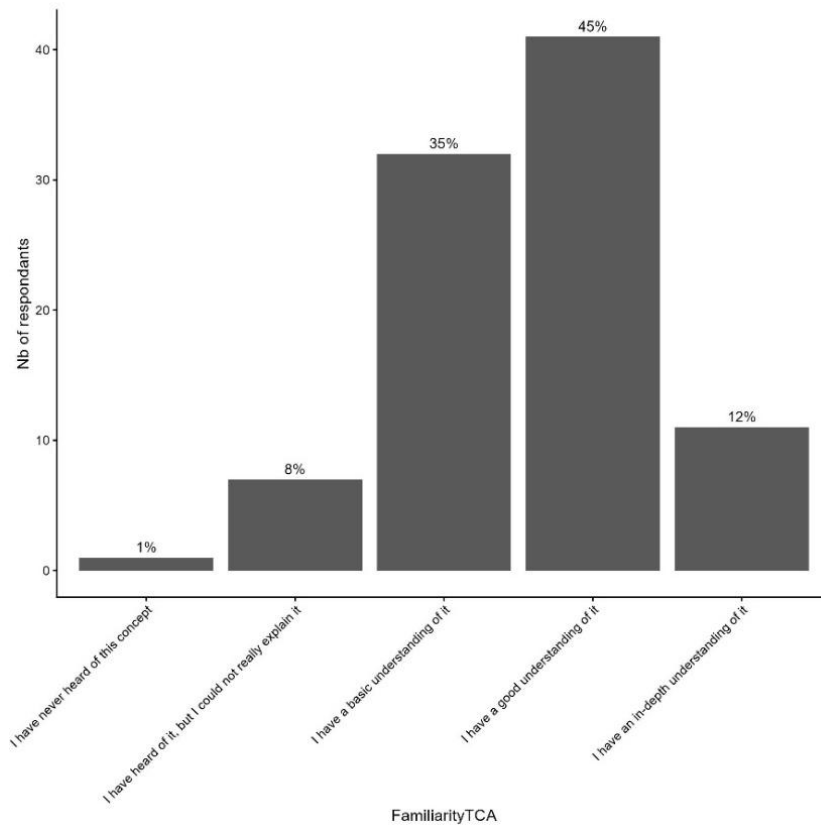


Figure 8: Familiarity with TCA (n=92)

4.1. Measures

First, bar charts were created for each question (acceptability, effectiveness, fairness, and feasibility) (see fig. 9-12). Then, a linear regression analysis (linear mixed model) was conducted to examine the differences between the measures, based on their means (table 6 in Appendix 3). As a complement to the linear regression, a pairwise comparison test was conducted. The results of the Shapiro-Wilk test show that the data were not normal (table 7 in Appendix 3). However, the large sample (n=92) as well as the type of data (no extreme value possible as the answers were limited) allowed me to use these tests (Schmidt & Finan 2018). As a complement, a Friedman test was conducted, whose results confirmed that there were some significant differences (table 8 in Appendix 3).

4.1.1. Acceptability

Figure 9 shows the results for the acceptability of the nine measures, ranked in descending order of the number of the sum of positive answers ('in favor' and 'rather in favor' responses). Nudge, public procurement and advertising are found acceptable by a large majority (resp. 78%, 77% and 75%). Fiscal measures, targets

for retailers and promotions are found to be less acceptable, but still by clear majority (resp. 66%, 65% and 61%), as are label and bonus (both 57%). Price adjustment is the least measure to be found acceptable (43%).

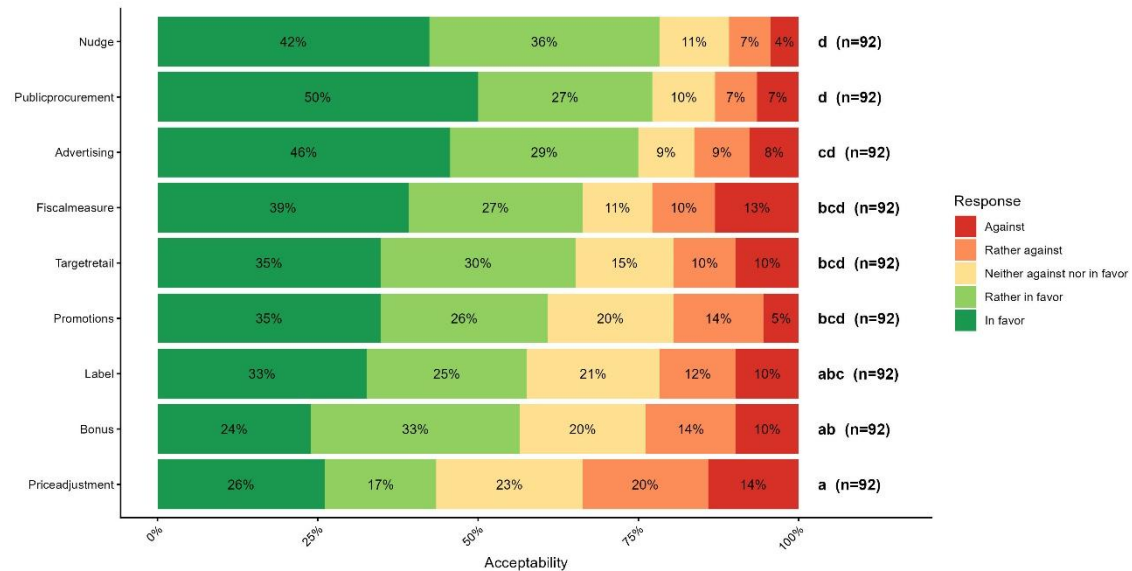


Figure 9: Proportion of answers to the question about acceptability for each measure. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

Overall, figure 9 shows that the proportions of each response fluctuate fairly smoothly across the measures. Regarding the most negative response ('against'), promotions deviates slightly from the pattern, with a lower percentage than the measures before and after it. Furthermore, fiscal measures has a notably higher percentage compared to the other measures before and after it. Among the most positive responses ('in favor'), the percentages for public procurement and advertising are higher than the one for nudging, even though the latter measure has the higher combined total of the two positive responses. The letters show the significant differences between the acceptability of the measures, i.e. two measures sharing a letter do not differ significantly (based on the means of the answers) (see table 6 in Appendix 3). Nudge and public procurement are significantly more acceptable than label, bonus and price adjustment. Advertising is significantly more acceptable than bonus and price adjustment. Fiscal measures, target retail and promotions are significantly more acceptable than price adjustment.

4.1.2. Effectiveness

Figure 10 shows the results for the perceived effectiveness of the nine measures, ranked in descending order of the number of the sum of positive answers ('effective' and 'rather effective' responses). Public procurement (86%), fiscal

measures (82%), nudge (81%), advertising (74%), target retail (73%) and promotions (73%) are perceived as effective by a large majority. Bonus (66%) and price adjustment (58%) are perceived as less effective, but still by clear majority. Label is the measure to be perceived as the least effective (49%).

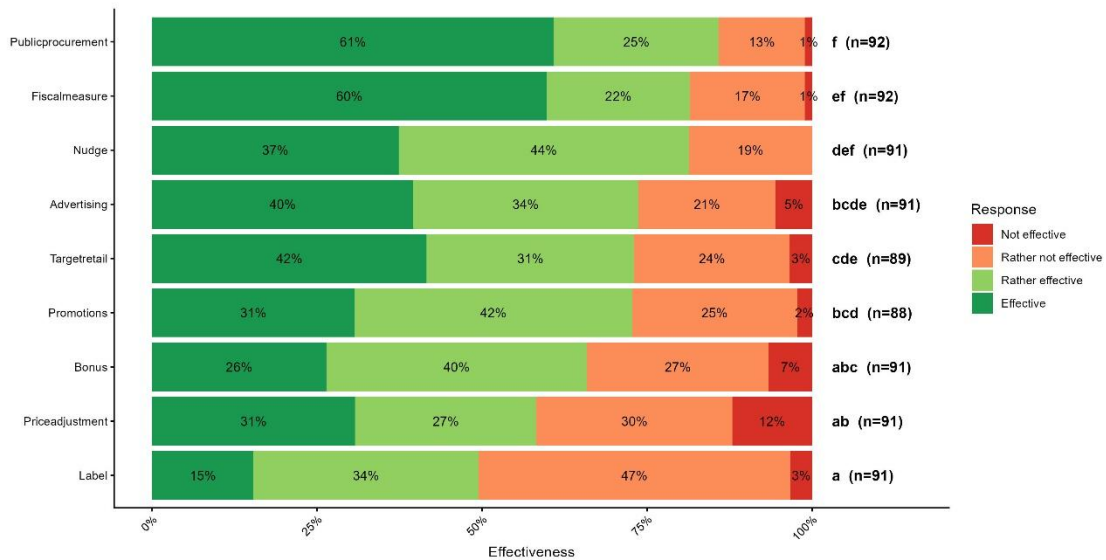


Figure 10: Proportion of answers to the question about effectiveness for each measure. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

Figure 10 shows that the proportions of the most positive ('effective') and most negative answers ('not effective') do not really follow the proportions of the sum of the two positive answers ('effective' and 'rather effective'). For example, more people answered 'not effective' for price adjustment than label. Furthermore, public procurement and fiscal measures have considerably more 'effective' answers than the other measures following. These particularities explain why the letters are not all following a logic as clear as for the acceptability. The letters show the significant differences between the effectiveness of the measures, i.e. two measures sharing a letter do not differ significantly (based on the means of the answers). Public procurement is significantly perceived as more effective than advertising, target retail, promotions, bonus, price adjustment and label. Fiscal measures is significantly perceived as more effective than promotions, bonus, price adjustment and label. Nudge is significantly perceived as more effective than bonus, price adjustment and label. Target retail is significantly perceived as more effective than price adjustment and label. Advertising and promotions are significantly perceived as more effective than label.

For the question about the effectiveness, the respondents also had the choice to respond ‘I cannot judge’. In total, this answer was chosen 12 times within the nine measures (not shown on fig. 10). 1 respondent chose it for the advertising measure, 1 respondent chose it for the bonus measure, 1 for label, 1 for nudge, 1 for price adjustment, 4 for promotions and 3 for target retail.

4.1.3. Fairness

Figure 11 shows the results for the perceived fairness of the nine measures, ranked in descending order of the number of the sum of positive answers (‘fair’ and ‘rather fair’ responses). Nudge (86%), label (85%), advertising (83%), public procurement (82%) and targets for retailers (79%) are perceived as fair by a large majority. Promotions (72%), bonus (72%) and fiscal measures (69%) are perceived as less effective, but still by clear majority. Price adjustment is the measure to be perceived as the least fair (54%), but still perceived as fair or rather fair by a majority.

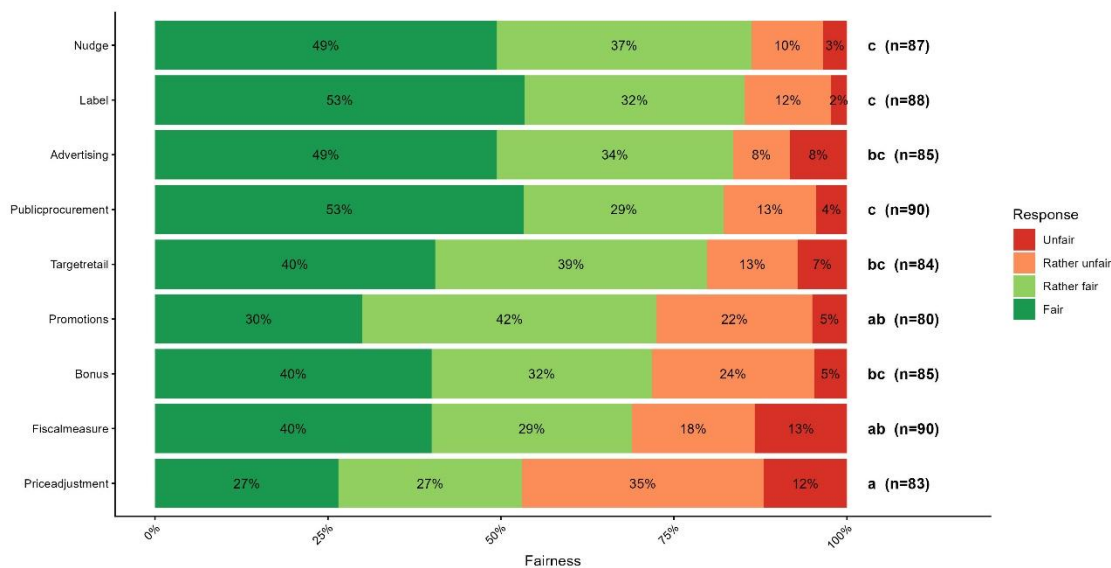


Figure 11: Proportion of answers to the question about fairness for each measure. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

Figure 11 shows that the proportions of the most positive (‘fair’) and most negative answers (‘not fair’) do not really follow the proportions of the sum of the two positive answers (‘fair’ and ‘rather fair’). For example, the percentage of ‘not fair’ answers for advertising, target retail and fiscal measures are higher than the

measures before and after it, but the differences are not very considerable. When looking at the ‘fair’ answer alone, promotions has a lower percentage compared to the measures before and after it. These particularities explain why the letters are not all following a logic as clear as for the acceptability. The letters show the significant differences between the fairness of the measures, i.e. two measures sharing a letter do not differ significantly (based on the means of the answers). Nudge, label and public procurement are significantly perceived as fairer than promotions, fiscal measures and price adjustment. Advertising, target retail and bonus are significantly perceived as fairer than price adjustment.

For the question about the fairness, the respondents also had the choice to respond ‘I cannot judge’. In total, this answer was chosen 56 times within the nine fairness questions (not shown on fig. 11). 7 respondents chose it for the advertising measure, 7 respondents chose it for the bonus measure, 2 chose it for the fiscal measures, 4 for the label, 5 for the nudge, 9 for the price adjustment, 12 for the promotions, 2 for the public procurement and 8 for the targets for retailers.

4.1.4. Feasibility

Figure 12 shows the results for the perceived feasibility of the nine measures, ranked in descending order of the number of the sum of positive answers (‘feasible’ and ‘rather feasible’ responses). Nudge (79%), public procurement (75%) and advertising (70%) are perceived as feasible by a large majority. Bonus (65%), promotions (62%) and label (56%) are perceived as less feasible, but still by clear majority. Target retail has just not a majority of respondents finding it feasible or rather feasible (49%). Fiscal measures (40%) and price adjustment (26%) are the measures that are perceived as the least feasible.

Overall, figure 12 shows that the proportions of each response fluctuate fairly smoothly across the measures. The percentages of ‘not feasible’ answers for advertising and bonus are slightly increasing again after promotions (looking from the bottom to the top). The percentage of ‘feasible’ of the bonus is slightly lower than the measure before (promotions). This does not affect the meaning so much (as we see with the letters that follow the logic). The letters show the significant differences between the feasibility of the measures, i.e. two measures sharing a letter do not differ significantly (based on the means of the answers). Nudge is significantly perceived as more feasible than all the measures except public procurement and advertising. Public procurement and advertising are significantly perceived as more feasible than target retail, fiscal measures and price adjustment. Bonus, promotions and label are significantly perceived as more feasible than fiscal

measures and price adjustment. Target retail is significantly perceived as more feasible than price adjustment.

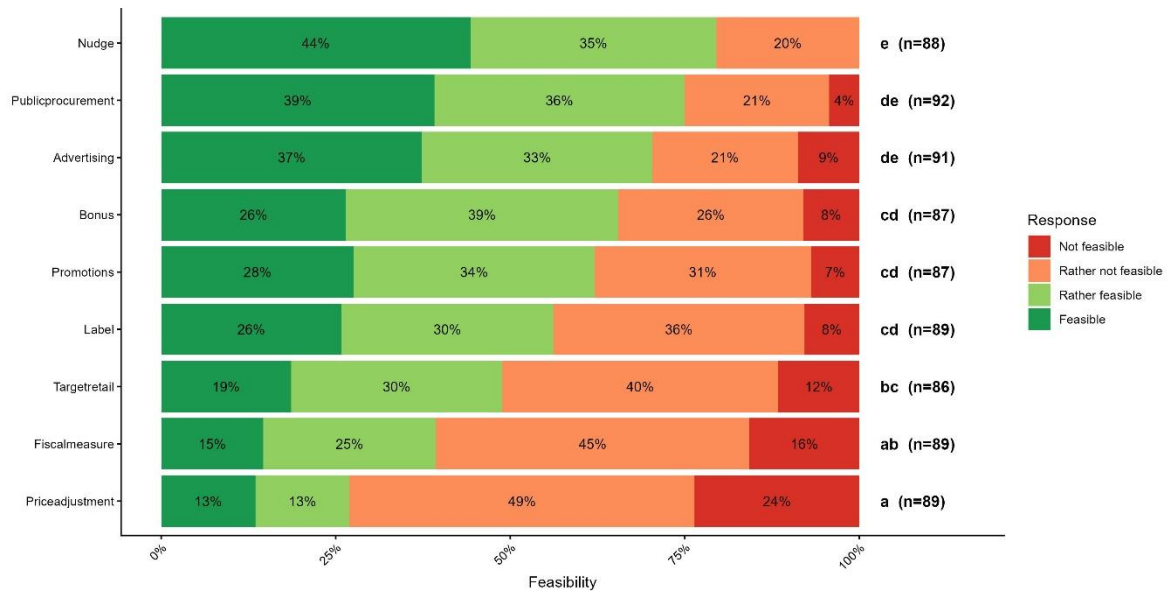


Figure 12: Proportion of answers to the question about feasibility for each measure. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

For the question about the feasibility, the respondents also had the choice to respond ‘I cannot judge’. In total, this answer was chosen 30 times within the nine feasibility questions (not shown on fig. 12). 1 respondent chose it for the advertising measure, 5 for the bonus measure, 3 for the fiscal measures, 3 for the label, 4 for the nudge, 3 for the price adjustment, 5 for the promotions and 6 for the targets for retailers.

4.1.5. Prioritization

To the question about the prioritization of the measures, where respondents could choose up to three answers, the measure the most chosen, by 45 respondents, is public procurement (49% of the total of respondents), followed by fiscal measures (41 respondents, 45%). Then come nudging (n=34, 37%), target retail (n=31, 34%) and advertising (n=29, 32%). Bonus is the next one (n= 18, 20%), followed by label (n=13, 14%) and promotions (n=12, 13%). Price adjustment is the last measure to be chosen (n=6, 7%), and 7 respondents (8%) answered that they would not prioritize any of these measures. See figure 13 for the graph.

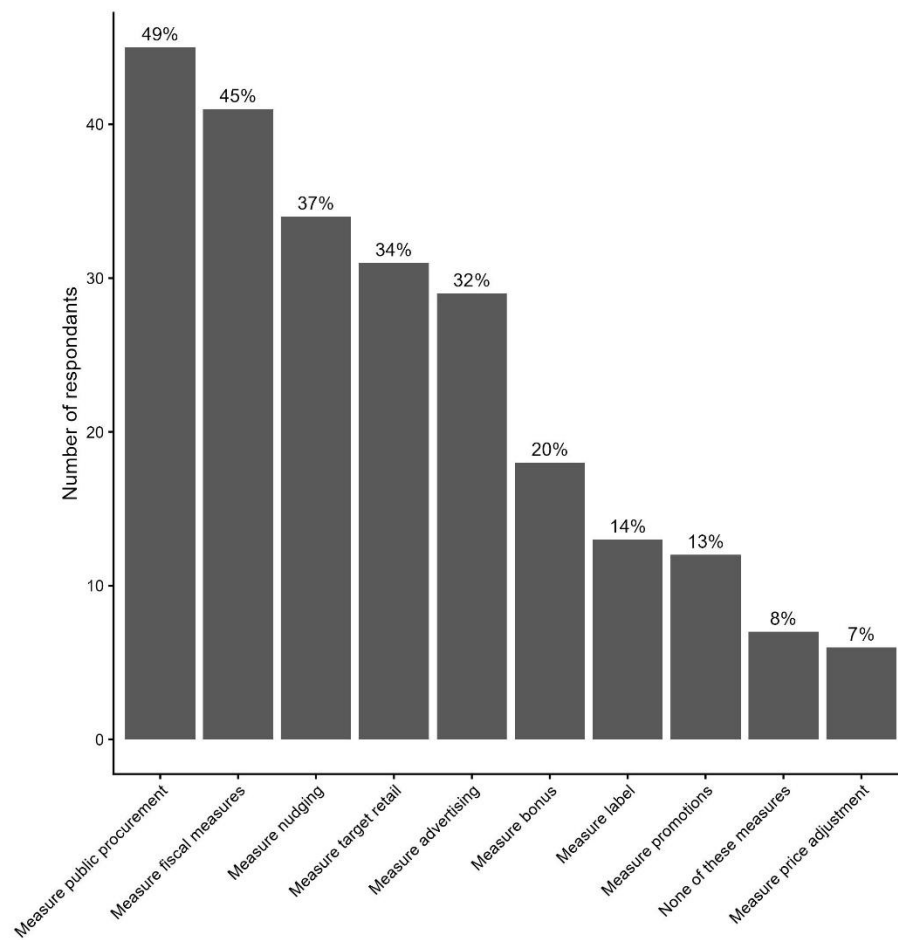


Figure 13: Answers to the question about the prioritization (n=92, the respondents could choose up to three answers)

4.1.6. Summary of the results

Table 2 summarizes the previously reported answers.

Table 2: Summary of the answers to the questions about acceptability, effectiveness, fairness, feasibility and prioritization. The percentages reported are the sum of the two most positive answers for acceptability, effectiveness, fairness and feasibility. For the prioritization, the ranking is displayed, with the percentages of responses in parenthesis. In pink, the three higher percentage for each question is highlighted (to read vertically).

	<i>Acceptability</i>	<i>Effectiveness</i>	<i>Fairness</i>	<i>Feasibility</i>	<i>Prioritization</i>
Label	58 %	49 %	85 %	56 %	7 (14 %)
Nudge	78 %	81 %	86 %	79 %	3 (37 %)
Bonus	57 %	66 %	72 %	65 %	6 (20 %)
Fiscal measures	66 %	82 %	69 %	40 %	2 (45 %)
Price adjustment	43 %	58 %	54 %	26 %	9 (7 %)
Promotions	61 %	73 %	72 %	62 %	8 (13 %)
Advertising	75 %	74 %	83 %	70 %	5 (32 %)
Public procurement	77 %	86 %	82 %	75 %	1 (49 %)
Targets for retailers	65 %	73 %	79 %	49 %	4 (34 %)

4.2. General questions

A multiple linear regression analysis was used to see if the general questions about the stakeholders' group, years of experience and familiarity with TCA have a significant influence on the acceptability, effectiveness, fairness and feasibility of the measures (see table 9, 10 and 11 in Appendix 3, only the significant results are reported due to the large number of data). As a complement to the linear regression, a pairwise comparison test was conducted. The results of the Shapiro-Wilk test show that the data were not normal (not reported in the Appendices due to the large amount of data). However, the large sample (n=92) as well as the type of data (no extreme value possible as the answers were limited) allowed me to use these tests (Schmidt & Finan 2018). As a complement, a Kruskal-Wallis test was conducted for the significant results, which confirmed that there are some significant differences (see table 12 in Appendix 3).

4.2.1. Stakeholders' group

The responses from the people that answers 'other' have not been taken into consideration for the analysis, because of the low number of respondents in this group (n=6).

Acceptability

The regression shows no significant differences of answers between the different stakeholders' group for the acceptability. However, when looking at the means, the stakeholders' group 'producer organization' and 'private sector organization' have always lower results than the stakeholders' groups 'academic and knowledge institutions', 'civil society organization' and 'public sector organization'. The only exception is for the measure nudge for which 'private sector organization' has the second highest mean. When considering all the measures, 'public sector organization' has for 5 measures the higher means and 'private sector organization' has for 7 measures the lowest means.

Effectiveness

As for the acceptability, the regression shows no significant difference in answers between the different stakeholders' group for the effectiveness. For 4 measures (advertising, fiscal measures, public procurement, target retail), the effectiveness follows the same pattern (i.e. 'private sector organization' and 'producer organization' have lower means than the three others). The 5 other measures (promotions, label, nudge, bonus and price adjustment) do not have a clear pattern.

Fairness

As for the acceptability and effectiveness, the regression shows no significant difference in answers between the different stakeholders' group for the fairness. For 6 measures (advertising, promotions, label, fiscal measures, public procurement, target retail), the fairness follows the pattern that the 'private sector organization' and 'producer organization' have lower means than the three others. This is not the case for nudge, bonus and price adjustment for which 'private sector organization' have the highest or second highest means. 'Producer organization' follow the pattern by having the lowest mean for the three measures.

Feasibility

As for the acceptability, effectiveness and fairness, the regression shows no significant difference in answers between the different stakeholders' group for the feasibility. For 4 measures (advertising, promotions, label and nudge), the feasibility follows the pattern that the 'private sector organization' and 'producer organization' have lower means than the three others. The five other measures

(fiscal measures, public procurement, bonus, target retail and price adjustment) do not have a clear pattern.

4.2.2. Years of experience

No clear pattern and no significant differences could be found for the years of experience when it comes to acceptability, effectiveness, fairness and feasibility. A significant difference was found for the feasibility of advertising between '6–10' and '11–15', but it does not mean anything, as those two categories are not in the opposite and is therefore probably due to hazard because of the large number of tests.

4.2.3. Familiarity with TCA

The responses from the person (n=1) that answered 'I had never heard of the concept' have not been taken into consideration for the analysis. Only 7 respondents answered 'I have heard of it, but I could not really explain it', but their answers have been kept for the analysis, out of logic, to have 4 levels of familiarity.

Acceptability

The regression shows no significant differences of answers between the different categories of familiarity for the acceptability, except for the measure public procurement, for which the difference is significant between 'I have heard of it, but I could not really explain it' and 'I have an in-depth understanding of it', the latter having a higher mean (see table 9 in appendix 3).

For 6 measures (advertising, promotions, fiscal measures, public procurement, bonus and target retail) the more the respondents know about TCA and the more they find the measure acceptable. Moreover, the respondents who have an in-depth understanding of it always have the higher means.

Effectiveness

The regression shows no significant differences of answers between the different categories of familiarity for the effectiveness. 2 measures (promotions and fiscal measures) follow the logic that the more the respondents know about it and the more they find the measure effective. For 7 measures the respondents who have an in-depth understanding of it have the higher means. For 7 measures the respondents who have heard of it but could not really explain it have the lower means.

Fairness

The regression shows no significant differences of answers between the different categories of familiarity for the fairness, except for the promotions, the difference between 'I have heard of it, but I could not really explain it' and 'I have an in-depth

understanding of it' is significant with the latest having the higher mean (see table 10 in appendix 3).

2 measures (advertising and promotions) follow the logic that the more the respondents know about it and the more they find the measure fair. The bonus has the reverse logic, with the more the respondents know about TCA and the less they find it fair.

For 8 measures the respondents who have an in-depth understanding of it have the higher means. For 5 measures the respondents who have heard of it but could not really explain it have the lower means.

Feasibility

The regression shows no significant differences of answers between the different categories of familiarity for the feasibility, except for public procurement, for which the difference between 'I have heard of it, but I could not really explain it' and 'I have an in-depth understanding of it' is significant, as well as the one between 'I have a basic understanding of it' and 'I have an in-depth understanding of it' (with 'I have an in-depth understanding of it' having the higher means in both case) (see table 11 in appendix 3).

2 measures (promotions and public procurement) follow the logic that the more the respondents know about it and the more they find the measure feasible.

The respondents who have an in-depth understanding of it always have the higher means. For 5 measures the respondents who have heard of it but could not really explain it have the lower means.

4.2.4. Working fields

A linear regression was conducted, to test if the working fields had a significant influence on the acceptability, effectiveness, fairness and feasibility of the measures. The working fields were tested in another test than the three other general questions because as the respondents could choose several answers, the data were not the same. The only two significant results are probably due to hazard, therefore the results of these tests are not reported in the appendices. The results of the Shapiro-Wilk test show that the data were not normal (not reported in the Appendices due to the large amount of data). However, the large sample ($n=92$) as well as the type of data (no extreme value possible as the answers were limited) allowed me to use these tests (Schmidt & Finan 2018).

The responses of several working fields have not been taken into consideration for the analysis, because of the low number of respondents in those groups ($n<10$). Consumer protection ($n=7$), Livelihoods, poverty and equity ($n=5$), Finance, investment and business ($n=3$), Input and support services for production ($n=2$) and other ($n=6$) have not been considered.

Acceptability

The regression shows no significant differences of answers between the different working fields for the acceptability, except for the measure nudge, for which the difference is significant between 'Agriculture and primary production' and 'Food service and gastronomy', the latter having higher responses. This is probably due to hazard because of the large number of tests. In general, despite the non-significance, the working fields 'Food processing and manufacturing', 'Food retail' and 'Agriculture and primary production' have lower means than the four other fields kept for the analysis ('Nutrition & public health', 'Policy and public administration', 'Environment' and 'Food service and gastronomy'). Nudge and bonus are the two exceptions that do not follow this pattern. Overall, 'Environment' has for 6 measures the higher mean and 'Food retail' has for 5 measures the lowest mean.

Effectiveness

Only 2 measures (advertising and public procurement) follow the same pattern for the effectiveness (i.e. 'Food processing and manufacturing', 'Food retail' and 'Agriculture and primary production' have lower means than 'Nutrition & public health', 'Policy and public administration', 'Environment' and 'Food service and gastronomy'). The 7 other measures (promotions, label, nudge, fiscal measures, bonus, target retail and price adjustment) do not have a clear pattern.

Fairness

Only 3 measures (label, fiscal measures and public procurement) follow the same pattern for the fairness (i.e. 'Food processing and manufacturing', 'Food retail' and 'Agriculture and primary production' have lower means than 'Nutrition & public health', 'Policy and public administration', 'Environment' and 'Food service and gastronomy'). The 6 other measures (advertising, promotions, nudge, bonus, target retail and price adjustment) do not have a clear pattern.

Feasibility

The assessment of the feasibility when looking at the different working fields is not following any clear pattern. No significant difference can be notice, except for target retail between 'Food service and gastronomy' et 'Environment', the latter having a highest mean. This is probably due to hazard because of the large number of tests.

4.3. Influence of effectiveness, fairness and feasibility on acceptability

A linear regression was conducted to see if the effectiveness, fairness and feasibility have an influence on the acceptability. A Shapiro Wilk test was conducted to verify the normality of the data. The sufficient number of answers (Schmidt & Finan 2018) as well as most of the p-value of the Shapiro-wilk test being above 0.05 (see table 13 in Appendix 3) allowed me to use the linear model.

For every measure, there is a significant relationship between effectiveness and acceptability, which means that the higher the respondents answered for effectiveness, the higher they responded for acceptability. The p-value are all below 0,01. The same can be observed for the fairness (all the p-value are as well below 0,01), which means that the higher the respondents answered for fairness, the higher they responded for acceptability. For the feasibility, the relationship is not significant for the following measures: bonus, fiscal measures, advertising and target for retailers. The other measures (promotions, price adjustment, public procurement, nudge and label) have a p-value <0,05, which means that their feasibility influences their acceptability. See table 14 in Appendix 3 for the details.

The results show a strong relationship between perceived effectiveness and acceptability, as well as between perceived fairness and acceptability, while feasibility only influences acceptability for some of the measures, to a lower extent.

4.4. Categories

As mentioned in the methodology, the measures have been categorized as shown in table 3.

Table 3: Categorization of the nine measures

	Categories			
	Information-based	Nudge	Market-based	Regulatory
Measures	- Label	- Nudge - Bonus	-Fiscal measures -Price adjustment	- Advertising - Promotions -Public procurement -Target retail

For the analysis, the mean per respondent per category has been calculated (for example the category information-based only contains the response for the measure label, but the category regulatory contains the mean of the responses for advertising, promotions, public procurement and target for retailers).

A linear regression (lineal mixed model) was conducted to verify significant differences between the categories, based on their means (see table 15 in Appendix 3). The results of the Shapiro-Wilk test show that the data were normal for two out of four tests (see table 16 in Appendix 3). The large sample (n=92) as well as the type of data (no extreme value possible as the answers were limited) allowed me to use this test (Schmidt & Finan 2018).

4.4.1. Acceptability

Figure 14 shows the acceptability per category. Regulatory is the most acceptable, followed by nudge, information-based and market-based. The letters show the significant differences between the acceptability of the category, i.e. two categories sharing a letter do not differ significantly (based on the means of the answers). Regulatory is significantly more acceptable than information-based and market-based. Nudge is significantly more acceptable than market based.

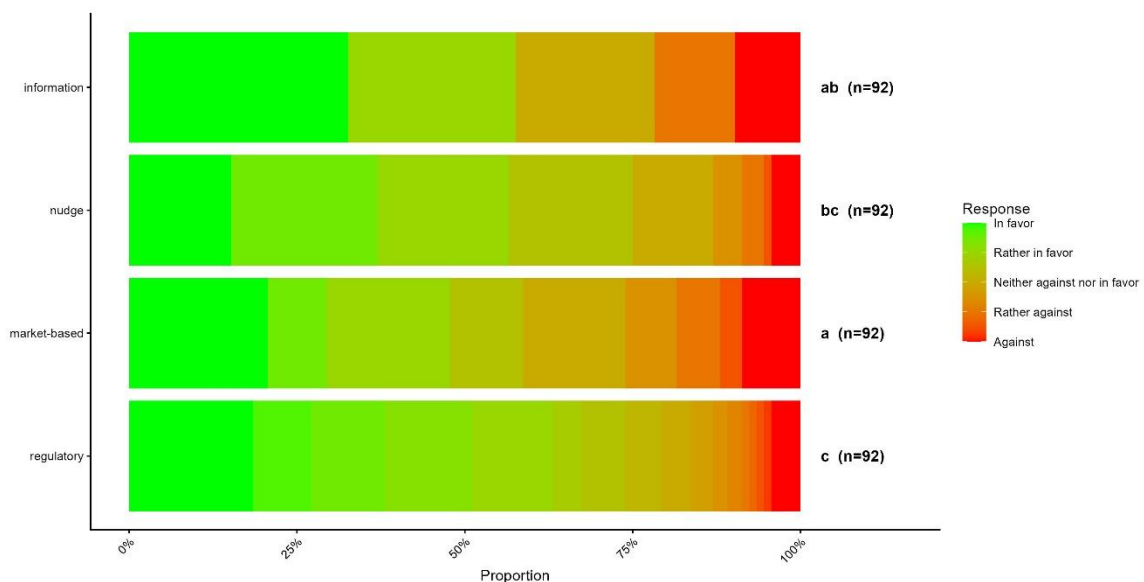


Figure 14: Proportion of answers to the question about acceptability for each category. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

4.4.2. Effectiveness

Figure 15 shows the effectiveness per category. Regulatory is the most effective, followed by market-based, nudge and information-based. The letters show the significant differences between the effectiveness of the category, i.e. two categories sharing a letter do not differ significantly (based on the means of the answers). Regulatory, market-based and nudge are significantly perceived as more effective than information-based.

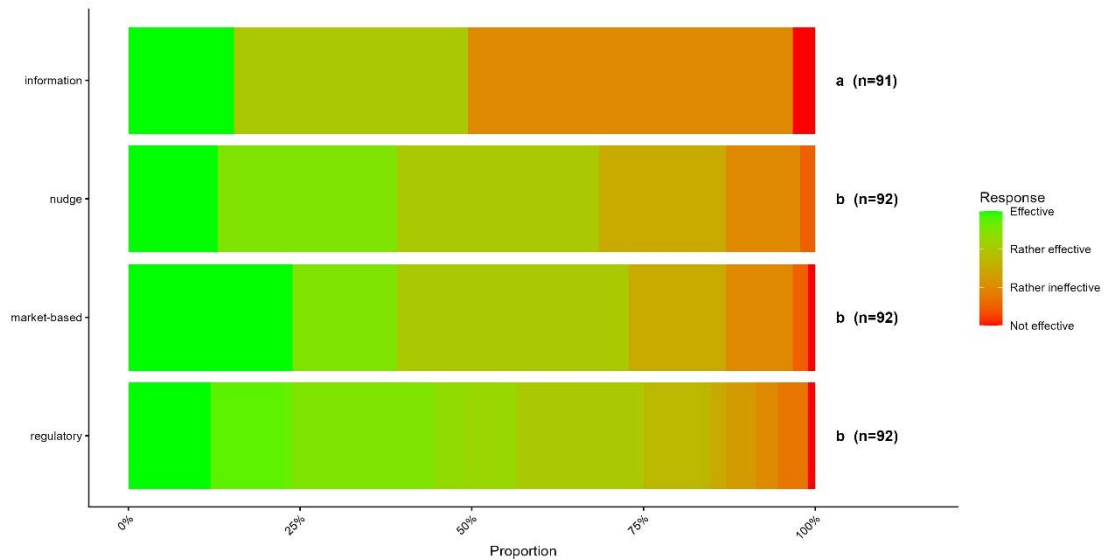


Figure 15: Proportion of answers to the question about effectiveness for each category. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

4.4.3. Fairness

Figure 16 shows the fairness per category. Information-based is seen as the fairest, followed by nudge, regulatory and market-based. The letters show the significant differences between the fairness of the category, i.e. two categories sharing a letter do not differ significantly (based on the means of the answers). Information-based, nudge and regulatory are significantly perceived as fairer than market-based.

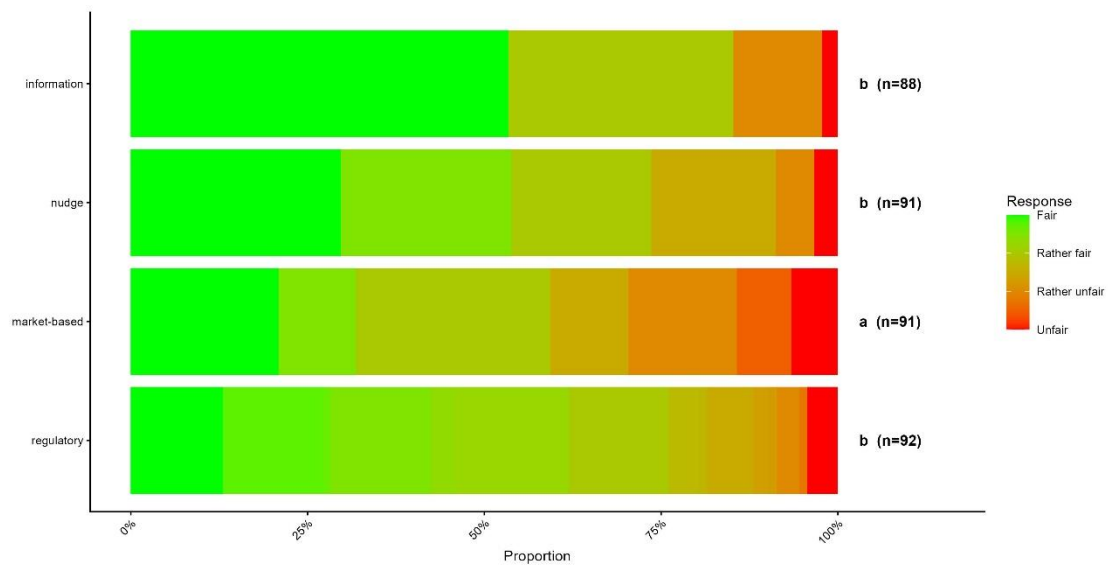


Figure 16: Proportion of answers to the question about fairness for each category. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

4.4.4. Feasibility

Figure 17 shows the feasibility per category. Nudge is perceived as the most feasible, followed by regulatory, information-based and market-based. The letters show the significant differences between the feasibility of the category, i.e. two categories sharing a letter do not differ significantly (based on the means of the answers). Nudge is significantly perceived as more feasible than information-based and market-based. Regulatory and information-based are significantly perceived as more feasible than market-based.

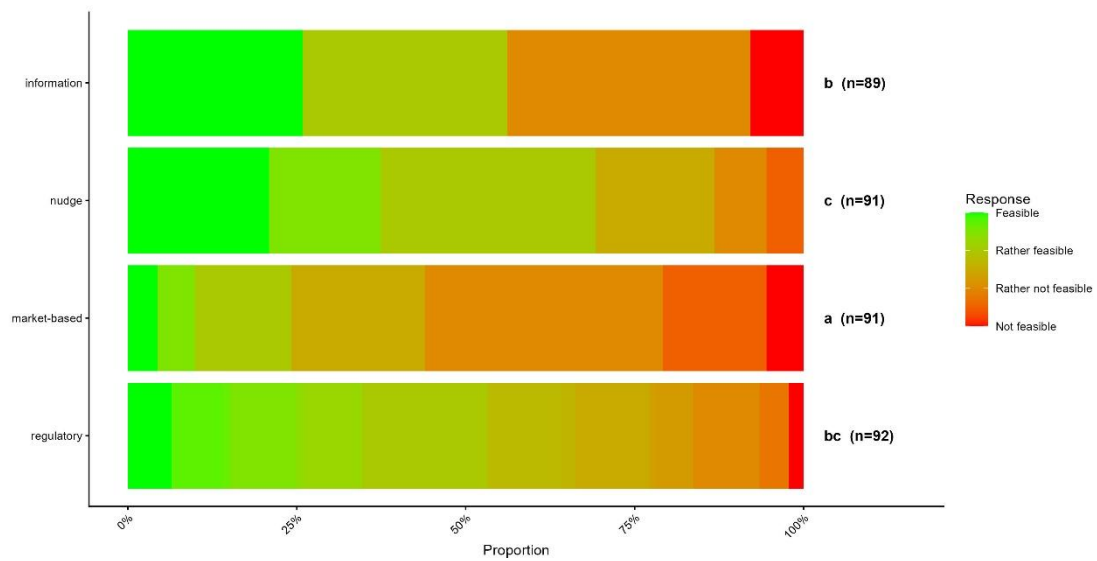


Figure 17: Proportion of answers to the question about feasibility for each category. The letters come from the pairwise comparison conducted after the linear regression, based on the means.

4.5. Answers to the open-ended questions

When looking at the answers to the not mandatory open-ended questions (one for each measure, as well as one possibility for any final comments), themes shared by several measures emerged. These are going to be presented first. Then, specific themes or remarks for each measure will be reported. There are no sub-chapters specific to nudge and price adjustment because no more themes emerged for those measures when studied individually.

There were always between 28 and 41 comments for each measure, and 16 respondents wrote a final comment.

4.5.1. Change in prices and impact on low-income populations

One of the recurrent themes was the fact that if the measures were to be implemented, prices may change for consumers. Related to this, the consideration of low-income populations was also mentioned multiple times, for several measures. Remarks about higher prices and low-income populations were made for every measure except label and advertising.

Two respondents commented on promotions, saying that they are often important for low-income populations. One suggested to have discounts for “durable goods” and the other to apply “a bonus or penalty to all products”.

About nudging, three respondents made a remark, saying that the measure is fair if it does not cost more for the consumers and that the consumers should still have the choice to choose or not the more expensive alternative. The third one wrote that they believe that

“Nudging or behavioral change is more likely to occur where there is greater purchasing power or freedom (middle to upper class). Those who suffer the most (the lower class) are more strongly influenced by price than by information (possibly also correlated with educational level and the ability to engage with such topics).”

There was one remark for fiscal measures:

“I believe this measure would be unfair, as it would primarily penalize low-income households, which already have less flexibility to choose more expensive foods—even if those foods are healthier or more sustainable.”

Four respondents made a remark for public procurement. One noted that the prices in cafeteria would probably rise and another one wrote that they find the idea good if “the rules are clear, consistent, and binding, and the cost of meals, for

example, only increases slightly so that everyone can still afford to eat in the cafeteria”. The two others wrote that consumers might not understand why prices are higher (and could potentially find it unfair).

About bonus, two respondents commented that it might not reach the low-income population as they are not purchasing the products that would be concerned.

About target retail, the written remarks were about the fact that it might increase the prices and that if this is the case, there should be some complementary measures so that “access is not restricted based on people’s income”. One person wrote that “While domestic production keeps the value added within the country, it is often more expensive. Consumers already pay for this through taxes (in the form of government subsidies or support for domestic agriculture).”

For price adjustment one respondent commented that this measure “would hit the most vulnerable populations the hardest, as they are currently forced to buy the cheapest products” and that this change should be supported by other measure such as a social food insurance program (example: ASA) or a food bank (example: CALIM). Two other comments contained that the consumers would have to bear these price adjustments, with the following additions: “if the consumer is unwilling to pay, the initiative is doomed to fail” and that consumers will have “little choice in the matter if demand for these products remains high”.

4.5.2. Mix of measures

Another recurrent theme was that a mix of measures should be implemented, rather than single measures. This is a comment that was written at least once for every measure. Two respondents also highlighted it in their final comments:

“A combination of measures is needed. Support for innovation and educational initiatives should also be part of this mix.”

“A smart mix of measures is needed, combining instruments that can be implemented immediately (nudging, public procurement) with ambitious long-term measures (fiscal instruments). Individual measures alone will not bring about the necessary systemic change.”

About the label, it came several times that this measure is not enough to change people’s behavior/purchase toward more sustainable choices. About fiscal measures, one person also wrote that price alone is not enough to encourage behavioral changes and that educational measures should accompany such changes. Educational measures were mentioned multiple times, for several different

measures, for example by prioritizing “agricultural production, diets, and cooking (...) in school curricula” or that

“We need to inform, educate, and empower consumers—giving them the knowledge and skills to understand and take action—so that they can use this tool [the label] properly.”

Some respondents also mentioned the importance of promoting healthy, organic and/or locally produced food as complementary action. As mentioned before, socially supportive measures should also accompany price changes (examples of social food insurance programs and food banks).

4.5.3. Difficulty with data collection and/or calculation

Except for fiscal measures, promotions and advertising, the challenge of the data collection and/or calculation was raised for every measure, as well as in some final comments. For fiscal measures, the complexity of implementation was mentioned, but not necessarily because of the data.

A respondent wrote that the calculation could be problematic because

“Food doesn’t come from a factory where the system boundaries are clear. The calculation is particularly complex when it comes to milk and meat production involving ruminants (methane, carbon sequestration in pastures, etc.). The problem is that efficient and intensive systems suddenly perform better than, for example, grassland-based milk production.”

Someone else wrote that

“Quantifying hidden costs is extremely complex and, depending on the weighting, assessment, and political agenda, highly susceptible to influence. There is no such thing as an objective price.”

Another comment, about label, is that “calculation errors – or even mere simplifications – would have massive, unfair, and undesirable consequences”. Two people commented on the fact that some changes in products (for example the origin of ingredients) might complicate the calculation.

4.5.4. Lack of support and opposition

A theme that was recurrent in the comments was the lack of political support and/or the lack of support from other relevant actors, sometimes expressed as opposition from some stakeholders.

Lack of political will

One respondent wrote in the final comment that they find the measures excellent, but that

“The problem is that there is virtually no political will in Switzerland to move toward a healthy and sustainable diet. As a result, I don’t see how we can implement these measures without the support of politicians, who tend to throw a wrench in the works as soon as economic interests are at stake.”

This idea that many measures depend on political will and that this will is missing was mentioned for:

Advertising: “I think new legal frameworks would be needed to establish such regulations. It’s a matter of political will”.

Nudge: “Politicians are not ready”.

Fiscal measures: “The measure currently seems particularly difficult to implement, especially from a political standpoint”.

Public procurement: “This is feasible provided there is the political will to do so”.

Target retail: “Since most political actors are intertwined with the economy in one way or another, I don’t believe it’s possible to introduce such radical changes through political means. In the end, the argument that it harms the economy becomes ever stronger and more compelling”.

Price adjustment: “unable to secure a majority politically”.

Lack of support from relevant stakeholders

Two respondents wrote the following in the final comment:

“When discussing feasibility, the issue of the availability of human and financial resources was also a factor. In Switzerland, these resources are generally always available if the will is there. However, the will is very often lacking.”

“The assumption that all relevant stakeholders actively support the measure and are driving its implementation forward strikes me as problematic, as I believe this is precisely where the major challenge lies.”

Furthermore, several remarks have been made about the lack of support from some relevant actors: marketing actors, retailers and free trade and lobby groups

(advertising), companies and retail sector (promotions), retailers and industry (label), large retailers (nudge), industry (fiscal measures), companies and retailers (bonus), retailers and lobbies (target retail).

Opposition

Besides some respondents mentioning the lack of support from some stakeholders, others also explicitly wrote about the issue of the implementation of some measures that would face opposition and resistance. Lobbies are mentioned several times (for label, fiscal measures and bonus), as well as just “resistance” or “opposition” without mentioning by whom (price adjustment, target retail and public procurement).

4.5.5. Voluntary vs mandatory

Most of the comments about voluntary or mandatory measures were made about price adjustment, as it was explicitly written ‘voluntary’ in the description of the measure. What was mentioned is that the stakeholders concerned will not make it from their own initiative because they would financially rather loose from doing it, as highlighted by these comments:

“I hardly believe there’s any intrinsic motivation to internalize these costs as long as there’s no profit to be made from it. It goes against economic principles.”

“The measure would only apply to Swiss products; imported goods would still come in at the same price. No one would want to put themselves at a disadvantage and raise the price of their product.”

Several other respondents wrote that the impact with voluntary is low, for example “unfortunately, making it voluntary won't change the system enough” and “voluntary measures often lead to insufficient improvement”.

One respondent wrote that binding measures would be more effective:

“Such measures [price adjustments] could theoretically be very effective, but only if they are binding—that is, mandated by law. Otherwise, they will remain a niche phenomenon, as the experience of recent decades clearly shows.”

One person wrote that price adjustment would harm some stakeholders more than others along the production chain:

“It’s rather unfair, because I believe it won’t be those who profit the most (processors and retailers) who will suffer, but rather primary producers with low margins and little “power”.”

Finally, someone wrote that if this would be done voluntary only a few products would reflect their “real value” and that “consumers would still have the “cheaper” alternative and, unfortunately, would likely often choose it”.

Three respondents commented about voluntary versus mandatory for the measure about nudging. They do not agree, with one person finding it important to be based on private initiative and another one that it would have to be

“mandated by regulation (otherwise no one will do it, or business interests will simply continue to take precedence), but I’m not sure how such a regulation should be worded (it’s difficult).”

The third person wrote that “making this [nudging measures] a legal requirement would not be politically feasible, but it is conceivable in principle”.

One respondent wrote for the promotions that it “should be done on a voluntary basis; we would face less opposition” and someone wrote for advertising “no government coercion, please—we don't need a nanny state”. About target retail someone wrote that “voluntary collaborations based on clear, scientific, and measurable holistic goals that extend beyond the stages of the value chain are more effective”.

4.5.6. Interference in freedom and free market system

Several comments were made about the themes of freedom of choice, freedom of enterprise and freedom of the market system. At least one of these themes were mentioned for every measure except label, fiscal measures and bonus.

For advertising, one person wrote that it interferes in the “economy”, another one that it interferes with “the freedom of enterprise”. A third one wrote “no government coercion, please—we don't need a nanny state”.

For promotions, interference with “the freedom of trade” and with “the freedom of enterprise” were mentioned. One person wrote that “government intervention in market freedom and pricing must be rejected”.

For public procurement, one person commented “here, government coercion comes into play—a definite no-go”.

For nudge, someone wrote that it interferes with “freedom of trade and freedom of choice”.

For target retail, one respondent wrote that this measure would “lead to significant market distortion”, another one that it interferes with “market freedom” and a third one that they

“do not see setting such targets as beneficial if there were a push from the market. Rather, there needs to be a pull from consumers, who demand healthy, wholesome, and fairly priced products.”

One person wrote the following for price adjustment: “Prices should instead reflect market conditions and demand, rather than being artificially adjusted to offset hidden costs”. Another had a comment about free trade argument:

“When it comes to raising the price of imported products—such as meat produced using animal-unfriendly farming methods or food produced using pesticides banned in Switzerland—this can be more problematic under free trade agreements.”

As a final comment one person wrote the following about consumer freedom: “All of these measures restrict consumers' freedom of choice and interfere too much with consumer behavior.”

4.5.7. Time and/or cost consuming for little results

For three measures, label, bonus and price adjustment, there were some comments about the fact that implementing these measures would be time and/or cost consuming for little results. Examples for label; “I don’t think the cost-benefit ratio is particularly good” and “I think labels like that are a lot of work and usually ineffective”. Example (the only one) for bonus: “a lot of effort for what is likely to be little change”. Example (the only one) for price adjustment: “Overall, it seems to me to be very costly for little benefit”.

4.5.8. Comments about TCA

Throughout the comments about the measures, as well as in some of the final comments, there were some remarks about the fact that TCA might not be needed for implementing some measures.

For public procurement, two respondents wrote the following:

“It would be better to take a cue from the retail sector and adopt a more pragmatic approach rather than relying on the very rigid true-cost approach.”

“Many cities are already doing this, some with great success, and it can be easily scaled up. There is no need for TCA. It is simpler, more

straightforward, and more cost-effective to rely on dietary guidelines, environmental impact assessments, and established labels.”

For fiscal measures (but probably is not the case for this measure only), one respondent wrote that payments for ecosystem services are a better idea than using TCA:

" the concept of “true costs” is based on a false premise: it assumes that raising the costs of environmentally harmful behavior will encourage more environmentally friendly behavior. In reality, however, it is often the case that more environmentally friendly behavior simply does not cover its costs. This is why the idea of payments for ecosystem services exists. Payments for ecosystem services make more environmentally friendly behavior cost-effective and possible in the first place. The much-discussed version of the true cost approach today is not realistic.”

About nudge, one person wrote that TCA is not adapted to capture all the components of agriculture:

“Agricultural production depends on the specific location. Depending on the soil, topography, climate, and other factors, the same product may be environmentally friendly when produced by one farm but rather harmful to the environment when produced by another. Agriculture is far too complex for the highly simplified information generated by the True Cost approach” (this comment is probably not specific to this measure but in general).

Another one commented that “this [nudge] doesn’t require a TCA. Dietary guidelines already exist, and the environmental impacts have been extensively studied”.

For promotions, two respondents wrote that TCA is not needed:

“In my opinion, there’s no need to use the true cost approach as a basis here; we should take a more general approach (a general ban on certain aggressive pricing tactics).”

“Dietary guidelines and established analyses of environmental impact are sufficient – additional calculations of hidden costs are unnecessary.”

For price adjustment someone wrote the following:

“Let’s stick with the example of chocolate: the money raised would have to compensate cocoa farmers for poor working conditions, as well as support the health-conscious Swiss population, who may have to pay higher health insurance premiums due to others’ excessive sugar consumption. To simplify

things, one could simply set up a fund to finance projects for cocoa farmers and raise awareness about healthy eating. In my view, this has little to do with true-cost pricing anymore; rather, it is a means of generating revenue for projects aimed at sustainable food systems.”

In the final comments, one person wrote that the measure should be based on greenhouse gas emission only to simplify the calculation:

“At most, simplify the implementation somewhat; most hidden costs likely correspond more or less to GHG-equivalent intensity, meaning that, for the sake of simpler implementation, one could simply use a CO₂ tax or similar measure as a basis instead of relying on complex calculations of hidden costs.”

Another one wrote that TCA is vulnerable to critics and suggested other approach angles:

“So-called “hidden costs” are subject to powerful political and ideological forces. This makes the concept vulnerable to criticism and turns it into a political football. Targeted measures in the areas of preventive healthcare, education, and public awareness are less controversial.”

Finally, one respondent wrote that

“A simpler and more robust concept than the true-cost approach would be incentive taxes. Incentive taxes work even without complete and accurate information. And they can be implemented with much less effort.”

However, they then wrote that the past experience shows that incentive taxes do not work politically.

4.5.9. Comments about specific measures

Label

Some comments were made particularly regarding the measure about label. Several respondents commented that consumers are already facing too much information, partly because there are already many labels. Furthermore, that a label is not effective was also a recurrent remark.

Several respondents wrote about existing labels (NutriScore, Ecoscore, black label for products with high contents of sugar or fat (in Latin American countries), M-Check). The most mentioned was NutriScore with most of the comments reporting its low impact.

Bonus

The positive aspect of rewarding instead of punishing is something that was mentioned twice, as highlighted here: “a rewards program has positive connotations and is therefore a sensible approach”.

Three people wrote about the fact that bonus systems are already existing. Two respondents saw it as helpful “the knowledge base for calculating the bonuses is already in place” and “retailers are already accustomed to managing this kind of loyalty points system, which could help with implementation”, but the third one saw it as rather challenging “compatibility with existing retail programs, as well as the coexistence of multiple programs, increases complexity for consumers”.

Several respondents gave examples of how this measure could look like (not only using loyalty programs):

“I wonder if an instant reward—such as “buy two vegetables and get a third one free”—wouldn't have a greater impact than having to carry yet another loyalty card and wait until you've accumulated enough points to redeem the reward.”

“It's great to reward responsible purchasing with bonuses, but I'd prefer it if we could help low-income people access organic products without driving down prices. Why not instead implement a redistribution system: for every point earned through responsible purchasing (e.g., products with the Bud label or other certifications), the retailer (Migros, Coop, Aldi, etc.) deposits a point into an account that funds a system enabling low-income individuals to access these same certified products.”

“It would certainly be a challenge to also reward sustainable shopping habits, such as visiting the farmers' market. I think that would be a prerequisite for implementation. Otherwise, only the wholesalers would benefit...”

Fiscal measures

Some respondents that commented on the fiscal measures gave other examples of taxes. One example was incentive taxes. Someone wrote that

“The measure would only be effective if it were at least equivalent to an incentive tax. In other words, the tax must be high enough to actually influence behavior.”

This opinion that was shared by another respondent:

“An incentive tax at the wholesale and retail levels (including for imported products) would be effective; this has been modeled in studies and found to be effective. It is crucial that the incentive tax be set at a sufficiently high level.”

Someone else commented that “incentive taxes would be easier to implement than an adjustment to the VAT rate”.

Another example was to lower the taxes on healthy food, for example one wrote: “Other countries are discussing setting the VAT rate to zero for fruits and vegetables in order to encourage their consumption. It’s a start...”

Some people commented about the difficulty of implementing such a measure, which is highlighted by this comment: “It should be noted that such a process will take a very long time to reach an agreement”. Someone wrote in the final comments that fiscal instruments are “ambitious long-term measures”.

Some respondents also made the link with Swiss products specifically: “This measure would severely disadvantage many local businesses, such as Swiss winemakers, chocolatiers, brewers, and coffee roasters” and “I don’t see that happening under the current political system, especially if the higher VAT rates also apply to Swiss products.”

Promotions

One recurrent theme for the measure about promotions was that it helps to reduce food waste. One person who mentioned it wrote in addition that “the primary goal [of promotions] is economic.”

Advertising

First, three comments were about tobacco. One person said that this kind of measure was not new because already made with tobacco. Another one wrote that “the bans have clearly had an effect there” and the last one wrote that “the example of cigarettes illustrates how difficult it is to ban cigarette advertising in areas frequented by minors.”

Second, three people commented that consumption habits are strong and will not be influenced by advertising.

Third, some comments were made about the fact that advertising and product placement are marketing instruments that “serve economic purpose” and that they follow “market-specific logic”.

Public procurement

The opinions about the impact of this measure were mitigated, as some respondents wrote that public procurement is an important lever and others wrote that not so many people are reached by it.

Some respondents wrote about similar measures already implemented:

“Many cities are already doing this, some with great success, and it can be easily scaled up.”

“While this is conceivable – given that sustainability standards already apply in certain areas of public procurement – it is also challenging in the current climate.”

“We should also promote organic and locally sourced products; this is already being done in various cities.”

“Under current legal requirements, environmental impacts must already be taken into account in public procurement; in other words, the hidden costs of food must also be considered.”

Two comments were about the help needed for the implementation of this measure. One wrote that the implementation would be compromised by current budget cuts and another one that the cantons and municipalities should be supported.

Target retail

For the measure about binding sustainable targets for retailers, the following comments can be grouped under the theme of examples of what is already done, in process to be done or could be done:

“All retailers are already setting sustainability goals and working to achieve them. When sustainability is approached consistently, it indirectly leads to true-cost pricing.”

“This would be somewhat in line with the performance targets for the retail sector currently under discussion as part of the AP 2030 and would be an important step toward holding the retail sector accountable as well.”

“The FOAG [Federal Office for Agriculture] is currently working on voluntary agreements with the retail sector.”

“A more liberal approach would be to set an overarching goal for reducing hidden costs across a company’s entire product range. That would likely be more realistic, give companies more leeway, and be less burdensome to enforce. This is how it was done with food waste (albeit on a voluntary basis).”

5. Discussion

5.1. Question 1

How do food system stakeholders in Switzerland evaluate different consumption-targeted measures to reduce hidden costs in terms of acceptability, perceived effectiveness, perceived fairness, and perceived feasibility?

Overall, the measures are predominantly acceptable and perceived as effective, fair and feasible. The following paragraphs will discuss each measure individually.

Introduce a mandatory national front-of-pack label that shows a product's true costs in a simple, consumer-friendly format – covering health, environmental, and social impacts.

The measure about labelling is particularly perceived as being not effective (49% of positive answers), with 6 other measures significantly having a higher average of answers. However, it is particularly perceived as fair, with 85% of positive answers and having significantly a higher average of answers for the fairness than 2 other measures. Only 14% of respondents chose it in the top three measures that they would prioritize.

Many labels already exist and have been studied (Ammann et al. 2023; Ran et al. 2024). The general findings are that this many-labels landscape confuses the consumers more than it supports them in choosing healthy and sustainable products (Torma & Thøgersen 2021). The study from Dubois et al. (2021) revealed that the NutriScore is the most effective nutrition label, but that its effect is quite low, with only a small increase of healthy products bought, but no reduction of purchase of food with medium or low nutrition quality or unlabeled products.

The low result in this thesis about the effectiveness of the label measure is therefore aligned with the literature. Moreover, this measure would be indirect in

reducing hidden costs and as commented, would require a lot of effort for probably little results.

The comments from the open-ended questions in this survey seem to reveal that the fairness was mainly influenced by the impact of a measure on low-income populations. This could be an explanation for the high score of this measure in fairness, as it would not particularly impact more negatively on low-income groups, because this measure does not lead to any price changes.

In their literature review about meta sustainability label, Torma and Thøgersen (2021), wrote that data complexity and institutional barriers could prevent its implementation. Some comments of respondents point in that direction.

Use information from hidden cost calculations to steer consumers towards healthier and more sustainable food choices (also known as nudging) – for example through product placement, menu design in public catering, or preconfigured online shopping baskets.

The measure nudging is always high in the ranking of the 4 questions. It is more acceptable, perceived as more effective and perceived as fairer than 3 other measures and perceived as more feasible than 6 other measures. For the prioritization, it is the third measure, with 37% of respondents who chose it.

Some potential explanations for these high assessments could be the following. First, it was not mentioned in the survey whether this would be mandatory or voluntary, which leaves with more interpretation possible. Some comments show that for some it would be important that it stays based on private initiative, while for others it would have to be regulated. Furthermore, nudging can take many different forms.

Second, nudge is already used in some contexts, for example in some cafeterias (as mentioned in the comments). Indeed, this measure is not new and literature shows evidence of the effectiveness of nudging (Hansen et al. 2021; Mertens et al. 2022; Almeida et al. 2024). For example, the study of Hansen et al. (2021) showed the effectiveness of having the vegetarian option as the default choice, with more people choosing it over the non-vegetarian dish (in a conference setting). Another example is the literature review from Almeida et al. (2024), where they reported an overall effectiveness of different nudging strategies to increase the consumption of fruits and vegetables.

Third, some types of nudging could be applied without needing to have precise calculations, for example as mentioned just before, with vegetarian vs non-vegetarian dishes, as well as fruit and vegetables consumption.

Fourth, many nudging strategies could be implemented without changes in prices, which is fair to all income groups.

Interestingly, despite that this measure would be rather indirect in reducing the hidden costs, that does not seem to influence negatively the stakeholders' judgments.

Introduce bonus schemes based on hidden cost information that reward healthy and sustainable food choices – for example through loyalty programs in retail in which only products with low hidden costs receive points.

The measure bonus has more than 50% positive answers for the 4 questions but is often among the last measures in the ranking, except for the feasibility. The statistical results show that it is significantly less acceptable than 3 other measures, less effective than 3 other measures, fairer than 1 other measure, less feasible than 1 other measure and more feasible than 2 other measures. 20% of the respondents chose this measure as the top three that they would prioritize.

The findings show that this measure is acceptable, effective and fair but does not stand out with its results. It is ranked better when it comes to the feasibility, which could be explained by the fact that loyalty programs are already in place and that some type of bonus measure could be implemented without the need of the precise TCA calculation of every product. As commented by respondents, it could be implemented, for example, around vegetables. Some people mentioned that retailers might not be willing to implement such bonus schemes, but as the question about feasibility was to be answered taking into consideration that all relevant actors would support it, this could also explain the rather high feasibility score. The rather low effectiveness could be explained by the fact that it is an indirect way of reducing the hidden costs.

Some interesting suggestions of how this measure could be implemented were made in the comments. One person suggested a redistribution system, where the action of buying products with low hidden costs (in their example products with organic label) does not reward the person that did the purchase but goes into a fund that would permit low-income population to have access to the same (certified, therefore rather expensive) products. This goes well with another remark that was about the fact that if a loyalty program is implemented around healthy and sustainable products, the low-income population will not have access to it as these products are expensive and not the ones they usually buy. Someone else commented about rewarding not only the purchase of sustainable products in supermarkets but also rewarding sustainable shopping habits, their example being shopping at farmers' markets.

Introduce fiscal measures based on hidden cost calculations to shift food prices toward healthier and more sustainable options – for example by applying higher VAT or targeted taxes to products with high hidden costs and using the revenue to reduce prices for healthier, more sustainable foods (revenue recycling).

The answers regarding the measure about fiscal measures vary between the different questions. When looking at the acceptability, it is ranked in the middle. The results about effectiveness show that a large number of respondents perceive this measure as effective with 60% answering ‘effective’ (and 22% as ‘rather effective’) as well as being significantly perceived as more effective than 4 other measures. The results of fairness place it in the lower ranking, with 3 other measures perceived fairer, but it still gets 69% of positive answers. The results of feasibility show that less than the majority perceive it as feasible or rather feasible (40% of respondents) with 6 other measures being perceived as more feasible. Despite these inconsistent results, this measure was the second to be chosen for prioritization, with 45% of respondents choosing it.

The rather negative answer for the feasibility could be explained by the difficulty of implementing such changes, as commented several times. Respondents also highlighted the fact that this would take time to be implemented. The lack of support from the industry and even opposition by lobby group were also mentioned and could be linked to the fact that some Swiss products would be particularly concerned (also from the comments). Several respondents suggested that incentives taxes could be better than changing the VAT. The high level of positive answers for the effectiveness could be due to this measure being quite direct in reducing hidden costs. Indeed, prices would change, with potentially higher prices for products with high hidden costs and lower prices with products with low hidden costs, and price is an important purchase factor for consumers (Fernqvist et al. 2024). With this measure there is no interference in the market’s freedom as VAT is a part of the Swiss fiscal and price formation systems.

According to Ammann et al. (2023) and Ran et al. (2024), market-based measures are less studied than information-based and nudge ones, but VAT changes have been studied (see for example Oebel et al. 2025 and Springmann et al. 2025). Furthermore, in their final report on a True Cost Accounting Roadmap for the German Agriculture and food sector, Steinmetz et al. (2026) suggested VAT adjustment as one of their use cases for TCA. They propose the following variant: lower the VAT for “organically grown fruits and vegetables, meat substitutes, plant-based milk substitutes”, higher VAT for “sugar and meat from animal husbandry categories 1 and 2” and suspend the tax for “unprocessed, organic fruits and vegetables from the EU, frozen organic fruits and vegetables, grade 2 fruits and vegetables, legumes, nuts, whole grain products, mineral water, and table water”.

It is to be noted here that the VAT rates are different in Switzerland so the percentages are not the same as the example they give, but the same logic, i.e. what groups of products are concerned, could be followed in Switzerland. According to the stakeholders they consulted, this measure could be quite effective because consumers choices are sensitive to (higher) prices.

The stakeholders also discussed the feasibility of such a measure, and it seems that cost-neutral VAT adjustment seems to be more realistic than a one-sided tax reform (ibid.). Therefore, this would mean that some products would be subsidized and some products more heavily taxed. The researchers note that the implementation could be challenging for mixed products (on the contrary of raw products) (ibid.).

The attempt to lower the VAT of fruits and vegetables to 0% in the Netherlands is an great example of the complexity of changing the VAT of some products' groups and highlights the importance of clear and evidence-based classifications of food (see Hagenaars et al. 2024 for more information).

Another example given by Steinmerz et al. (2026) is to use volume-based excise taxes. Their suggestion is to introduce a “climate cost surcharge on food, tiered according to greenhouse gas intensity”. The examples they give are the following: a surcharge of €0.50–1.00 per kg for products with a high carbon footprint and no surcharge for plant-based foods with low environmental costs. The idea is to further develop the surcharge by also incorporating social and health costs. Stakeholders see it as effective and cited sugar-sweetened beverages taxes as a good example, which based on the results of Andreyeva et al. (2022) were associated with higher prices and lower sales of taxed beverages. The literature review of Pineda et al. (2024) on taxes on products high in fat, salt and sugar taxes revealed that most of the studies showed decrease in the sale, purchase and intake of the taxed products.

About the feasibility, some stakeholders noted that it should be complemented by social compensation as this would only increase food prices (i.e. no reduction of prices for some products) (Steinmetz et al. 2026). The complexity of implementation due to data collection is also mentioned (ibid.).

Voluntary adjustments of prices by actors in the supply chain so that products with high hidden costs become relatively more expensive, while allocating a proportionate share of revenues to remediation – i.e., funding measures that reduce, restore or compensate for the social and environmental harms linked to those products.

The measure about price adjustment is the measure that comes last for every question except for the effectiveness (second last). The answers to the acceptability and feasibility of this measure show that less than 50% of the respondents found it

acceptable and feasible. The statistical results show that it is significantly less acceptable than 6 other measures and less feasible than 7 other measures. For the effectiveness and fairness, more than half of the respondents answered positively, but the percentages (resp. 58% and 54%) stay rather low compared to the other measures, with statistically 6 other measures perceived are more effective than this one and 7 perceived as fairer. Furthermore, this is also the measure that received the least answers for prioritization. Overall, the findings about this measure are clear: as such, this measure has no chance of being implemented.

When looking at the comments to the open-ended questions, it seems that the voluntary part could be one of the explanations for the low success of this measure, as there is then the risk that no one implements it, or only on a few products which would lead to low impact. Another potential explanation based on one of the recurrent themes in the comments is that this measure would increase the food price and this would impact most hardly on low-income populations. Furthermore, this measure is interfering in the formation of prices based on offer and demand. Even if this measure would be direct because it changes food prices, and price is one of the major decisional aspects for consumers (Fernqvist et al. 2024), the effectiveness result is rather negative.

Introduction of regulations on promotions based on hidden costs—for example, by limiting discounts, “sales,” or bundled offers (e.g., “buy one, get one free” deals) for products with high hidden costs.

The measure about promotions is in the middle of the ranking for all four questions. It is more acceptable than 1 other measure, perceived as less effective than 2 measures, more effective than 1 other, perceived as less fair than 3 measures, perceived as less feasible than 1 measure and more feasible than 2 measures. It was only chosen by 13% of respondents for prioritization.

A potential explanation for these rather middle results is that some promotions are implemented to prevent food waste, for example when products are close to their limit date of consumption. This was something mentioned in many comments. However, the literature results on this topic are not homogeneous. Tsalis et al. (2024) reported for example that households that buy more promoted products waste less food, while for example Gravert & Mormann (2025) results showed that multi-units promotions results in more food waste at household level, because consumers buy more than what they needed. The argument that promotions reduce food waste is therefore debatable, and further research is needed.

Another explanation for the middle ranking for fairness could be that, as mentioned by respondents, it is impacted by the fact that promotions are often

important for low-income populations. However, for this too, there is not a clear consensus in the literature about the responsiveness of different income groups to promotions (see for example the literature review from Bennett et al. 2020). In their study, Nakamura et al. (2015) wrote that high socioeconomic status consumers were more responsive to promotions than lower socioeconomic status groups, and this for healthy as well as unhealthy products. This difference was more pronounced for healthier products. On the contrary, Luick et al. (2024), found that lower socioeconomic status groups were more responsive. With their results, they concluded that having promotions on healthy products would not exacerbate health inequalities, but it would certainly not mitigate these inequalities. The results from two further studies revealed that higher income groups purchase more promoted products (Taillie et al. 2017) and spend a bigger percentage of their food budget on promoted products than lower income groups (McDonald & Milne 2018). Some studies also reported no difference in responsiveness within socioeconomic groups (for example Revoredo-Giha et al. 2018).

Furthermore, this measure is potentially not very effective as it is indirect in reducing the hidden costs.

Evidence from the literature showed that price promotions lead to more purchases and that promoted products are more often unhealthy products (Watt et al. 2023). Therefore, having less promotions of unhealthy products could lead to a lower volume of these products purchased (ibid.), which would mean a decrease in their consumption.

There has also been some research about the impact of promotions of healthy and sustainable products, which could be implemented in complement with reducing the promotions of less healthy and sustainable products. However, the results are mitigated as it seems that consumers respond less to promotions of healthy products than less healthy ones (Nakamura et al. 2015). Moreover, it does not seem that promotions of healthy and sustainable products lead to long-term changes in purchasing patterns (Piernas et al. 2022; Luick et al. 2024).

The lack of support from companies in the retail sector was something mentioned in the comments, as well as this measure interfering with the freedom of trade, enterprise and market.

Introduce regulations on advertising and/or product placement based on hidden cost information – for example by restricting advertising for products with high hidden costs and limiting their prominent placement (e.g., checkout displays).

For the four questions, the measure about advertising is ranked in middle measures, leaning toward the top ones. It is more acceptable than 2 other measures, perceived as less effective than 1 measure, more effective than 1 other measure, fairer than 1 measure and perceived as more feasible than 3 measures. About one third of the respondents (32%) chose it among the measures they would prioritize.

The rather high results for the fairness could be due to this measure not impacting low-income populations more than the rest of the population. The rather higher results for effectiveness could be due to, as mentioned in some comments, the example of the ban of advertising tobacco. The results from the literature review of Quentin et al. (2007) on bans of tobacco advertising suggested that banning tobacco advertising leads to a decrease in tobacco consumption.

Other comments were made about the potential lack of support from key stakeholders like marketing actors, retailers and lobby groups. Furthermore, comments about interference in the economy and the freedom of enterprise were made. These two aspects, however, do not seem to drag down too much the assessment.

The study from Dixon et al. (2007), revealed that TV advertising targeted at children influences their attitudes and beliefs. Indeed, children being more heavily exposed to junk food advertising had more positive attitude toward this type of food. On the other hand, the opposite was also observed, i.e. children exposed to ads for nutritious food had a positive attitude and beliefs toward this type of food. In Switzerland, there has been recently (May 2026) discussions between The Federal Food Safety and Veterinary Office (FSVO) and representatives from the food and advertising industries to introduce a voluntary commitment about restricting advertising aimed at children under the age of thirteen (FSVO 2026). This will concern food that is too salty, sweet, fatty, or high in calories.

From the study of Huitink et al. (2020), it does not seem that replacing unhealthy food with healthy food at the checkouts in supermarkets influences the sales of unhealthy food products, i.e. no substitution from unhealthy to healthier snack happened. However, they discussed that replacing all the unhealthy assortment at all checkouts by healthier products could have a positive effect and should be further studied, as well as its effectiveness when combined with other in-store interventions.

Introduction of (more) stringent standards for public procurement of food products (e.g., for cafeterias in public institutions and other publicly funded institutions), based on information regarding hidden costs (e.g., limits on sugary drinks).

The measure about public procurement is always high in the ranking of the 4 questions. It is more acceptable than 3 other measures, perceived as more effective than 6 measures, perceived as fairer than 3 measures and perceived as more feasible than 3 measures. It was the first measure chosen as a priority measure, by almost half of the respondents (49%).

Even if the comments revealed some contradiction whether public procurement impacts a large part of the population or not, this measure is perceived as highly effective. The number of people eating every day in a public institution is approximately 1 million (FSVO 2025c) and the Swiss population numbers approximately 9 million people (FSO 2026).

The high score in feasibility could be due to the fact that, as some respondents mentioned, this kind of measure (standards for public procurement) is already implemented in some cities and/or cantons. The confederation does not impose a regulatory framework but developed some Practical Guides to Sustainable and Health-Promoting Institutional Food Service, for the three fields business, education and care (FSVO 2024). The cantons can then decide if they introduce mandatory standards, for example, the canton of Vaud released a new charter beginning of 2025 (Canton de Vaud 2025).

One other potential explanation of the high score is that as it is question here of the public sphere, the reluctance of a state intervention in the freedom of the market and of individuals is not relevant. Furthermore, this measure is not really affected by the issue of income disparities, if (as noted in some comments) the prices would not increase, or only slightly.

The implementation of this measure depends on political will, could face some resistance and would also be a matter of support and budget attribution (as noted by diverse respondents).

This measure is quite direct in reducing hidden costs as it directly influences diets with what is offered.

Something not mentioned in the comments, but worth mentioning, is that this measure could directly concern children and teenagers through the school cafeterias. This makes it an interesting leverage to reach this part of the population. Long-term effects of the school environment are unclear, but Oostindjer et al. (2017) wrote that, at least on the short-term, it has an influence on children. Moreover, school meals can potentially improve the consumption of calories and

key nutrients (ibid.). School meals could be used as a tool of food education, for example combined with school gardens (ibid.).

Set binding sustainability targets for retailers based on hidden cost calculations (e.g. minimum targets for the share of wholegrain products in the offer, as these are beneficial for health).

The measure about targets for retailers is ranked in the middle for acceptability, effectiveness and fairness, but not for the feasibility for which less than 50% answered positively (49%). It is more acceptable than 1 other measure, perceived as less effective than 1 other measure, more effective than 2 measures, fairer than 1 measure, perceived as less feasible than 3 measures and more feasible than 1 other measure. However, still one third of respondents (34%) chose it among the measures they would prioritize.

Some potential explanations could be, first, that it would interfere in market freedom and deviate from following the rules of offer and demand, as mentioned in the comments. Second, retailers and lobby groups might oppose the implementation of this measure (also mentioned in the comments).

Two respondents referred to what is already in process in Switzerland about such a measure. They mentioned the Federal Office for Agriculture “working on voluntary agreements with the retail sectors”, as well as the future agricultural politic. February 2026 press kit, about the Federal Council’s recent discussions on the 2030 agricultural policy, contains the following:

“Conclude voluntary target agreements with retailers: Target agreements are an important tool for promoting sustainable production and strengthening the position of agriculture within the value chain. PA30+ [the agricultural policy that will be in place from 2030 on] will establish the legal framework enabling the federal government to collaborate with the private sector and to promote the development and implementation of target agreements. It will also be able to issue supplementary regulations if the measures prove insufficiently effective. The objectives are already being defined. This process is currently focused on target agreements in the areas of robust varieties, animal welfare, and plant-based proteins.” (FOAG 2026, translated with DeepL from French).

Examples show that voluntary agreements can have diverse effect in Switzerland. For example, since 2015 some companies are part of a voluntary agreement to lower sugar in some food products (The Milan declaration), with overall successful results for the products concerned (FSVO 2025a). On the contrary, no such agreement for salt in products has been concluded, despite some talks about it during the past years (FSVO 2025b). Voluntary agreements can be a

good solution to tackle opposition, but the results might be less important than binding agreements.

Prioritization

Two interesting facts to notice about the question of the prioritization are that, first, the first three measures the most chosen (public procurement, fiscal measures and nudge) are the three ones that have the best results for the effectiveness. Second, only a little number of respondents (7) chose ‘none of these measures would be among my priority’ which shows an important interest in these measures, as well as their relevance.

5.2. Question 2

How does the assessment of measures vary across stakeholders’ groups, working fields, years of experience and familiarity with TCA?

Overall, the analysis of the different stakeholders’ group, working fields, years of experience and familiarity with TCA revealed very few significant differences. However, some tendencies can be observed.

Stakeholders’ groups

A first tendency, when it comes to the acceptability among the various stakeholders’ group, is that in general the respondents from ‘producer organization’ and ‘private sector organization’ answered more negatively than the ones from ‘academic and knowledge institutions’, ‘civil society organization’ and ‘public sector organization’. The only exception is for the nudge measure, for which the private sector stakeholders answered quite positively (comparison made with the other groups).

Still regarding the acceptability, there is a tendency that stakeholders from the public sectors are the ones giving the most positive answers and the stakeholders from the private sector the most negative ones (based on the means of answers per stakeholders’ group).

This is aligned with the findings from Richter et al. (2023), whose results showed that stakeholders from the food industry, interest groups and political parties generally accepted less the measures (about meat reduction) than stakeholders from NGOs, research institutes and state institutions. Therefore, the hypothesis that the more the stakeholders’ activities will be influenced by a policy and the less they would find it acceptable is verified. However, as mentioned by Richter et al. (2023), these generalizations are also to moderate, as different types of organizations could be part of the same stakeholders’ group.

About the effectiveness, fairness and feasibility among the various stakeholders' groups, the tendency is less clear, with only between 4 and 6 measures following this pattern (i.e. private sector organization and producer organization have lower means than the three others).

Working fields

The answers from 'Consumer protection', 'Livelihoods, poverty and equity', 'Finance, investment and business' and 'Input and support services for production' had to be left aside for the analysis because of two low number of respondents choosing them.

When looking at the answers from the others fields, a tendency when it comes to the acceptability is that in general the respondents working in 'Food processing and manufacturing', 'Food retail' and 'Agriculture and primary production' answered more negatively than the ones working in 'Nutrition & public health', 'Policy and public administration', 'Environment' and 'Food service and gastronomy'. This is the case for 7 out of the 9 measures. The two measures that do not follow this pattern are nudge and bonus.

Still about the acceptability, there is a tendency that respondents working in 'Environment' are the ones giving the most positive answers and the respondents working in 'Food retail' are the most negative ones.

These observations are quite logic after the findings about the stakeholders' groups as the activities of people working in 'Food processing and manufacturing', 'Food retail' and 'Agriculture and primary production' would be mostly impacted by the implementation of the measures.

About the effectiveness, fairness and feasibility among the various working fields, no clear pattern could be observed.

Years of experience

The analysis of the measures when considering the years of experience of the respondents did not reveal anything. It is obvious that the experience of working in the field of food has no influence on responses, and this is the case for the four questions (acceptability, effectiveness, fairness and feasibility). This is aligned with (the few) studies mentioned in the literature review and confirms the hypothesis that the years of experience does not influence the assessment.

Familiarity with TCA

A tendency when it comes to the acceptability among the level of familiarity with TCA, is that the more the respondents know about the concept, the more they find the measure acceptable. This is the case for 6 measures. Moreover, the

respondents with an in-depth understanding answered the more positively for all the measures.

As for the stakeholders' group and working fields, the tendency is less clear for effectiveness, fairness and feasibility. For each of them, only 2 measures follow this pattern. However, overall, the most knowledgeable respondents are the ones having the most positive answers and the ones with the less knowledge answer the less positively (which mean that is in general between the two middle level, 'I have a basic understanding of it' and 'I have a good understanding of it', that the results are less clear).

Something to notice is that I do not actually know how much the respondents were familiar with the concept as the answer to this question was based on their perception of their knowledge, which has not been verified.

This would have to be further studied (with a larger sample and with verifying the level of knowledge), but it seems that the hypothesis that the knowledge about TCA does not influence the assessment is wrong, and that the more stakeholders know about TCA and the more they find the measures acceptable.

5.3. Question 3

To what extent do perceived effectiveness, perceived fairness and perceived feasibility predict stakeholders' acceptability of the measures?

As expected from the literature (Bergquist et al. 2022; Poortinga 2024), the results show that effectiveness and fairness influence the acceptability positively. This means that the more the respondents answered positively to the questions about effectiveness and fairness, the more they answered positively to the question about acceptability. The hypothesis that perceived effectiveness and perceived fairness influence the acceptability is verified.

There was no evidence from the literature for the feasibility, but I also tested if it had an influence on the acceptability and the results are less clear than for effectiveness and fairness. Indeed, feasibility only had an influence on acceptability for five out of the nine measures and with a lower effect (the influence is less strong). The hypothesis that feasibility does not influence the acceptability is, therefore, partly verified, partly rejected.

It has to be noted that the order of the questions may have had an influence on the answers, as the question about acceptability came after the ones about

effectiveness and fairness, but before the question about feasibility. The reason for this was that the primary aim was to test the influence of effectiveness and fairness on acceptability (because of the literature). The idea of looking as well at the influence of the feasibility on the acceptability came during the analysis.

5.4. Question 4

Which policy instrument categories (information-based, nudge, market-based, regulatory) received better scoring with respect to acceptability, perceived effectiveness, perceived fairness and perceived feasibility?

Acceptability

Regulatory is the category being the most acceptable, before nudge, information-based and market-based. Information-based and market-based are significantly less acceptable than regulatory. Market-based is significantly less acceptable than nudge.

This does not follow the results from Ammann et al. (2023) and Kwon et al. (2019) mentioned in the literature review, which supported that the less intrusive and coercive an instrument is, the more it is accepted. However, it is more aligned with the results from Rhodes et al. (2017), which revealed that regulation and voluntary policies receive higher support than market-based instruments.

As the hypothesis was based on the study of Ammann et al. (2023), the hypothesis that the more a measure is intrusive and the less acceptable it is, is not verified.

When comparing market-based and regulatory instruments, Ejelöv et al. 2022 found similar level of acceptability, while other studies revealed that market-based instruments are less accepted than regulatory ones (Kirchgässner and Schneider 2003; Stadelmann-Steffen 2011). The results of this thesis are aligned with the latest, the regulatory category being largely more acceptable than the market-based one.

The results from this thesis are slightly different than the ones from Richter et al. (2023) in their Swiss study with stakeholders about meat reduction policies. Their results showed that non-coercive voluntary measures and information measures are less rejected than market-based and regulatory ones, but in this thesis the regulatory category is less rejected than the information-based.

It is important to note that in the same category, there were some important differences in the acceptability of some measures. For example, in the category nudge, the measure nudge is very high in the ranking while the measure bonus is very low. In the category market-based, the measure fiscal measures is in the

middle/high place while price adjustment is the last one. Moreover, the category information-based only contains one measure (label), while the category regulatory encompasses four (advertising, promotions, target retail and public procurement). This limits the interpretation of the results.

Effectiveness

Information-based is the category perceived as the least effective compared to the three other categories (significant difference). The three other categories have similar results. This only partly verifies the hypothesis that the more intrusive the category is, the more perceived as effective it is.

These results are partly aligned with what could be found in the literature, i.e. that information based are usually instruments perceived as not very effective (Ammann et al. 2023). However, nudge instruments in this thesis have higher results for the effectiveness than what was predicted (based on Ammann et al. 2023), as here the results show a similar effectiveness as market-based and regulatory instruments.

Here again, the individual results for the two measures in the category nudge and market-based are quite different, which limits the interpretation.

Fairness

Market-based is the category perceived as the least fair compared to the three other categories (significant difference). The hypothesis that the more intrusive the category is, the less perceived as fair it is, is only partially verified, with information-based and nudge instruments being fairer than market-based ones, but not significantly fairer than regulatory ones.

For the fairness, the two measures in the market-based category are the two least perceived as fair. The two measures in the nudge category have different individual results.

Feasibility

Market-based is the category perceived as the least feasible compared to the three other categories (significant difference). Nudge is the category perceived as the most feasible, followed by regulatory and information-based (not significant differences between these last two but nudge is significantly perceived as more feasible than information-based). The hypothesis that the more intrusive the category is, the less perceived as feasible it is, is not verified.

The two measures in the market-based category are the two least perceived as fair. The individual responses for the measures in the categories nudge and regulatory are not particularly grouped.

Overall comments and limitations

The overall good assessment of the regulatory instruments could be because they are not the most stringent ones, for example there are not about banning completely some products. The sometimes very different measures within the categories make the results difficult to interpret. For example, as mentioned above the two measures in nudge and market-based often have quite different results. Furthermore, comparison with literature is limited because the measures used in each case are different, which makes it difficult to determine whether the results are due to the measures themselves or to the category they are part of. Moreover, the number of measures not being equal in each category also limits the interpretation of the results, especially for information-based that only contains one measure. The responses regarding the prioritization also reveal that the two measures in the market-based category have very different results, which questions the use of categories to describe policies assessment.

5.5. Key takeaways

One interesting finding of this survey is the overall positive assessment of the proposed measures. The results may have been biased by the fact that the people who answered the questionnaire were likely interested in the topic, as well as knowing already about the TRUE-COST-CH project. However, these results reflect an overall positive interest from divers' stakeholders across the food chain toward these measures, and more broadly toward changes in the food system. The interest that stakeholders have shown in the project, for example by participating in the workshops, is reinforced by the results of the survey, i.e. there is a shared interest to develop TCA pathways in Switzerland. This positive finding would be interesting to communicate as people tend to think that others are less positive than they might actually be (phenomenon called 'pluralistic ignorance') (Andre et al. 2024) and therefore are more reluctant to support and implement changes (Poortinga 2024).

Another important takeaway is the importance of developing a mix of policies, rather than trying to implement single measures. This has been highlighted in some comments, as well as in the literature (for example Fesenfeld et al. 2020; Richter et al. 2023). Developing and implementing a mix of policies rather than considering them isolated can enhance the support and political feasibility of more costly measures and increase the overall effectiveness (Fesenfeld et al. 2020). As

acceptability is positively linked with perceived effectiveness, all measures gain with an increase in their effectiveness.

From the results of this survey, the consideration of the impact of the measures on low-income populations and the parallel implementation of socially supportive measures is essential, to reduce the inequalities rather than exacerbate them. This would increase the fairness of the measures, which is positively linked to higher acceptability. Furthermore, this would also increase their acceptability from the population (essential if these measures were to be put to a popular vote), as fairness is one of the most important factors determining public support (Bergquist et al. 2022).

Educational measures also seem to be essential complementary measures. This includes consumers' education, as well as educating the stakeholders working in and with the food system. The pattern about knowledge discussed in this thesis, i.e. the more the respondents knew about TCA and the more they found the measures acceptable, also calls for more knowledge spreading. Moreover, informational and education measures are themselves not the most effective alone and would gain by being coupled with other measures.

The results revealed an interesting mix of answers when looking at the intrusiveness and administration design of the measures. Even if as written above the conclusions based on the categories are limited, overall, measures that can be seen as more intrusive are not automatically less acceptable than less intrusive ones. Moreover, less intrusive measures are not per se perceived as less effective, as shown by the results of the nudge measure. These findings support the idea of developing and implementing both types of measure, less intrusive and more intrusive, in policy mixes.

The recurrent comment about the state intervening in individual freedom, enterprise freedom or in the free market system is an interesting point to discuss. Indeed, some of these measures would mean that the state would intervene in a way that is contrary to a free market system. However, the (Swiss) food system is already regulated, for example, on the supply side, with agricultural policy and its numerous subsidies (FOAG n.d.). Furthermore, the fact that hidden costs exist shows that the current market fails to regulate itself (FAO 2023). Therefore, governmental intervention is justified and needed (Ammann et al. 2023).

In the case of this survey, despite some comments about interferences in freedom, the overall positive results show that the stakeholders who responded to the questionnaire are in general not against state intervention through food policies.

The plurality of opinions, in the world in general, but also visible here with differences in assessments and comments, reinforces the need to work with many different actors when it comes to developing and implementing new measures. This

could also be a way to get around the lack of support or opposition that would probably arise if those measures were to be further developed. This is not a new finding but underscores the importance of multi-stakeholders' processes.

5.6. De-zoom

In their paper, Contor et al. (2026) write about TCA as a transformative framework and developed TCA's theory of change. They describe this theory of change with five steps: inputs, activities, outputs, outcomes and impacts. This thesis contributes to the activities stage, which consists of converting inputs into tangible outputs (see Contor et al. 2026 for more information about TCA's theory of change).

More generally, this thesis contributes to research about food system transformation, which is part of a broader effort to build a more sustainable world. This thesis is a small part of the work that is done to move toward sustainable goals, whether they are from Swiss strategic documents, or on a broader scale, the ones from the United Nations 2030 Agenda.

This thesis is very much focused on Switzerland as it is where the project is taking place and where the survey was conducted. However, I think that the general findings could be transferred to other similar countries (similar in their overall way of functioning, for example other European countries or Western countries). Differences could occur in the way the measures are implemented, as Switzerland has some political particularities (not being part of the EU, democratic system with popular vote, etc.), but it could be assumed that stakeholders from the food system of other countries could overall have the same view of the measures.

Transferability may depend on the specific measures. For example, similar nudging strategies could very well be applied in different countries, but changes to the VAT rate would depend heavily on the country.

Some elements that could limit the transferability are the food culture and production differences, but the general idea of how to use TCA stays the same and different countries have a lot to learn from one another and from collaboration.

5.7. Further research

Building on this survey and its findings, research could be further conducted. It would be interesting to conduct a similar survey in other countries, to test the

transferability discussed in the previous chapter. Moreover, stakeholders' assessment of more policies, especially supply-targeted policies, could be gathered. Collecting the population's opinion would also be an important step in the development of such measures. Particularly, as in Switzerland the implementation of some of these measures would go through a popular vote. Gathering the population's opinion is, however, important everywhere, as if people are not supporting a policy, its implementation has low chances of success. It would also be interesting to conduct further research with a focus on policy mix. More broadly, research should continue to see how TCA can best support the transformation of the food system. All of the further research mentioned above could gain from using both qualitative and quantitative methods.

On a more practical level, the discussions and work around these measures should (and will) continue, for instance through the project, to develop the path toward their implementation (in Switzerland).

5.8. Reflection

5.8.1. Reflections on the thesis

After having conducted this survey, analyzed the responses and arrived at the end of the writing of my thesis, here are some of my reflections about it.

One first point resides in the questions asked in the survey. I think that the effectiveness and fairness questions were interesting and relevant to ask and well formulated and I have the impression that they were well understood by the respondents.

I am more critical about the question about feasibility, as I think it was harder to understand that it was asked to not judge human motivation. Another weakness of this question is that even if respondents understood it, it could have been hard for them to understand why this question would be asked like this. Many comments about lack of support from stakeholders lead me to think that some respondents maybe answered not only based on the 'facts', but also on human willingness. One option to try to tackle this issue could have been to ask two questions about the feasibility, one specifically about relevant stakeholders' motivation to implement it and another one similar to the one asked in this survey, based more on the 'facts'.

I think that the question about acceptability was interesting to ask but maybe to try to have answers as much as possible close to the "reality", I should have asked about the support (i.e. more engaged answered). Another way to formulate it could have been to make it as if it was a popular vote. This had been considered when

creating the survey but not selected because it would not be applicable to each measure (for example for the voluntary price adjustment).

It would have been interesting to ask about policy mix or to gather assessments on mixes of measures rather than separate measures. An example of the form it could have taken would be to have a question about what other measures the respondents would implement at the same time. I got some insights into this through some comments, but it does not include the opinion of all respondents on this.

One critic I would address to my thesis is the limitation to only have assessed nine measures. This had to be like this, to keep the survey quite short, but it would be more overarching to have more measures assessed. This applies to consumption-targeted measures, but it would also have been interesting to have an assessment of supply-targeted measures, as both sides go hand in hand.

Regarding the analysis of the general questions, it was limited by the low number of answers in some categories and some of them had to be set aside for the analysis. It would have been interesting to have more answers in those categories, to also include them in the analysis.

Conducting the analysis of the categories made me question the relevance of classifying policies to assess them. I think that similarities exist in between measures of a same category, but I also think that the assessment also depends a lot on the measure itself. In the case of my thesis and the measures analyzed specifically, I think that the choice of categories was not the most relevant. Moreover, I think that conclusions based on typology would make more sense and be ‘stronger’ when each category contains more measures.

The qualitative analysis was not the main focus of the thesis, however, I think that it brought a lot to the discussion of the quantitative results. A limitation is that the thematic analysis was not reviewed by a second person, which increases the risk of overlooking other themes or alternative ways of interpreting the comments. Moreover, the interpretation of the assessment results is limited by the fact that it was not mandatory to write comments.

5.8.2. Personal reflections on TCA

Writing this thesis allowed me to dive into what TCA is and how this approach could be used to move the current food system toward a healthier and more sustainable one. In my opinion, one of the strengths of this approach lies in its holistic aspect. Indeed, trying to move toward a healthier food system or a more environmentally sustainable food system would be a big step, but the risk of not

considering the other aspects is to improve one part to the detriment of another. One potential limitation, also mentioned in the literature (Contor et al. 2026) and some comments, is the difficulty to conduct calculations that would represent the real costs and prices of food. However, I think that this is not something that should prevent the continuation of the work based on TCA and this for the two following reasons: first, calculations are gaining in quality and will most probably continue in that direction. Second, TCA could also be largely used without precise calculation. If we take the example of the measures discussed in this thesis, TCA could probably be used without exact calculation for setting standards for public procurement, implementing various nudging strategies and even modify taxes (which are the first three measures chosen for prioritization).

As the ‘problem’ that TCA is trying to solve is wicked (i.e. make the food system healthier and more sustainable), there is no single solution. Rather, TCA is one of the tools that we can use to try to move toward this highly difficult, but essential, objective.

6. Conclusion

Through an online survey, this thesis revealed an overall positive assessment by stakeholders of the Swiss food system of nine consumption-targeted measures based on TCA in terms of acceptability, perceived effectiveness, perceived fairness and perceived feasibility. Public procurement and nudge were always high in the ranking, as well as being respectively the first and third measures to be chosen for prioritization. Advertising was also well ranked for the four questions and the fifth one to be chosen as priority. Target for retailers was the fourth one to be chosen for prioritization but had a rather negative assessment for the feasibility. Bonus and promotions were overall in the middle of the ranking and were respectively the sixth and eighth chosen as priority. Price adjustment was always the last in the ranking (second last for effectiveness) and was the measure the least chosen as priority. Fiscal measures was high in the ranking for effectiveness, low for feasibility and fairness, but was the second measure chosen for prioritization. Label was high in the ranking for fairness but low for effectiveness and was chosen only as the seventh measure for prioritization.

The analyses revealed no significant differences between different stakeholders' groups, working fields, years of experience and familiarity with TCA, but some patterns have been observed. Stakeholders whose activities would be directly impacted by the measure had generally more negative answers. The more the respondents knew about TCA and the more their judgment was positive. The years of experience did not influence the assessment.

The perceived effectiveness and perceived fairness had a clear influence on the acceptability (i.e. the more a measure was perceived as effective or fair and the more it was acceptable). The evidence was less clear for the influence of the feasibility on the acceptability.

The results about the categories of policies showed that market-based came last in terms of acceptability, fairness and feasibility. Information-based was the least perceived as effective. Nudge and regulatory received overall good results. These analyses were limited by the variation in individual results of the measures within the same category, as well as the small number of measures in some categories.

The recurrent themes from the comments to the open-ended questions were preoccupations about the impact on low-income populations, interference in individual freedom, enterprise freedom and in the free market system, the need of a mix of policies, the lack of support and opposition by relevant actors, the difficulty of data collection and calculation, voluntary commitment vs mandatory measures, and that some measures might be time and/or resource intensive for little results. Some critics about TCA were also raised. These comments have been helpful in discussing each measure individually.

Key takeaways from this thesis are the following: (1) the positive assessment of the measures and that it could be communicated to avoid pluralistic ignorance, (2) the need of a policy mix, rather than single measure implementation, that include both more intrusive and less intrusive measures, (3) the importance of socially supportive and educational measures, (4) the relevance of state intervention despite the free market system, and (5) the importance of multi-stakeholders' collaboration.

Further research could investigate similar studies in other countries, as well as conducting assessments on more measures, including supply-targeted ones. Collecting the population's opinion and asking about policy mix are further ideas mentioned in this text. More generally, how TCA can be best used to help transform the food system toward a healthier and more sustainable one is a field of research to be explored.

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9. Appendices

Appendix 1: Vision and Pathways of the TRUE-COST-CH project

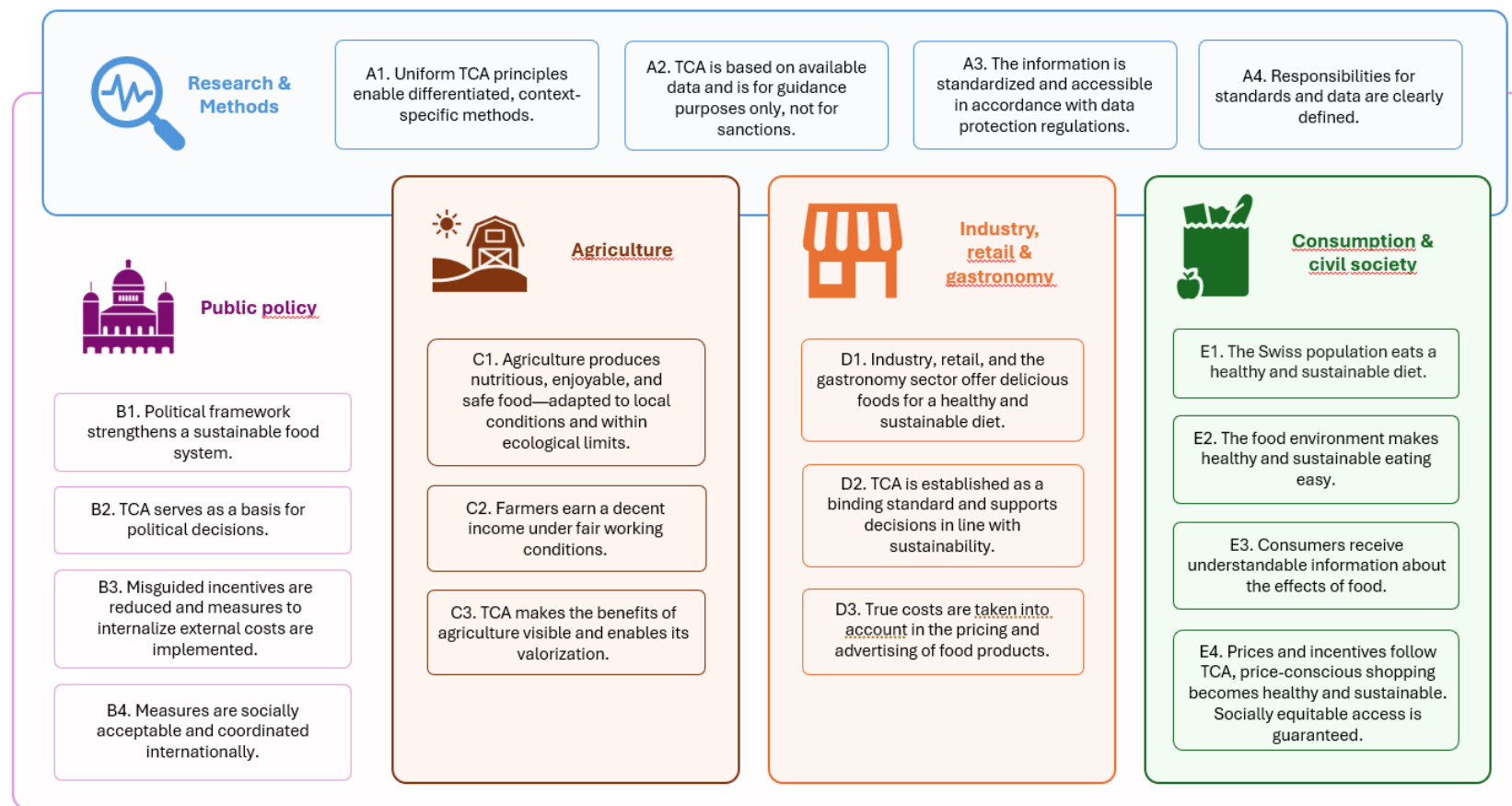


Figure 18: Vision for 2050, based on the multi-stakeholders' workshops (Arnold & Pauli 2026)

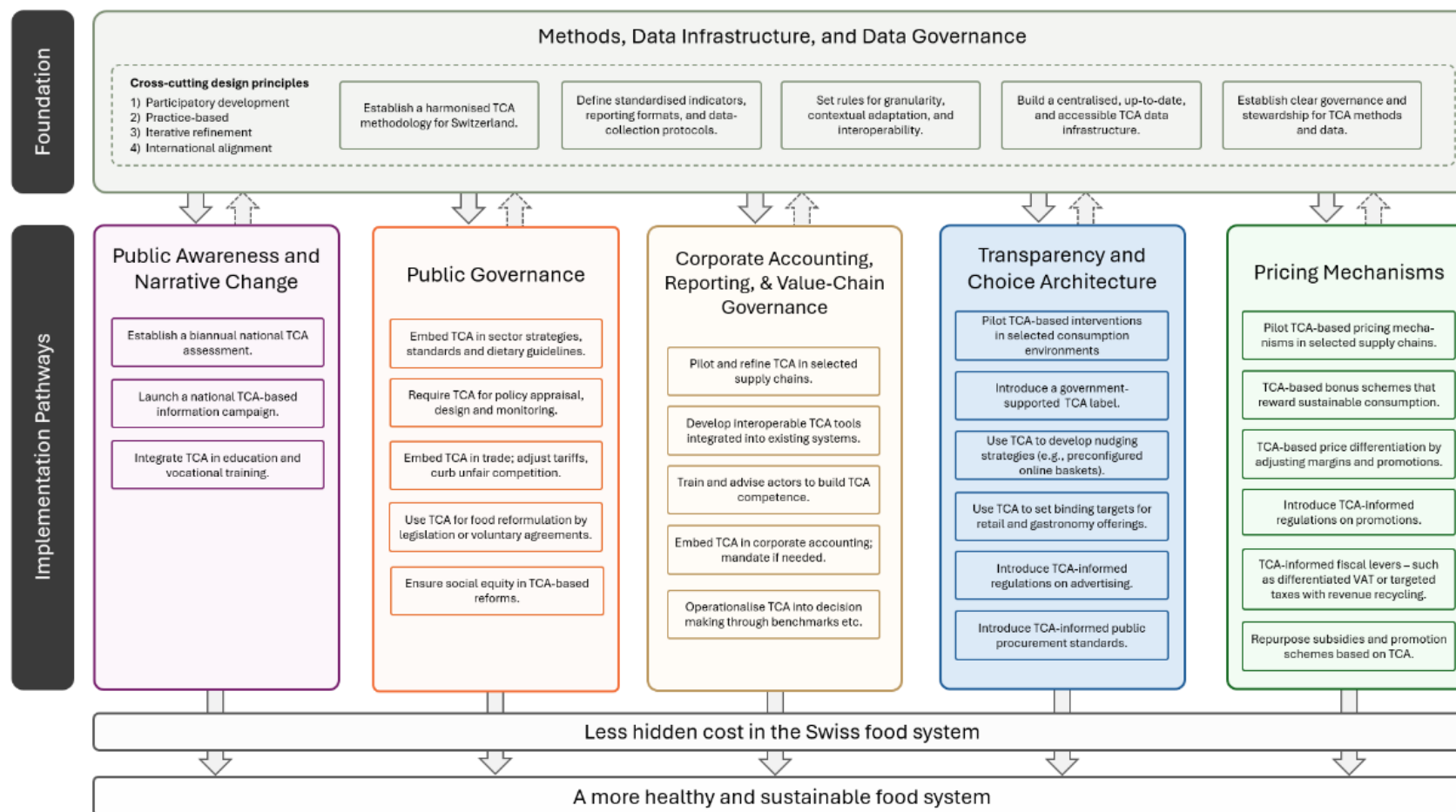


Figure 19: Pathways to the vision, based on the multi-stakeholders' workshops, completed by literature research (Arnold & Pauli 2026)

Appendix 2: Survey content in English, German and French

Table 4: Survey instructions and questions

English	German	French
<i>Introduction text & Privacy notice and consent</i>		
Welcome! Thank you for participating in this survey on stakeholders' perceptions of possible measures to address hidden costs in the Swiss food system. This survey is conducted by members of the SNSF-funded TRUE-COST-CH project (www.truecostoffood.ch), with the support of Orianne Pauli, a Swiss master student based at the Swedish University of Agricultural Sciences (SLU). Please respond in your individual capacity, based on your professional experience in your current role. The survey is anonymous, and the data will be used exclusively for research purposes	Willkommen! Vielen Dank für Ihre Teilnahme an unserer Umfrage zu möglichen Massnahmen zur Reduzierung versteckter Kosten im Schweizer Ernährungssystem. Diese Umfrage wird von Mitgliedern des vom Schweizerischen Nationalfonds (SNF) geförderten Projekts TRUE-COST-CH durchgeführt (www.truecostoffood.ch), mit Unterstützung von Orianne Pauli, einer Schweizer Masterstudentin an der Schwedischen Universität für Agrarwissenschaften (SLU). Bitte antworten Sie aus Ihrer persönlichen Perspektive, auf Grundlage Ihrer beruflichen Erfahrung in Ihrer aktuellen Funktion.	Bienvenue ! Merci de participer à notre enquête sur les mesures possibles visant à réduire les coûts cachés dans le système alimentaire suisse. Cette enquête est menée par des membres du projet TRUE-COST-CH (www.truecostoffood.ch) financé par le Fonds national suisse (FNS), avec le soutien d'Orianne Pauli, étudiante suisse en master à l'Université suédoise des sciences agricoles (SLU). Veillez répondre selon votre perspective personnelle, sur la base de votre expérience professionnelle dans votre fonction actuelle.

and in aggregated form. The data collected from the survey will be securely stored in protected folders on University of Lausanne servers and access will be restricted to the TRUE-COST-CH team members only. Contact: truecostoffood@unil.ch. I hereby consent to take part in this survey and that my answers are processed in the manner explained above.	Die Umfrage ist anonym und die Daten werden ausschliesslich zu Forschungszwecken und in aggregierter Form verwendet. Die im Rahmen der Umfrage erhobenen Daten werden sicher in geschützten Ordnern auf Servern der Universität Lausanne gespeichert. Der Zugriff ist auf die Mitglieder des TRUE-COST-CH-Teams beschränkt. Kontakt: truecostoffood@unil.ch Hiermit erkläre ich mich damit einverstanden, an dieser Umfrage teilzunehmen und dass meine Antworten in der oben beschriebenen Weise verarbeitet werden.	L'enquête est anonyme et les données seront utilisées exclusivement à des fins de recherche et sous une forme agrégée. Les données collectées dans le cadre de cette enquête seront conservées de manière sécurisée dans des dossiers protégés sur les serveurs de l'Université de Lausanne. L'accès sera limité aux membres de l'équipe TRUE-COST-CH. Contact : truecostoffood@unil.ch Je consens par la présente à participer à cette enquête et à ce que mes réponses soient traitées de la manière décrite ci-dessus.
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Background variables:

Let's get started! We begin with a few general questions about your professional background:	Beginnen wir mit ein paar allgemeinen Fragen zu Ihrem beruflichen Profil:	Commençons par quelques questions générales sur votre profil professionnel :
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1. Stakeholders group

Which of the following stakeholder groups best describes the organization for which you primarily work?	Welche der folgenden Stakeholder-Gruppen beschreibt die Organisation, für die Sie hauptsächlich tätig sind, am besten?	Quel groupe d'acteurs décrit le mieux l'organisation dans laquelle vous travaillez principalement ?
Academic or knowledge institutions	Akademische oder Wissensinstitution	Institution académique ou de recherche
Civil society organisation / NGO	Zivilgesellschaftliche Organisation / NGO	Organisation de la société civile / ONG
International organisation	Internationale Organisation	Organisation internationale
Producer organisation	Produzentenorganisation	Organisation de producteurs
Private sector organisation	Privatwirtschaftliches Unternehmen	Entreprise du secteur privé

2. Field of work

Which areas of work best describe your main professional activities?	Welche Arbeitsbereiche beschreiben Ihre beruflichen Tätigkeiten am besten? (Mehrfachauswahl möglich)	Quel domaine de travail décrit le mieux votre activité professionnelle ? (une ou plusieurs réponses possibles)
Agriculture and primary production	Landwirtschaft / Primärproduktion	Agriculture et production primaire
Nutrition & public health	Ernährung und öffentliche Gesundheit	Nutrition et santé publique
Finance, investment, and business services	Finanzen, Investitionen und Unternehmensdienstleistungen	Finance, investissement et services aux entreprises
Livelihoods, poverty, and equity	Lebensgrundlagen, Armut und Gerechtigkeit	Moyens de subsistance, pauvreté et équité
Food processing and manufacturing	Lebensmittelverarbeitung und -herstellung	Transformation et fabrication des aliments

Food retail	Detailhandel	Commerce de détail alimentaire
Food service and gastronomy	Gastronomie und Gemeinschaftsverpflegung	Restauration et services alimentaires
Policy and public administration	Politik und öffentliche Verwaltung	Politique et administration publique
Environment	Umwelt	Environnement
Input and support services for production	Betriebsmittel und Dienstleistungen für die Landwirtschaft	Services d'appui et intrants pour la production
Consumer protection	Konsumentenschutz	Protection des consommateurs
Other (please specify)	Andere (bitte angeben)	Autre (veuillez préciser)

3. Years of experience

How many years of professional experience do you have related to food and nutrition? <i>(including education and studies)</i>	Wie viele Jahre Berufserfahrung haben Sie im Bereich Ernährung und Lebensmittel (einschliesslich Ausbildung und Studium)?	Combien d'années d'expérience professionnelle avez-vous dans le domaine de l'alimentation (y compris la formation ou les études) ?
0–2 years	0–2 Jahre	0–2 ans
3–5 years	3–5 Jahre	3–5 ans
6–10 years	6–10 Jahre	6–10 ans
11–15 years	11–15 Jahre	11–15 ans
16–20 years	16–20 Jahre	16–20 ans
More than 20 years	Mehr als 20 Jahre	Plus de 20 ans

4. Familiarity with the concept of hidden costs in the food system

How familiar are you with the concept of true costs (sometimes also referred to as hidden costs) of food?	Wie vertraut sind Sie mit dem Konzept der Kostenwahrheit (manchmal auch als versteckte Kosten bezeichnet) im Ernährungssystem?	Dans quelle mesure êtes-vous familier·ère avec le concept de coûts réels (parfois appelés coûts cachés) des systèmes alimentaires ?
I have never heard of this concept.	Ich habe noch nie davon gehört.	Je n'en ai jamais entendu parler.
I have heard of it, but I could not really explain it.	Ich habe davon gehört, könnte es aber nicht wirklich erklären.	J'en ai entendu parler, mais je ne pourrais pas l'expliquer clairement.
I have a basic understanding of it.	Ich habe ein grundlegendes Verständnis davon.	J'en ai une compréhension de base.
I have a good understanding of it.	Ich habe ein gutes Verständnis davon.	J'en ai une bonne compréhension.
I have an in-depth understanding of it.	Ich habe ein vertieftes Verständnis davon.	J'en ai une compréhension approfondie.

Section with the main questions

Introduction text:

We now move to the main part of the survey. <i>Be sure that you read these instructions carefully because you won't have access to them anymore for the rest of the survey.</i> In the following, you will be asked to assess nine consumption-targeted measures that aim to reduce the hidden costs of food.	Wir kommen nun zum Hauptteil der Umfrage. <i>Bitte lesen Sie die folgenden Anweisungen sorgfältig durch. Sobald Sie fortfahren, können Sie während des weiteren Fragebogens nicht mehr darauf zurückgreifen.</i> Im Folgenden werden Sie gebeten, neun konsumorientierte Massnahmen zu	Nous passons maintenant à la partie principale de l'enquête. <i>Veuillez lire attentivement les instructions suivantes. Une fois que vous aurez continué, vous ne pourrez plus y revenir pendant le reste du questionnaire.</i> Dans ce qui suit, il vous sera demandé d'évaluer neuf mesures axées sur la
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Hidden costs are negative impacts of producing and consuming food that are not fully reflected in market prices – for example, the price of a chocolate bar can exclude diet-related health costs from excessive sugar consumption, environmental impacts linked to cocoa production, or poor working conditions in cocoa supply chains. Important note: For this survey, please assume that robust and reliable information on hidden costs is available, and assess the measures independently of current data limitations.	beurteilen, die darauf abzielen, die versteckten Kosten im Ernährungssystem zu reduzieren. Versteckte Kosten sind negative Auswirkungen der Produktion und des Konsums von Lebensmitteln, die nicht vollständig im Marktpreis abgebildet sind – so kann der Preis einer Tafel Schokolade beispielsweise ernährungsbedingte Gesundheitskosten durch übermässigen Zuckerkonsum, Umweltauswirkungen im Zusammenhang mit dem Kakaoanbau oder soziale Kosten wie schlechte Arbeitsbedingungen in Kakaolieferketten ausschliessen. Wichtiger Hinweis: Gehen Sie bitte für diese Umfrage davon aus, dass robuste und verlässliche Daten zu versteckten Kosten verfügbar sind, und beurteilen Sie die Massnahmen unabhängig von aktuellen Datenbeschränkungen.	consommation visant à réduire les coûts cachés du système alimentaire. Les coûts cachés sont des impacts négatifs liés à la production et à la consommation des aliments qui ne sont pas pleinement reflétés dans les prix du marché – par exemple, le prix d’une barre de chocolat peut exclure les coûts de santé liés à une consommation excessive de sucre, les impacts environnementaux associés à la production de cacao ou les coûts sociaux, comme de mauvaises conditions de travail dans les chaînes d’approvisionnement du cacao. Remarque importante : Pour cette enquête, veuillez supposer que des informations robustes et fiables sur les coûts cachés sont disponibles et évaluer les mesures indépendamment des limitations actuelles liées aux données.
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Questions :

1. Effectiveness

How effective do you think this measure is in reducing hidden costs in the food system?	Wie wirksam ist diese Massnahme Ihrer Einschätzung nach bei der Reduzierung versteckter Kosten im Ernährungssystem?	Selon vous, à quel point cette mesure est-elle efficace pour réduire les coûts cachés dans le système alimentaire ?
Ineffective	Unwirksam	Inefficace
Rather ineffective	Eher unwirksam	Plutôt inefficace
Rather effective	Eher wirksam	Plutôt efficace
Effective	Wirksam	Efficace
I cannot judge	Kann ich nicht beurteilen	Je ne peux pas en juger

2. Fairness

How fair do you think the outcome of this measure would be for everyone affected (by fairness we mean that cost and benefits are shared appropriately and no group is systematically disadvantaged)?	Wie fair wäre das Ergebnis dieser Massnahme Ihrer Einschätzung nach für alle Betroffenen (unter fair verstehen wir, dass Nutzen und Kosten angemessen verteilt sind und keine Gruppe systematisch benachteiligt wird)?	Selon vous, à quel point le résultat de cette mesure serait-il équitable pour toutes les personnes concernées (par équité nous entendons que les coûts et les bénéfices sont répartis de manière appropriée et qu'aucun groupe n'est systématiquement désavantagé) ?
Unfair	Unfair	Pas équitable
Rather unfair	Eher unfair	Plutôt pas équitable
Rather fair	Eher fair	Plutôt équitable

Fair	Fair	Équitable
I cannot judge	Kann ich nicht beurteilen	Je ne peux pas en juger

3. Acceptability

To what extent are you in favor or against the implementation of this measure in Switzerland	Inwieweit sind Sie für oder gegen die Umsetzung dieser Massnahme in der Schweiz?	À quel point êtes-vous pour ou contre la mise en œuvre de cette mesure en Suisse ?
Against	Dagegen	Contre
Rather against	Eher dagegen	Plutôt contre
Neither against nor in favour	Weder dagegen noch dafür	Ni pour ni contre
Rather in favor	Eher dafür	Plutôt pour
In favor	Dafür	Pour

4. Feasibility

Assuming that all key actors are willing to actively support and work to implement this measure, how feasible do you consider it under current conditions (e.g. existing laws and regulations, financial and human resources, administrative requirements, or available technologies)?	Unter der Annahme, dass alle relevanten Akteure die Massnahme aktiv unterstützen und ihre Umsetzung vorantreiben, wie umsetzbar ist diese Ihrer Einschätzung nach unter den aktuellen Bedingungen (z. B. bestehende Gesetze und Vorschriften, finanzielle und personelle Ressourcen, administrative Anforderungen oder verfügbare Technologien)?	En supposant que tous les acteurs clés soient disposés à soutenir activement et à contribuer à la mise en œuvre de cette mesure, à quel point la jugez-vous réalisable dans les conditions actuelles (par ex. cadre légal et réglementaire existant, ressources financières et humaines, exigences administratives ou technologies disponibles) ?
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Not feasible	Nicht umsetzbar	Pas réalisable
Rather not feasible	Eher nicht umsetzbar	Plutôt pas réalisable
Rather feasible	Eher umsetzbar	Plutôt réalisable
Feasible	Umsetzbar	Réalisable
I cannot judge	Kann ich nicht beurteilen	Je ne peux pas en juger

5. Optional open-ended question:

Please briefly explain your responses to the four previous questions or highlight any important points (optional):	Bitte erläutern Sie Ihre Einschätzungen zu den vorherigen vier Fragen kurz oder weisen Sie auf wichtige Aspekte hin (optional):	Veillez brièvement expliquer vos évaluations des quatre questions précédentes ou indiquer des aspects importants (facultatif) :
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Question about prioritization:

Thinking about the nine measures assessed in this survey, which measures would you prioritize for implementation in Switzerland? Please select up to three measures.	Wenn Sie an die neun Massnahmen in dieser Umfrage denken: Welche würden Sie für die Umsetzung in der Schweiz priorisieren? Bitte wählen Sie bis zu drei Massnahmen aus.	En pensant aux neuf mesures évaluées dans cette enquête, lesquelles prioriseriez-vous pour une mise en œuvre en Suisse ? Veillez sélectionner jusqu'à trois mesures.
Introduce a mandatory national front-of-pack label that shows a product's true costs in a simple, consumer-friendly format – covering health, environmental, and social impacts.	Einführung einer verpflichtenden nationalen Lebensmittel-Kennzeichnung / Label auf der Vorderseite der Verpackung, die wahren Kosten eines Produkts in einem einfachen, für	Introduction d'un système d'étiquetage / labellisation national obligatoire apposé sur le devant de l'emballage, indiquant les coûts réels d'un produit

	Konsument:innen gut verständlichen Format ausweist.	dans un format simple et compréhensible pour les consommateur·rice·s.
Use information from hidden cost calculations to steer consumers towards healthier and more sustainable food choices (also known as nudging).	Nutzung von Informationen aus der Berechnung versteckter Kosten, um Konsument:innen zu einer gesünderen und nachhaltigeren Essenswahl zu lenken (auch als „Nudging“ bezeichnet).	Utilisation des informations issues du calcul des coûts cachés pour orienter les consommateur·rice·s vers des choix alimentaires plus sains et plus durables (également appelé « nudging »).
Introduce fiscal measures based on hidden cost calculations to shift food prices toward healthier and more sustainable options.	Einführung von steuerlichen Massnahmen auf Grundlage von Berechnungen versteckter Kosten, um Preisanreize in Richtung gesünderer und nachhaltigerer Optionen zu verschieben.	Introduction de mesures fiscales fondées sur le calcul des coûts cachés afin d’orienter les incitations tarifaires des denrées alimentaires vers des options plus saines et plus durables.
Introduce bonus schemes based on hidden cost information that reward healthy and sustainable food choices.	Einführung von Bonussystemen auf Grundlage der Berechnung versteckter Kosten, die eine gesunde und nachhaltige Essenswahl belohnen.	Introduction de systèmes de bonus fondés sur le calcul des coûts cachés, qui récompensent des choix alimentaires sains et durables.
Voluntary adjustments of margins by actors in the supply chain so that products with high hidden costs become relatively more expensive, while allocating a proportionate share of revenues to remediation – i.e., funding measures that reduce, restore or compensate for harms linked to those products.	Freiwillige Preisanpassungen entlang der Lieferkette, damit Produkte mit hohen versteckten Kosten relativ teurer werden. Die zusätzlichen Einnahmen werden dazu verwendet, die mit diesen Produkten verbundenen Schäden zu verringern oder kompensieren.	Ajustements volontaires des prix tout au long de la chaîne d’approvisionnement afin que les produits ayant des coûts cachés élevés deviennent relativement plus chers. Les revenus supplémentaires sont utilisés pour réduire ou compenser les dommages associés à ces produits.

Introduction of regulations on promotions based on hidden costs—for example, by limiting discounts, “sales,” or bundled offers for products with high hidden costs.	Einführung von Vorschriften für Preisaktionen auf Grundlage der Berechnung von versteckten Kosten – zum Beispiel durch die Begrenzung von Rabatten, Aktionen oder Mehrfachangeboten für Produkte mit hohen versteckten Kosten.	Introduction de réglementations sur les promotions, fondées sur les coûts cachés – par exemple en limitant les rabais, les « actions » ou les offres groupées pour les produits ayant des coûts cachés élevés.
Introduce regulations on advertising and/or product placement based on hidden cost information.	Einführung von Vorschriften für Werbung und/oder Produktplatzierung auf Grundlage von Informationen zu versteckten Kosten.	Introduction de réglementations sur la publicité et/ou le placement des produits fondées sur les informations relatives aux coûts cachés.
Introduction of (more) stringent standards for public procurement of food products (e.g., for cafeterias in public institutions and other publicly funded institutions), based on information regarding hidden costs (e.g., limits on sugary drinks).	Einführung (strengerer) Standards für die öffentliche Beschaffung von Lebensmitteln (z. B. für Kantinen öffentlicher Einrichtungen und anderer öffentlich finanzierter Institutionen), basierend auf Informationen zu versteckten Kosten.	Introduction de normes (plus) contraignantes pour les achats publics de produits alimentaires (par exemple pour les cantines d'institutions publiques et autres institutions recevant des financements publics), fondées sur les informations relatives aux coûts cachés.
Set binding sustainability targets for retailers and private food service establishments based on hidden cost calculations.	Festlegung verbindlicher Nachhaltigkeitsziele für das Angebot im Detailhandel auf Grundlage der Berechnung versteckter Kosten.	Définition d'objectifs de durabilité contraignants pour l'offre dans le commerce de détail, sur la base du calcul des coûts cachés.
None of these measures would be among my priorities for implementation.	Ich würde keine dieser Massnahmen für die Umsetzung in der Schweiz priorisieren.	Aucune de ces mesures ne figurerait parmi mes priorités en matière de mise en œuvre.

Last optional open-ended question:

If you would like to share any final remarks on the measures or on reducing hidden costs	Falls Sie abschliessende Bemerkungen zu den Massnahmen oder zur Reduzierung	Si vous souhaitez formuler des remarques finales concernant les mesures ou la
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in the Swiss food system in general, you are welcome to do so here (optional):	versteckter Kosten im Schweizer Ernährungssystem teilen möchten, können Sie dies hier gerne tun (optional):	réduction des coûts cachés dans le système alimentaire suisse, vous pouvez le faire ici (facultatif) :
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Submission confirmation page:

Thank you! Your responses have been submitted successfully. Interested in further developing the measures or joining the next multi-stakeholder workshop in Bern on 11 June? Share your contact details here: [Link Survey]. These will be stored separately and not linked to your survey responses. Sign up to the TRUE-COST-CH newsletter to stay informed about project updates: https://truecostoffood.ch/de/true-cost-of-food-media-events/. In case you have questions about the study, contact: truecostoffood@unil.ch.	Vielen Dank! Ihre Antworten wurden erfolgreich übermittelt. Möchten Sie an der Weiterentwicklung einer oder mehrerer Massnahmen mitwirken oder am nächsten Multi-Stakeholder-Workshop in Bern am 11. Juni teilnehmen? Teilen Sie uns hier Ihre Kontaktdaten mit: [Link Survey]. Diese können nicht mit Ihren Umfrageantworten verknüpft werden. Melden Sie sich für den TRUE-COST-CH-Newsletter an, um über Projektneuigkeiten informiert zu bleiben: https://truecostoffood.ch/de/true-cost-of-food-media-events/.	Merci ! Vos réponses ont été transmises avec succès. Souhaitez-vous contribuer au développement d'une ou plusieurs mesures ou participer au prochain atelier multipartite à Berne le 11 juin ? Veuillez nous communiquer vos coordonnées ici : [Link Survey]. Celles-ci ne pourront pas être liées à vos réponses à l'enquête. Inscrivez-vous à la newsletter TRUE-COST-CH pour rester informé·e des actualités du projet : https://truecostoffood.ch/de/true-cost-of-food-media-events/
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	Bei Fragen zur Studie kontaktieren Sie bitte: truecostoffood@unil.ch .	Pour toute question concernant l'étude, veuillez nous contacter à l'adresse suivante : truecostoffood@unil.ch
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Table 5: Formulation of the measure used in the survey

English	German	French
Introduce a mandatory national front-of-pack label that shows a product's true costs in a simple, consumer-friendly format – covering health, environmental, and social impacts.	Einführung einer verpflichtenden nationalen Lebensmittel-Kennzeichnung / Label auf der Vorderseite der Verpackung, das die wahren Kosten eines Produkts in einem einfachen, für Konsument:innen gut verständlichen Format ausweist – einschliesslich gesundheitlicher, ökologischer und sozialer Auswirkungen.	Introduction d'un système d'étiquetage / labellisation nationale obligatoire apposé sur le devant de l'emballage, indiquant les coûts réels d'un produit dans un format simple et compréhensible pour les consommateur·rice·s – couvrant les impacts sur la santé, l'environnement et le social.
Use information from hidden cost calculations to steer consumers towards healthier and more sustainable food choices (also known as nudging) – for example through product placement, menu design in public catering, or preconfigured online shopping baskets.	Nutzung von Informationen aus der Berechnung versteckter Kosten, um Konsument:innen zu einer gesünderen und nachhaltigeren Essenswahl zu lenken (auch als „Nudging“ bezeichnet) – zum Beispiel durch gezielte Produktplatzierung, eine entsprechende Menügestaltung in der Gemeinschaftsverpflegung, vorkonfigurierte Online-Einkaufskörbe.	Utilisation des informations issues du calcul des coûts cachés pour orienter les consommateur·rice·s vers des choix alimentaires plus sains et plus durables (également appelé « nudging ») – par exemple au moyen du positionnement des produits, de la conception des menus en restauration collective ou de paniers d'achat en ligne préconfigurés.

Introduce bonus schemes based on hidden cost information that reward healthy and sustainable food choices – for example through loyalty programmes in retail in which only products with low hidden costs receive points.	Einführung von Bonussystemen auf Grundlage der Berechnung versteckter Kosten, die eine gesunde und nachhaltige Essenswahl belohnen – zum Beispiel durch Treueprogramme im Detailhandel, bei denen nur Produkte mit geringen versteckten Kosten Punkte erhalten.	Introduction de systèmes de bonus fondés sur le calcul des coûts cachés, qui récompensent des choix alimentaires sains et durables – par exemple par des programmes de fidélité dans le commerce de détail, dans lesquels seuls les produits à faibles coûts cachés permettent de collecter des points.
Introduce fiscal measures based on hidden cost calculations to shift food prices toward healthier and more sustainable options – for example by applying higher VAT or targeted taxes to products with high hidden costs and using the revenue to reduce prices for healthier, more sustainable foods (revenue recycling).	Einführung von steuerlichen Massnahmen auf Grundlage von Berechnungen versteckter Kosten, um Preisanreize in Richtung gesünderer und nachhaltigerer Optionen zu verschieben – zum Beispiel durch höhere Mehrwertsteuersätze oder Lenkungssteuern auf Produkte mit hohen versteckten Kosten, wobei die Einnahmen zur Senkung der Preise für gesündere und nachhaltigere Lebensmittel verwendet werden.	Introduction de mesures fiscales fondées sur le calcul des coûts cachés afin d’orienter les incitations tarifaires des denrées alimentaires vers des options plus saines et plus durables – par exemple en augmentant les taux de TVA ou en instaurant des taxes incitatives sur les produits dont les coûts cachés sont élevés, les recettes ainsi générées servant à réduire les prix des aliments plus sains et plus durables.
Voluntary adjustments of prices by actors in the supply chain so that products with high hidden costs become relatively more expensive, while allocating a proportionate share of revenues to remediation – i.e., funding measures that reduce, restore or	Freiwillige Preisanpassungen entlang der Lieferkette, damit Produkte mit hohen versteckten Kosten relativ teurer werden. Die zusätzlichen Einnahmen werden dazu verwendet, die mit diesen Produkten verbundenen gesundheitlichen, sozialen	Ajustements volontaires des prix tout au long de la chaîne d’approvisionnement afin que les produits ayant des coûts cachés élevés deviennent relativement plus chers. Les revenus supplémentaires sont utilisés pour réduire ou compenser les dommages

compensate for the social and environmental harms linked to those products.	und ökologischen Schäden zu verringern oder kompensieren.	sociaux, environnementaux et liés à la santé, associés à ces produits.
Introduction of regulations on promotions based on hidden costs—for example, by limiting discounts, “sales,” or bundled offers (e.g., “buy one, get one free” deals) for products with high hidden costs.	Einführung von Vorschriften für Preisaktionen auf Grundlage der Berechnung von versteckten Kosten – zum Beispiel durch die Begrenzung von Rabatten, Aktionen oder Mehrfachangeboten (z. B. 2-für-1-Angebote) für Produkte mit hohen versteckten Kosten.	Introduction de réglementations sur les promotions, fondées sur les coûts cachés – par exemple en limitant les rabais, les « actions » ou les offres groupées (p. ex. offres « 2 pour 1 ») pour les produits ayant des coûts cachés élevés.
Introduce regulations on advertising and/or product placement based on hidden cost information – for example by restricting advertising for products with high hidden costs and limiting their prominent placement (e.g., checkout displays).	Einführung von Vorschriften für Werbung und/oder Produktplatzierung auf Grundlage von Informationen zu versteckten Kosten – zum Beispiel durch Einschränkungen bei der Werbung für Produkte mit hohen versteckten Kosten sowie durch die Begrenzung ihrer prominenten Platzierung (z. B. an der Kasse).	Introduction de réglementations sur la publicité et/ou le placement des produits fondées sur les informations relatives aux coûts cachés – par exemple en limitant la publicité pour les produits ayant des coûts cachés élevés et en restreignant leur placement bien visible (p. ex. aux caisses).
Introduction of (more) stringent standards for public procurement of food products (e.g., for cafeterias in public institutions and other publicly funded institutions), based on	Einführung (strengerer) Standards für die öffentliche Beschaffung von Lebensmitteln (z. B. für Kantinen öffentlicher Einrichtungen und anderer öffentlich	Introduction de normes (plus) contraignantes pour les achats publics de produits alimentaires (par exemple pour les cantines d'institutions publiques et autres institutions

information regarding hidden costs (e.g., limits on sugary drinks).	finanzierter Institutionen), basierend auf Informationen zu versteckten Kosten (z. B. Einschränkungen beim Angebot zuckerhaltiger Getränke)	recevant des financements publics), fondées sur les informations relatives aux coûts cachés (p. ex. limiter l'offre des boissons sucrées).
Set binding sustainability targets for retailers based on hidden cost calculations (e.g. minimum targets for the share of wholegrain products in the offer, as these are beneficial for health).	Festlegung verbindlicher Nachhaltigkeitsziele für das Angebot im Detailhandel auf Grundlage der Berechnung versteckter Kosten (z.B. Pflichtanteil an Vollkornprodukten im Angebot, da diese mit gesundheitlichen Vorteilen verbunden sind).	Définition d'objectifs de durabilité contraignants pour l'offre dans le commerce de détail, sur la base du calcul des coûts cachés (p. ex. des objectifs sur la part minimale de céréales complètes présentes dans l'offre, car celles-ci sont bénéfiques pour la santé).

Appendix 3: Statistical results

Table 6: Mean, standard error (se) and letter of significance from the linear mixed-model and pairwise comparison of the acceptability, effectiveness, fairness and feasibility of the measures

	Acceptability		Effectiveness		Fairness		Feasibility	
	Mean (se)	Letter	Mean (se)	Letter	Mean (se)	Letter	Mean (se)	Letter
Label	0.587 (0.134)	abc	2.62 (0.0889)	a	3.36 0.0952	c	2.75 (0.0961)	cd
Nudge	1.054 (0.134)	d	3.19 (0.0889)	def	3.33 (0.0956)	c	3.25 (0.0965)	e
Bonus	0.467 (0.134)	ab	2.85 (0.0889)	abc	3.05 (0.0964)	bc	2.84 (0.0969)	cd
Fiscal measures	0.696 (0.134)	bcd	3.40 (0.0885)	ef	2.95 (0.0945)	ab	2.39 (0.0961)	ab
Price adjustment	0.217 (0.134)	a	2.77 (0.0889)	ab	2.67 (0.0972)	a	2.17 (0.0961)	a
Promotions	0.707 (0.134)	bcd	3.01 (0.0900)	bcd	2.97 (0.0985)	ab	2.82 (0.0969)	cd
Advertising	0.967 (0.134)	cd	3.08 (0.0889)	bcde	3.24 (0.0964)	bc	2.99 (0.0953)	de
Public procurement	1.076 (0.134)	d	3.46 (0.0885)	f	3.31 (0.0945)	c	(3.10 0.0949)	de
Target retail	0.707 (0.134)	bcd	3.11 (0.0897)	cde	3.12 (0.0969)	bc	2.57 (0.0974)	bc

Table 7: Shapiro-Wilk test for the acceptability, effectiveness, fairness and feasibility of the measures

	Acceptability	Effectiveness	Fairness	Feasibility
W	0.98665	0.98128	0.98221	0.99416
p-value	7.425e-07	1.028e-08	4.497e-08	0.00352

Table 8: Friedman test for the acceptability, effectiveness, fairness and feasibility of the measures

	Acceptability	Effectiveness	Fairness	Feasibility
Nb of id	92	83	66	75
Friedman chi-squared	65.339	90.299	43.519	94.131
df	8	8	8	8
p-value	4.136e-11	4.044e-16	7.012e-07	< 2.2e-16

Table 9: Influence of the familiarity with TCA on the acceptability of the measure public procurement. Mean, standard error (se) and letter of significance from the multiple linear regression and pairwise comparison.

	Mean (se)	Letter
I have heard of it, but I could not really explain it	0.237 (0.444)	a
I have a basic understanding of it	1.004 (0.209)	ab
I have a good understanding of it	1.198 (0.175)	ab
I have an in-depth understanding of it	1.835 (0.361)	b

Table 10: Influence of the familiarity with TCA on the fairness of the measure promotions. Mean, standard error (se) and letter of significance from the multiple linear regression and pairwise comparison.

	Mean (se)	Letter
I have heard of it, but I could not really explain it	2.21 (0.333)	a
I have a basic understanding of it	2.91 (0.168)	ab
I have a good understanding of it	2.97 (0.141)	ab
I have an in-depth understanding of it	3.67 (0.282)	b

Table 11: Influence of the familiarity with TCA on the feasibility of the measure public procurement. Mean, standard error (se) and letter of significance from the multiple linear regression and pairwise comparison.

	Mean (se)	Letter
I have heard of it, but I could not really explain it	2.64 (0.361)	a
I have a basic understanding of it	2.83 (0.170)	a
I have a good understanding of it	3.17 (0.142)	ab
I have an in-depth understanding of it	3.97 (0.294)	b

Table 12: Results of the Kruskal-Wallis tests

	Public procurement - acceptability	Promotions - fairness	Public procurement - feasibility
Kruskal-Wallis chi-squared	7.915	10.606	14.4643
df	3	3	3
p-value	0.0478	0.01406	0.002337

Table 13: Shapiro-Wilk test for the influence of effectiveness, fairness and feasibility on acceptability for each measure

	Label	Nudge	Bonus	Fiscal measures	Price adjustment	Promotions	Advertising	Public procurement	Target retail
W	0.99263	0.97448	0.98218	0.96074	0.97245	0.9699	0.9777	0.97454	0.96755
p-value	0.9177	0.08981	0.3293	0.009789	0.07457	0.07092	0.153	0.07422	0.03767

Table 14: Beta coefficient (B), standard error (SE) and p-value of the linear regression to test the influence of effectiveness, fairness and feasibility on acceptability (* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$)

	Effectiveness			Fairness			Feasibility		
Measure	B	SE	p-value	B	SE	p-value	B	SE	p-value
Label	0.6217	0.1426	3.81e-05 ***	0.4896	0.1581	0.00268 **	0.329 4	0.1320	0.01459 *
Nudge	0.5472	0.1375	0.00015 0 ***	0.4876	0.1341	0.00048 5 ***	0.311 0	0.1266	0.01618 9 *
Bonus	0.6707	0.1089	3.20e-08 ***	0.6405	0.1128	2.37e-07 ***	0.138 1	0.1053	0.194
Fiscal measures	0.58225 1	0.10897 3	7.86e-07 ***	0.88524 5	0.09128 6	2.63e-15 ***	- 0.009508	0.09161 2	0.918
Price adjustment	0.4402	0.1082	0.00011 3 ***	0.7370	0.1119	4.75e-09 ***	0.279 7	0.1091	0.01227 9 *
Promotions	0.6353	0.1466	4.74e-05 ***	0.6209	0.1340	1.59e-05 ***	0.316 9	0.1058	0.00377 **
Advertising	0.6916	0.1276	6.10e-07 ***	0.4028	0.1186	0.00106 **	0.130 9	0.1047	0.21495
Public procurement	0.4765	0.1590	0.00356 3 **	0.5577	0.1420	0.00017 2 ***	0.283 0	0.1150	0.01583 6 *
Target retail	0.5686	0.1401	0.00011 8 ***	0.7046	0.1447	5.83e-06 ***	0.023 8	0.1104	0.82984 7

Table 15: Mean, standard error and letter of significance from the linear regression and pairwise comparison of the acceptability, effectiveness, fairness and feasibility of the categories

	Acceptability		Effectiveness		Fairness		Feasibility	
	Mean (se)	Letter	Mean (se)	Letter	Mean (se)	Letter	Mean (se)	Letter
Information-based	0,587 (0,122)	ab	2,62 (0,0726)	a	3,36 (0,0836)	b	2,75 (0,0806)	b
Nudge	0,761 (0,122)	bc	3,03 (0,0722)	b	3,21 (0,0826)	b	3,05 (0,0799)	c
Market-based	0,457 (0,122)	a	3,09 (0,0722)	b	2,81 (0,0826)	a	2,28 (0,0800)	a
Regulatory	0,864 (0,122)	c	3,17 (0,0722)	b	3,16 (0,0823)	b	2,87 (0,0796)	bc

Table 16: Shapiro-Wilk test for the acceptability, effectiveness, fairness and feasibility of the categories

	Acceptability	Effectiveness	Fairness	Feasibility
W	0.99211	0.99702	0.98707	0.99525
p-value	0.0484	0.7435	0.002592	0.3337