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Consumer Value-preferences on a Sustainable Food Market

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1 Introduction

1.1 Context

The sustainability of the food market is a key global problem. In this sector technologies, regulations and business decisions have a highly significant impact on all of humanity, future generations and countless non-human living things. Food production is one of the most basic and widespread economic activities. Agriculture uses 1.87 billion hectares, 12.6% of total terrestrial surface (USGS, 2017). This area is growing rapidly and is approaching the total capacity of globally available land (Muller et al., 2017). This situation raises two fundamental questions. On the one hand, of how mankind will be able to supply the burgeoning population with food in the 21st century within the constrained boundaries of production; and on the other hand, of how the pressure that agricultural expansion places on the world's ecosystems can be alleviated. Answering these questions is a complex, interdisciplinary task. In my dissertation I contribute to answering the second question from an economic point of view. My research aims to deepen my understanding of the food purchasing motivation of potential consumers of sustainable food production, and thus make suggestions for steps to increase the market share of these modes of production and marketing.

Agriculture is one of the most important stakeholders in the global ecological crisis. It contributes significantly to greenhouse gas (GHG) emissions (Gilbert, 2012), but at the same time, plays an important role in disturbing the balance in global geochemical cycles (Steffen et al., 2015b). As a consequence of these and other similarly harmful social-ecological interactions, the Earth is moving towards a critical transition that is likely to lead to an ecological and social collapse unprecedented in human history (Barnosky et al., 2012; Meadows et al., 1972; Rockström et al., 2009). These ominous ecological changes are a result of the accelerated economic growth of the middle of the 20th century, or in other words, a consequence of the "*great acceleration*" (Steffen et al., 2015a). Although this process has resulted in significant financial gain for many in the western world and has contributed globally to the relative decline in absolute poverty, it is not possible to generally conclude that this process would have led to human well-being alongside its catastrophic ecological consequences (Steffen et al., 2015a).

1.2 The theoretical framework of the research

In my dissertation, I analyse consumer decisions related to sustainable foods in terms of how different decision-making factors such as price sensitivity, ethical commitment and product information, influence purchasing decisions. I adhere to the concept of sustainability through the concept of externalities, that is, in the methods described below I view products as sustainable if they do not produce externalities. I will also identify a number of externalities and the differences between them; the different relationships that consumers have with each of these will play an important role in the research. Sustainable food production and sales can be achieved in many ways, but they typically follow two main models that basically determine how consumers come into contact with these products and the context in which they have to make their decisions.

Both models interpret the ecological crisis as a consequence of defective consumer decisions based on fundamentally limited information, but the proposals made to resolve the problems differ significantly in theory and practice. The first of these approaches does not attempt to change the institutional or geographical framework of the market, but emphasizes the importance of providing detailed information about individual products – since these are crucial factors in consumer decisions. This approach provides consumers with both labels and official test results, typically those that they would scarcely be able to obtain for the products that they buy for themselves. The second model seeks decision-making problems in spatial and institutional frameworks, precisely because of the spatial, social and economic globalization of the supply chain – for which it presents the solution of problems in the localization of the food market. This localisation should be realised not only in physical space, but also culturally within the closeness and directness of social relationships, according to the approach of those who represent it. The comparison of the two concepts is illustrated in Table 1 (Kuslits and Kocsis, 2018). The two models not only reduce the asymmetry of information between the consumer and the producer, but also promise that the dimensions of externalities will be reduced during the production process: in one case, the qualifying entity ‘selects’ products that are free of externalities while in the other example the producer in the new economic context is motivated to produce the goods without externalities.

		Is there any local, social embeddedness?	
		Yes	**No**
Is there any institutional checking?	**Yes**	A local product that is checked and labelled (organic or another label).	Controlled products (e.g. Fairtrade, organic) whose geographic origin is unknown (or is known but not local).
	No	A local market where the place of production is known, but the manner of production is not known to consumers.	Conventional food, where neither the origin nor the manner of production is known to the consumer.

Table 1: Organization models for sustainable food markets

In the literature, the two models and other similar solutions are concerned only with the concept of *alternative food production*, indicating that all such systems to some extent work separately from the conventional market system. Comparing these two approaches to a sustainable food market is a unique and complex way of analysing food markets. The aim of this work is to reflect on the uncertainty of the situation in which consumers make decisions in real life, and to offer a framework with which to analyse the influencing factors that are at work here (Table 1). I will investigate the subjective ethical dilemmas that buyers face, and the accuracy of the information on prices and product attributes behind their decisions. These three factors shape the framework in which my results can be interpreted at the end of the thesis.

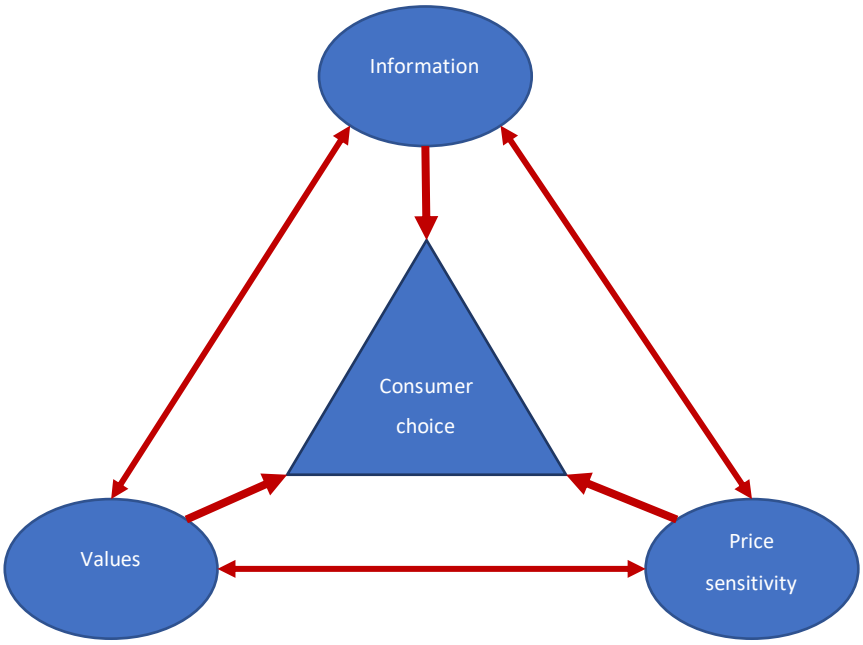

Figure 1: Analytical framework of the dimensions of consumer decisions

I do not describe the sustainability of each production method categorically, the complexity of the factors perhaps makes this impossible. I approach the issue of sustainability and ethics through the concept of *externality*, the meaning and possible interpretations of which are discussed in detail in the literature review. Externalities are all effects that occur outside production and consumption that neither the producer nor the consumer perceive directly whilst deriving from their activities. Mostly (but not in all cases) those decisions leading to externalities can be used to reduce costs, so theoretically it can generally be said that food production with more externalities can also be expected to be cheaper. Thus, the extent of externalities can also be described in price differences, which allows us to evaluate the social and ecological problems associated with production on a continuous scale and, through the related financial decisions, to examine the value judgements of consumers in specific cases. The more limited the extent of the externalities, the more I view the production methods as sustainable. However, it is important to note that price differences between (similar) products can be caused not only by the degree of the externalities, but by a number of other factors, such as the prestige of the producer, some outstanding quality attributes, and so on (Holbrook, 1999).

1.3 Motivation

Many initiatives have been launched over the past decades to address the challenges outlined above, but the solution to the ecological crisis seems far away. Many technological and institutional solutions (for both politicians and businesses) are employed traditionally as management tools in dealing with problems, but many require deeper, philosophical changes in the economy, technology, governance and everyday life. The aim of these efforts is *sustainable development*, that is to say, a development that meets the needs of current generations in order that future generations may be able to continue to do likewise (Brundtland Commission, 1987). *Sustainability* is a more precise and a more widely used term in scientific literature. It refers to the theoretical state of a social-ecological system when the system can last for a long time. I will use this term in my dissertation, and I will discuss its definition in more detail later.

Most of the food available for purchase today probably belongs to the lower right cell of Table 1. These products are not necessarily harmful, but their origin and ingredients are at least partially unknown, and this lack of transparency can be the cause of many

ethical problems – which I will later analyse in more detail in this paper. However, I will not deal with the extent to which the effects of products considered harmful to consumers can be verified from a scientific perspective. I examine consumer decisions as a subjective process of reflection, and in every case the ethical considerations represent the consumer's own value judgements, which I do not then evaluate in a comprehensive way.

Personally, I am convinced that the broad global implementation of sustainable food production is a prerequisite for long-term human nutrition and for slowing down the rapid destruction of biodiversity, but this approach also contributes significantly to a culturally richer and more enjoyable life. My thesis is permeated by the need and value judgements for conventional, industrial food production to be increasingly transformed according to the principles proclaimed by its sustainable, alternative competitors. This approach is the starting point and motivation for my research.

1.4 Research Aims

The aim of my dissertation is to show the evolution of consumer decisions through externalities and awareness of them. Although the three factors described above may exist in relative independence of one other, in practice a tension does exist between them – this tension is not only determined by the way consumer decisions are made, but also by related regulatory and marketing strategies, the work of organisations working with food systems, and so on. After a more detailed foundation of the framework outlined above, and its empirical examination, my results contribute to a deeper understanding of the sustainable food market and its consumers and, with that, help these markets in their development. The theoretical framework could make a useful contribution to the work of the scientific community if the results of this important issue can be formulated in a manner and framework that makes it comparable for other researchers. My empirical results are not fully comprehensive due to the limitations of the sampling, so I am unable to provide a comprehensive explanation of some of the research questions that can be posed within this framework, but I have undertaken the examination of some key dimensions of consumer decisions in a kind of pilot research that, despite not being based on representative samples, has led to some interesting results.

1.5 Research questions

The first step in solving the problems of conventional foods is to move to the left according to Table 1: to localize food production without affecting the means of production. Localization is not just a spatial rearrangement, but a fundamental structural change that has many consequences for both the producer and the consumer. This step assumes that localization improves personal relationships between producers and consumers, and this personal relationship and trust can replace complex regulation. Another idea would be for an upward movement in the uppermost cells. In these cases, the supply chain is not localized (in practice, in many cases – for example, in the case of coffee in Hungary – this would not be possible), but is strictly controlled by a third party who is considered to be reliable. This third party provides information about the production process to the consumer, who can then make a well-informed decision about their purchases. In some cases, both methods are applied simultaneously. While theoretically the latter are the most sustainable (depending on how relevant and enforceable the rules are), both strategies can be achieved simultaneously but would require more effort and more resources. Two possible steps for the two most common types of decisions promoting sustainable types of food production are shown by the movement in the lower right hand cell. The appropriate route in any given life situation depends on many circumstances. There are also other possible solutions, but both in practice and the scientific literature, these two methods are the most common and most discussed solutions.

It is a fact that there are a number of ways of achieving sustainable food production, which provides an opportunity to select a strategy that fits the available resources, capabilities and political preferences. My goal is not, therefore, to ascertain the 'best' way to achieve a sustainable food market, but rather to develop a framework that can assist decision-makers in choosing the most appropriate context for a variety of situations. In addition to the two listed strategies, there are further opportunities[1] for sustainable food production or, more broadly, for creating a sustainable economy globally and locally. The two selected systems stand out from the other possibilities both in a theoretical sense and in practice. There is a theoretical advantage in that while

[1] For example, founders of local currency systems have in many ways built on similar theories as the advocates of the localisation of the food system, and in many cases the two strategies appear simultaneously, supporting one another.

one focuses on the context of production and indirectly wants to influence the outcome of the process (local foods), the other directly controls the process of production and provides information about it with a more context-independent approach. Examining the two different systems allows us to research the various aspects of consumer attitudes, thus delivering more comprehensive, system-like results. From a practical point of view, I have chosen these two methods as the subject of my analysis because both of them are widely present in Hungary, and the two systems also operate in close cooperation with one another. As a result, if I examine these two options together, I think that my research results are most relevant for the domestic sustainable food production sector.

The provision of information about products and the reorganisation of the market in reality define a two-dimensional space, not simply four clearly defined possibilities. Opportunities are not black-and-white nor sustainable or unsustainable; but form two continuous dimensions. In the first case, we consider the socio-economic context (the axis of globalisation – locality), and in the second case we examine the production process itself (this axis shows the social-ecological effects). In the case of the first axis, the question is what we consider to be 'local', not only in terms of space, but also in many cases culturally. Many different labelling systems exist for the second axis, and some products are qualified in several ways. In these latter cases, we must look at the quality of the rating system, both in terms of its content within science and within the social sciences: is it really fit for the assessment purposes it was created for?

The individual cases can be judged on two aspects: how well they are able to bring about 'better' social or ecological effects (while the expected good environmental impact is mostly not dependent on our preferences, but on a more or less unalterable ecological threshold), and how acceptable and functional it is to society, that is to consumers or producers. In practice, it is therefore possible that an approach might be ecologically sustainable, but not be functional for society, for example for economic reasons, or vice versa. Balancing these aspects is greatly influenced by the system of preferences held by consumers, their level of knowledge and their financial resources, and the repeatedly unresolved dilemmas of the organisers of a sustainable market.

The structure of the two intervention models outlined so far has described food production from the point of view of producers and market management, but in my research the consumer perspective is central. Below I examine what values products

have, and what a sales strategy brings to them, which groups they are characteristic of, and of which typically chooses which. Furthermore, from the economic point of view, one of the most important issues is the price differential that accrues between the organisation of the market and the production of the product. Is it true that higher quality or more sustainable production means higher prices? What does the concept of 'quality' mean to consumers? How willing are people to pay a higher price for a more ethically produced, sustainable product? Although a sustainable food system is ultimately (from an ecological perspective) to be judged according to the circumstances of its production, in practice consumer behaviour is one of the most important issues, as the decisions and opportunities of the buyers determine the economic context in which the potentially more expensive forms of production can compete with conventional, industrial food production. At present, many different types of production compete on the food market, and consumer purchasing decisions determine the share of sustainable solutions in some market areas.

The central focus of interest in my dissertation is, therefore, determining how decisive the problems that can be described with the phenomenon of externality are, and what financial sacrifices people are willing to make to avoid them.

During my research, I look at the following main research questions:

I. Does consumer sensitivity differ in terms of the spatiality and temporality of the problems of food production and consumption, or the nature of the person concerned (human or non-human, the victim)?
II. Does consumer sensitivity differ according to the local, social embeddedness of food production and consumption?
III. Is consumer price sensitivity affected by the sustainable nature of the product?

In my dissertation, I first review the scientific literature. I examine the concept of *sustainability* from an economic point of view and present the concept of *externalities* in detail. After introducing the key concepts of the dissertation, I analyse the previous scientific results of the two systems described above to date, primarily from an economic point of view. After the literature review, I present my research methods and explain why I consider the methods selected to be appropriate for answering my research questions. Finally, I list my hypotheses and research results, on the basis of which they can be supported or rejected.

2 Literature Review

In the literature review, I first analyse the concept of sustainability and, more specifically, of when the sustainable food system discussed in detail later can be considered to be sustainable. In addition to the previously described scientific foundations, it is important to determine precisely how the question of sustainability can be interpreted in an economic context. The second point I discuss is the concept of externalities, which is a fundamental theoretical concept in my dissertation: it makes the various forms of unsustainability operational and makes it possible to compare scientifically described environmental and social problems with the subjective perceptions and value judgements of consumers, with the help of consumer judgements regarding prices. This contrast is key to my analysis: while the analysis looks at the phenomena examined from the more rigorous framework of 'strong sustainability', at the same time, for methodological reasons, I give room to the more relative, subjective judgement of consumers. In the third section, I review the literature on certified ethical products. First of all, I focus on how information concerning the different types of externality affects the price of products, on how much consumers are willing to pay for these products, and what the differences between the various efforts of ethical producers are in this respect. In the fourth section, I look at local foods from a similar perspective: here, externalities do not become visible (or avoidable) due to an explicit control mechanism, but transparency resulting from the deeper embedding of economic relations into the social network allows consumers to gain new information and thus also be willing to pay a higher price for the goods they purchase.

2.1 Sustainability

Within the speciality of economics, defining sustainability is a serious, interdisciplinary challenge. The assumptions of classical economics are significantly different from the basic assumptions of ecological science, but not only these two, but also other disciplines are required to define the concept of sustainability with sufficient accuracy. In my dissertation I examine the concept of sustainability primarily from an economic point of view. From this perspective, the sustainability of a system depends essentially on the resources used and on how those resources are managed within the

system. From an economic point of view, a system can be sustained if it does not use more resources than the return on *capital* in the system.

2.1.1 Weak sustainability

Economists who are concerned with the issue of sustainability have found more ways to approach sustainability. One such approach – environmental economics – assumes that human capital and various natural assets can be sufficiently transformed to be considered as one single type of capital. This concept is called sustainability (Gutés, 1996), also known as *Solow sustainability* (Common and Perrings, 1992). This approach sees natural assets as a context-free capital similar to money, so it views the various forms as interchangeable, just as, for example, real estate can be converted into shares in traditional economic thinking. This approach recognises that some resources sometimes run out, but if this happens, rising prices or the discovery of a substitute technology can stabilise the system as a whole. It is important to note that the principle of substitutability or transformability applies not only to human-made and ecological resources, but also to other types of capital in this approach, such as knowledge or culture. It is a fact that no key resource has ever disappeared entirely from the global economy. However, when this has happened at a local level, it has brought with it a major economic (and political) crisis (Fantazzini et al., 2011); while at the same time, food, energy and basic raw materials are abundant at the global level. In the face of weak sustainability, economic growth is desirable. In this approach, as the capital is essentially interchangeable, a higher total amount of capital also represents a greater ability to replace any missing resources – and thus to solve any problems related to the potential capital. There is no assumption with weak sustainability that extinct species can be repopulated, or that forgotten languages can be brought back through investment, but rather that the human well-being derived from these forms of capital can be replaced by another, to an equal extent.

2.1.2 Strong sustainability

The other major branch of economics dealing with the problem of sustainability is ecological economics. This paradigm builds on the axiom of *basic incommensurability*, and uses the concept of strong sustainability in other words, the concept of *Holling Sustainability* (Common and Perrings, 1992). The long-term survival of each type of capital is key to strong sustainability, but at the same time sees resources as being both incomparable and irreplaceable in terms of their value. The

principle of basic incommensurability of values was described by Schumacher, who classified radically differing resources into four distinct categories: non-renewable, renewable, industrial products and services (Schumacher, 1973). This division already shows that the material flows of the Earth are so fundamentally different from one another that total interchangeability between them can really be excluded. Herman Daly adds to this that nature, society and the economy are three nested systems where the economy is a subsystem of society, and society is a subsystem of nature. None of these systems can operate without the integrity of the system within which they are contained, as they fully incorporated and operate their subsystems (Daly, 1993). In other words, there are no economic process that can be separated from social and ecological processes, and the ultimate boundaries of the three systems are the boundaries of nature. Daly interprets the history of economic growth as a transition from an empty world to a full world. In an empty world, resources are abundant and the adverse effects of economic activity are well within the limits of ecosystem sustainability, while in a full world, the economy has grown beyond its natural capacity and almost every economic activity has direct ecological consequences (Daly, 1990).

Holling describes the organisational principles of ecosystem stability. In his view, ecological systems possess a certain level of resilience, the ability to maintain their stability and function despite external disturbances. Resilience is the interpretation of sustainability from a complex-system science perspective: there is no precise upper limit for the use of capital; the stability of the system is tied to the stability of some fundamental variables or system-properties (Holling 1973; see in Hungarian: Kuslits 2015). In Holling's view, ecological systems, in contrast to the linear degradation of over-exploited capital, maintain their stability under pressure until they reach the point at which they reach the limits of their resilience. If the pressure does not reach a certain threshold and is limited in time, then the system will be able to recover its stability by itself. However, if the ecosystem is hit by a serious shock or has been exposed for some time to some harmful effect then, having reached a threshold, it can suddenly tip over into into a new, dysfunctional state. However, the precise value of the threshold cannot be determined with certainty, even theoretically (Biggs et al., 2011; Scheffer and Carpenter, 2003). These ecological and system theory principles underpin that in a strong sustainability paradigm, some capital types within the system are neither interchangeable nor exchangeable.

From the economic point of view, the most important consequence of strong sustainability is that although economic capital can be exchanged on the market, the same is not true for ecosystems. Their presence, quantity and quality are essential for the survival of ecological systems, so if we want to keep the system running, we have to sustain the availability of each and every resource. The most important macroeconomic consequence of strong sustainability is that the economic growth can never be sustainable, because capitals are not only finite in the global system, but partial exhaustion of one can already lead to catastrophic social-ecological changes. It is important to note at this point that the capital here is not just that of physical assets (such as coal or wood) but also ecosystem functions that are similar from an economic point of view. For example, the ability of sinks, that is the ability of ecosystems to absorb and process pollutants. An important difference is that while some resources are renewable (e.g. wood), and if the rate of consumption does not exceed that of renewal, the asset remains limitless; other resources are non-renewable (e.g. metals), meaning they have a once only, finite amount, so they can ultimately run out even with minimal use. Schumacher posits that the use of non-renewables can be permitted to the extent and speed that replacement technologies are being developed (Schumacher, 1973).

Although from an economic policy point of view, weak sustainability is a more practical option, it cannot be permitted if ecological sustainability is to be achieved. My preliminary assumption is that not only from a scientific point of view, but also from a consumer point of view, we cannot equate the different types of capital (and the damage they have suffered), because consumers also have different attitudes towards them, and do not view them as interchangeable. In my research, I also examine how consumers differentiate between the values of different forms of capital, how they perceive their own personal responsibility (which they take on themselves with their consumption), and what indeed the typical strategies are that turn this responsibility into action. Given that in my research the relationship between different types of capital plays a central role, I write my findings within the paradigm of strong sustainability. However, this does not mean that those who will then be questioned in my questionnaire surveys feel the same way – it could well be that the various forms of natural capital are of equal importance to them, but that their purchasing decisions are not guided by the distinction between externalities (ethical aspects). The fact that I am examining the food market has forced me to use prices in the examination of

consumer decisions. This implies, to some extent, the comparability of individual environmental problems. It will be shown, however, that price differences not only describe the value judgements of consumers alone, it is equally important that some additional revenue is required for the physical internalisation of externalities, that is, the economic viability of sustainable forms of production. The question of how much more consumers are willing to pay for these foods ultimately and indirectly examines the economic viability of models of strong sustainability.

2.1.3 Definition of sustainability from the perspective of system theory and economics

For the above reasons, below I use the systemic definition of the concept of sustainability from Meadows et al. *"a sustainable society is one that has in place informational, social, and institutional mechanisms to keep in check the positive feedback loops that cause exponential population and capital growth."* (Meadows et al., 2004) With a view to the economy Meadows and his co-authors point to Herman Daly's three conditions (Daly, 1991):

"a system is sustainable if:

- *Its rates of use of renewable resources do not exceed their rates of regeneration.*
- *Its rates of use of nonrenewable resources do not exceed the rate at which sustainable, renewable substitutes are developed.*
- *Its rates of pollution emission do not exceed the assimilative capacity of the environment."*

From this, it is clear in examining the various different types and behaviours of capital in a system, that they must be sustainable simultaneously in order for the system to be considered sustainable in its entirety, that is, as Daly states, in measuring the dynamics of the representatives of the above three categories, they should also be sustainable. The definition given by Meadows et al. highlights the decisive role of informational, social and institutional mechanisms: in both the theoretical foundations and in the empirical research section of my thesis I specifically focus on the realisation of these things. The two examined strategies, the classification of products or the localisation of production, are precisely the information and social structures and institutions that serve to reduce the level of environmental externalities, i.e. to make food production more sustainable.

2.2 Externalities and prices

The development of the concept of externalities is linked to Pigou (Kerekes et al., 2018; Kerekes and Szlávik, 2003). Originally, this meant those exceptional positions where the tracking of individual interests entailed a benefit, but a loss for the greater public (Pigou, 1912). Ayres and Kneese later showed that externalities are not exceptional events, but rather characteristic of all economic processes (Ayres and Kneese, 1969). There are basically two approaches to externalities: on the one hand, they can be seen as costs that are passed on by an economic actor to the community (or other actor), but also, as a rule, to things that take place outside the framework of economic activities and whether or not they are known about, or are not consciously taken into account (Callon, 1998a). For Baumgärtner and Quaas, the use of the concept of externalities implicitly or explicitly implies in itself the ethical aspect of the issue (Baumgärtner and Quaas, 2010a), thus, externality can be understood to be a kind of technical analogy for economic-ethical problems, which are better suited to empirical research than ethics in itself. Generally, the two interpretations of the concept are not automatically equal, but within the framework of this research, externalities are a good indicator in any given case of the moral issues inherent in food production. So I consider ethical products to be those that have no social or ecological problems in the present or future of their production and consumption.

2.2.1 Externalities and Ecological Economics

There is no uniform attitude towards externalities among ecologists. Expressing harmful environmental impacts as a cost would naturally assume the acceptance of the principle of weak sustainability, which would be in opposition to current thinking in ecological economics. However, as with the above-mentioned thoughts of the sociologist Callon, some consider it to be a physical process and a useful concept among the principles of strong sustainability. Martinez-Alier argues for the incompatibility of values, and proposes decision-making frameworks in which, in addition to the monetary assessment of environmental problems, other aspects that cannot be measured alongside them are taken into consideration – the concept of externality in itself is not considered to be satisfactory (Martinez-Alier et al., 1998). On the other hand, van den Bergh argues that the total elimination of externalities is theoretically an even more stringent condition for economic regulation than the classic definitions of sustainable development, i.e. an economic system that lacked

externalities would be sustainable in the strong sense (van den Bergh, 2010). Baumgärtner and Quaas note that although theoretically one can agree with van den Bergh's argument, externalities are typically regarded as a practical concept while sustainability is viewed as a comprehensive theory of which the description is not seen as entirely satisfactory (Baumgärtner and Quaas, 2010b). Bithas and Common criticise their views and state that the principle of the incommensurability of values cannot be rejected in any way; the financial internalisation of externalities (that is the incorporation of the value of damage into price) cannot be viewed as a solution even in the case of the strictest implementation. Existing solutions for calculating externalities either result in prices that are too high and make any transaction impossible or that are too low and do not achieve their goal. According to Bithas, these assessment methods are always limited in space and time and, therefore, they are not be able to account for the externalities that occur in the distant future or in some remote part of the planet (Bithas, 2011; Common, 2011). In his response, van den Bergh defends his position. In his opinion, the internalisation of externalities cannot be achieved by payment, but by their physical avoidance through the application of appropriate technologies and management solutions. If this were to happen, prices would automatically rise to the level at which they express the true value of the products. He posits that if these prices were so high that nobody would want to pay them, it would not be a problem from a theoretical point of view: because if people are unwilling to pay the price for ecological damage, then there would be no market support for these processes and a truly sustainable economy would be the result (van den Bergh, 2012).

In the above debate, I consider van der Berg's position to be theoretically defensible, agreeing that the physical internalisation of externalities creates sustainability and, at the same time, sets prices to values that genuinely reflect the cost of *avoiding* environmental damage. In practice, however, pricing alone does not always lead to optimal decisions (not only from an environmental, but also from an economic point of view). Wilson and Tisdell show that in the long term, although conventional (for example, intensely chemical) agricultural technology clearly does not offer an optimal solution, in agriculture it is technology that many people are increasingly turning to in an effort to deal with falling revenues. One important reason for this is the development of path-dependency. Compared alongside chemical-free agriculture, pesticide-based strategies represent higher yields in the early years, thus greater

financial gain. Over time, profits diminish due to the lack of sustainability inherent in the technology, but the cost of recovery will then ultimately be too high. If the other producers continue to employ chemical technology, then the current prices cannot be supported unless the chemical free production makes premium pricing a possibility, which in practice may not be feasible. If the declining yields of conventional technologies were simultaneously the same for all producers, then they would naturally change technology. Evidently, this would not be the case, but in practice it is difficult to imagine such cooperation without serious government incentives. The other basic reason is ecological. Even if a return to chemical-free technology were to be financed, one consequence of the use of chemicals by neighbouring farmers would be that the predators that naturally provide protection from pests would be absent or in such depleted numbers they would not be effective. In addition to finance, another ecological path dependency encourages farmers to follow the lowest cost of production over the short term instead of following optimal pricing, despite the fact that this may even lead to bankruptcy in the long run. Once again, a coordinated change of strategy for all farmers would significantly reduce the individual adjustments to the costs of each farmer, as the ecological regeneration would take place sooner (Wilson and Tisdell, 2001).

The situations in which society obviously persists with non-optimal strategies can be termed ‘traps’. Costanza uses game theory to explain why individuals do not follow the strategies that would benefit the entire community. Among his examples, the most well-known are the *prisoners dilemma* and the *tragedy of the commons* (Costanza, 1987). The agricultural trap described above belongs to the latter category. Boonstra and de Boer, in looking for the historical causes of addiction, basically see three things that lie behind social trap situations: (1) too great a level of sunk costs (i.e. a degree of capital loss that precludes recovery); against the growing needs of a number of consumers, (2) lack of alternative economic opportunities due to political oppression; and (3) significant population growth which results in the loss of the benefits for a constantly increasing number of consumers. Of these three main reasons, not all three are necessarily present in all situations, although such cases may occur (Boonstra and de Boer, 2014). Strategies for costing the environment are often not sustainable in the long run due to externalities; however, as can be seen from the above-mentioned study by Wilson and Tisdell, path-dependency is a frequent reason for producers not being able to stop these strategies even when they are clearly unprofitable.

2.2.2 Externality as a concept in the context of economic globalization

The evaluation of externalities is significantly developed by Thomas Princen's study, in that the pursuit of prosperity and material growth has led to structural changes in production, trade and their social (geographical) context to such an extent that the concept of externalities is no longer sufficient to describe them. The effects are not only local but so far removed from consumers, or even from some steps of production, that their mere enumeration is an almost impossible task, not only for practical reasons, but also as a result of cultural differences. According to Princen, it would be more appropriate to use the notion of *shading and distancing* alongside externalities, because the processes of the global economy results in situations in which no one, neither the manufacturer, the trader, nor the consumer, is fully aware of the effects (costs) passed on, and so fail to take it into account. They cannot be summed up with sufficient reliability. These effects, according to Princen, are: (1), the consequences of government interventions in which outcomes detrimental to the environment are ignored for jobs or tax revenue, (2) considered clean, but in fact the effects polluting technologies such as in IT services (3) the consequence of legal differences between states. These phenomena make it possible for certain harmful effects to become completely invisible to consumers (shading). Other effects are a consequence of spatial and cultural differences, even when visible in principle, they are not comprehensible to consumers, since within a distant interpretation framework only the damage that has occurred is clear. These cultural differences are further complicated by the gradual adaptation of individual states in local law to the legal systems of Western countries, possibly despite their local traditions being different from the dominant culture. Ultimately, it may happen that while one party adheres formally to local laws, the other party claims that irreparable damage has been caused (Princen, 1997). This view is similar, but more comprehensive than that in which Bithas (2011) criticised van den Bergh's (2010) view in the above-mentioned debate, or coincides with Callon's (Callon, 1998b) conception that the essence of the phenomenon of externalities is their lack of trackability.

In addition, the important and valid issue remains of whether a production process has an impact on the producer and other actors outside the distribution network. And if it does, of the way in which it is perceived by consumers and, just as importantly, how they judge the uncertainty present in the absence of information to be. One of the aims

of my dissertation is to show a possible theoretical and practical approach to this, and I also outline the initial empirical application of this approach.

2.2.3 Externality as a phenomenon or cost

In summary, it can be stated that the term externality can have two meanings that are closely related to each other, but with different meanings. The first is the physical phenomenon: the production, commerce and consumption process that has unwanted side effects: emissions, the use of resources, and the generation of waste. In most cases, these physical side effects are secondary to the specific economic process, often remaining undetected if they do not concern an explicitly environmentally conscious individual. However, these unobtrusive effects are an inevitable problem for a third party, which the injured party then needs to do something about (either by specific action, by avoiding the effect, or otherwise). From this point of view, the externality of Callon's definition summarises the essence: he defines externalities as an ignored physical phenomenon not as a type of cost (Callon, 1998a).

Without discussing the above, environmental economics considers external costs to be an expense: external costs that occur outside the scope of a particular transaction are third party costs (which may be positive or negative, depending on the impact we are talking about). Determining this cost (apart from the methodological difficulties) assumes that the monetary compensation for the damage also actually compensates for it.

In the paradigm of ecological economics, only the first definition can be used, since the second considers damage and cost to be interchangeable. I will use the term ‘externality’ on a regular basis below. This decision requires that I clarify the context of the concept with sufficient clarity on each occasion to avoid an unintentional and unnoticed crossing the boundaries of ecological economics. Nevertheless, for research methodology reasons, I will use the concept of externality as a cost. In the right place, I explain the reason for the decision and the way it is interpreted that satisfies the definition of strong sustainability.

As I have already mentioned with reference to van den Bergh, sustainability could be achieved by completely eliminating externalities (van den Bergh, 2010). This statement basically refers to externalities as a phenomena. In my research, I base my methods on the principle that a market free of externalities is by definition sustainable,

thus deeper understanding externalities on the food market can lead to better understanding of the way towards this goal.

In both cases, the monetary value of the externality can be calculated. In the former, the amount that the externality saves for the producer or how much cost would be avoided is displayed; in the latter, the cost of the damage caused. These two amounts are fundamentally different, as it varies from case to case which is more expensive. My hypothesis is that when compared to these, there is a third, independent amount that consumers are willing to pay to avoid or compensate for externalities.

2.2.4 Externalities and consumer attitudes

According to Gattig and Hendrickx, the relationship of consumers to risks (in this case, potential externalities) depends largely on the nature of the risk, that is, whether it is a health, environmental or economic risk. On the other hand, it is equally important to determine how uncertain the risk is and its extent socially (culturally), spatially and over time. In their research Kahneman and Tversky's (1991) state that all these aspects are further modulated by loss-aversion behaviour (Gattig and Hendrickx, 2007).

According to Choi and Ng information about sustainability clearly has a positive impact on customers' willingness to purchase, and generally the company's good (or bad) reputation for sustainability also affects how easy it is for them to market their products (Choi and Ng, 2011). In contrast, many found that there was a significant difference between consumer attitudes and actual environmental impacts (Gatersleben et al., 2002). The fact that green consumers do not always behave in line with their principles may have a number of causes. The most important of these are that they are not aware of the products available (Verbeke et al., 2007), or abandoned environmentally damaging products are replaced by other, otherwise damaging products (Csutora, 2012), or no information is available on what a sustainable choice would actually be (Vermeir and Verbeke, 2006).

2.2.5 Types of externalities according to the nature of cost transfer

Externalities can occur at every point in the supply chain: during the extraction of raw materials, in the production of the product, in the commercial chain, during use or after use.

The lifecycle of the products (from their creation to the end of use) can be described as a linear process, as the industry typically does today. Every product starts with the

extraction of raw materials, these are then processed by the producers, products are taken to the market by traders and then purchased by consumers, any remainder is returned to nature, in a substantially different state from its original form – typically but not exclusively – as waste.

The externalities are very diverse, but if we want to look at the decisions made by market participants about them, then they should be grouped according to who (or what) the third party the non-utilised effects are passed on to, because this is perhaps, from an emotional, value-based perspective, the most important difference between the different types in that it can be an important factor in consumer choice. Kocsis and Marjainé Szerényi divided the types of externalities into four main categories, which include a large segment of the potential externalities (Kocsis and Marjainé Szerényi, 2018). This approach will be the basis for one of my later research methods, but I will also present the practical applicability of the framework later. Such categorisation of externalities and the main steps of the linear life cycle and the related types of externality are shown in (Figure 2).

OTHER: costs for other non-human organisms, typically animals. This type includes, for example, cases in which farm animals are kept under unnatural, harmful conditions in order to reduce production costs.

FARTHER: costs passed on to other people living far away. This type includes, for example, cases where a market participant has reduced costs by varying the wage level internationally or in the degree of strictness with which health and safety rules are applied.

HERE: Costs passed to the consumer or the immediate environment. This type includes production methods that reduce costs by reducing the quality of products or through means that potentially have an adverse effect on health. In this, for example, many people think that genetically modified foods should be included, but health damage caused by chemical residues is also included in this category.

LATER: costs passed onto future generations. This type includes those production modes that do not have immediately harmful effects, but can be shown to be likely to cause problems for future generations through their delayed or accumulative effects. Typical examples are greenhouse gas emissions.

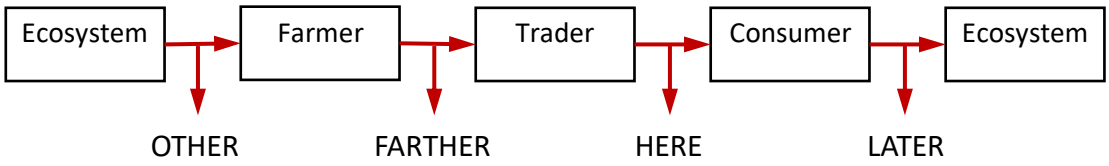

Figure 2: Linear supply chain and categories of externalities

The framework presented here is now used both for structuring the theoretical background and for developing the research methodology. This is also supported by the identification of single-word names for each type. The chain does not necessarily consist of five elements, and there can be more than one actor in every step, but this does not alter the logic of the frame.

2.3 Certified Ethical Products

According to Crane, ethical products are those that show better performance than some of their competitors in some (perhaps several) defined social values. For example, there are many such values: security, environmental impact, privacy, employee welfare, discrimination, fair trade, gene modification, etc. Each product is typically not prominent in all of these dimensions, but will be in some of them. From this point of view, the product is more than a mere physical, functional object: it expresses utility, social message, and attitude towards the consumer, which are key to both marketing and consumption decisions (Kocsis and Marjainé Szerényi, 2018)(Crane, 2001). In this dissertation, the ethical status of the products does not play a direct role in the analysis, only indirectly: I examine the subjective judgement of consumers on how and to what extent ethical aspects influence their purchases, but I do not analyse the products and the ethical difficulties that arise.

2.3.1 Transparency in the supply chain

A strategy for certified ethical products is based on the assumption that if consumers receive adequate information about products, they will make ethical decisions. The ethical criterion is not objective; it is usually determined by a social actor committed to an issue. The extent to which social consensus views a particular behaviour as ethical is reflected in how consumers behave (Kallbekken et al., 2010); meanwhile, standards that effectively motivate a significant proportion of society are very diverse worldwide.

Gupta states that the transparency of supply chains is an important prerequisite in creating a sustainable market, even if it is not sufficient in itself. The availability and interpretation of appropriate information is a prerequisite for the democratic functioning, regulation or even the decision making of any market player. Consumers have the right to know what they consume and their right to choose according to their own values – regardless of whether the producer or trader agrees with their judgment. This normative requirement, Gupta asserts, is true even if transparency would not alter the expectations connected to it (in terms of social consequences). Few people now debate this principle openly, with the institutional system of access to information becoming a central one in terms of transparency: who makes what disclosure and how they are made (or not made) (Gupta, 2010). Five years later, Mol sees the role of transparency more critically, although he agrees with Gupta in principle. According to

his analysis, while the disclosure of information can be considered to be fundamental, the way information is published (and hidden) has entered a more mature phase, where conscious global management of data shows a picture that resembles a power struggle. Mol identifies four types of transparency:

1. *Management Transparency*, when supply chain actors share data in the interest of more effective collaboration.
2. *Regulatory transparency*, when companies only share production information with the authorities in accordance with the law, but not publicly.
3. *Consumer transparency*, when product buyers receive specific information about a particular product, such as the labels discussed below.
4. *Public transparency* when a group of companies reports to the wider public about its environmental performance, such as GHG emissions.

Mol posits that clever choices in the means of sharing information enable a company to meet the (formal) requirement of transparency yet keep the shadowy sides of its operation hidden. Transparency can only achieve the desired outcomes if the information really reaches those who are affected and they have the ability to interpret the published data. Finally, it is important to note that the information and rating protocols themselves may require substantial financial resources, so that a seemingly ethical endeavour of a large company to stricter, more complex data provisioning actually seeks to take advantage of the poorer financial position of smaller competitors to gain additional benefits (Mol, 2015).

The 'information age' is characterised by the fact that environmental problems, abuses and crises are also information problems, malfunctions and crises in which access to reliable data is becoming an ever larger issue, while there is an absence of social institutions to ensure the veracity of certain data for generally acceptable judgements to be made. According to Daniel Goleman, *radical transparency*, that is, making all data related to products available, and the ability of consumers to interpret it is necessary in order for sustainable consumption to be achieved (Goleman 2009; introduction in Hungarian: Bezegh 2009).

Meise et al. demonstrate that information motivates consumers to buy more sustainable, ethical products. Many of these products are listed: cosmetics that have not been tested on animals; sport shoes not manufactured by children; food that is guaranteed not to be genetically modified, etc. (Meise et al., 2014). The recurring

pattern is that these products attract attention because they lack particular features: each such statement draws attention to the lack of a specific externality, and the quoted research typically examines whether or not consumers are willing to pay more for these products – that is, the lack of externalities (i.e., more production costs are included in the price). In contrast to the Pigou type of tax, in these cases the consumer does not pay to compensate for a harmful effect, but rather to avoid it occurring in the first place. This approach meets the requirements for strong sustainability. The quoted research examined the way in which consumers at a Swiss retail chain respond to different types of information describing products. Several important conclusions were drawn from the evaluation of the responses:

- For consumers, the two most important aspects are the product's genetic modification (or absence thereof) and the geographical origin of the product. Price is only the third strongest explanatory variable in consumer decision-making.
- An absence of information has a negative impact on consumer decisions, i.e. information on the production process is not just a factor that is given to consumers, it is valued, but they purchase a product less willingly if its history is not known.
- In the absence of any other information, consumers will decide on the basis of price. Provision of any additional information (shipping, packaging, geographical origin, manufacturing technology, etc.) is factor in any decision to a greater or lesser extent, and while price is important it is not the most significant factor.

Based on the study, it can be stated that the provision of additional information affects consumer choices and, with relevant information, consumers tend to choose more ethical products (Meise et al., 2014).

Some consumer groups are continuing to express relative preference and struggle to boycott certain products directly, which has been most characteristic regarding genetically modified organisms over the past decade, provoking vocal resistance from biotechnology researchers (AAAS Board of Directors, 2012). This phenomenon also highlights the fact that science research results and customer preferences are only indirectly related. The willingness to pay for a product (or the rejection of a product) is the result of a complex, community-based interpretation process whereby (potential)

buyers interact to express their viewpoints to each other, to representatives of the scientific world, to NGOs, and partly through marketing channels to the producers. This subjective point of view is decisive in the development of willingness to pay, not in the generally accepted professional position.

Lusk and his colleagues studied functional magnetic resonance imaging (fMRI) to test the brain function of consumers while deciding on the purchase of milk in an experimental environment. Respondents were required to choose between certified organic and various other types of dairy produce (genetically modified, hormone-treated, cloned) and to a variety of pricing questions. The conclusion of the research is that the technology that produces the product has a significant influence on the degree to which consumers express a preference, and on the price they are willing to pay. The fMRI study also enabled researchers to monitor the decision-making process with more sensitive and direct tools than questionnaire surveys, so it could also be determined that emotional motivation plays an important role in decision-making, in addition to cognitive reflection. The most accurate predictive power was shown in the combination of traditional social science methods and the fMRI study (Lusk et al., 2015).

2.3.2 Conscious consumers

Lusk and Briggeman examined what values lay behind the decisions that I have described above as ethical preferences. In their approach, the value-based choice for foods is based on the relationships between abstract, final values, and the specific physical properties of the particular food. Foods are valued on an means-end axis, that is, they look at consumer value choices as a means of delivering a more abstract, more generalised end. They list eleven core values that can be grasped both as a final value and as a property of food – and examine consumer decisions along these lines:

1. *Naturalness (that is, the extent to which the product was made without the use of modern technologies)*
2. *Taste (how pleasant the feelings are whilst eating the food in question)*
3. *Price (the retail price of that is paid for the item)*
4. *Safety (the degree to which it is unlikely that the food will cause harm or illness)*
5. *Convenience (how easy it is for the food to be prepared, consumed)*
6. *Nutrition (the amount of fat, protein, carbohydrate and vitamins contained in it)*

7. *Tradition (maintaining traditional forms of consumption)*
8. *Origin (where agricultural production took place)*
9. *Fairness (the degree to which all the actors in the production chain have received their just share of the profit from production)*
10. *Appearance (how attractive the food looks)*
11. *Environmental impact (impact of production on the environment)*

The importance of these baseline values is that while consumers are unlikely to have a preference for, for example, particular vitamins, they can relatively easily identify with these broader categories and more consistently prioritise them. An additional advantage of these categories is that they can be interpreted with both a person-centered and community-centered mindset, which enables the methodology to encompass a wide range of consumer attitudes. In their questionnaire survey, they asked respondents about values and real-life consumer decisions, and received results similar to those described above: price is important, but not the most important parameter for the purchase of food, and a complex of several different aspects underlays consumer decisions. In addition to safety and price, nutrition and flavour were of paramount importance to respondents, other factors, including environmental impact, were identified by only a few of their respondents (Lusk and Briggeman, 2009).

The emergence of conscious consumers and their increasing numbers are clear in western countries in recent decades. This phenomenon is multifaceted, but its extent has already reached the level at which food companies often do not consider price competition to be the best business strategy, trying instead to convince their consumers to attribute greater value and higher quality to their products over those of their competitors, writes Grunert. This novel interaction is basically shaped by three more or less distinct but coherent factors: (1) The specific safety and quality factors of production, (2) the quality expectations consumers have, (3) the way in which consumers see producers meet to their expectations. At first glance, these three factors seem to be just three formulations of the same aspect, but in reality, due to a lack of data and interpretation, they become three separate factors (Grunert, 2005). It may happen that the consumer considers a product to be safe and ethical because the proper marketing strategy convinced him, but that in reality it is not or at least not entirely the case; or vice versa: consumers may be mistaken about a safe foodstuff as a result of bad marketing or false information.

Grunert also defines the quality of food as an intermediate factor in a means-end axis, meaning that consumers value each product according to how far it helps them in their approach to their own longer-term goals. These goals are not necessarily explicit, but can be revealed during consumer interviews that show those who consider certain properties of food to be particularly important do not do so specifically because of their physical qualities, but because they want to be responsible parents, enjoy an enjoyable life and such like. These values can be a signal to producers (e.g. through market research) of what needs consumers present with, but they also affect marketing strategies that strive to retain consumers through well-targeted communication of a particular set of values. This is the way in which general brand-related assessments of the overall quality of products are formed, and are accompanied by labels that can be perceived as being quality-related, stand-alone brand items that are not affiliated with the company, but rather an expression of a value system independent of the producer. There are a great many such labels and, according to the literature, the impact of some of them is doubtful, while others have a strong influence on consumer behaviour – these differences depend on many factors that I will address later. Interestingly, however, given that the products that most consumers buy are many and varied, ultimately, these decision-making processes are not necessarily consciously made, for example, many consumers are not able to recall the price of a product immediately after buying it, or buy one item among the many on offer out of habit – so while there is a heightened importance on the first occasion a product is purchased, and it is likely to be followed by the process described by Grunert, over time this process becomes decreasingly identifiable (Grunert et al., 2014). In this process, steady value markers such as labels are particularly appreciated as they help to maintain the continuity and routine of the ethical consumer decision even with fading reflection.

There are consumers who not only make decisions specifically for sustainability for certain products, but rather shop with a broader value system, trying to enforce certain values with every purchase, or at least when they buy some particular goods. These consumers are referred to in the literature by the English acronym LOHAS (Lifestyle Of Health And Sustainability). The typical LOHAS consumer is married, childless, with a university degree. In their purchasing decisions, they typically appreciate a healthy lifestyle, sustainability and often other forms of social responsibility. In addition to these, individualism and seeking experiences are also important to them. Interestingly, LOHAS consumers do not generally aspire to a low level of

consumption, raising the question of how global problems would be reduced if this lifestyle were more widely adopted worldwide. Szakály and his colleagues carried out a detailed value analysis among Hungarian food consumers on a representative sample of one thousand subjects in 2014. His results indicate that 8.7% of Hungarian society fall into the LOHAS category. The entire consumer spectrum can be divided into five main categories: (1) young trend followers, (2) ethical traditionalists, (3) environmentally aware young people, (4) unmarried elderly (5) disappointed pessimists. In the breakdown of the first of the five groups, researchers have found 27% of trend-leading youngsters belong to the LOHAS category. However, the third group is also important, where there are less individualistic, more ethical consumers of whom a portion have slightly below average income, and another section who are well-off (Szakály et al., 2017). The obvious significance of this research is that only a few years ago a survey of Hungarian society took place, helping to contextualise the previously quoted research, which was carried out in countries with very different economic and social situations. Szakály and his colleagues describe results similar to those in the international literature, interestingly, the demographic characteristics of the LOHAS group are similar to those in research carried out in the United States.

Szakály et al note that although the LOHAS Group stands out for its environmental awareness, it cannot be said to be entirely sustainable in the light of global ecological constraints. They suggest the term LOVOS (Lifestyle Of Voluntary Simplicity) for those who limit their levels of consumption (Szakály et al., 2017). Shaw and Newholm present several forms of voluntary simplicity. As a starting point, consumer society is described as a twentieth-century phenomenon, when consumption moved from being a marginal activity to become a central act in our citizenship and social existence. The subject of their research is the social movement which aims not to improve the nature of consumption, but to reduce its extent as the primary objective, seeing a contradiction between the words 'ethical' and 'consumption' in their current context. The authors basically classify the followers of voluntary simplicity in two main categories: those who endeavour to improve their lives by striving for simplicity and making qualitative efforts, and those who decide along the similar lines because of ethical and community values. Of course there are overlaps between the two groups. The latter group in fact occasionally do or do not do something against their inner desires – recognising the moral imperative for *self-restraint*. The practices of both groups include sharing economy, the pursuit of product improvement, the purchase of used products.

Outstandingly important, widespread and extremely varied is the practice of following sustainable diets, which is indirectly an important factor in my own research (Shaw and Newholm, 2002).

A common problem among ethical consumer groups is that their strong convictions conflict with the practicalities of their everyday lives. Many strategies are adopted to resolve this conflict, but the most widespread is that they organise their lives in a cooperative way with the majority lifestyle accepting some internal conflict, such as buying a car despite their beliefs, but still trying to organise their lives in a more sustainable way over the longer term (Shaw and Newholm, 2002).

Compared to the former, the concept of voluntary simplicity is expanded by Kocsis' research, which compared his qualitative research against the inhabitants of a Transylvanian and an Őrség village in his research into voluntary simplicity, not only on the basis of economic but also on human ethology, psychology and sociology. His results show that with the growth of economic well-being, the increasing mediatization of society has an increasing influence over the consumers' values and perceptions. He concluded that *"the relationship between the integrity of the roots necessary for human completeness and embeddedness in the consumer society is fundamentally the reverse"* (Kocsis, 2002). Voluntary simplicity is therefore a movement that seeks to define itself in opposition to the consumer society, striving for a life that is well-founded and rich in its inner world. Often, such people make or grow their own produce, and only buy what they have to, and when they do buy something it is often second hand (Kocsis, 2018).

2.3.3 Labelled products

"Ecolabelling schemes provide consumers with information about the environmental quality of individual products, at the point of purchase, in order to enable them to choose products that are acceptable from an environmental point of view. Ecolabelling is an important means to enhance transparency and consumer trust in environmental claims." (Thøgersen et al., 2010)

There are basically two forms of product certification: mandatory and voluntary. Obligatory certificates are those in which all relevant economic operators are bound by the relevant laws of individual states, such as animal health regulations. Voluntary certificates are those systems that are not regulated by law or that are minimally regulated, which some economic operators adopt, because of some specific added

value. I use the term 'labels' for these in this research, although they may overlap somewhat with mandatory qualification systems. Although in the longer term I would see it as advantageous to adopt more aspects of the voluntary certifications into the mandatory regulations, in this research I focus on voluntary systems, so that the difference between certified and non-certified products can be captured from the consumer's point of view, which is key to the interest of this research. Since it can be assumed that mandatory regulations are applied to all products (or if not, it is very difficult to determine), the consumer has no opportunity to exercise discretion in such cases. The terms 'certified ethical product' and 'labelled product' are treated as synonymous in the following.

It can be seen from the above that, although not all consumers belong to it, there is a sizeable group of people who have a strong tendency to be environmentally conscious or ethical if they receive the appropriate information. It is important for this information to be understandable, accessible and credible. There are a great many types of labelling systems, but what they have in common is that they do not seek to fundamentally change the structure of the supply chain, but merely strive to highlight some key information within the existing system. These systems aim to make consumers aware of the difference in quality between products, so that the market balance is gradually shifted by consumer decisions in a more sustainable direction.

Gallaraga Gallastegui's review describes two goals that characterise label systems: informing consumers and making regulations more sustainable. Indeed, certain labels can be achieved through fulfilling certain criteria, so they can be indirectly understood as a kind of voluntary regulation, which is also a demonstration of the potential regulators, but also of consumer and producer perspectives on such regulation. The labels form three groups: (1) third-party pre-conditions for labels (e.g. organic certification), (2) the manufacturer's, according to a specific criteria system (e.g. CFC-free refrigerators), (3) a predetermined, quantified performance on a scale verified by third parties (e.g. CO2 emissions). Both the author and my research focus on the first of the three types. In general, five types of advantages are awaited in the literature for labelling systems:

1. *"As consumers spend little time on their purchasing decisions, it is necessary to develop a fast-track rating system*

2. *Labels are suitable for strengthening the brand (or even the sales) of a production company*
3. *Labels can motivate companies to monitor the environmental performance of their own operations*
4. *Labels generally raise environmental awareness among consumers*
5. *These programs are systems that can be used to protect the environment." (Morris 1997; cited by Galarraga Gallastegui 2002)*

The impact of labels can be examined at a national level, where the main question is whether these systems can increase the market share of sustainable products. The other relevant level is the global, transnational context where these indicators can be used to fine-tune trade agreements, and international legal conventions so that territorial inequalities do not lead to the exploitation of poorer countries or remote ecosystems. Nevertheless, according to the author, in global southern countries, enthusiasm for labelling systems is not uniform because there is a fear of losing the competitive advantage of cheap production, the rating process is not regarded as transparent and the expectations of standardised production modes are opposed (Galarraga Gallastegui, 2002).

The effectiveness of labels depends on several factors. Even among consumers who are committed to sustainability, the question is whether or not they are satisfied with the certified product. In addition to the quality of the product, the personal value system of the consumer and the society surrounding them are decisive. Finally, identification with the evaluation and acceptance of it as credible is an important aspect. Since these labels for the most part do not impose legal requirements on producers, and use of the words like 'green', 'sustainable' and the like are not currently restricted by anyone, in many cases producers have diluted their meaning, which in general can create uncertainty for consumers about labels. Once again citing Morris, Gallaraga, Gallastegui adds that labels can also be used to distract attention from other, less ethical features of a product. This observation is otherwise consistent with the concept of shading and distancing previously cited by Princen. This is possible because the lack of transparency in global supply chains is a fundamental condition for consumers (Princen, 1997). Recognising the economic potential in labels, retail chains occasionally introduce them, sometimes creating confusion, despite the fact that the original purpose of labels is to create transparency. While economic opportunities are

significant, consumers are willing to pay a premium of between 5% and 25% for certified products in the examples cited (the most common value being around 10%). This willingness to pay is already high enough to really contribute to the adoption of labels and their associated production strategies, but in some cases, when the industry gets too much influence in developing the label requirements (as the author says is the case for the EU Ecolabel) then it is misleading for consumers, so ultimately the information asymmetry does not decrease, it actually increases. A major problem in global trade is that labels designed to promote environmental goals often become instruments of national or regional protectionism (Galarraga Gallastegui, 2002).

Producers, consumers, decision-makers and other social actors see the function and meaning of labels differently. In principle, the aim of environmental and social labels would be to help solve problems that are partly private and partly social issues while preserving the potential of the free market, but this is not always possible. I have written extensively above about the role values play in consumer decisions. From the consumer side, the selection or non-selection of labels depends, of course, on whether the customer can identify with the value system represented by the label; from the perspective of introducing a label, this is a bigger challenge: the label must express the message that they want to send to the consumer and at the same time in such a way that it is acceptable to the widest possible section of society. According to Joop de Boer, it is easier to create a consensus within society for a negative aim, so labels that indicate the avoidance of a problem (e.g. GMO-free food) are more workable (de Boer, 2003).

Although in practice the labels do present the problems and benefits that are highlighted, one of their most important functions is to integrate these topics into a single framework and influence the public discourse. For example, the code system in the Hungarian grocery stores that indicates the origin of eggs (NÉBIH [National Office of Food Safety] 2012) also includes the general message that (1) wellbeing of poultry is an important topic, (2) there are basically four options for the farmer regarding the housing conditions, (3) there is a preference order for the welfare of the animals, (4) the conditions for keeping the animals are checked by the relevant authority. For a Hungarian consumer, these statements may be trivial, but in cases where production is a more complex process or it is farther from the consumer, this kind of framing is highly significant, regardless of whether the consumer ultimately identifies with the

message itself. In a broader sense, labels define sustainability or ethical issues as measurable and certifiable, and define the elements from which these concepts are composed, and what meets the criteria. So labels not only occupy a position within an existing discourse, but fundamentally determine what kind of debate is taking place (see also: Didier 2007).

De Boer states that the main difference between sustainability certificate systems and more traditional quality control techniques is that while the latter is basically a private process and the quality criteria can be narrowly and precisely defined, sustainability is a public matter, and the question arises of what we refer to as sustainable. Another type of legitimacy is required, in which case the producer's own (internal) quality control procedure is insufficient. De Boer states that the legitimacy of the rating system comprises of three steps for sustainability labels: (1) recognition of standards by a relevant but independent actor, (2) verification of compliance with these standards by an independent actor, (3) recognition of the authority and professionalism of this independent third party by a legitimate authority. Ideally, the presence of a label will provide the consumer with a significant amount of information, but this is not the case in reverse, the lack of a label in itself does not mean a weaker environmental performance,[2] producers may simply not see a competitive advantage in obtaining a certificate (de Boer, 2003).

For decision makers, labels can essentially serve two purposes. The first objective is to protect consumers from certain harmful or risky effects and from misleading information; the second serves positive political and environmental policy goals using market instruments. Depending on the local social context, these tools can be used, for example, to fit in with the US political culture, where the consumer's responsibility for decision-making is a generally accepted principle and producers' direct regulation would meet opposition (de Boer, 2003).

Despite the above, the effectiveness of sustainability labels is moderate. Grunert et al. describe the way that, while sustainability as a value choice is common among consumers, actual purchasing habits are often insufficient for those aims. The decision

[2]On the food markets in Budapest, a significant number of the traders sell food that is not certified, yet the producer still claims to be 'organic' or 'chemical-free'. On the one hand, producers openly admit that they do not certify their products because they consider the evaluation process to be expensive, and on the other hand, some consumers doubt that they have actually produced what they sell without the use of chemicals. However, this uncertainty in itself demonstrates de Boer's claim that the lack of a label in itself does not necessarily mean anything.

basically depends on three factors: motivation, ability and opportunity. Labels create the opportunity, but there is also a need for the consumer to be able to interpret the message and to be able to pay the cost of it, and some sense be motivated. It can be seen, for example, that a general commitment to sustainability in many cases does not mean that consumers feel that buying food is a particularly important area where they themselves need to act. Customers for whom food production is a key area of sustainability buy labelled products more often (Grunert et al., 2014).

In their review article, Prieto-Sandoval and his colleagues describe label systems as tools for eco-innovation. In their view, consumer demand will sooner or later respond to an innovative producer who communicates to consumers using innovative labels. After a while, consumers formulate new environmental requirements, that leads to further innovation. After several repetitions of the cycle, more radical ecological innovation is expected. These promises of radical innovation are unfortunately not supported with examples by the authors, and the cases described below suggest that this cyclical process is slow in most cases. Labelling is primarily practiced in the food-production sector, but its importance goes beyond environmental science and marketing, economics and other disciplines (Prieto-Sandoval et al., 2016).

It is an important question to what extent consumers consume the labels themselves or the product that is labelled. It may happen that the label develops into a brand and influences customer decisions relatively independently. To decide this, comparing different labels that share the same purpose would be the best method, but there is little opportunity for this because each retailer typically sells one type of labelled product, but there are big differences between the traders as to which pricing strategy they choose for labelled products (in some places, they are sold with higher profit margins, while elsewhere they are sold at a loss, presumably to enhance corporate image). Based on the limited information available, there may be some degree of competition between the various eco-labels, so that consumers are partly looking for labels alongside the main function of the product (Asche et al., 2015). Because of this phenomenon, the problem of information asymmetry arises again: what are the label preferences of consumers? Although evaluation criteria are mostly available for labels, I assume that the majority of consumers do not look carefully at these descriptions, but decide following less formal criteria.

2.3.4 Organic Foods

Organic food is one of the oldest, most widespread groups of labelled, certified foods. The start of the organic food production movement was a response to the spread of industrial agricultural technologies, in fact, before the ecological movement that emerged in the seventies (Northbourne, 1940). Probably the long history of the movement has contributed to the fact that the criterion of certified organic production is in many cases also legally regulated, so these products are found in many places and are probably among the best-known certified products in the food market. Thus, the understanding of organic consumers plays an important role in understanding sustainable consumer behaviour.

Organic foods are plant foods that have been produced without synthetic fertilizers and pesticides, or in the production of organic products for animals, with the use of hormone preparations, antibiotics, and other artificially yielding preparations in addition to the use of organic fodder. In practice, there are many kinds of organic certification systems, the rigor of which vary while the basic principle remains the same: food production without synthetic inputs. There are many motivations for consuming organic foods, one of which is that these foods are healthier. Based on the available research, Williamson sees no evidence of any positive health effect (Williamson, 2007), but it is important to note that due to the extremely varied composition of diets and the thousands of other everyday health effects, it is extremely difficult, if not impossible to isolate the effects of organic foods with statistical reliability.

According to several research projects, the main motivation for consumers of organic food is based on health and a better quality of life, but ecological and ethical factors are also important motivations. In most research, price was the most important source of resistance (Padel and Foster, 2005; Zanoli and Naspetti, 2002). In contrast to these results, Michaelidou and Hassan found a healthy lifestyle to be a less important factor; in their research, food safety was the main motivating factor (Michaelidou and Hassan, 2008). According to McEachern and McClean, the primary motivations for purchase are taste and safety (McEachern and McClean, 2002). Rödiger et al. asked questions about consumers' willingness to pay and their perceptions of prices prior to purchase and compared them with the decisions made during the actual purchase – there were significant differences between the two: the majority of the consumers overestimated

the prices, but they also bought the products that were lower than the maximum acceptable price that was given in advance as the real price (Rödiger et al., 2016). Hill and Lynchehaun and also Chinnici et al. made similar findings (Chinnici et al., 2002; Hill and Lynchehaun, 2002).

Interestingly, while many of the quoted studies basically describe similar values as consumer motivations for purchasing organic foods, they have rather diverse orders of priority. There are a number of possible explanations for this. It is possible that there is no consistent motivation among the examined (typically European) societies on this issue, or that for cultural reasons other important values are highlighted by consumers while all listed values are present in their decision in a difficult to define hierarchy. It is also conceivable that people's attitudes are similar, but the people in each sample were associated with other categories of less reflective motivation for some other reason, possibly due to linguistic differences (for example, the distinction between health and food safety is somewhat problematic, yet several of the above-mentioned research projects have dealt with them separately).

According to an article by Aschemann-Witzel and Zielke, organic production is probably the best-known and most widespread labelled agricultural product. Despite its steady growth, only 1% of the world’s agricultural land has this certification. The most important factor that hinders the growth of the market share of organic products is the price difference compared to conventional products. However, this is not a sufficient explanation, as there are consumers who consider the lower price to be an indication of low quality, and many consumers find organic foods to be expensive but overestimate the price of such products. However, price is not the only factor that can prevent consumers from choosing organic products. Sometimes, these products are unavailable, not unambiguously identifiable, or are less attractive in appearance than their conventional competitors. Consumers of organic products typically have higher than average earnings, but an even stronger predictive factor is the degree of education – as shown in comparisons between many studies, the authors conclude that cultural, sociological and demographic factors play a key role in making decisions; economic status, that is price alone as an inhibitory factor is a relative weakness. Consumers who are willing to pay a higher price for organic foods are willing to accept a price increase in excess of 100%, with an average value of over 30%. After all, it is not surprising

that, according to the authors, consumers of organic products do not really respond to price changes according to most research (Aschemann-Witzel and Zielke, 2017).

According to McEachern and Willock, producers prefer to choose the organic production method for economic reasons, and some of them consider it to be a fading, rather transitory, but lucrative fashion. Many of them, however, raise environmental, moral and social reasons for their decision – which in some cases has meant a change from a very different occupation (McEachern and Willock, 2004).

In summary, while the primary meaning of organic food production is clear, its interpretation is very diverse. We cannot clearly state why those consumers who decide to buy organic food are in fact doing so. An important issue for my research is a better understanding of consumers motivation, so I will examine labels within a framework that has previously been developed to group externalities. Organic labels cannot be placed in this framework, but the aim is not to classify all labels, rather to examine the relationship between different environmental and social externalities in a comparable way. Thus, for the four main types of externality, I will assign four types of labelling strategies below, presenting the extant scientific results, and then the shortcomings of these results that make it necessary to utilise the new framework.

2.3.5 Specific label systems

According to the Ecolabel Index,[3] there are 463 labels in 25 different economic sectors in 199 countries worldwide. The real number is certainly much higher than that, for example, there are very few examples of Hungarian labels on it. Using the framework previously set up for grouping externalities, we can also classify labels according to which basic type of environmental problem they target (Figure 3). Of course, this is just one of many possible groupings, but the advantage is that it provides a good basis for developing a more complex rating system, which I will discuss in more detail later. As I mentioned earlier, consumers appreciate the different environmental and sustainability problems in different ways, so if we want to understand the motivations for sustainable consumption, they should be approached separately. Below, I summarise the main results of the scientific literature on the four most discussed cases before turning to more complex labelling strategies.

[3] http://www.ecolabelindex.com/ – accessed 9. July 2019

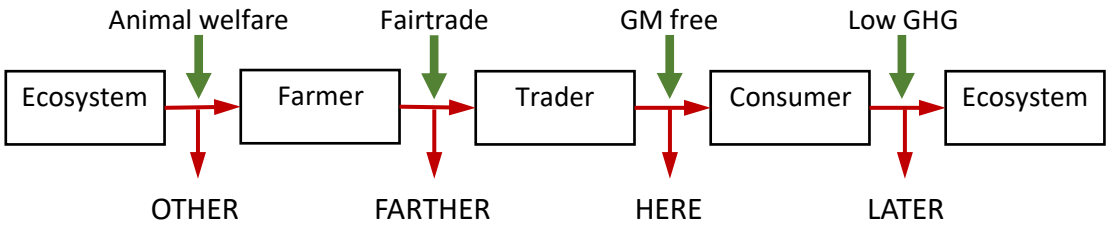

Figure 3: Types of externalities and their associated labelling systems

I will examine some of the most common labelling systems in this framework based on the literature. These systems are primarily different from organic foods in their focus to a narrower area. These do not necessarily deal with production philosophy, but do try to avoid specific anomalies such as the suffering of farm animals. I have selected the individual label types to give a brief example of a real-life example for each category in the framework described above.

2.3.6 Animal welfare labels [OTHER]

Animal protection issues may be more divisive for society than other issues related to sustainability and food production. While some choose the vegan diet because even the consumption of eggs and milk is considered an unacceptable (indirect) form of animal torture (Fox and Ward, 2008), many people believe that the existing animal protection standards provide adequate protection for farm animals. However, it is a fact that few are aware of the widespread, often questionable methods of large-scale livestock farming (Kehlbacher et al., 2012). Furthermore, over the past few years consumers have been steadily buying ever greater quantities from sources that guarantee ethical animal husbandry. With animal protection labels, it is striking that while other labels typically show the product's certification (organic or not, Fairtrade or not) as a binary option, there is a significant consumer demand for graded certification in animal husbandry. Many consumers who would otherwise buy conventional products would choose a product in the midfield given several options (de Jonge et al., 2015; Kehlbacher et al., 2012). A good example of this type is the rating system for eggs previously described by NÉBIH (2012). In comparison with other labels communication difficulty arises with regard to animal protection, since in this case it is not people who are the subjects of ethical decision. While for a smaller group this means an increased sense of responsibility, for other consumers it creates a problem in deciding what living conditions are indeed acceptable for an animal.

In general, however, it can be stated that if we provide consumers with additional information on animal housing conditions, it will significantly increase their willingness to purchase a higher rated product (Bennett, 1997; Napolitano et al., 2008).

2.3.7 Fairtrade foods [FARTHER]

Unlike organic cultivation, Fairtrade was originally a specific certification system, but it became so well-known that several other organisations also now certify under various similar names, and similar but not identical rules. The aim of Fairtrade products is to reduce the impact of economic differences between countries on wages in global trade, that is to pay producers a wage proportional to consumer prices. The most common Fairtrade products are bananas, coffee, chocolate, clothes, dried fruit, fruit juices, honey, sweet products, tea and textiles (Doran, 2009); foods that are consumed in large quantities in the western world, but typically produced in tropical countries. The spread of Fairtrade products is increasing, but their market share is low: Between 2000 and 2005 it increased from 0.2% to 2.2%. In his analysis Doran uses Schwartz's (1992) psychological-motivational framework to examine customer motivation, finding that the value of universalism is the main feature of those who occasionally and fairly choose a Fairtrade product at the time of purchase. Doran adds that within this category, those who always buy Fairtrade products consider the interests of all mankind to be relatively more important than their own direct community, while those who only buy Fairtrade products occasionally think the opposite. In addition, independence and freedom are important values for regular Fairtrade consumers. According to Doran's results, demographic variables have no significant explanatory effects (Doran, 2009). According to Arnot et al., potential customers of Fairtrade coffee can be divided into three groups: (1) ethical buyers who fundamentally consider theoretical principles when making purchases, (2) brand followers who primarily consider the quality and enjoyment of the product, ethics is a secondary consideration for them, although not irrelevant (3) price-sensitive consumers whose choices are based on price. In general, it is true that the higher price deters the purchase of Fairtrade coffee, but committed Fairtrade consumers are still less price sensitive than the market average (Arnot et al., 2006). Pelsmacker et al. studied the difference between attitude and behaviour in relation to Fairtrade products. As with other labels, the value system represented by the Fairtrade product label is also considered to be important by more people than actually decide to buy the certified

product. According to the authors, this difference is also important because while many are committed to avoiding the negative effects of the modern economy, the market share of Fairtrade and other certified ethical products is still only around 1%. The difference between commitment and behaviour may be a consequence of other factors, even that of respondents trying to respond to the survey in such a way as to meet perceived social expectations. In their research, the majority of consumers are price sensitive, but there is a dedicated minority willing to pay the 27% price premium on the Belgian coffee market for Fairtrade coffee (De Pelsmacker et al., 2005).

2.3.8 GMO Free Foods [HERE]

The HERE category describes the negative effects that consumers themselves experience as a consequence of the production method of the product. For this category, agricultural chemicals (especially historical cases such as DDT) would be theoretically better examples than GM plants, but labels that specifically focus on chemical effects do not exist outside the broader focus on organic classification, so I chose GMO-free foods as a potential consumer example. It is beyond doubt that a significant proportion of consumers consider these foods to be harmful to health.

The effects of genetically modified foods are controversial both in scientific literature and in the public sphere (AAAS Board of Directors, 2012; Phillips and Isaac, 1998). This debate is relevant to the subject of my dissertation to the extent that it raises sharply the question of what is actually communicated when a product is labelled as one containing or not-containing GM ingredients, or how consumers interpret these messages. Given the complexity and novelty of biotechnology, authors are likely to be justified in claiming that consumers who consider GM products to be dangerous are ill-informed of the essence and purpose of genetics and genetic modification. On the other hand, from a political-economic point of view, it is precisely the uncertainty and the difficulty of risk assessment that may cause some to be cautious, as it is unreasonable to expect the consumer to assess the risks inherent in a known and an unknown product in the same way. The situation is complicated by the fact that in many cases discussions about GM products are not the object of the dispute, but the business and political decisions related to it (Altieri, 2009; Mascarenhas and Busch, 2006). Furthermore, it can be stated that for the vast majority of consumers, GM foods are difficult to accept or are unacceptable (the proportion of refusers in food is above 70-80% in various European countries) and the reason for the rejection is largely due

to the assumption that GM products are harmful to health. In an experimental environment, at an auction between products of the same appearance, participants considered acceptable a 46.7% higher price for GM-free products than for genetically modified ones (Noussair et al., 2004). In contrast to the findings of Noussair and his colleagues, a Kenyan study shows that local consumers have a very positive image of GM food, and would be willing to pay 13% more than for their traditional competitor products (Kimenju and De Groote, 2008).

Honkanen and Verplanken studied attitudes and values among the students of a Norwegian university in relation to the purchase of GM foods, based on the work of Schwartz (1992). Similarly to the previously described Fairtrade products, the value dimension of universalism is the strongest predictor of refusing GM food purchases. Along this dimension, a strong and weaker attitude can be distinguished. Their research confirms that in addition to health uncertainties, environmental concerns are also a cause for the general rejection of GM foods. Similarly to other European studies, 70.5% of respondents were refusing genetically modified food to a greater or lesser extent (Honkanen and Verplanken, 2004).

2.3.9 Foods produced with low CO_2 emissions [LATER]

Although climate change is one of the most discussed ecological problems, there is no generally accepted system to signal GHG emissions among product labels. However, Wells and his colleagues have shown that, like other environmental problems, there is a sense of responsibility and a willingness among consumers to consume more climate-conscious products, but these consumers need further help in making this decision, primarily from governments and NGOs. One form of missing support is the availability of appropriate information on the environmental impact of products (Wells et al., 2011). However, Röös and Tjärnemo state that it is a significant difficulty with carbon emission labels, that while personal health is an important motivation to buy organic foods, until now it has been less feasible to connect reduced GHG emissions, to an immediate personal benefit. This may be the reason why the willingness to pay for low carbon emissions in many studies is lower than for organic, Fairtrade or local products. Underlying the low acceptability of CO_2 labels, the authors list the strength of habits, the poor distribution of labels, the lack of information, the mistrust of certification, and the feeling that shopping actually has an insignificantly positive impact on the problem of climate change – these difficulties have to be somehow

overcome by those who want to launch such a labelling system (Röös and Tjärnemo, 2011). Vanclay et al., in an experiment set in a true-life environment, labelled thirty-five products based on carbon emissions (low, average, high emissions). In the three-month long experiment, the labels had a minimal impact on the sales data of the products concerned, with no statistically significant effects shown (Vanclay et al., 2011). Koistinen et al., in their research on meat products, found an insignificant but negative correlation between carbon emissions and the willingness to purchase (Koistinen et al., 2013).

There are a number of approaches to calculating carbon emission, some of which focus on consumers and others on producers. There is a significant difference between the two methods in terms of the ethical approach. If we calculate the output of the producer, and the goods produced in one country are then purchased in another country, then the demand is in the second location, yet the output is accounted for in the first country. This is exacerbated by the fact that this relationship often accounts for the GHG emissions of northern countries at the expense of the southern countries. In the reverse situation, the problem may be that producers are not motivated to reduce emissions, as the responsibility lies with the consumer in the system (Bastianoni et al., 2004).

Caputo et al. have investigated in which interpretation of greenhouse gas emissions the consumer's willingness to pay is higher. In their work, the length of the supply chain (food-miles) and the calculated CO_2 emissions were reported to consumers, and it was found that the two approaches generally give rise to similar responses from customers, but some were slightly more sensitive to the CO_2 label – as some purchasers who did not respond to "food-miles" information indicated willingness to pay for the CO_2 label (Caputo et al., 2013).

2.3.10 Special label solutions

2.3.10.1 Multi-level certifications

Multi-level labeling is not always appropriate, for example, it would not be easy to establish a grading system for chemical-free food that would clearly communicate the difference between levels to consumers[4]. However, in other situations, multi-level

[4] In reality, there are significant differences between various organic certificating systems, for example how many years of chemical-free soil management is expected, or what kind of chemicals are banned. These aspects are

rating systems are easy to apply, with one of the most common labels being for the housing and treatment of animals. According to Weinrich and Spiller, multi-level labels also contribute to making disputes around food less pronounced. Recognising the levels between the two extremes also represents a potential gradual development for producers of a radical but practically difficult transition between intensive and extensive forms of animal housing. Multi-level labelling is important not only for middle-range products, but also for clearly communicating the nature and substance of the highest quality products. The price premium that can be demanded for a product with the highest rating is not necessarily available in a market where high-end product features are not clearly distinguished. Seeing this from a theoretical point of view, the information asymmetry between producer and consumer is more effectively resolved by a more sensitive system of certification. In addition to the theoretical advantages, there is a significant empirical argument that supports multi-level labels in that while in a binary system some 69.9% of consumers chose the non-certified product, this number was only 23.7% among the five-grade products. That is, the multi-level rating significantly increases the market share of more ethical products (Weinrich and Spiller, 2016).

2.3.10.2 Negative labelling

For many consumers, environmental values are important, but despite this they do not buy certified, sustainable products. The vast majority of existing labels convey a positive message, that is, communicate the outstanding feature of a qualified product. However, several researchers point out that negative messages have a much more effective impact on consumers' decisions. Kahnemann and Tversky have described the way in which consumers are more inclined to avoid a certain amount of loss than to achieve the same level of profit, even if it seems unjustified from a mathematical point of view (Kahneman and Tversky, 2012). Negative labelling is also better suited to the creation of effective regulation. The authors also empirically demonstrate that negative labelling has a stronger impact on product selection and willingness to pay than positive labelling does. However, it is clear that against a positive third-party label, it would be unthinkable for producers to voluntarily permit a non-influenced

important and do represent some kind of grading, yet using these criteria to build a multi-level system does not fit the practical possibilities of food labelling.

organisation to form a negative link to their products. Consequently, in practice, negative labelling is only possible where there is a legal obligation in which the producer can remove the label from the packaging of his product under certain minimum sustainability requirements (Van Dam and De Jonge, 2015).

2.3.11 Summary

Certification and labelling schemes contribute to the creation of a sustainable food market in many ways. They communicate effectively with consumers who have to make their consumption decisions very quickly, typically in situations where there is no means of finding out more about the product in question. They help to regulate markets more democratically by (self) implementing the principle of radical transparency. In addition, labels generally contribute to the spread of ecological principles by consistently communicating on some key issues and the responses to them in the sphere of everyday consumer decisions. Labels expand the framework in which consumers think about products, draw attention to problems that occur in distant countries or with other species. Labels contribute to eco-innovation in a number of sectors by communicating expectations and opportunities between producers and consumers. Finally, in themselves as introduced qualifying systems labels can contribute to the development of environmental regulations by adapting their certification model or in the adaptability of their rating model.

In addition to our current knowledge of labels and rating systems, there are some problems in their practical application that I would like to investigate:

- There are a number of research projects into the values of each label type that guide consumers in their purchases, but since these researches have typically taken place with a relatively small sample and specific type of label, we have no knowledge of the relationship between different environmental issues in consumer thinking. What are the main properties of a food and why? What are the principles or points of view underlying these decisions?
- It could be seen from the results described above that willingness to pay with regard to individual labels has a significant variance. Although the results are mostly significant and agree that some of the consumers are committed to sustainability, and a section of this consumer group do actually make decisions to support it, the broad standard deviation suggests that, in their current form, label-based surveys are not accurate enough in estimating the dynamics in

consumer decision making, and a more sensitive system than is currently widespread would be advantageous.

- Finally, it would be useful to have a framework that would help comparing certification rating systems and research findings on them in various countries and populations. This would help in understanding the conditions under which environmental communication and regulation can be more effective; which market solutions best help consumers take information about production conditions in consideration in their decisions. This also includes the need for this kind of comparability to give a more thorough explanation of the differences between attitudes and behaviour.

2.4 Reshaping market structure

2.4.1 Local food production

In the quotation used above, Princen describes the local economy as a possible solution to shading and distancing problems (Princen, 1997). The basis of this approach – that is rather popular among ecological thinkers – is that local economic relations are more deeply embedded in the social context, and therefore are better controlled by the non-economic mechanisms in society. Granovetter wrote about the embedded nature of farming based on Károly Polányi's work (Granovetter, 1985). The relationship between food quality and local embeddedness was first analyzed by Murdoch (Murdoch et al., 2000). These approaches are, in fact, more sociologically elaborated descriptions of Herman Daly's nature-society-economic description (Daly, 1990), which I have discussed in greater detail above. These arguments distinguish between economy and society, which Callon and Latour argue convincingly. They would rather place emphasis on what we do or do not take into account in our examinations (and in our business decisions)(Callon, 1998b; Latour, 2005, 2004). Ultimately, however, there is a consensus amongst these authors that the impact of these neglected aspects, that is, externalities, is growing with the increase in geographical distance, so that despite the economy being socially embedded in the global perspective, producers and consumers are much less likely to reflect on this embeddedness due to the mechanisms described by Princen.

The future structure of society and economy in rural areas attracts the interest of many researchers. Research into the potential sustainability of the future is typically into the localisation of the economy and food production as a hypothetical vision. Scenario development research shows that the structuring of the global economy, local, national and continental political developments, and the evolution of consumer preferences (in the light of the experience of the ecological crisis) are key factors as the final scenario comes into being. Overall, these visions leave extensive room for fantasy, but they clearly show that localisation is an important aspect of thinking about the future of the regions for the researchers of the topic and, in many cases, for the local citizens involved in the research. Regardless of the real outcome of the future, this shows that the structuring of the local economy is a key concept not only in food consumption but also for local sustainable development (Alexandra and Riddington, 2007; Gómez-Limón et al., 2009; Westhoek et al., 2006).

According to Dahlberg, local food systems are not necessary first and foremost because consumers demand it (although he does offer examples of such cases), but because the global food industry itself is unsustainable, and not just because of other general effects it generates (e.g. climate change). Dependence on fossil fuels both in production and in transport is such that it is simply a matter of time before the globalisation of the food industry will be brought to an end. The author urges that local regenerative food systems be created that are not merely a return to the systems known from the past, but be based on the experience of sustainable (typically third world, peripheral) food production systems, to offer a modern urban society a local food supply (Dahlberg, 1994).

Winter critically analyses the concept of *quality* in relation to the embedding of local products: what is the reason for the assumption in modern thinking that local food is of higher quality, and what exactly does 'quality' mean? With more accurate analysis, there is no evidence that the most important factors determining the quality of food would focus on the geographically peripheral areas of the economy – and even assert the opposite. However, in their research (carried out in rural areas of Great Britain, where large numbers of former metropolitan residents have moved), people found that they typically try to buy locally produced food for three main reasons: (1) they want to help the local economy, (2) they consider it to be tastier, (3) it is important to know where what they eat comes from. Thus, the lesson in the research is that, although the outstanding quality of local products is questionable, consumers buy some local products for other reasons and partly disagree with the author's conclusion, which may be due to other aspects of product quality being judged, as listed by Winter. On the other hand, their responses emphasise that they are sympathetic to the local producers they know and see their financial difficulties. Winter is critical of his respondents' thinking, which he suggests is a somewhat narrow-minded localism that cannot be proven to be better in the global food industry, either in quality or in sustainability. However, its findings confirm that local markets are more transparent, the economic decisions present are largely based on conscious ethical reflection and underpin Princen's principle that geographical proximity makes the economic context more transparent and reliable for consumers (Winter, 2003).

Hinrichs' Iowa State example analyses the policy and economy of the local food economy: what does *local food* mean? To what extent does this really mean

sustainability? The example of this US state is a good indication of the simplicity of the term, because although local food can indeed be a source of sustainability, geographic delimitation does not provide this in itself. Locality alone does not mean much, but not all of its competing interpretations are all welcome from the perspective of sustainability. With a systematic view, locality should rather be viewed as a pole of the economy, recognising that the local economy is a part of larger systems containing it, and its independence is only partial. Globalization is not simply a standardizing force, as the giant food companies, even if they are truly global in terms of management, often adapt to local conditions both in their sources and in their products, so it is unclear where they should be ranked in the global-local polarity. Ultimately, the separation of global and local is simply like an extension of a network, not necessarily in a spatial sense. Local initiatives that are described as examples of sustainability are typically not only local, but deeply embedded in the local society, they build and use personal relationships in trade, and consciously strive to incorporate ecological considerations into their production methods, if for no other reason than because of the important role of facing consumer expectations through personal contacts. In the case of Iowa, the local food market initially formed with a similar organisational structure to that which we can see in Hungary: local markets and community-supported agriculture (CSA). The CSA model is classically realised by providing consumers with a specific framework through which they support one or more producers with the aim of providing financial security, receiving in return seasonal vegetables from the producer(s) each season. However, at one point, Iowa's CSA system also entered the retail sector, which, in principle, does not change the ecological impact of the production system, but does at least partially replace personal relationships with an institutional one. The successful local food movement lost sight of its original goals at one point, according to the authors. The definition of local food on a settlement or even smaller scale has gradually shifted to include the entire state and becoming part of a defensive, protectionist economic policy program. Iowa has an area of 145,746 km^2, much larger than Hungary. So the question of what constitutes local food cannot be answered simply. There is no definite authority, no clear definition, the interpretation naturally narrows to a spatial interpretation. However, from a sustainability point of view, the local community can be used in a social sense, where it refers to a food that is typical of a place, a culture and a landscape in a cultural, traditional and culinary sense – the production and consumption of which preserve the

characteristics of this landscape and culture. If locality in the spatial sense is the only evaluation criterion, then the Iowa local food movement has become precisely what it was originally created in order to prevent: large-scale, intensive agriculture has assumed dominance over local products (Hinrichs, 2003). Hinrichs' analysis also provides an indirect response to Winter's critical writing: local food is not a territorial but a social form of localisation, but thus it really can contribute to sustainability, much more so than defensive localism, and its associated gastronomic and cultural context can also produce higher quality.

Sundkvist et al. approach localization through feedback mechanisms in the food supply system. Feedback refers to any effect that the consequence affects the cause within a process, regulating the future development of the consequence. Feedback can be positive, which amplifies the process or may be negative, counteracting the current change to balance it.[5] The authors interpret feedback broadly: not only automatic feedbacks (such as feedbacks in demographic changes) but also potential feedbacks from cognitive reflection: for example, if a producer observes deterioration in soil quality, then they may be motivated to choose technologies that cause less soil erosion in the future. Modern food production is characterized by the following processes, which weaken the feedback from the system:

- *Intensification* – productivity growth achieved through external input. Imported organic materials and pesticides make the characteristic limitations of local productivity invisible.
- *Specialisation* – the diversity of the crops produced has decreased significantly, which reduces the responsiveness of the systems unilaterally evolving to external changes, as both vulnerabilities and responsiveness are rigid.
- *Distancing* – Like Princen, the authors also point out that the increase in physical and institutional distances leads to a weaker, ultimately ineffective flow of information and ecological feedback.

[5]The definition of sustainability chosen at the beginning of the thesis also builds on the regulation of feedback. Positive feedback will definitely lead to imbalances, as there is no self-stabilising mechanism, only external forces can bring the process to a halt. Negative feedback works in precisely the opposite way: they maintain their stability, and external power is needed to change the state of equilibrium. For this reason, Meadows et al. decided that the control of positive feedbacks in the definition of sustainability is sufficient to achieve the long-term stability of the system.

- *Concentration* and *homogenization* – from genes to processed food, from production methods to consumption patterns, all areas of the food system are characterized by increasing homogenisation and centralization. The global networks of food supply make communication between producers and consumers impossible, and local knowledge is replaced by standardised knowledge. In addition, the spread of processed, semi-finished and ready-to-eat foods further reduces food-related knowledge in households, further weakening the system's self-correcting potential, as much information remains completely hidden from the majority of consumers.

Sundkvist et al. state that these structures are responsible for weakening feedback, which happens in two ways: either the elements of the system do not detect feedbacks, or they do, but they are not taken into account for some reason. According to the authors, the localisation of food production (which can take place within various organisational frameworks) is an effective solution to the problems summarised above. In the case of global food sources, the authors consider the labels discussed in the previous chapter to be a good solution, while stressing the need to shift towards the localization of food production worldwide (Sundkvist et al., 2005).

Figure 4 illustrates the changes in the previously used linear production-consumption framework according to the theory of sales methods embedded in ecological and social contexts:

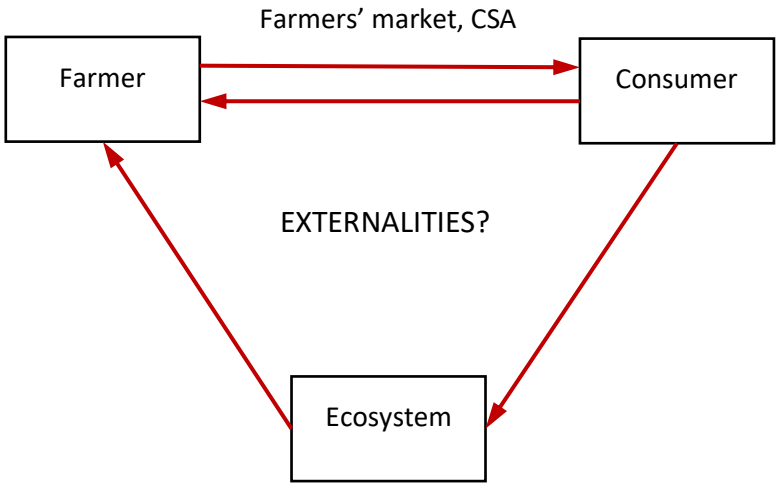

Figure 4: Food system embedded in its ecological and social context

Theoretically, embeddedness in the local context may provide an opportunity to avoid both social and environmental externalities, but in practice this must be difficult to achieve. This system does leave room for the realisation of externalities if it fails to

realise the idea for which it was created – however, this will be the case as long as the food systems discussed here have an *alternative* role to a dominant instrumental market – which they have no knowledge of and have no desire to completely separate their operations.

Although local systems theoretically allow a direct exchange of information between producer and consumer, even this idealised model does not necessarily ensure complete resolution of information asymmetry, as the knowledge of both parties may be limited as to what external effects are possible on the production and consumption system. In the article jointly authored with Kocsis Tamás, this was termed the *Sustainability Information Gap*, which can only be remedied by the provision of more detailed information (Kocsis and Kuslits, 2019).

All in all, therefore, it is not possible to make a definitive judgement as to whether local food systems are able to resolve information asymmetry as they were created to do. Researching this issue would also be a major challenge since consumers' beliefs, assumptions, and ideological commitment should be understood in the light of how their knowledge influences their purchasing decisions and how this knowledge is shaped in the context of the market. According to anecdotal information, for example, for some consumers the awareness that they can in principle ask where a product comes from and can visit the farm is enough, in practice this typically does not happen. If this is a broader phenomenon, it would be difficult to answer the question whether the information asymmetry had ultimately been reduced between the producer and the consumer or not. However, the organizers and participants of such systems are typically present with the aim and knowledge of operating more sustainable food systems, inter alia, by reducing information asymmetry.

In practice, building on the theoretical results summarised above, entrepreneurs are launching new types of sales systems, but often without examining a specific market context. In Britain, the majority of consumers prefer local products in theory, but in reality only 6-10% actually buy them – the pattern in this respect is very similar to the one previously described for labelled products. The difference between attitudes and decisions can also be explained in this case: although the values represented by local foods are important to consumers, overall, the price is the decisive factor in food purchasing decisions. At the same time, in addition to the similarities with labelled products, some of the consumers committed to local foods specifically seek out

personal contact with producers. For the consumers surveyed, animal welfare, environmental impacts and healthy food were the most important aspects of food choice, price being in the mid-range, while organic farming, for example, was one of the less important aspects (Weatherell et al., 2003). The latter is an important sign that the framework of my thesis (c.f. Table 1) represents an idea that is relevant to actual consumers: quality assurance or localisation of the food market is basically trying to achieve a similar goal – from a consumer point of view it is not clear what the significance of the certification of a local product is.

According to Verhaegen and Huylenbroeck, alternative sales channels are opening up new opportunities for producers in Belgium. Although the construction of new sales channels involves extra costs, this cost can be reduced by co-operation, with the higher price that can be demanded offsetting the costs and, moreover, creating a more even source of income for producers. They analysed labelling schemes, producer markets and direct sales systems (Verhaegen and Van Huylenbroeck, 2001).

Both in fostering the social embeddedness of food production, and in strengthening feedbacks that were weakened by the global economy, new institutional forms designed to support sustainable food production and market play an important role. Such institutions include farmers' markets and CSA systems. In Hungary, only small producers and primary producers can sell their own products at the farmers' markets, and with the exception of Budapest, they are expected to come to the market from within forty kilometres of the marketplace.[6] There are similar rules in other farmers' markets around the world, since the essence of the institution is the direct link between the producer and the consumer. Bypassing traders provides for a less instrumental, more embedded trade in food.

According to Szabó's research, there are significant reserves in Hungarian society for short supply chain food trade. Her research findings show that 20.1% of consumers expressly support small-scale food production and this is an outstanding aspect of their consumption decisions. An additional 24.5%, though not as committed as the first group members, is particularly positive about short supply chain food, which represents a significant potential for increasing the market share of the product group. Although the sample used in the research is not representative of Hungarian society in

[6] Act CLXIV of 2005 Section 2. subsection 5a

all respects, it shows a similar demographic pattern to international results: sustainable food is judged more positively than average by women, especially those with a high level of education, or those who have average or above average earnings (Szabó, 2017).

2.4.2 Community Supported Agriculture – CSA

In Hinrichs's study, alternative sales systems are analysed from the point of view of market definition and the degree of instrumentalisation of economic relationships in these organisational forms. On an instrumental relationship, the author understands that the commodity exchange is organized entirely around the pricing mechanism, the only decisive factor for the consumer is the price/value ratio. With the gradual weakening in the instrumentalisation of the relationship, ever newer aspects enter into the relationship between the producer and the consumer: personal acquaintance, environmental and ethical aspects, ideological goals or greater or lesser support for each other. These new aspects are the deeper embedding of economic change in social relations. While the farmers' market remains a market-based system despite of deeper embeddedness, the CSA scheme attempts to outperform the market exchange: here too, there is a completely different logic in pricing, although we will later see that the theoretical option is not always successful in practice (Hinrichs, 2000).

If personal relationships play a more important role in the commodity exchange, it can not only benefit sustainability, but it can also benefit other economic sectors (tourism, small business development) (Hinrichs, 2000) and can be understood as a kind of marketing technique. Paradoxically, this strategy can be chosen by large companies thinking of full instrumentalisation of the economy, such as direct sales companies like Amway or Tupperware (Biggart, 1990).

The purpose of the CSA system is to go beyond the market mechanism and not to view food as a commodity, but as a complex, fundamental aspect of social relations. In the CSA system, members purchase membership like a shareholder, where what they receive is not a dividend, but a portion of the food produced, to a greater or lesser extent depending on the yield of the current year. In addition, most CSAs also strive to engage in community building, training and physical work in production. In reality, however, in most CSAs, only one narrow core membership is involved, with most of the members only take a share of the crop. Stepping beyond the market mechanism does not work without limitations either, and the membership fee for a CSA should

also be 'well' adjusted, if the system does not want to loose against alternative sources of market procurement. The CSA system itself is embedded in a broader socio-economic context, and this embeddedness makes it difficult to ignore market prices completely. CSAs come in many and varied forms around the world, some are better off, the workings of some are more or less removed from market logic, but overall, the risk calculation and pricing logic have a structure that has some sort financial weighting, however, its financial implications are significantly lower than those of other forms of sales (Hinrichs, 2000).

In their literary review, Balázs et al. point out that CSA members may gain an advantage of between 60-150% in comparison to the prices of retail organic products. However, the benefit to members is not only financial, many report that they can thus attain otherwise barely achievable values in their lives, and many have changed their cooking habits, which is a sign that the CSA is indeed more than an alternative source of supply. In addition, they also add that CSA systems are still primarily solutions attainable to the urban middle class. In addition, Western examples show that CSA's are a better way to earn for farmers than through traditional sales channels (Balázs et al., 2016).

Several similar systems have been established in Hungary since the millennium, but the results here have been less encouraging: these CSA communities were not able to achieve a financial balance that would have kept the system in balance in the long run. According to the literature (1), a CSA provides a wide range of products with a transparent budget, (2) prices are determined on the basis of annual planned costs, (3) producer and members share out fluctuations in production and other risks. The Hungarian cases cited by the authors, however, relied on external financing for a long time and were unable to meet the three conditions listed above. Non-mechanized work, in which the members could participate, played an important role in the CSA, this was described in detail by the authors. Although the members could thus gain valuable knowledge, the method is expensive and time-consuming in terms of production. One of the main advantages of the alternative system is that producers have lower sales costs. The interviewed producer felt that it is not worth producing organic food with the market prices and sales costs. Farmers had difficulty in estimating their annual costs: labour, land lease, seed and garden tools were included in the budget, but maintenance, organisation, education, and ad-hoc costs were not included in the

estimated expenditure, leading to both miscalculation and a loss of transparency in the budget. In determining prices, the community's income level and the prices of its competitors were also taken into account. Some consumers would have been willing to pay a higher price, but it is also clear that in the event of a price increase, the producer would have lost some of the CSA members. The producer has to bring in the unpaid costs from elsewhere, or the producers try to increase their income through value addition to products. In addition to the difficulties, it is important to mention the importance of the character of the CSA community for both producers and members, self-organisation, meaningful purpose, togetherness and a sense of importance for this community for all its members. Producers are reluctant to use the term 'consumer', but rather consider members to be participants, referring to the character of the CSA community. Observing these values and financial hardships, one producer called the system *"a community supported by agriculture"* (Balázs et al., 2016).

2.4.3 Traditional local foods, handicraft products

Péter Balogh et al. examined a narrower, but similar question in the Hungarian food market: willingness to pay for traditional mangalica salami. Mangalica, as an emblematic Hungarian pig breed, which carries the attribute of locality itself to consumers, even if the whole country is not necessarily treated as a single locality. Typically, traditional foods are considered by consumers to have a long-history behind them, who see them as locally and culturally related products, foods that require some skill and experience in tradition for their preparation. The majority of respondents were willing to pay more for the traditional mangalica salami, and this willingness was even more pronounced if the product was not purchased in a supermarket, but in a butcher, small shop or market (Balogh et al., 2016).

Imre Fertő et al. examined the chances of survival of micro-breweries as new players in a mature industry. This point of view is not only relevant to the beer market, but is generally characterised by the entry of new arrivals into a mature market, with long-standing and strong players competing with new entrants for market share. Their findings indicate that the survival of small breweries is determined by the size of the company; the exports and age of the company do not play a significant role. Sector growth, concentration and number of new entrants have an impact on the survival of small breweries (Fertő et al., 2016).

2.4.4 Ecological entrepreneurs

Marsden and Smith showcase local food production opportunities through two ecological businesses. These innovative organisations are not only engaged in the production of organic food, but also maintain a broad network with their customers and suppliers, and are able to create a milieu that provides a complex alternative to the modern global food sector. Not only do they produce and sell products, but they also expressly strive for the embeddedness discussed above regarding the work of Hinrichs. This embeddedness enables organic farming to be part of the business not only in terms of products, but as a complex service system, which provides additional revenue opportunities. Nevertheless, the two case studies show the first years of eco-businesses as a strenuous process, as regulations and the market environment require a completely different business model and market environment. One major difference with classical market strategies is that in these sustainable production networks, producers with similar profiles do not compete with each other, but share the burden of sales, marketing and communication, not as a separate, cooperative company, but as a network (Marsden and Smith, 2005).

2.4.5 Farmers' markets

The idea of farmers' markets is that if personal contact between producers and consumers is restored, personal feedback is a kind of quality assurance for the quality of food and the sustainability of production. In addition, by cutting out the traders, both the producer and the consumer can, in principle, trade at a better price. Producer markets existed a few hundred years ago, but they are currently characterised by strict regulation compared to their predecessors. The first set of rules is designed to ensure that the market is really only for producers, because the significance is not only theoretical, it carries serious marketing value for the farmers selling there. The aim of the second group of rules is to create a producer market as an experience: an important goal in connection with the previous point is that customers have access to the widest possible range of products on the producer market, and on the other hand they have the opportunity to identify with the image of a demanding consumer who is also committed to the institution. Thirdly, a number of regulations are introduced for public health reasons, which small producers sometimes find it more difficult to adapt to than their larger competitors (Smithers et al., 2008).

The farmers' market is a shopping opportunity for consumers where they can get their preferred products and support producers, but it is also a place for a protest against the global food system. Initially, better prices were what motivated producers, but later their motivations shifted to the possibility of interaction with like-minded people and healthy competition, and the producer market occasionally provided an opportunity to develop their businesses so that they could hire new employees. In the opinion of the authors, some of the consumers at the producer market have only a limited understanding of precisely what the point of the farmers' market is, many of them go there to shop on the basis of a few attributes without having a comprehensive picture of the purpose of the place. All these experiences suggest that the creation of a producer market will gradually deepen the incorporation of producer-consumer relations into social relations. Preliminary expectations change over time, while building relationships between consumers and producers takes time. Simultaneously, while embeddedness is present, deliberate reflection on it is not a precondition for participation.

Producer markets have been growing worldwide since the 1990s. According to the data from the National Chamber of Agriculture, there are currently 255 producer markets in Hungary (NAK, 2018). Consumers in the producer markets do not only go to the market for the purpose of buying food, many of them are just there for the company or for fun, while others expect higher quality products, fresher goods or cheaper prices from the producer market. It is also important for customers to have access to special products and to eat at the market. For consumers, the freshness and good quality of the products were paramount, supporting producers or protecting the environment was secondary. Producer market shoppers are mostly married women with tertiary education (Wolf et al., 2005).

According to a Canadian case study, the creation of a producer's market made it possible for people in a food desert[7] to buy cheaper options than they had previously had for healthier food. Prior to the creation of the producer market, and three years later, food purchases in the surveyed area were 12% cheaper, which, according to local

[7]Food desert: a part of the city where fresh food is not available within a certain distance; for this reason, locals – usually socially disadvantaged minority groups – are forced to eat more expensive in small shops and fast food restaurants. This, in addition to their disadvantageous situation, represents an additional financial burden for these families and leads to unhealthy diets. Because these families often do not have a car, they find it harder to often buy from outside their immediate environment.

prices, saved one month's average rent for the disadvantaged families living there, while the environmental burden of their meals decreased. The farmers' market prices were 5.7% higher than the prices of the more distant supermarkets, but compared to the earlier poorer and more expensive stores, this development also took a significant financial burden off the locals (Larsen and Gilliland, 2009).

2.4.6 Summary

In the interests of bringing about sustainable food production and consumption, a number of solutions have been developed that are intended as alternatives to the highly instrumental and environmentally damaging market that had come about by the end of the twentieth century. In these endeavours the common element is to strive for the localisation of food systems. However, this localisation is not (only) the geographical limitation of the market, but a deeper embedding of it in the local society and culture, to create an informal yet effective control mechanism that ultimately results in more ecologically sustainable production in line with the values of participants.

Geographically, localization contributes to sustainability by reducing the environmental burden on global supply chains by reducing shipping significantly, but this is less important than other benefits. The socio-institutional context that is brought about by local food production, and producers and consumers meeting each other, can create feedback that cannot occur in global systems because it is based on personal and informal interactions. In addition, localisation is not just a major step toward sustainability. Many consumers choose local products because they want to support the local economy and local farmers, which some authors say can be called more defensive localism, than a sustainable food market. However, this position is actually not incompatible with the idea of localism as a principle serving ecological sustainability.

The two most widespread and researched forms of these efforts are community-supported agriculture (CSA) and the farmers' market. The success of both models varies in practice. While these institutions strive for deeper social embeddedness in the food system, they also build an alternative system that seeks to embed them into the broader system that already exists. This endeavour to break away, which is in line with the goals of the organisers, also causes difficulties. If a sufficiently separated social embeddedness is not achieved (which is to some extent a paradox), then the pricing dynamics of the market will force the alternative system to adapt. And if we can really

create a system of sustainability values in a kind of subculture, stand-alone network, evaluation system, special social relationships, then alternative existence can be a barrier to growth, possibly a barrier to survival as well, as market-like self-regulation is only possible with a sufficient number of participants.

Although there is an alternative food sector on the Hungarian market and there is a demand for this product category, there are still many difficulties (Balázs et al., 2016; Berténi, 2016), that it would be important to understand a great deal about consumers of sustainable food so that the market share of the sector reaches its potential consumers in practice (Szabó, 2017). Similarly to the "Élő Tisza Védjegy", [Living Tisza Label] mentioned in the previous chapter, Hungarian CSA and producer market initiatives often struggle to reach the critical mass needed for self-financing, and to rid themselves of the initial phase of running alternative forms of food production from external, tendered funding sources. Although difficulties in survival are not only the case in Eastern Europe, the question arises whether, in addition to the amount of demand, price sensitivity in the broader sense is the factor that slows down the growth of these initiatives.

- In order to better understand these difficulties, it would be useful to more thoroughly explore the values, motivations and demographic characteristics of the sustainable food segment among Hungarian consumers.
- Although there is evidence that there is a group of Hungarian consumers willing to pay more for alternative foods, similar to the findings of research abroad, it is unclear whether consumers are actually aware of the true price difference between conventional and sustainable foods.
- Thirdly, the question remains of whether consumers who are aware of the differences in prices also know what the real reason for this difference is. This knowledge can be a key factor in deciding on such products.

2.5 Summary of the literature review

2.5.1 Sustainability and externalities

In the literary summary, I have presented the most important fundamental concepts and the most important scientific findings related to my planned research. After a brief summary of the scientific foundations, I defined sustainability along with several possible economic approaches. For economics, sustainability is essentially the use of

capital in such a way that the yield is never less than the rate of use per unit of time. However, there is a difference in approach between strong and weak sustainability, of whether the different types of capital are considered interchangeable (Common and Perrings, 1992; Gutés, 1996). Weak sustainability uses interchangeability for both man-made and natural capital equally. The principle of strong sustainability, which is inherent in ecological economics, basically sees each type of capital as incommesurable and non-interchangeable, and considers a system to be sustainable if individual capital types are stable in their own right over the long term. While weak sustainability raises the issues of the ecological crisis according to the principles of classical economics, strong sustainability seeks to operationalise the approach of natural science in the language of the economy. I plan to carry out my analysis within the framework of strong sustainability.

However, sustainability is rarely established perfectly, often with material flows, pollution, wasted resources or social problems that, although they are a direct consequence of the production process, those people involved in a business transaction do not take them into account. These not-taken into account other-burdening effects are externalities (Callon, 1998a). With the expansion of economic globalisation, the extent and traceability of externalities has increased significantly. These phenomena have become so complicated that Princen says there are more externalities than those described by Pigou, using the expression of shading and distancing to analyse how spatial, cultural differences and the complexity of the supply chains prevent consumers gaining clear knowledge of the production process (Princen, 1997). Traditionally, externalities are considered to be passed on costs that are not paid by the seller or the buyer, but by someone else, which makes the business cheaper and obliges someone who does not gain from the benefits of the business to bear some of its costs. This approach refers to the approach of weak sustainability, which, based on Pigou's theory, tries to express the extent of externalities in monetary terms and encourages the levying of corresponding taxes (Ayres and Kneese, 1969). From the ecological economics and strong sustainability perspective, Pigou taxes are not a satisfactory solution to environmental problems. Van den Bergh, however, claims that the full physical internalisation of externalities (i.e. avoidance) is even more stringent in its conditions than the principle of strong sustainability, and is therefore compatible with ecological economics (van den Bergh, 2012, 2010). There is, therefore, a clear difference between the two approaches: in the case of the former, one person can

compensate with money the person who suffers the damage, in the case of the latter the environmental damage can not happen at a physical level, and the cost of the necessary intervention, the choice of technology, determines the value of the externalities. Thus, both approaches can take a significant commercial and scientific step: expressing the cost of sustainability (or unsustainability) in monetary terms. This step is necessary to ensure that the market sustainability is genuinely reflected in transactions through pricing on the market, and from that point of view is also useful in examining on a scale that is sensitive the preferences of consumers regarding alternative foods, where different factors affecting the purchase can be compared in a single system.

2.5.2 Two examined approaches to a sustainable food system

I look at the two principle types of alternative food markets: certified, labelled and local food. Both strategies strive to avoid harmful environmental and social impacts as described by van den Bergh and produce products that not only bear the true cost of production, but also, according to the united belief of the producers and consumers committed to them, outperform their conventional competitors in quality (Grunert, 2005; Kuslits and Kocsis, 2018).

Label systems strive to introduce radical transparency to the food market. They are based on the idea that if consumers receive increasingly reliable information about products, this is in itself enough for them to choose more ethical products, and the authors consider the reduction of information asymmetry per se as a valuable step towards democracy in itself. In most cases, label systems are validated through regular checks by a trusted third party, such as a non-governmental organisation (Goleman, 2009; Gupta, 2010). In practice, rating systems can face many problems that may undermine their credibility (Mol, 2015), but among consumers there is still a significant minority who trust these products and are willing to pay more for certified products. Some of the labels strive toward sustainability in the broad sense (e.g. organic certification), while others are designed to eliminate or reduce specific externalities. Following the work of Kocsis and Marjainé Szerényi, I classify the latter in four categories: OTHER, FARTHER, HERE, LATER (Kocsis and Marjainé Szerényi, 2018). In the four categories, animal welfare problems, problems arising from large geographical distances, problems in the everyday life of the consumer and problems for future generations are indicated. These four categories describe the vast

majority of potential externalities and are therefore suitable as a framework within which consumers' attitudes towards certain types can be compared.

Networks selling exclusively local foods can operate in a variety of institutional frameworks, the most common being the producer market and community-supported agriculture (CSA). These systems are intended to offset the instrumental impact of the global economy, in which very little information is available from the producer to the consumer apart from the characteristics of the goods that are the subject of the deal. The deeper embedding of production and consumption in the social environment will make it possible for food to be purchased in a personal, informal, community-based manner (Hinrichs, 2003; Smithers et al., 2008). Moreover, these institutions create feedback mechanisms that are not functional in global systems, but that are capable of effectively driving the market towards sustainability (Princen, 1997; Sundkvist et al., 2005).

Examples of all these systems are found in Hungary (Balázs et al., 2016; Berténi, 2016; Kajner et al., 2013), and there are findings that show, as in other other countries, that there are also conscious consumers sensitive to environmental issues (Kocsis, 2002; Szabó, 2017; Szakály et al., 2017) who are willing to spend more on ethical products if they have the opportunity.

Similarly to other countries, alternative food sales systems in Hungary often struggle for survival, According to the data at our disposal, the size of the business is one of the most important factors (Fertő et al., 2016). All of these national results are an important basis for my research, but they leave many questions unanswered about consumer motivation, the aspects of consumer thinking, and their knowledge of prices – all of which would be important additions to examining the effectiveness of work using these strategies.

2.5.3 Labelled or Local Food?

At the end of the literature review I will briefly discuss how the strategy of official certification and the strengthening of local embeddedness can be compared. Comparison would not be appropriate between a narrow-focus label (such as Fairtrade) and local foods, as summarised above, where the positive perception of local products is due to a response to a broad range of local society and ecosystem problems. However, as I have explained in more detail, organic foods, like local foods, represent

a wide range of values and – as opposed to local products – allow us to compare the institutional and informal tools that are working for a sustainable agriculture.

Casini and his colleagues compared the preferences of Italian olive oil buyers for local products (Tuscany) and Italian and European oils. In all cases, the possibility of certified organic oil was included in the choice. The highest level of willingness to pay was for those customers for whom it was important that the product came from Tuscany, and they would have paid up to 29 Euros for a litre of olive oil. However, there was no significant difference in the presence or absence of an organic-certification for this group. One of the two other consumer groups preferred Italian, the other preferred the cheapest product category, but in these groups there was a significantly higher willingness to buy and pay for organic certification (Casini et al., 2016).

According to Gracia et al., In Spain, organic and local product characteristics complement each other for the majority of consumers and where they appear together the greatest willingness to pay was exhibited. However, it can be stated that if one of the two options is to be chosen, the majority of the respondents consider the origin of the product to be a more important feature, but a narrower group primarily chooses on the basis of the manner of production (Gracia et al., 2014).

In their summarising article, Adams and Salois examine how consumer preferences have changed in the alternative food market between the 1980s and 2000. The authors state that judging from the articles published in the 1990s, organic products were clearly more popular. For alternative food production, i.e. the less industrialised, small-scale, nature-friendly agriculture, the principles of organic farming were known at that time. Certainly not independently of its rapidly growing popularity, this evaluation stands out from the rest in that the technologies acceptable in organic farming were also regulated by law, which further increased the market share of the category. However, the authors posit, future problems are rooted in this success: the large agricultural companies that were originally set up against the organic farming system have themselves undertaken the required chemical-free, GMO-free and other regulations. However, the movement to popularise organic farming did not welcome these large companies in the alternative food market with unbounded enthusiasm. It was thought that chemical free farming alone is not enough if it is carried out over huge areas, without taking into account the social values and the ecological effects of

monocultures; this then was not true organic cultivation, the “Organic Lite” name began to spread. From this point on, the end of the nineties, Adams and Salois found that scientific research on consumer habits has increasingly seen local foods more valuable to environmentally conscious consumers, and although organic farming has not lost its significance, it has been sidelined by localisation. It was also noticeable that those who had previously promoted organic farming as the main actors in alternative food production had began to emphasise the sustainability and social benefits of local products – in a sense, they set the same goal, emphasising the other characteristics of the product. The authors note that, although local produce is currently more credible to consumers, mere geographical location is not an adequate definition for alternative foods, this makes it easy for large companies to use local products to be used for their own marketing purposes, as they did with organic food. In some cases, efforts have already been made to this end, however, due to the specific institutions of local food sales, it is not yet apparent how this process will end (Adams and Salois, 2010).

2.5.4 Questions

So we have seen that, in the light of the research so far, these two strategies work differently, despite striving to achieve a similar goal. Both models can be found in the Hungarian food market (Berténi, 2008; SZÖVET, 2011), however, both have difficulties in terms of economic sustainability. In order to better understand the thinking of consumers, along with the forms of sale they decide upon, we need to examine: (1) how strong the motivation for ethical production among consumers is, (2) how aware of real prices are they, or (3) for those who purchase their food from sustainable sources, what the most important factors influencing their decisions are. In the empirical research described below, I am looking for answers to these questions.

3 Methodology

In the introduction to my thesis, I formulated the following research questions:

I. Does consumer sensitivity differ in terms of the spatiality, temporality of the problems of food production and consumption, or the nature of the person concerned (human or non-human, the victim)?
II. Does consumer sensitivity differ according to the local, social embeddedness of food production and consumption?
III. Is the consumer's willingness to pay influenced by the sustainable nature of the product?

The questions and the hypotheses serve the purpose of gaining new information about each of the three main factors that determine consumer choice (Figure 1) and their interconnections. The information about the product, the consumer's own value system and financial resources conflict with one another to some extent, it can be assumed that at least one of these areas has shortcomings in the context of an actual purchase situation.

My research was based on two separate questionnaires that looked at the above issues through two main models of sustainable food system (cf. Table1). Together, the two questionnaires allow us to gain a complex picture of the evaluation process that consumers engage in when buying food quickly and often in a non-reflective way. An overview of dilemmas, information-deficient situations, and motivations will enable more understandable communication on alternative foods, more effective marketing, more viable regulation, and more successful business strategies.

3.1 Examination of willingness to pay to avoid externalities

We are examining the way in which consumers change their willingness to pay when they receive additional information on the environmental impact of each product. The diversity of food labels and ratings points to the fact that many and varied externalities can be linked to food production in general. Based on the research summarized in previous chapters, we know that consumers have diverse views on environmental and social problems, but it is typical that a smaller group (varying in size and composition per country and research) is committed to paying a higher price so that some kind of externality is not linked to the food that they purchase. It can also be seen that these identified groups behave somewhat similarly in response to various externalities, but

important differences can also be uncovered, especially using qualitative methods. Research generally examines a segment of socio-environmental impacts, and here we are trying to grasp the weight of each piece of information relative to others in an integrated way, presenting their diversity at the same time.

3.1.1 Data collection

The questionnaire used in our study seeks to find out how consumers relate to each of the basic types of externalities (OTHER, FARTHER, HERE, LATER). These variables were distributed across different versions of our questionnaire. Table 2 summarises the four cases for which we developed the questions, in each case describing a possible practical example.

Type	Affected	Example of product characteristics
HERE	The consumer in the present	Lower quality, danger to health
LATER	Future generations	Production with GHG emissions
OTHER	Animals in the present	Animals live in unhealthy conditions
FARTHER	People farther in the present	competition through reducing wages/prices

Table 2: Basic types of externalities, question categories, and practical examples of cases commonly described in the questionnaires

We have developed four types of questionnaires (‘A’, ‘B’, ‘C’, ‘D’), each with two main questions, referring to two of the four cases listed in Table 2. Each respondent had to decide about two different types of externalities, since we found that a longer series of similar issues would be monotonous, and possibly complicated due to differences between them, which would affect the quality of data collection for questions asked later in the survey. Individual respondents randomly receive one of the four questionnaires based on the initial letter of their surname. The detailed questionnaire can be found in the Appendix.

3.1.2 Theoretical considerations

It is important to return to the theoretical question that I discussed at the beginning of the dissertation on the relationship between weak and strong sustainability. For several reasons, I chose the paradigm of strong sustainability, but the methodology described above, however, requires a monetary assessment of respondents' externalities, which may seem contradictory. The way in which the issue is phrased and the information given before the question is asked implies that the technologies discussed do not differ

in their actual efficiency, but that only one of them causes some harmful effects on others and achieves a lower production cost this way. From this point of view, we therefore assume the process of externalisation as a zero sum game for natural capital, in which the excess profit is recognised elsewhere as a proportionate loss. The question is not, therefore, the extent of the externality, but the extent to which the respondent is willing to make a sacrifice for avoiding an externality of a known degree and nature. This information is about consumer value choices, so the forint values indicated in the answer are proxy variables for personal preferences, not assumed values of lost natural capital. It was worth choosing this proxy variable because of the similarity it bears to the everyday purchase decision, it is a situation that the respondent can easily and realistically imagine.

The four options listed cover a wide range of externalities, but cannot be considered complete in this form. It can be argued that among the HERE and FARTHER cases, the group of people close to the consumer are left uncategorized, experience the same effects as the consumer, therefore they do not fit into the a broad definition of the FARTHER case, at the same time they do not benefit from the HERE case either. In our questionnaire, we investigated 'clear' cases for didactic reasons, in reality the types of externalities can be mixed. With these constraints it can be stated that the four listed cases are able to show the vast majority of theoretically possible externalities.

Finally, it is important to note that in the HERE case, we cannot talk about externality in the strict sense because the injured party is a part of the business, and also receives the financial advantage of cost reduction. However, due to the uncertain availability of information and the frequent difficulty in its interpretation, we still find that this case is fundamentally similar to the externalities that correspond to the textbook definition: in which case the producer will gain extra profit at the expense of the consumer.

3.2 Attitudes towards conventional and local food consumers

My second survey has two purposes. On the one hand, it is about how different consumers are aware of the price difference between each type of food (local, certified, conventional) and, on the other hand, to understand what values drive each group. The first question contributes to the understanding of the dimension of consumption information, while the second helps to understand the elements of the value dimension. By groups, I mean those people who typically buy their food from a specific source: a

supermarket, a traditional market, an organic market, or a farmers' market. However, as there are certainly overlaps (or it is unlikely that any consumer would buy from a single source), it is likely that the analysis of the results will reveal some other clustering.

Despite these overlaps, I assume that consumer preferences are based on consumer assumptions about product quality and price. Quality is difficult to quantify by itself (see: Winter 2003). However, this methodological problem can be overcome by asking consumers what they think about the price of a given product category and then whether they consider that this price is low, average or high compared to the real value of the product. 'Real value' as a concept is broad and difficult to define, but for this reason it provides an opportunity for respondents to fill it with content, according to their subjective viewpoints. We also asked consumers how frequently they purchase their daily food from the various sources in order to determine the extent of overlaps and the sources of overlap. We also asked how much time it takes to get to the location of the purchase: intuitively, it seems that someone who buys in a few minutes is more likely to be guided by practicality, but if someone travels twenty or thirty minutes (which is anywhere in a city the size of Budapest, it is not simply a pragmatic decision), there must be a specific reason for this since as it not just a sacrifice of time, but taking the goods home as well brings a further sacrifice.

We measure consumers' impressions of prices by estimating the consumer price of three products at each location with the respondents. These three products are apple (1kg), cow's milk (1l) and white bread (1kg). The largest fruit crop in Hungary is the apple (KSH, 2016), excluding grapes, of which a significant amount is, however, processed and counted as wine rather than as fruit. I do not assume that consumption of cow's milk alternatives would approach that of cow's milk. We have no access to comprehensive statistics on types of bread, as the types cannot be standardised as easily as in the case of fruit varieties. White bread is a category of product that people might even have some impression of, even if they buy some different kind of bakery product.

There are a great many different types of research on the attitudes of consumers to alternative foods, which have been used to study the preferences of customers with many different methodologies, often with questionnaires. In my research, both for comparability and because developing and validating a questionnaire is a costly and

time-consuming task, after reviewing several previously published questionnaires (Brown, 2003; de Boer et al., 2007; Magnusson et al., 2001; Tarkiainen and Sundqvist, 2005; Tilikidou et al., 2002). I decided to take the attitudinal questions in my questionnaire for Hungarian consumers' attitudes from from earlier research by Botonaki et al. (Botonaki et al., 2006). The questionnaire consists of 17 questions covering five different categories of attitudes in the original study: (1) price sensitivity, (2) health consciousness, (3) environmental awareness, (4) comfort, (5) explorative behaviour. This questionnaire proved to be better than the other reviewed options in two respects: it identifies meaningful groups of values that are relevant to my own prior literature analysis and covers the potential categories of a significant portion of consumers. On the other hand, an important practical advantage of the question list is that it is relatively short, so it is possible to ask other questions about attitudes without the whole questionnaire being too long.

The original language of the questionnaire was Greek, which was translated into English by the authors and then to Hungarian by me. The full text of the questions together with the complete Hungarian questionnaire can be found in the second section of the appendix. The order of the questions was randomly arranged in the questionnaire, so that questions belonging to one category have less influence on each other, or to make it difficult for respondents to respond with 'correct answers' due to a desire to comply, and only to answer the actual question when considering the current answer.

After the attitudinal questions we asked the respondent's gender, age and the subjective opinion on their financial situation: "How does your income compare to others?", "How satisfied are you with this income?"

3.2.1 Data collection

The research is not intended to present a representative sample, but to gather enough answers from the respondent categories to be statistically testable. The questionnaire was collected at four types of outlets at two locations each: two CBA supermarkets, two traditional markets, two organic markets and two farmers' markets.

In selecting the sites, I made an effort to use sites in both Buda and Pest in order to compensate for the socio-economic differences between the two sides of the city. In addition to selecting the CBA chain, it was important that it was an extensive chain of stores known to be Hungarian-owned, so it is not necessary to reflect on the differences

between the judgements of Hungarian and foreign traders in the comparison of the respondents and the findings. For producer markets we choose markets where the market organisers confirm that only small and prime farmers sell in a monitored way. Data collection took place on Saturday mornings, adjusted to the typical opening hours of farmers' markets, on a few consecutive spring weekends in 2017[8].

3.2.2 Theoretical considerations

The fact that the research was done on a non-representative sample means caution is required when interpreting the results. Since I assumed that consumers of alternative foods form a small minority across the entire population of Budapest, it would only have been possible to obtain sufficient data about them with a very large representative sample. The current research method is much more efficient both in terms of time and cost, since we know in advance that about a quarter of the sample will attend at least one of the food supply sources with some frequency, and there is a good chance that many of our respondents are frequent visitors to producer or organic markets.

[8]CBA: In the basement of Fehérvári Road market and in Zuglo at the junction of Hungária Bvd. and Thököly Road. Market: Fehérvári Road Market and Bosnyák Square Market. Organic Market: Csörsz Street Organic Market and Újpest organic market, Farmers' Market: Pancs gasztroplacc (VIII. Tűzoltó u. 22.) and Czakó Market (I. Czakó u. 15.).

4 Hypotheses

What is the connection between values and willingness to pay? How accurate is the information consumers have about more sustainable food? What social groups can be identified in terms of food consumption? Broadly speaking, the two questionnaires responded to these questions in our research to date. We examined the hypotheses presented below with the statistical analysis of the data received.

4.1 H1.: Willingness to pay for products with various externalities is significantly different

Although I have not found research directly comparing the types of externalities, it may be assumed that individual impacts are not equally important for consumers, rather a clear order of priority exists for factors influencing purchases, which can be identified for each respondent. Gattig and Hendrickx state that the relationship consumers have to risk is significantly determined by the nature of the risk (environmental, health or financial) or how distant they are (in time, in space, socially, in terms risk) from the potential consequences of the risk (Gattig and Hendrickx, 2007).

If this hypothesis proves to be true, it will add a new argument for the introduction of multidimensional labelling systems. The system is assumed to answer an existing customer demand and, additionally, this extra information provides an opportunity for consumers to reflect on their own purchase decisions and preferences to gain more reliable information. It would be interesting to study further how such a multilevel indicator influences the decisions of consumers in contrast with the certification systems indicating a particular aspect. Such research would not only help in the complex understanding of consumer attitudes to sustainability but would also help in keeping the complexity of the certification system at a level where people are still able and willing to take them into consideration in an actual purchasing situation. The differences expected between each dimension are supported by the previously referenced literature. On the basis of these I shall point out some phenomena which provide the basis for my hypothesis and upon which I shall focus my study.

Consumers are willing to pay more for ethical products, but instead of radically sustainable decisions people usually choose products in an intermediate category (de Jonge et al., 2015). Consumers are probably least likely to ignore problems that they

must face personally, and everything else is less important in their decision (Grunert, 2005; Grunert et al., 2014).

I assume that since, in contrast with other issues, the rather abstract relationship with generations yet to come has a weaker effect on consumer decisions than any problem arising in the present.

The issue of animal protection, laden as it is with conflict is an extremely important matter for some consumers and may even be emphasised more than human suffering. I assume that this approach is characteristic of the entire sample however there will be a smaller group of respondents who react very sensitively to the question related to animal welfare (Fox and Ward, 2008).

4.2 H2: Estimates of respondents significantly exceed actual prices at producers' markets and organic markets in the product categories studied

The study by Larsen and Gilliland describes the relation of alternative food-market prices to a socially disadvantaged district: these sources are actually more expensive than the prices in some supermarkets on the one hand; nevertheless they are cheaper than many other conventional sources (Larsen and Gilliland, 2009). Many of the previously quoted studies demonstrated that consumers are generally willing to pay more for organic and local food, which producers do exploit.

On the basis of domestic examples (Berténi, 2016; SZÖVET, 2011), however, financing the operation of short supply chains poses a challenge in certain cases in Hungary. If the hypothesis proves to be true, it would carry a very powerful message for those who want to create such systems: consumers are not aware of the true prices so they might not be reaching consumers who would and could pay the higher price for their products if they only knew that they were affordable for them. This result would be even more outstanding if the hypothesis proves to be true among those who do not or rarely go to producers' or organic markets.

In addition to this I also assume that respondents think that food from sustainable sources is overpriced. If this proves to be true, it means that while they might be aware that this food is produced in circumstances different to those of their competitors, consumers are not aware of the level of price difference this technological difference means in practice.

4.3 H3: Cluster analysis of the responses collected in the questionnaire will describe sociologically well identified groups

The expression ‘sociologically well identified’ is a somewhat loose wording but without prior knowledge of the findings it was difficult to give a more precise definition. I assume that the cluster analysis performed on the basis of variables describing the knowledge related to the price will describe clearly identified groups such as the LOHAS group from the Szakály study (Szakály et al., 2017) mentioned above, that is, distinct groups in terms of demography, values and financial situation. The results of the cluster analysis will also refine the findings from the calculations performed over the entire population described in the earlier hypothesis.

5 Results

The results of the two questionnaires describe a complex picture for the decision-making process of consumers of sustainable products, and also raises several future research questions. At times there are certain results that are not what classic theories would suggest; these tensions show the benefit of my framework serving the interpretation of consumer decisions: the triad of information, values and ability to pay seems to determine the behaviour of consumers dynamically.

5.1 Willingness to pay for different types of externalities

The first questionnaire was filled in by 730 persons from the 1296 students who attended the introduction to environmental economics course at Corvinus University Budapest in academic years 2015/16 and 2016/17. Students only studied generally related microeconomic information about externalities, however, this expression did not appear in the questions (see the complete questionnaire in the annex). Students filled the questionnaire electronically in the Moodle system and they were given two random questions selected on the basis of their initials. They were able to change the preferred amounts for the prices in steps of HUF 25 compared to a basic price of HUF 300.

The 'acceptable price' answers of respondents for different types of externalities were in every case significantly below the HUF 75 price difference theoretically compensating for the externality (Figure 5),[9] and the various forms also significantly differed from each other except for the questions LATER and OTHER (Figure 6). It can be asserted that this demonstrates the validity of hypothesis H1.

[9] It arises from the structure of the questionnaire that accepting the HUF 75 price difference represents the systematic rejection of externalities, and values lower than this indicate that externalities are to some extent acceptable for the respondents. On average respondents accepted price differences below this threshold (see Figure 5).

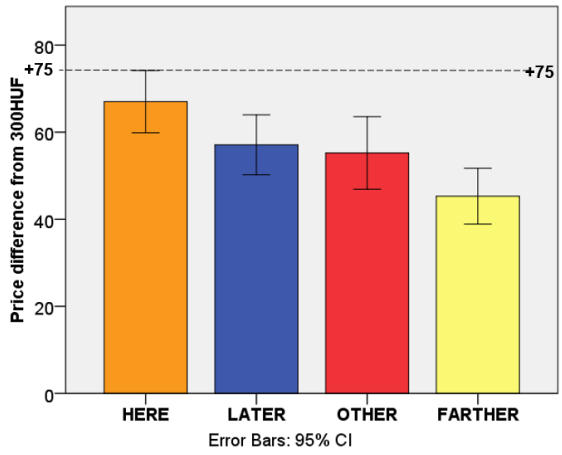

Figure 5: Acceptable average price difference for respondents between the presence and absence of externalities. The results were produced with one sample t-test; ranges indicate a 95% confidence interval.

HERE				
LATER	9,94***			
OTHER	11,8***	1,86		
FARTHER	21,72***	11,78**	9,92*	
dimen-sions	HERE	LATER	OTHER	FARTHER

Figure 6: Differences between the averages of individual estimates. The HERE version significantly differs from the others ($p < 0.01$) however significant differences have been found in other cases, too, with somewhat lower significance levels ($p < 0.05$ and $p < 0.1$).

The answers given to individual questions significantly differ in most cases, which means we can state that who or what is injured by an externality is an important aspect of consideration for our respondents. The distribution and major parameters of answers given to specific questions is presented in detail in Figure 7.

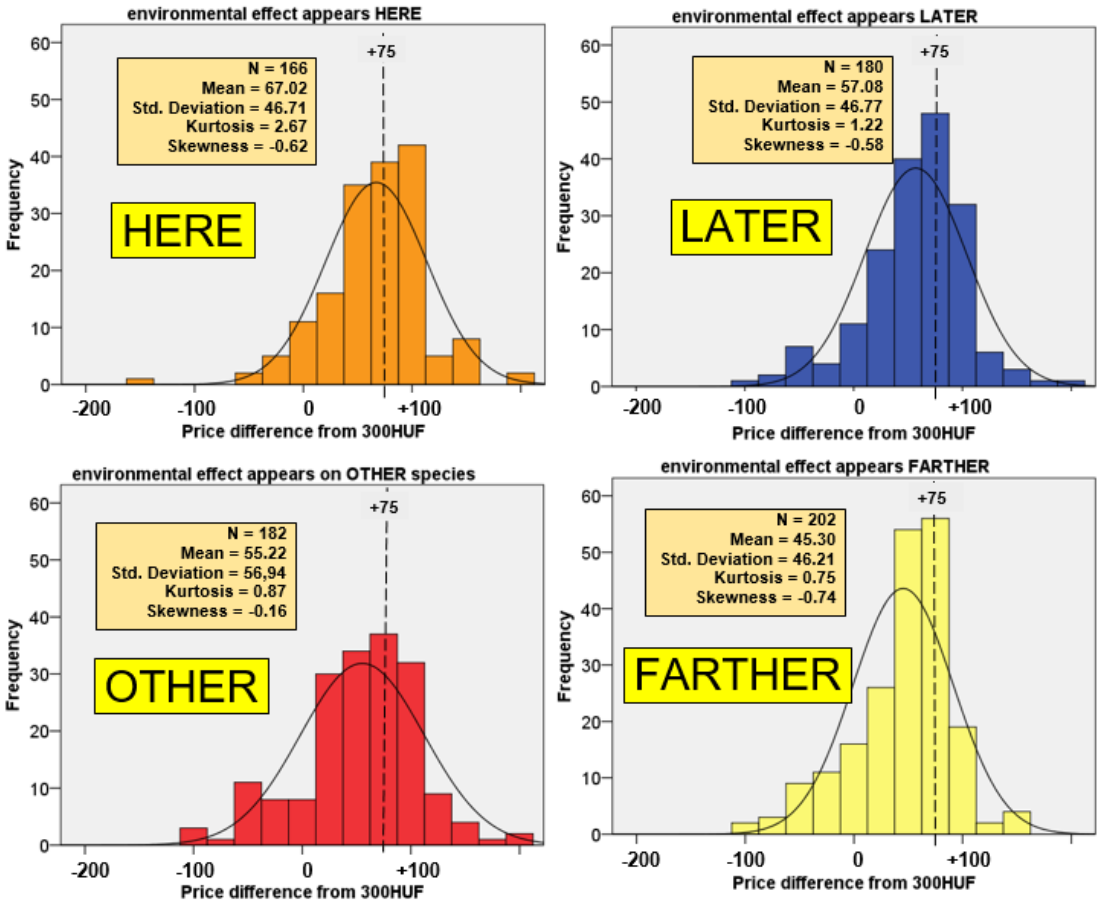

Figure 7: Distribution curves and historgrams of answers given to individual externality types

We can see that consumers are most sensitive to externalities if themselves are injured by them, and they are least sensitive if the injured party lives farther, maybe thousands of kilometres away. Although in case of the OTHER version it was true that respondents considered a significantly lower price to be appropriate on average, the shape of the histogram suggests that some of the respondents think that injuries to animals are of similar weight to the injury to people while another group does not feel any change of costs necessary – this is the most controversial issue when compared to the other three.

5.2 Knowledge of the price differences between different retail outlets

5.2.1 Questionnaire regarding consumer attitudes of sustainable food

The second questionnaire was collected by university students who were members of Agenda 2030 Humánökológiai Kutatóműhely a globális együttélésről [Agenda 2030 Human Ecology Research Workshop on Global Coexistence][10] and attended the

[10] http://humanokologia.hu/kutatomuhely/

research seminar led by the author. They had detailed knowledge of the purpose and method of the questionnaire. They collected at least twenty responses at each location during a morning. They selected the respondents randomly: they approached every third person coming out at the exit of the shop or the market. Before asking the questions they clarified the definitions for the given location with the respondents in order to avoid errors in the dataset arising from the incorrect interpretation of the concepts of 'organic market' and 'farmers' market'. Answering the questionnaire took 15 minutes based on test data collection; most of the time was spent on estimating prices. Students recorded the answers on paper and after the work they uploaded the responses to an online table coded on the basis of a coding manual. In addition to the questionnaires the students recorded the actual prices of the products at the various locations. Prices are uniform in CBA shops, while we collected prices in the markets from each producer who sold the given product in order to determine the average price of the market. The data from 156 respondents is stored in a unified data set where the youngest respondent was 15 and the oldest was 88 years old. The age distribution of respondents is close to normal and there were 64 male and 94 female respondents.

As the first step of assessment I checked whether the question groups of the Botonaki (2006) questionnaire are valid for Hungarian respondents. By the principal component analysis of the respective variables of the questionnaire we found that the original categories cannot be identified in the case of Hungarian respondents, consequently I used these questions only according to their individual meaning, independently of each other.

5.2.2 Accuracy of price estimates by consumers

The price estimates presented in Table 3 referred to the three types of locations in the questionnaire, and in each case they were different from the actual location of the interview. Our preliminary assumption was that consumers would overestimate the prices of sustainable sources. On the contrary, we were surprised to find that respondents overestimated the prices of conventional outlets and underestimated the prices of sustainable outlets – significantly in most cases. This result is difficult to interpret in itself, particularly given that the data was not collected on a representative sample. In the cluster analysis presented later it will be apparent that the accuracy of the estimates differs by groups of consumers and these effects cannot be seen in the

average of the entire sample. Based on this, Hypothesis 2 can be rejected, however we shall see later that H2 may still be true in the cases of certain subgroups.

		Estimate	Actual	Difference
CBA	Apple	259.3 Ft	259.0 Ft	0.3 Ft
	Milk	245.7 Ft	226.5 Ft	19.2 Ft **
	Bread	275.2 Ft	224.0 Ft	51.2 Ft ***
Market	Apple	260.6 Ft	220.0 Ft	40.6 Ft ***
	Milk	257.4 Ft	259.0 Ft	-1.6 Ft
	Bread	291.8 Ft	259.0 Ft	32.8 Ft **
Farmer	Apple	282.6 Ft	337.0 Ft	-54.4 Ft ***
	Milk	274.2 Ft	434.0 Ft	-159.8 Ft ***
	Bread	326.2 Ft	480.5 Ft	-154.3 Ft ***
Organic	Apple	401.4 Ft	425.0 Ft	-23.6 Ft **
	Milk	389.4 Ft	450.0 Ft	-60.7 Ft ***
	Bread	474.3 Ft	680.0 Ft	-205.7 Ft ***

Table 3: Retail price estimates of consumers, actual prices and the difference between them. Asterisks indicate the significance level of the one sample t-test (*: $p < 0.001$; **: $p < 0.01$). In the case of green fields consumers overestimated prices while the orange fields show underestimated values.**

5.2.3 Assessment of the price/value rates for produce

Despite the significant error in the estimates, respondents accurately guessed that typically the supermarkets were the cheapest followed by the normal market, the farmers' market and the organic market being increasingly expensive in that order (Figure 8).

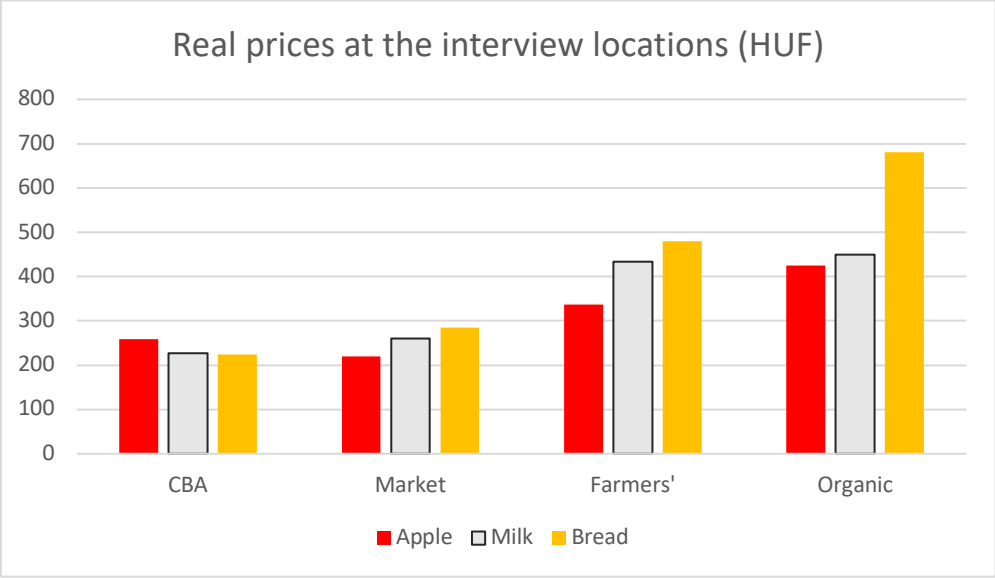

Figure 8: Actual product prices at the locations of the interviews (columns show the arithmetic mean of the price recorded at the two locations of the same type)

Having estimated the prices, we asked what they thought of the price-value ratio for each location, that is, how much prices reflect the actual value of the products. The

average respondent classified the first three types as neutral and found the organic market overpriced, however, with significant variance in each case, which also refers to the fact that it is worth segmenting respondents and examining responses in that way, too (Figure 9).

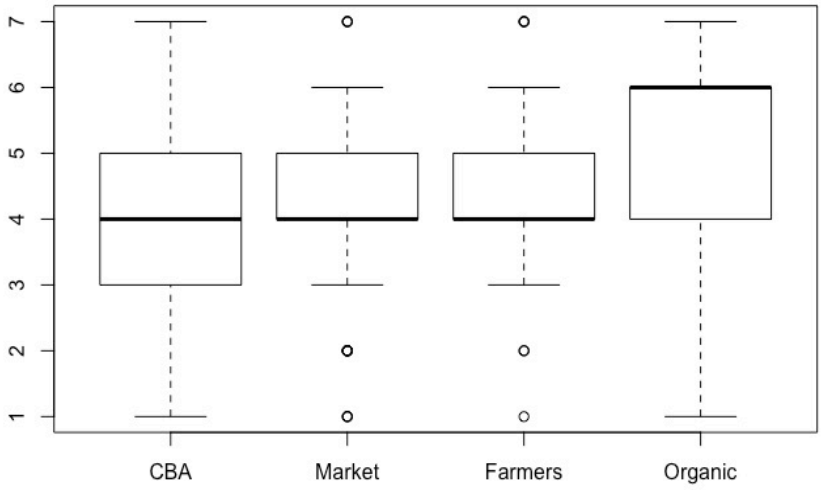

Figure 9: Estimates by consumers for the price-value ratio of each purchase location: 4 'realistic', numbers below this: cheaper than its true value, numbers above 4: more expensive than its real value

The correlation matrix of price estimates and the price-value rate indicates an important difference between the sustainable sources of purchase and their conventional counterparts. Although it is true that the respondents did not estimate the prices of either of the locations accurately, it is still apparent that those who estimate higher prices at the sustainable sources will typically find these prices excessive, whilst the same is not true in the case of supermarkets and conventional markets. This result suggests that consumers do not understand the reason for the price difference or even if they do know some of the reasons, they think that the (assumed) price difference is exaggerated. One possible reason for this is that the primary source of knowledge about the food market for consumers is the information collected from conventional food (highlighting here that conventional does not only refer to a category here but also defines the most common, available everywhere, usual) and they form their opinion based on this about the *alternative* sources of purchase (the *alternative* nature of which is *different from* the conventional). Although in case of sustainable food, the absence of externalities could also mean that these products are somehow the original and free from special characteristics, the excess offer developed over the years on the

part of conventional food makes it impossible for sustainable food to determine the way that consumers think.

		CBA_apple	CBA_milk	CBA_bread	Piac_apple	Piac_milk	Piac_bread	Termeloi_apple	Termeloi_milk	Termeloi_bread	Bio_apple	Bio_milk	Bio_bread
CBA price/value	Pearson Correlation	-,015	,026	-,034	,038	,017	-,038	-,111	-,043	,092	-,051	-,003	-,040
	Sig. (2-tailed)	,881	,792	,735	,708	,866	,709	,252	,665	,350	,619	,980	,698
	N	107	105	104	101	100	100	108	103	104	96	97	95
Market price/value	Pearson Correlation	,163	,170	,036	,281**	,160	,063	-,065	-,007	-,037	-,012	-,212*	-,202
	Sig. (2-tailed)	,102	,088	,720	,005	,113	,536	,508	,945	,711	,911	,039	,052
	N	102	101	99	100	99	99	105	100	101	94	95	93
Farmers price/value	Pearson Correlation	,209*	,067	,218*	,205*	,177	,209*	,314**	,092	,179	,281**	,220*	,115
	Sig. (2-tailed)	,035	,507	,030	,039	,076	,036	,001	,358	,070	,006	,032	,274
	N	102	101	100	102	101	101	108	102	103	94	95	93
Organic price/value	Pearson Correlation	,106	,134	,121	,019	,263**	,225*	,031	,145	,179	,210	,264*	,299**
	Sig. (2-tailed)	,323	,210	,253	,852	,010	,028	,767	,168	,089	,054	,014	,006
	N	89	90	91	96	95	95	95	92	92	85	86	84

Table 4: Correlation matrix between price-value estimations and price estimates. The cells of the table present the Pearson correlation between the variables of the rows and the columns (: p<0.01. *: p<0.05). In the case of CBA the estimates given for the prices of products do not correlate with the price/value estimations while in the other cases the correlation appears increasingly.**

There are two reasons for this phenomenon: one is that they are not aware of the phenomenon of externalities, that is, consciously avoiding certain environmental and social damages requires less cost-effective business and technological decisions. It is conceivable that even in case of consumers who go shopping to locations said to be sustainable, since shopping in sustainable places does not necessarily require a deeper theoretical understanding of the relevant problems, moreover someone may shop there for reasons that have no direct connection to externalities – for example for gastronomical preference. The other potential explanation reflected by the outstanding difference seen in the price of bread is the poorer economies of scale resulting from the smaller scale of sustainable production methods, in other words the higher demand for human labour. This difference is also generally true due to the imbalance in offers between conventional and alternative products, but it is most apparent in the case of products with a high demand for human labour. This result clearly suggests that the price sensitivity of consumers is more prominent in the absence of sufficient

information or that the absence of appropriate values strengthens price sensitivity even in the presence of such information. This phenomenon is also an important point of intervention for the more effective marketing of sustainable forms of production. These explanations do not finally exclude the interpretation of Table 4 the thoughts above could be sufficiently demonstrated by research specially aiming to explain this phenomenon.

5.3 Consumer groups of sustainable food

The results of the second questionnaire presented above reflect at several points that respondents must be further segmented in order to understand the data more deeply, so that more homogenous groups are compared. This would make the results of the entire sample, which are sometimes difficult to interpret, more understandable. I performed the grouping with cluster analysis (Ward method) and the detailed results are found in section 6.3 of the Annex. I conducted clustering with binary variables generated from the price estimates.[11] After a preliminary estimate and multiple runs the cluster analysis most convincingly segmented the respondents into five groups, which can be characterised as follows with the help of the other variables of the questionnaire in addition to the cluster generating variables (Kuslits and Kocsis, 2019). I gave descriptive names to the groups and also indicated what proportion of the entire sample belongs to the given group.

1. **[traditional housewives 17.5%]** The vast majority of these people are found at farmers' markets and some of them at the conventional markets. In addition to these places they typically go shopping at CBA, although two thirds of them never go to the organic market, which may be related to the fact that 86% of them think that organic products are overpriced. The vitamin content of products is important for them, but it is not important for them to find the products they are looking for available everywhere. Many of them always read the labels on the products. Most of them are below 46 and more than 80 percent of them are female. They typically think their income is average and they are

[11] Respondents under- or overestimating the price of the 3 products at the 4 locations got 1 = yes, 0 = no values in 24 variables. These variables are indicated by grey highlighting in the lower lines of the table presented in the annex. The values of the other items are classified in the groups according to these clusters.

discontented with that. The vast majority of the members of this group overestimated the prices of organic markets.

2. **[conscious youth 28.33%]** Half of these people answered at the farmers' market and the other half responded at the conventional or the organic market. They greatly underestimate the prices of CBA, they know the prices of the markets well, but it is not important for them to have the products available everywhere or to have green packaging. Almost 40% are aged between 15 and 31, the division of sexes is balanced.
3. **[wealthy 22.5%]** 66%- of these people answered the questions at the organic market and most of the others at the conventional or farmers' market. They generally go shopping at the organic market. It is important for them to have a lot of vitamins in their food, to have the product they are looking for easily available everywhere, for it to be easy to prepare and that it comes from green sources. The division of sexes is balanced and they are typically content with their financial situation. They overestimate the prices of farmers' markets.
4. **[elderly women 15%]** Half the members of this group responded at the CBA and the larger part at the conventional market. Each member of the group goes to the conventional market with some regularity while two thirds of them never go to the organic market. It is important for them to have food which is both rich in vitamins and also low cost. This is the eldest group of whom 41% are over 64 and 72% are female. Half of the respondents are content with their income. They rarely drive a car. They overestimate the prices of the farmers' market and to some extent the prices of organic products too.
5. **[students 16.66%]** 75% of the last group answered the questions in the CBA. It is nearby for two thirds of the group, who typically go shopping here (on foot); the members of this group do not generally go to organic markets or farmers' markets despite the fact that they do not think either place is overpriced. It is not important for them to have environment friendly products and they do not read the information on the label. 45% of them are below 31 and 65% are male. 40% of them think their income is below average and they are also discontented with that. They are well aware of the prices at CBA and underestimate the prices of all other sources.

Producers of sustainable food could learn some interesting information from this analysis: there is a social group of young housewives who may not buy organic food

because they think their prices are too high, but opposed to the entire sample, they greatly overestimate them. Perhaps in possession of the correct information they would try more sustainable food. There is a young group who are well informed about prices, they go to producers' markets a lot, but they do not really differ from the average across the entire sample in the attitude questions related to sustainability. Another study would be required to further clarify their preferences, but it can be imagined that they are motivated by gastronomical values that are absent from the Botonaki questionnaire. It is an important piece of information for players at producers' markets that shoppers overestimated the price of local food. While most customers at the producers' and organic markets are young, older people seem to have little specific information about producers' and organic food; they overestimate the prices and do not shop from such sources. As opposed to the second group (where there are also young people) the members of the latter group do not shop on the basis of values, rather along the aspect of convenience. According to the present findings, addressing them seems to be the greatest challenge.

5.4 Discussion of the results

In my research I examined the factors influencing the decision-making process of consumers of sustainable food. According to the framework outlined at the beginning of the thesis, consumer choice is determined by three main factors: (1) information – all the knowledge and specific information about the product that the consumer possesses; (2) consumer values – including moral commitment, but also non-ethical values, such as gastronomic preferences; (3) price sensitivity – the personal financial capabilities of the consumer, which limit the preference of the previous two points to some extent.

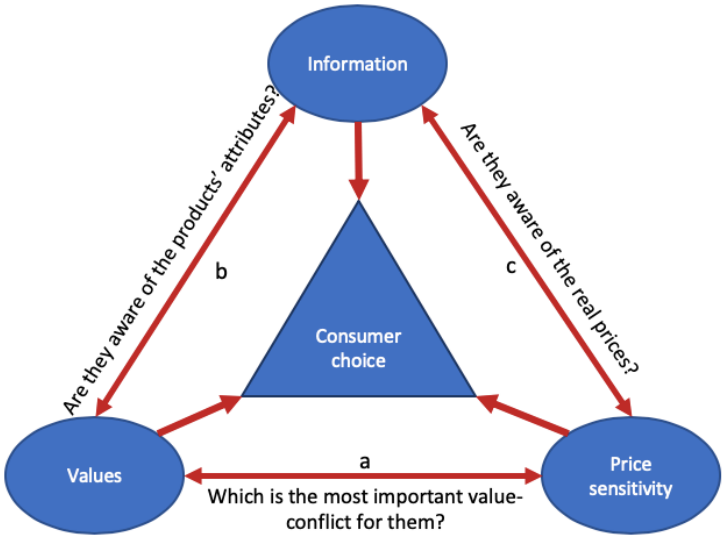

Figure 10: Relationship between key factors determining consumer choice and research issues

Each of these three factors could individually be the subject of valuable scientific research, but in my study I tried to understand their interactions better. From the consumer's point of view, consideration of the three factors together brings about an optimal decision, but for researchers and the producers of sustainable food, interesting information is provided by the examination of the relationship between the individual dimensions. Figure 10 shows the relationship between research questions and the framework of interpretation. The relation 'a' examines the relationship between values and price sensitivity. To what extent is the number of potential value commitments affected by how much of a financial sacrifice the consumer is willing to make? I collected data on this question with a questionnaire filled out by students at Corvinus University, and it would be worth examining other social groups or even collecting a representative sample. Externalities, i.e. the harmful external effects of production, can be divided into four categories (HERE, LATER, OTHER, FARTHER) which, according to my results, influence consumer decisions to varying degrees in an experimental situation where it is assumed that all four versions offer the same financial benefit. For the respondents to this research, avoiding their own loss was the strongest motivating factor for accepting the cost, but other findings might be different for another sample.

All of these results make it possible to outline a framework (Table 5), enabling a product rating system to be implemented that is more sensitive to real consumer expectations than today's systems (see: de Jonge, van der Lans, and van Trijp 2015) whereas it considers sustainability as a non black-and-white issue and is able to

communicate on the main types of environmental problems at the same time to some extent. In such a system, the idea of multi-level labeling would be feasible (Van Dam and De Jonge, 2015; Weinrich and Spiller, 2016), the practice of multiple ratings could be simplified and at the same time the problem of a label giving the consumer a more positive than reality image would occur less frequently. Labelling systems today are too diverse and chaotic, and although they obviously provide additional information to the consumer, they are generally unable to provide an overall picture of the side effects of production (Kocsis and Kuslits, 2019).

	HERE	LATER	OTHER	FARTHER
★				
★★	✓			
★★★		✓		✓
★★★★			✓	
★★★★★				

Table 5: A complex, multi-level label framework that can comprehensively present the characteristics of a product. The green ticks indicate the possible evaluation of an imaginary product: it has received an assessment of 'excellent' from an animal protection p

The suggestion of multilevel multidimensional labelling is related to research questions about the 'b' relationship, the relationship between values and information. The difference between the genuine consumer choice and the values has been described by several authors (Csutora, 2012; Verbeke et al., 2007; Vermeir and Verbeke, 2006) one of the possible reasons for this is that, although consumers are theoretically committed to sustainable consumption, they do not know what product to choose or if they do know, they do not know where to get it.

It may also be that a consumer is aware of the available choices, but cannot spare the time needed to obtain everything from the most sustainable source available. This is also a kind of value choice, and indicates that in a narrow sense value-commitment is less informative, comparing values with other values and practical considerations, and credibly evaluating the priorities of values and their real decision-making impact. This problem is closely related to the phenomenon of information asymmetry, which is a characteristic feature of global supply chains: there is a significant difference between the producer and the consumer as to how much information they have about the circumstances of the product. The two market-influencing methods (labelling, localisation) discussed in the dissertation have different modes but have the same

purpose: to reduce information asymmetry (Kuslits and Kocsis, 2018). Finally, along the 'c' link, we can ask whether consumers are aware of the true prices of sustainable products. Looking at the average for the examined population, we get a surprising answer: consumers are not aware of prices, and even the differences were contrary to my expectations. However, if we break down consumers into clusters by using the accuracy of price estimates, there are five social groups out of which the knowledge of prices varies, however, this takes on an understandable, sociologically meaningful form in the light of the other variables (Kuslits and Kocsis, 2019). Taking into account the specificities of various social groups and the resulting lack of specific information, professionals working on sustainable food systems can form a more effective marketing strategy. The lack of adequate knowledge of prices points to a major challenge for the sector. Alternative food production is typically small-scale and, as explained above, in Hungary and around the world the challenge is economic sustainability and economies of scale. In this situation, a marketing campaign can only be imagined where consumers are informed about the real market conditions (primarily in terms of price and availability, but also in terms of quality differences). The nature of the players on the market does not favour the 'alternatives' becoming part of the 'mainstream' by themselves – this difficulty could be resolved most effectively for structural reasons through regulatory intervention.

6 Summary

In my dissertation, I examined the value preferences of consumers on the sustainable food market and their practical impact on customer decisions. The creation of a sustainable food market should be inevitable in the light of the scientific results of recent decades, as the expanding population also means increasing food demand on a global scale, but at the same time, the destruction of ecosystems calls for the land used for food production not to expand beyond current boundaries, and even for existing areas to be converted to more environmentally friendly technologies, landscape structures and cultivation methods. For the implementation of this in practice, it is absolutely necessary for the consumer to become involved in the form of individual decisions, or by becoming active citizens in the processes that create more transparent supply chains in the food market.

From the consumer point of view, one of the most significant problems to be overcome in achieving this goal is that of information asymmetry, i.e. the fact that the producer has much more information about the product than the consumer, this allows pricing and production strategies in practice that theoretically some consumers would not accept were they to be in possession of equal information. Information asymmetry will never be completely resolved, but the two main types of sustainable food market worldwide are targeting this problem. The former does not change the functioning of the existing market, it merely gives the consumer new information with the help of a reliable third party: these are certified ethical products that communicate with consumers using different label systems about the social or ecological benefits that a certified product has above its competitors. There are many and varied labels of this kind around the world that consumers are looking for who are willing to pay more for a certified product than for the traditional competitors. Labelled products are constrained by the diversity of labels, difficulties verifying true content, and the fact that large agricultural companies are attempting to classify their products in similar ways, leading to a loss of consumer confidence in labels in general.

The other main method for eliminating information asymmetry is the localisation of the economy, thereby creating a personal space in which the producer and the consumer can communicate with each other without involving formal and external help, with the producer communicating through the label in the former case. The

success of this idea is harder to verify as an outsider; whereas, however, the creation of local food systems is increasingly popular worldwide based on the subjective satisfaction of consumers with the information received in various institutional forms, but seeks to achieve the same thing: a direct connection between the producer and the consumer. The two most common examples of this concept are community-supported agriculture (CSA) and the farmers' market. In the last decade, several producer markets have been established in Hungary, some of which are regularly checked to ensure that only producer goods are put out for sale.

The two concepts set a similar goal, but the difference from the research point of view is that the different dimensions of consumer decision-making become visible in one or the other system. In my research I examined how the three important factors influencing consumer decision, information, values and price sensitivity, form the final decision. The full description of the dynamic operation of the framework goes beyond the scope of this work, I have attempted to explore all these three dimensions and to understand the interactions between them to enrich the scientific discourse with some new results. I hope my work provides a useful basis for more efficient work of certain market organizers, as well as informed planning of new research directions.

My work is based on two questionnaire surveys. One of them was conducted with Corvinus University students, the other at food shopping locations in Budapest: supermarkets, markets, and farmers' and organic markets. Based on the results, I drew the following main conclusions:

The willingness of consumers to pay for sustainable food is highest when faced with a certified sustainable product as an alternative to one that might harm their personal health or utility. I do not think it is a surprising finding that this aspect is uppermost for consumers, but the significant difference with the other dimensions is striking. It would be worth examining other representative or even international samples of how consumers relate to these issues elsewhere. Given that consumers were well aware of the ethical issues associated with the product, we cannot expect that information transfer (such as labelling) alone would significantly improve the responses of our subjects. Responsible, ethical consumer behaviour is based on a broader, culturally defined set of values based on the literature – changing it is a significant and complex task.

Consumers have different priorities for ethical issues related to different types of consumption, thus developing a multilevel, multidimensional sustainability label system that leads the market towards informed decisions by better serving detectable consumer needs would be useful. The multidimensional and multilevel label system we published serves as a model to provide the consumer with the information about the environment that is lost between them and the producer in a uniform, yet transparent way. It would be worthwhile examining by means of experimental economics, how such a label system would affect the purchase of consumers in reality.

Consumers are unaware of the exact price difference between sustainable and traditional foods, and this lack of information seems to reach the level of many social groups, which in itself prevents consumers from purchasing sustainable foods, although they would be expected to choose such products in line with their values. In this issue, the sustainable forms of food sales discussed do not help, since prior assumptions also prevent producers from communicating with consumers. Addressing new consumers requires intervention that goes beyond the traditional framework of the market (or cooperation between principally competing producers, either by the intervention of the regulator or by a civil organisation) that can address consumers en mass.

Food consumers are divided into significantly different sociological groups, which exhibit quite different values and patterns of consumption. In order to expand sustainable food systems, it would be useful to individually examine these groups more closely, and specifically relate to their values, in order for the sustainable food movement, which is otherwise growing despite at the same time having significant difficulties, to become more successful.

In further research, it would be worthwhile examining the three outlined factors uniformly with qualitative or experimental methods so that the dynamics of the interactions between them can be examined not only in pairs but in a more complex way.

The findings of the research used here suggests that we cannot limit consumer values to the dimensions that were used based on the Botonaki questionnaire. Less structured methods could reveal further dimensions that might be included in a future questionnaire survey. Based on our results, and based on my subjective knowledge of the research sites, my preliminary observation is that gastronomic characteristics are

emphasised on the Hungarian food market, especially for produce from small-scale producers – so this is one of the possible candidates for broadening the values examined.

The most significant limitation of this research was the small size of the samples. We could get more thorough, reliable results in the future from a much larger representative sample, or in a way that would involve qualitative tools in interpreting quantitative methods. A further possible way of expanding the research direction would be to involve community-supported agriculture, internet box systems and other alternative sales methods alongside the investigated forms of sales. These structures basically work on similar principles, as the subject of current empirical research, however, their communication channels are different, and I assume that the issue of economies of scale are different in these cases. These listed forms of sales strive towards the same goal, their comparison would allow us to understand in more detail what the key to efficiency is in terms of both market organisation and information asymmetry. However, such comparisons certainly need to be carried out on a larger sample.

6.1 Closing Remarks

I am convinced that the development of a sustainable food market is key to a broader sense of sustainability. Food is an area of life that affects everyone, everyone has an opinion about it, and it is culturally and economically important. The sustainability of the food system and the route to achieving it is a way to make consumers more aware of the principles of sustainability and the steps needed for change, it could be a model for market transformation in more general terms. The widespread conviction of people working on alternative food systems is that this transformation is not only our moral duty to the world and an attempt to save the planet (although these are true), but they are also a means to a better life, where we can eat healthier and tastier food, where food connects people, renews traditions and reconnects humans with the landscape.

Based on my thesis, we can see that this road is long and winding, and we are far from our goal. There is a need for decision makers to support the efforts made by those working in the distribution of sustainable food from the bottom up. Scientific results in this field are broad, which could be a good starting point for making more ambitious decisions, at the same time, research similar to the present study could add to the understanding of these methods by comparing and testing the most effective ways of

creating a sustainable food market. Ultimately, our goal should be to shift environmentally conscious food production from the status of an alternative to that of a widespread model.

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8 Appendices

8.1 Questionnaire on food information and its impact on prices

The text of the 'A' questionnaire is shown below. The differences between the four questionnaires are explained in a footnote.

Here are two food production technologies:

'A' technology is able to cover the annual food needs of a family of two people at a cost of 10,000 HUF/day, i.e. 300,000 HUF/month, using 10 hectares of arable land.

'B' technology is able to cover the annual food needs of a family of two people at a level of HUF 8,000 / day, i.e. HUF 240,000 / month, using 10 hectares of arable land.

Suppose that technology 'A' is widely used and the bread that is produced with this method is sold at 300 Ft/kg. How much should a 1kg loaf of bread cost? If it is produced using technology B (the cost of which is 20% lower, but 50 years LATER will cause a proportionate additional cost to other people).[12] What would be a reasonable price for you as a consumer? Choose one of the following:

□ more than 500 Ft
□ 500
□ 475
□ 450
□ 425
□ 400
□ 375
□ 350
□ 325
□ 300
□ 275
□ 250
□ 225
□ 200
□ 175
□ 150
□ 125
□ 100
□ less than 100 Ft
□ I don’t know

[12]Questionnaire B: The cost of which is 20% lower but DISTANCE causes more costs to other people across the globe

Questionnaire C: 20% lower costs but lower welfare for ANIMALS

Questionnaire D: The cost of which is 20% lower but HERE provides lower prosperity (e.g. poorer product taste)

8.2 Questionnaire for Research on Producer Markets in Budapest

Date	Place	Questionnaire	Number

This research is carried out within the framework of the UNESCO-ELTE Collaborative Collaborative Research Seminar. Our goal is to understand people's perception of food and the value of food. Filling out the questionnaire is approx. It takes 7-8 minutes and no personal information is required.
The difference between producer and organic market

- *Producer market: rural Hungarian small producers and primary producers, selling only their own commodities, 'craft' products. It is not known whether or not they use chemicals*
- *Organic Market: Certified Organic Products, that is, guaranteed chemical-free, but we don't necessarily know what kind of farming system they come from, they may even come from abroad*
- *Normal market: most people serving are traders, the origin of the products and the source is not regulated*

How long does it take you to get home from here? How do you travel?

Time (minutes):					
How do you travel?	walk	Public transport	car	bicycle	other

How often do you buy in the following places?

CBA				Normal market				Producers market				Organic market			
weekly	monthly	rarely	never	weekly	monthly	rarely	never	weekly	monthly	rarely	never	weekly	monthly	rarely	never

How much do you think that the items listed below cost in the various outlets?
(Say, in the location we are in, what the actual price is)

	Fehérvári CBA	Normal market	Farmers' market	Organic market
Apple (red 1kg)				
Milk (cow's, 2.8% 1l)				
Bread (white, 1kg)				

How much do normal market prices reflect the real value of the products there?
0 | 1 2 3 4 5 6 7
How much do CBA prices reflect the real value of their products on average?
0 | 1 2 3 4 5 6 7
How much do producer market prices reflect the real value of the products on average?
0 | 1 2 3 4 5 6 7
How much does the price of the organic market reflect the real value of the products there on average?
0 | 1 2 3 4 5 6 7

(1: much cheaper than it really is, 4: the price just matches the value, 7: much more expensive than it really is)

How much do you agree with the following statements?
(0: They do not know, they did not answer 1: They do not agree at all, 4: Neither disagree nor agree, 7: They totally agree)

It is important to me that the food I usually eat does not contain any different harmful additives.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that food is cheap
0 | Disagree 1 2 3 4 5 6 7 Agree

I am always aware of the conditions under which the food I eat was produced.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat should not be too fatty.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat comes from an environmentally friendly source.
0 | Disagree 1 2 3 4 5 6 7 Agree
I always pay attention to discounts and promotions when shopping.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat should be in environmentally friendly packaging.
0 | Disagree 1 2 3 4 5 6 7 Agree
I am always aware of the amount of calories I eat.
0 | Disagree 1 2 3 4 5 6 7 Agree
I always compare the price of the products at the time of purchase.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat can be prepared quickly.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat is rich in vitamins and proteins.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat is available near my home.
0 | Disagree 1 2 3 4 5 6 7 Agree
When I buy food, I always read the information on the label.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat is easy to make.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me to know if there is a high proportion of chemical residues in the food I buy.
0 | Disagree 1 2 3 4 5 6 7 Agree
I am always aware of the fat content of the food I eat.
0 | Disagree 1 2 3 4 5 6 7 Agree
It is important to me that the food I usually eat is available in all kinds of stores.
0 | Disagree 1 2 3 4 5 6 7 Agree
I am always aware that the food that I eat contains preservatives or additives.
0 | Disagree 1 2 3 4 5 6 7 Agree

Year of birth:
Gender: female male

How do you consider your family's financial situation compared to today's Hungarian average?
(0: no answer, 1: very bad, significantly below average, 4: flat, 7: very good, significantly above average)
0 | 1 2 3 4 5 6 7

How satisfied are you with this financial situation?
(0: no, 1: very dissatisfied, 7: very satisfied)
0 | 1 2 3 4 5 6 7

8.3 Detailed findings of the cluster analysis

	Housewife 17,5%	Conscious young 28,33%	Wealthy 22,5%	Elderly women 15%	Student 16,66%	**Total**	
	%	%	%	%	%	%	N
Producers	85.7%	55.9%	14.8%	0.0%	0.0%	34.2%	120
market	14.3%	20.6%	14.8%	33.3%	25.0%	20.8%	120
organic	0.0%	20.6%	66.7%	16.7%	0.0%	23.3%	120
CBA	0.0%	2.9%	3.7%	50.0%	75.0%	21.7%	120
REACH0	33.3%	16.7%	15.4%	33.3%	60.0%	29.6%	115
REACH3	9.5%	20.0%	23.1%	11.1%	25.0%	18.3%	115
inCBA	47.6%	58.8%	66.7%	77.8%	75.0%	64.2%	120
inMARKET	38.1%	35.3%	40.7%	66.7%	40.0%	42.5%	120
inLOCAL	42.9%	30.3%	23.1%	22.2%	20.0%	28.0%	118
inBIO	9.5%	9.1%	33.3%	11.1%	5.0%	14.3%	119
inCBA0	19.0%	20.6%	11.1%	5.6%	0.0%	12.5%	120
inMARKET0	4.8%	8.8%	14.8%	0.0%	15.0%	9.2%	120
inLOCAL0	0.0%	9.1%	19.2%	16.7%	35.0%	15.3%	118
inBIO0	66.7%	39.4%	25.9%	66.7%	65.0%	49.6%	119
MARKETover	0.0%	34.4%	44.0%	35.3%	42.1%	31.6%	114
CBAover	47.6%	39.4%	44.4%	41.2%	31.6%	41.0%	117
LOCALover	47.6%	42.4%	50.0%	47.1%	26.3%	43.1%	116
ORGANICover	86.7%	45.5%	53.8%	56.3%	36.8%	53.2%	109
vitamin0	14.3%	21.2%	3.8%	22.2%	20.0%	16.1%	118
vitamin2	33.3%	33.3%	61.5%	72.2%	25.0%	44.1%	118
near0	38.1%	26.5%	30.8%	38.9%	40.0%	33.6%	119
near2	33.3%	26.5%	50.0%	33.3%	40.0%	36.1%	119
anywhere0	57.1%	64.7%	34.6%	33.3%	35.0%	47.1%	119
anywhere2	4.8%	11.8%	42.3%	27.8%	35.0%	23.5%	119
greensrc0	19.0%	23.5%	19.2%	22.2%	55.0%	26.9%	119
greensrc2	42.9%	41.2%	61.5%	38.9%	15.0%	41.2%	119
greenpck0	38.1%	45.5%	26.9%	22.2%	40.0%	35.6%	118
greenpck2	33.3%	33.3%	42.3%	44.4%	10.0%	33.1%	118
label0	25.0%	44.1%	30.8%	27.8%	60.0%	38.1%	118
label2	50.0%	29.4%	42.3%	27.8%	25.0%	34.7%	118
prodcond0	38.1%	32.4%	30.8%	22.2%	25.0%	30.3%	119
prodcond2	9.5%	14.7%	23.1%	22.2%	45.0%	21.8%	119
add0	19.0%	38.2%	11.5%	29.4%	40.0%	28.0%	118
add2	42.9%	20.6%	34.6%	35.3%	20.0%	29.7%	118
fat0	33.3%	20.6%	15.4%	17.6%	15.0%	20.3%	118
fat4	14.3%	8.8%	19.2%	11.8%	5.0%	11.9%	118

cheap0	38.1%	18.2%	15.4%	17.6%	25.0%	22.2%	117
cheap4	9.5%	24.2%	23.1%	35.3%	20.0%	22.2%	117
easy0	38.1%	17.6%	23.1%	16.7%	15.0%	21.8%	119
easy3	19.0%	17.6%	50.0%	27.8%	20.0%	26.9%	119
15-31).	14.3%	38.2%	14.8%	17.6%	45.0%	26.9%	119
32-46).	38.1%	26.5%	37.0%	5.9%	15.0%	26.1%	119
47-63).	23.8%	20.6%	25.9%	35.3%	30.0%	26.1%	119
64-88).	23.8%	14.7%	22.2%	41.2%	10.0%	21.0%	119
male	19.0%	55.9%	48.1%	27.8%	65.0%	45.0%	120
female	81.0%	44.1%	51.9%	72.2%	35.0%	55.0%	120
WEALTHlow	15.0%	20.6%	7.7%	27.8%	30.0%	19.5%	118
WEALTHavg	45.0%	29.4%	38.5%	44.4%	40.0%	38.1%	118
WEALTHhigh	20.0%	14.7%	11.5%	22.2%	10.0%	15.3%	118
SATlow	35.0%	23.5%	23.1%	50.0%	40.0%	32.2%	118
SATavg	25.0%	20.6%	26.9%	11.1%	10.0%	19.5%	118
SAThigh	30.0%	41.2%	30.8%	22.2%	30.0%	32.2%	118
walk	47.6%	54.5%	18.5%	55.6%	70.0%	47.9%	119
Public transport	14.3%	18.2%	29.6%	27.8%	5.0%	19.3%	119
car	38.1%	27.3%	51.9%	16.7%	25.0%	32.8%	119
CBAa0	33.3%	47.1%	3.7%	27.8%	5.0%	25.0%	120
CBAa2	23.8%	23.5%	59.3%	5.6%	0.0%	25.0%	120
CBAm0	9.5%	76.5%	14.8%	27.8%	0.0%	30.8%	120
CBAm2	47.6%	8.8%	63.0%	0.0%	5.0%	25.8%	120
CBAb0	4.8%	70.6%	3.7%	16.7%	0.0%	24.2%	120
CBAb2	47.6%	11.8%	92.6%	0.0%	10.0%	34.2%	120
MARKETa0	57.1%	23.5%	3.7%	22.2%	50.0%	29.2%	120
MARKETa2	9.5%	35.3%	48.1%	16.7%	0.0%	25.0%	120
MARKETm0	28.6%	23.5%	7.4%	22.2%	40.0%	23.3%	120
MARKETm2	38.1%	23.5%	55.6%	5.6%	5.0%	27.5%	120
MARKETb0	23.8%	26.5%	0.0%	16.7%	50.0%	22.5%	120
MARKETb2	42.9%	29.4%	74.1%	0.0%	5.0%	33.3%	120
LOCALa0	0.0%	29.4%	11.1%	0.0%	55.0%	20.0%	120
LOCALa2	0.0%	2.9%	66.7%	94.4%	0.0%	30.0%	120
LOCALm0	0.0%	17.6%	3.7%	11.1%	65.0%	18.3%	120
LOCALm2	0.0%	2.9%	44.4%	33.3%	5.0%	16.7%	120
LOCALb0	4.8%	14.7%	7.4%	11.1%	85.0%	22.5%	120
LOCALb2	0.0%	5.9%	63.0%	50.0%	0.0%	23.3%	120
ORGANICa0	19.0%	29.4%	0.0%	22.2%	75.0%	27.5%	120
ORGANICa2	57.1%	11.8%	14.8%	27.8%	15.0%	23.3%	120

ORGANICm0	9.5%	38.2%	0.0%	22.2%	60.0%	25.8%	120
ORGANICm2	66.7%	23.5%	7.4%	22.2%	0.0%	23.3%	120
ORGANICb0	0.0%	26.5%	0.0%	44.4%	75.0%	26.7%	120
ORGANICb2	100.0%	17.6%	7.4%	0.0%	0.0%	24.2%	120

Table 6: Detailed findings from the cluster analysis described in 5.3 In each column, the characteristics of the clusters listed are shown in the same numbered sequence as in the text. The fields marked with red are significantly higher than average, the blue fields are significantly lower. Variables marked with grey were the cluster forming variables, the others did not influence categorization of the respondents.

8.3.1 The explanation of the individual variables in the cluster analysis

Producers	responded to questions at the producer market
market	responded to questions at the traditional market
organic	responded to questions at the organic market
CBA	answered questions at the CBA
REACH0	got in very short time (bottom 20%)
REACH3	got in a very long period of time (top 20%)
inCBA	shops at least once a month at the CBA
inMARKET	shops once a month at least
inLOCAL	shops at least once a month at the producer market
inBIO	shops at least once a month at the organic market
inCBA0	does not shop at the CBA
inMARKET0	does not shop at the market
inLOCAL0	does not shop at the market
inBIO0	does not shop at the organic market
MARKETover	the market is too expensive
CBAover	the CBA is too expensive
LOCALover	the producers are too expensive
ORGANICover	organic is too expensive
vitamin0	vitamin content is not important
vitamin2	vitamin content is important
near0	it is not important that the place of purchase is nearby
near2	it is important that the place of purchase is nearby
anywhere0	it is not important that what you are looking for is available everywhere
anywhere2	it is important that what you are looking for is available everywhere
greensrc0	it is not important that food comes from an environmentally friendly source
greensrc2	it is important, that food comes from an environmentally friendly source
greenpck0	not important packaging is environmentally friendly
greenpck2	Important that packaging is environmentally friendly
label0	does not typically read labels
label2	always reads the labels
prodcond0	is not interested in the conditions of production
prodcond2	is very interested in the conditions of production
add0	not interested in whether there are additives in the product
add2	pays attention to the presence of additives
fat0	it is not important if the food is high in fat
fat4	it is very important if the food is high in fat
cheap0	it is not important that the food is cheap
cheap4	it is very important that the food is cheap
easy0	it is not important that the food is easy to prepare
easy3	it is very important that the food is easy to prepare
15-31.	age
32-46.	age
47-63.	age
64-88.	age
male	male
female	female
WEALTHlow	Sees income as below average
WEALTHavg	Sees income as average
WEALTHhigh	Sees income as aboveaverage
SATlow	unhappy with their income
SATavg	averagely happy with their income
SAThigh	happy with their income to a large extent

walk	walks to the shops
Public transport	goes by public transport to the shops
car	Goes by car to the shops
CBAa0	CBA ,underestimates the price of apples
CBAa2	CBA, overestimates the price of apples
CBAm0	CBA, underestimates the price of milk
CBAm2	CBA, overestimates the price of milk
CBAb0	CBA, underestimates the price of bread
CBAb2	CBA, overestimates the price of bread
MARKETa0	Market, underestimates the price of apples
MARKETa2	Market, overestimates the price of apples
MARKETm0	Market, underestimates the price of milk
MARKETm2	Market, overestimates the price of milk
MARKETb0	Market, underestimates the price of bread
MARKETb2	Market, underestimates the price of bread
LOCALa0	Producers' market, underestimates the price of apples
LOCALa2	Producers' market, overestimates the price of apples
LOCALm0	Producers market, underestimates the price of milk
LOCALm2	Producers' market, underestimates the price of milk
LOCALb0	Producers' market, underestimates the price of bread
LOCALb2	Producers' market, overestimates the price of bread
ORGa0	Organic market, underestimates the price of apples
ORGa2	Organic market, overestimates the price of apples
ORGm0	Organic market, underestimates the price of milk
ORGm2	Organic market, overestimates the price of milk
ORGb0	Organic market, underestimates the price of bread
ORGb2	Organic market, overestimates the price of bread

Table 7: Explanation of the variable names in the cluster analysis