THE RELATIONSHIP BETWEEN CONSUMER BEHAVIOUR, ATTITUDES AND ACCEPTANCE OF PUBLIC POLICY TOOLS ADVANCING SUSTAINABLE FOOD CONSUMPTION

Anna Wielicka-Regulska, Ph.D.

*Faculty of Economics
Department of Economics and Economic Policy in Agribusiness
Poznań University of Life Sciences
Wojska Polskiego 28, 60-637 Poznań, Poland
e-mail: wielicka@up.poznan.pl
ORCID: 0000-0002-4885-1547*

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Abstract

Research background: The great importance of food consumption for the sustainability of food systems means that active public policy in this area can have a lot of positive effects.

Purpose: The purpose of the paper is to present the challenges facing the agri-food sector and to study consumer attitudes towards seasonal and organic food, local food, urban agriculture, food waste and meat consumption, carbon footprints and how these attitudes relate to the acceptance of public policy tools (a tax on junk food, a green public procurement, a deposit on plastic bottles, a tax-free donation of food to public benefit organisations, a fee for wasted food for large retailers) that could transform food distribution and consumption.

Research methodology: cardinality tables and interdependence analysis using Pearson's linear correlation coefficient

Results: The study revealed that most respondents buy seasonal food when possible and limit meat consumption to some extent. They are rarely influenced by the impact of food on the climate. Most people are in favour of offering dishes based on local food in public institutions with catering (hospitals, schools, prisons, etc.). Most respondents were negative about gardening for food production. Involvement in local food was associated with a higher acceptance for green public procurement and higher VAT on junk food.

Novelty: Both the range of considered policy instruments and the analysis of their acceptance in the context of selected behaviours and attitudes have not been previously studied and make up a new area of inquiry essential in the debate on sustainable food consumption.

Keywords: public policy, sustainable consumption, food, food policy, policy tools

JEL classification: E65, H24, H57

Introduction

According to the forecasts of the FAO, the global population will reach almost 10 billion people by 2050. In the scenario of moderate economic growth, it means the need to increase food production by about 50% compared to production that was achieved in 2013 (FAO, 2017). Income growth, especially in countries with low and medium levels of development, will be the premise to increase the consumption of meat, fruit and vegetables to a much greater extent than cereal products. This will lead to further intensification of agriculture and its even greater pressure on the environment. Growing expectations for increasing agricultural production result in severe exploitation of natural resources increasing CO₂ emissions, land sterilisation, degradation, and deforestation. These phenomena aggravate adverse climate change, limiting the production potential of agriculture and leading to a decrease in biodiversity and health threats. There are still many hungry and malnourished people. Continuous food deficit causes protracted crises, armed conflicts, and personal dramas. In the agri-food sector, the concentration at the level of production and distribution is increasing, excluding small farms from the market and deepening the industrialisation and capital intensity of this branch of the economy (FAO, 2017). Given the long-term tendencies of these phenomena, not only a radical change is needed in the structure and manner of food production but also in food consumption. Consumers as the last link of the food chain have significant opportunities to influence the shape of agriculture and food processing and even distribution, but even though consumers constitute a great potential in the group, as individuals, they can neither find the strength nor sufficient knowledge to shape foods' production and distribution profile through their own conscious choices.

Although there is an international consensus that food consumption must undergo significant changes, it is not very clear how this would happen (Armstrong, Kamieniecki, 2019). One of the most promising ways to solve this problem is public support and stimulation of changes in the food consumption profile (Dawkins et al., 2019; Schröder et al., 2019). The paper is an incentive for scientific and public debate on how we should implement the right to food for everyone respecting the interests of local communities and the global community (Baer-Nawrocka, Sadowski, 2019) and towards more inclusive growth and environmental protection.

The paper aims to present the challenges facing the agri-food sector and consumers and to study consumer attitudes towards selected public actions and behaviours that may be a response to emerging difficulties in food systems. This paper also refers to the relationship between the behaviours and attitudes discussed with the acceptance of public policy tools that could significantly support the process of the transformation of food distribution and consumption.

1. Theoretical background

Food systems cover a whole range of entities and their relationships that create added value resulting from the production, aggregation, processing, distribution, consumption and disposal of food products from agriculture, forestry or fisheries, and parts of the broader economic, social and natural environment in which they are embedded (Nguyen, 2018; Łuczka, Smoluk-Sikorska, 2017). The dependence of food systems on other key systems, e.g., energy, international trade or healthcare systems should also be emphasised. Changes in these systems can have a significant impact on the situation in food systems, e.g. the influence of the regulations regarding the mandatory addition of biofuels to motor gasoline in Poland.

Because of unfavourable global trends, most food systems are hardly sustainable today. A system that ensures food security and food for everyone deserves to be called a sustainable food system in such a way that the economic, social, and environmental foundations of achieving food security and nutrition for future generations are not threatened (Pawlak, 2016). At the same time, sustainability is implemented simultaneously in three dimensions, i.e., such a system is profitable throughout the whole period (sustainable economic development), brings wide-ranging benefits to society (sustainable social development) and has a positive or neutral impact on the environment (sustainable environmental development) (Nguyen, 2018).

Considering factors such as global population growth, ageing, urbanisation, an emphasis on economic growth, agricultural competition for natural resources with other industries, climate change, fast-spreading pests, and diseases the FAO (2018) has pointed out the challenges that currently stand in front of food systems. These challenges have been grouped by Calicioglu et al. (Calicioglu, Flammini, Bracco, Bellù, Sims, 2019) using a network analysis forming 3 groups: challenges related to food stability, related to access to food and use of food and systemic challenges.

The first group of challenges included: increasing agricultural productivity to respond to increased demand, providing a sustainable base of natural resources, coping with climate change and increase in the intensity of natural adverse phenomena (e.g. droughts) and preventing rapidly spreading threats (e.g. plant and livestock diseases and food contamination) in agriculture and food production. The second group of challenges includes challenges related to the availability of food and its use. It includes combating poverty and reducing inequalities, eliminating hunger and malnutrition, increasing income creation opportunities for rural residents, and addressing the causes of migration, increasing resilience to protracted crises, catastrophes, and conflicts. The third group of challenges are systemic challenges, which include: increasing the

efficiency, inclusiveness, and resilience of food systems to adverse factors and responding to the need for a coherent, nationally and internationally effective system of governance understood as coordinated actions aimed at developing and implementing public policy corresponding to the previously mentioned challenges.

Against the background of the above challenges, several general solutions have also been formulated that may contribute to the creation of more sustainable food systems. These recommendations apply to the production, distribution, and consumption of food. They also include guidelines for public policy to use as an essential element in the transformation of food systems. The FAO (FAO, 2018) points to the need to introduce the following changes to the food systems of developed countries and are related directly to consumers:

- increasing consumer awareness about a healthy diet,
- change in the consumption profile to increase the share of food of plant origin, especially as a source of protein,
- reduce food waste,
- increase in food prices, which will reduce food demand and food waste.

In the subsequent sections of the paper, selected changes are referred to as they are the starting point for formulating solutions in public policy (Lusk, McCluskey, 2018).

In high-income countries (HIC) where both adult and child obesity shows an increasing trend and at the same time, the incidence rate of diet-related non-communicable diseases are on the rise, that is why actions raising awareness of the importance of a healthy diet are very needed. Obesity is usually caused by a diet too high in sugars and salt, and lack of physical activity. The solutions in this area are information campaigns targeted at various recipients – both children and parents but also groups at-risk encouraging them to eat fruit and vegetables as well as to avoid junk food. Other ways to fight an incorrect diet are sin taxes – the tax on sugar and salt-rich food, which already exist in several countries.

In turn, the recommendation to increase the consumption of plant-based food is grounded on the notion that animal production is more harmful to the environment than plant production (Poore, Nemecek, 2018) and that animal fat and protein-rich food exerts a potential negative impact on human health. However, it will be a challenge to find policy solutions easy to accept and to implement due to common allergies to vegetable products and greater difficulty in creating protein-balanced diets based on plant products. However, many consumers and environmental organisations issue postulates that food producers should communicate to consumers the environmental footprint of their products so that consumers can make more informed choices. The propositions of introducing market instruments such as subsidies for

sustainable and organic foods, as well as the taxation of meat and dairy products, are also increasingly being discussed. Although such tools are rather sound (Chloupkova, Tinggaard Svendsen, Zdechovsky, 2018), it should be verified in advance whether less expensive alternative plant products are available (Wijesinha-Bettoni, Latu, Osornprasop, Kubuabola, 2019) and how society is prepared for introducing such far-reaching interventions in food consumption (Chalmers, Revoredo-Giha, Shackley, 2016) and what effect they will bring (Revell, 2015).

Food waste is still a global challenge. Corrado and Sala indicated that annually between 158 kg and 298 kg of food per person is wasted in the EU (Corrado, Sala, 2018). The highest share of food waste in developed countries takes place at the consumption or retail level. At the distribution level, food is wasted because of consumer behaviour, confusion regarding food expiry dates, difficulties in predicting demand, and superior standards regarding food appearance or inefficiencies in supply chain management (Teller, Holweg, Reiner, Kotzab, 2018; Łaba, Goryńska-Goldmann, 2020; Łaba, 2020). The solution to this problem in retail can be so-called Good Samaritan Food Donation laws that guaranty civil and criminal liability protection for food donors like stores that donate, in good faith, wholesome food to charities, non-profit organisations that pass on food to those in need as was shown in Italy (Cerciello, Agovino, Garofalo, 2019). Another option is the introduction of taxation on wasted food at the retail level that has been planned to be launched in Poland from March 2020 and VAT deduction for distributors when they donate food to public benefit organisations. VAT relief refers to the free donation of food products (excluding alcoholic beverages) to public benefit organisations for charity. Large stores and wholesalers with a sales area of over 250 sq m (during the first two years of the new regulations over 400 sq m) drawing at least 50 percent of revenue from the food sales, should have a contract with a selected NGO and provide food for free. Although these regulations do not apply directly to the consumer, they may have an indirect impact on food prices, when distributors pass on to the consumer a part of the economic costs associated with the new regulations. On the one hand, consumers may be reluctant to support this improvement in the circulation of excessive food in fear of being charged additional money, but this regulation has visible social benefits connected with the principal aim of intervention to reduce food waste.

The above considerations show that food consumption should undergo a transformation (Rejman, Halicka, Kowrygo, 2014). However, as many researchers emphasise, consumer acceptance of planned and introduced changes is of utmost importance for the success of active public policy (Pieńkowski, Murawska, Zaremba-Wernke, 2018; Goryńska-Goldmann, 2019). Consumers, through their support and votes, enable or block the introduction of specific regulations and public policy tools. It should be emphasised that food consumption is considered

as a private sphere that is why consumers are reluctant to accept any intervention suggesting or encouraging them to limit or change their food consumption. However, given the growing pressure of food systems on the environment, public intervention seems to be justified and even necessary. Public policy can and should create added value. Also, consumers in Poland are evanescent their beliefs about their diet, paying more and more attention to the social and environmental aspects of their food choices by selecting fair trade or organic foods. However, it is difficult to expect that consumers, despite growing awareness (Goryńska-Goldmann, Adamczyk, Gazdecki, 2018; Goryńska-Goldmann, Gazdecki 2018) will quickly give up their habits and change their diets. In such situations, public intervention is significant for shaping the context and conditions in which the consumer decides. Public policy can provide incentives through regulation or legislation or blocking adverse behaviour through a range of activities that are usually classified as regulatory, market (economic) and information tools (Vedung, 2017).

2. Method

As part of the presented study, primary data was obtained from the survey “Consumer behaviour and social acceptance of selected public policy instruments to foster sustainable food consumption”.¹

To examine how consumers are currently implementing sustainable consumption assumptions and how they relate to selected topics important for introducing changes in food systems, a survey was conducted using a paper-pencil questionnaire and an Internet survey among 150 residents of the city of Poznań and the county (‘powiat’) of Poznań in the first half of 2019. The structure of the sample was similar to the structure for the mentioned territorial units using a quota selection based on parameters such as gender, age, and place of residence (village, city). Opinions and attitudes were measured by a five-stage Likert scale where the neutral response was ranked last in order to reduce the risk of the so-called central tendency error. The survey was conducted in the period from March 16 to March 29, 2019. Most respondents were women (54%). The largest percentage of respondents were middle-aged people, i.e., those between 35 and 64 years of age, and their share accounted for more than half of the respondents (52%). The questionnaire was distributed to a few workplaces and given to students from Poznań’s universities with a recommendation to pass the link to survey other eligible respondents. Preconditions to take part in the survey were: being at least 18-years-old and the condition that they buy some food for the household they live in.

¹ The survey was conducted by Paulina Sołtysiak under the supervision of the author as part of a diploma thesis.

The study asked about behaviours such as buying seasonal food, limiting the consumption of meat within a week, being guided in food choices by its impact on climate change and paying attention to the origin of purchased products as well as the desire to produce food on their own and interest in food preservation methods to safeguard surplus food during its pick up/supply period. Besides, consumers defined their degree of acceptance for public interventions in the area of distribution and food consumption.

The listed challenges to food systems and the solutions stated in the source materials provided a starting point for the selection of specific public policy tools based on a literature review (Mørk, Bech-Larsen, Grunert, Tsalis, 2017; Nissinen et al., 2015) that could help the implementation of sustainable goals for food consumption and distribution. Before their ultimate choice, a literature review was carried out to classify tools and to gather the information related to implementing selected public policy tools. Five instruments were chosen for the study: green public procurement for public institutions conducting mass catering, which were to cover mostly purchases of organic and locally available food, increased VAT on junk food, regulation enabling retailers to provide surplus or near-term food to charities as a tax-free donation, a charge on the amount of wasted food imposed on a food distributor and a deposit for plastic bottles.

To analyse the relations between attitudes, behaviours and policy acceptance, the initial hypotheses were constructed:

1. Consumers are guided in their food choices by the features of food relevant for sustainable food consumption (carbon footprint, less meat, seasonal food).
2. Favourable consumer behaviours in the light of sustainable food consumption will correlate with acceptance for public policy tools.
3. Consumers show positive attitudes towards local food and an increase of self-sufficiency in food production and consumption.
4. Consumer positive attitudes to local food and self-sufficiency will correlate with acceptance for public policy tools advancing sustainable food consumption.

3. Results

Based on the collected material, it can be stated that the surveyed consumers willingly bought seasonal food (38%) or declared that they try to do so (49%) (Figure 1). People who negated the possibility of such behaviour constituted only 5%. In turn, 65% said they eat meat once or twice a week, and 9% said they are trying to do so, 17% percent of respondents negatively referred to this behaviour, stating that they would not have thought of it or would not

have considered it or did not do it. In turn, 12% of respondents asserted to the question about buying food with a low carbon footprint by declaring such behaviour as a rule or as a wish to do so. 17% said they would definitely consider buying food with a low carbon footprint in the future and 15% said they might consider this choice. However, a significant proportion of respondents negatively referred to this indicator in their food choices (35%). It should be noted that consumers were presented a definition of a carbon footprint for food during the study to dispel ambiguities (i.e. carbon footprint is the amount of greenhouse gases that went into the atmosphere during the production of a given food). However, it can be assumed that a significant proportion of them had not come across this concept before, which was reflected in a large percentage (21%) of those declaring “I do not know”.

Figure 1. Selected consumer behaviours and their frequency

Source: own elaboration.

The survey also covered the measurement of acceptance for selected public policy interventions. The acceptance of selected tools correlated with the behaviours discussed earlier to varying degrees. With measuring the correlation strength, relationships with absolute values of the Pearson correlation coefficient higher than 0.35 were more thoughtfully analysed, which is dictated by the characteristics of studied attitudes (Table 1). The calculations show that correlations are significant for the relationship between green public procurement and buying seasonal food and for the relationship between accepting higher VAT on junk food and buying seasonal food, limiting meat consumption and being influenced by carbon footprints when deciding on food purchases. Also, a significant correlation has been identified between the support for higher VAT on foods with a high salt and sugar content and buying seasonal food.

Table 1. Correlation table between the level of acceptance of public policy tools and selected consumer behaviour

	Organic food procurement	Higher VAT tax on junk food	A tax reduction for retailers on food donations	Food-waste disposal tax for retailers	A refundable deposit on plastic bottles
I buy seasonal food	0.264***	0.364***	0.061	0.156	0.053
I eat meat once or twice a week	0.066	0.175*	-0.035	-0.107	-0.116
I buy food with a low carbon footprint	0.411***	0.335***	0.100	0.152	0.098

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (2-tailed); $n = 150$.

Source: own elaboration.

The study also asked about aspects related to the consumption and purchase of local food and the production and processing of food for own needs. The vast majority of respondents were in favour of offering dishes prepared and based on locally available organic food and food at mass public caterers (40 and 34%). 11% of respondents are not interested in using local products in gastronomic establishments. Respondents also declared their willingness to buy products from their region if information about the origin of the product would be easily accessible to consumers. This behaviour was declared by 73% and only 16% of respondents negatively related to this behaviour. The same support was expressed by the interest in local food, i.e. 73% declared interest in information about the local origin of food, while 23% said that this feature of the product is not important to them.

During the survey, the degree of interest in independent food production from a garden during a person's spare time was also determined (Figure 2), which is vital in the debate's context on the importance of "urban agriculture" (Sanyé-Mengual et al., 2018). However, only 35% of respondents answered in an affirmative direction, showing interest in growing produce in their gardens. 53% of respondents did not want to spend their free time in this way. The more general statement about the possibility of producing part of the food consumed on their own enjoyed greater interest. 57% of respondents supported such a vision, but 32% of respondents expressed a negative opinion. The study also asked about consumers' interest in home-based food preservation methods that allows for the use the surplus food that occurs during harvesting. Here, 59% expressed an interest in knowledge about traditional food preservation methods, and 38% showed no interest.

Figure 2. Consumer attitudes towards regional food and independent food production and processing

Source: own calculation.

The questions analysed above were compared with data on the acceptance of selected public policy interventions (Table 2). Here, significant correlations were obtained for green public procurement and higher VAT on junk food. Support for locally produced food went hand in hand with greater acceptance for green public procurement. The pattern of relations between support for higher VAT on junk food and paying attention to the origin of food was very similar. For other interventions, no significant correlations were noted.

Table 2. Correlation table between the level of acceptance of public policy interventions and the attitudes supporting regional food and in-house food production and processing

Description	Organic food public procurement	Higher VAT tax on junk food	Tax reduction for retailers on food donations	Food-waste disposal tax for retailers	Refundable deposit on plastic bottles
1	2	3	4	5	6
I would like to know something about preserving summer produce for winter storage	0.2543**	0.2360**	0.1813*	0.2128**	0.1196
I am interested in knowing which of the food I eat is produced in my local area	0.3932***	0.3519***	0.0777	0.0758	0.1967*

1	2	3	4	5	6
I am not interested whether the food I eat comes from nearby or far away	0.4408***	0.3755***	0.1021	0.1066	0.1837*
I would like to grow some of my food	0.2689	0.2203**	0.1073	0.1768*	0.1759*
I wish stores would offer more food that is produced locally	0.4407***	0.4084***	0.1619*	0.1841*	0.2036*
I would be interested in gardening in my spare time	0.3009***	0.2081*	0.1454	0.2938***	0.2217**
If all food had information saying where it was produced I would attempt to buy this food grown in my local area	0.4912	0.3839***	0.1635*	0.2516**	0.2147
I wish canteens in public institutions would serve dishes based on food produced by local farmers	0.5006***	0.4976***	0.1187	0.0841	0.0892

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$ (2-tailed); $n = 150$.

Source: own elaboration.

Conclusions

Modern food systems will need to deliver more food using shrinking natural resources to provide access to food for a growing global population and simultaneously maintain a balance in nature. For this state of affairs to be possible, food systems must undergo profound changes in the sphere of food production, distribution, and consumption. The conducted research shows that a significant percentage of respondents limit meat consumption and try to buy seasonal produce. Much fewer people are influenced by the impact of food on climate change, allowing themselves to be influenced in their purchasing choices by carbon footprints. The vast majority were interested in the origin of the food they eat – where it is produced locally and their desire that retail outlets increase its availability declaring the desire to be guided by the local origin of food in the selection process. A much smaller percentage were interested in taking actions that can prevent the spoiling of seasonal vegetables and fruit by making traditional preserves, and even less popular is cultivating one's own garden and producing food alone. Hence, it can be concluded that active participation in the production and processing of food

is of marginal importance for the studied population. Correlations of behaviours and attitudes relevant to the sustainability of food systems with selected public policy instruments point to the relationship between high acceptance for green public procurement and VAT on junk food with the expectation of greater importance for locally produced products in food systems. Also, buying seasonal produce is associated with greater acceptance for increased VAT on food with high salt and sugar content.

For the other instruments, no link to the attitudes in question has been registered, but the nature of these interventions can explain this. The other instruments concerned burdens imposed on retailers who waste food and deposits on PET bottles. This means the need to identify other behaviours that may be related to the acceptance of the instruments under consideration. As the research concerned sustainable consumption, it can be expected that the acceptance of the mentioned tools will be related to values such as collectivism and individualism and more specific attitudes referring to the concern for one's own interest or common good. The next step in research on the acceptance of public interventions in sustainable food consumption should be to build a model based on theories used to study factors influencing consumer behaviour. The Value Belief Norm Theory (VBN) and Theory of Planned Behaviour (TPB) are proposed as exploitable theories. An analysis is also possible in the context of utility theory with the use of experimental methods, where discrete choice experiments can be recommended to get to know the influence of the characteristics of a given public intervention. In the case of a tax on specific food items, it can be the level of the tax, how the income from taxes are managed, the entity subject to the tax (a consumer or a producer), the level of costs per capita of introducing the tax, etc. The limitations of the study may include the hypothetical nature of the studied policy tools. At the time of the study, all the tools mentioned above were not subject to intensive public debate, so the recorded level of consumer acceptance was the first consumer's reaction, which was not accompanied by an in-depth cost-benefit analysis. In real life, the process of the introduction of new regulation is accompanied by an influx of information from stakeholders providing arguments for and against regulation, which often changes consumer attitudes not only to a given intervention but may also lead to the modification of more general factors such as personal and social norms, perception of control over the behaviour covered by the intervention. We can also expect that after introducing a solution to the market, the degree of acceptance could significantly change, but it is still very important to know the factors, which are most responsible for shaping attitudes and acceptance towards interventions stimulating sustainable food consumption.

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