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## CHOICE ARCHITECTURE IN SUSTAINABLE CONSUMPTION POLICY

### Summary

The development of sustainable consumption should be considered nowadays a major challenge for public policy. A number of instruments, including legal, administrative, economic and information ones are used to enhance sustainable consumption. In recent years, the development of research in the field of behavioral economics has pointed at the possibility of identifying another group of instruments, namely behavioral tools, including consumer choice architecture, so that they promote the implementation of the concept of sustainable consumption. Choice architecture is based on the use of the so-called *nudging tools*, which constitute a change in the context of consumer decision-making. The purpose of the study is to investigate the use of choice architecture in creating sustainable consumption by influencing the decision context of individuals and households. The paper uses the method of critical literary analysis. Its results have shown the existence of a substantial amount of empirical evidence on the applicability of choice architecture in the process of promoting sustainable consumption. On the other hand, the analysis has also indicated a number of limitations to their implementation. This, in turn, has led to the conclusion that behavioral instruments for increasing sustainable consumption (using the natural tendency of individuals in decision-making processes) can complement the traditional instruments, including direct effects.

**Key words:** choice architecture, nudges, nudging tools, sustainable consumption, behavioral economics

**JEL Classification:** Q56, D11, I38

### 1. Introduction

The concept of sustainable consumption emerged as a result of a major debate on the implementation of sustainable development, in response to global ecological problems.

On the one hand, it is an effect of changes and trends observed by scientists in the consumption structure in highly developed countries, stemming mainly from growing ecological and social awareness. On the other hand, it is undoubtedly a normative concept.

Sustainable consumption is a relatively new economic category. Hence, it is interpreted in a number of ways [Neale, 2015, pp. 140-158]. According to one of the most basic definitions of sustainable consumption, it denotes “the use of products that minimize the use of natural resources and toxic materials as well as the emissions of waste and pollutants so as not to jeopardize the needs of the future generations” [*Oslo Roundtable...*, 1994]. D. Kielczewski proposes a systemic approach to sustainable consumption. In this perspective, it is composed of four systems: subjective, objective, organizational and spatial ones. Therefore, sustainable consumption is such a structure of the consumption system within the framework of which the shape of particular arrangements, as well as the relations and dependencies between them, make it possible to achieve the aims of sustainable development. As a consequence, the consumption which is happening nowadays does not reduce the possibility of consumption for the future generations, which is stipulated in the definition developed by the Bruntland Commission [Kielczewski, 2007, p. 42; compare: Gardocka-Jalowiec, 2013, p. 62].

A definition phrased in this way has a normative character. It specifies the expectations regarding the actual choices made by consumers. The aim is to make the desirable forms of consumption outweigh the undesirable ones and to develop mechanisms of influencing them. The satisfaction of the sustainability condition requires adequate planning of the shape of particular arrangements of the consumption system.

Sustainable consumption can be shaped both by internal and external determinants of consumer behaviors. The internal factors include, among other things, the level of consumer competences, demographic characteristics and the systems of values. Among the external factors we can mention the availability of pro-ecological goods, organization of the distribution process, state policies, as well as consumption models in other countries and regions.

The systemic approach to sustainable consumption shows that its achievement in practical terms requires transformation of both demand and supply. The demand factors are based on the change of consumption models in such a way that they take into consideration not only economic premises, but also social and ecological ones. This can be exemplified by the selection of goods and services that during the entire operation cycle constitute a burden for the environment only to a small degree. This task is extremely difficult owing to the fact that it requires reorientation of the system of values of consumers, which implies the change of habits and customs. Because of this, an essential role is played by the state since it has the potential to trigger such changes using the instruments of public policy. The most important instruments include: (1) informative instruments, capable of raising ecological awareness in society, (2) economic instruments, which have an impact on the economic efficiency of pro-ecological behaviors, and (3) direct instruments enforcing particular behaviors under threat of sanctions.

In recent years, on the basis of research conducted in the spheres of cognitive and social psychology as well as behavioral economics, there has appeared a new group

of instruments of promoting sustainable behaviors among consumers, and in a wider perspective, the instruments of realizing sustainable development policies, which can be termed as behavioral instruments. They comprise the possibilities of designing instruments of influencing socio-economic development using the knowledge of natural inclinations of individuals, revealed during decision-making processes. They are based on the assumption that entities are not fully rational and are eagerly used by the scientists analyzing the problems of less developed countries [Poskrobko, 2016, pp. 603-618]. These experiences are also used in the sphere of sustainable consumption. The aim of this study is to point at the possibilities of using behavioral instruments, which are an element of choice architecture, for improving sustainable consumption by influencing the decisions made by individual people and households. The authors have assumed that the behavioral instruments used for influencing sustainable consumption can supplement informative, economic and direct instruments of sustainable consumption policies. This thesis is discussed on the basis of the results of analyses regarding the use of nudges in influencing the consumption behaviors of market participants. The majority of the cited studies are of experimental nature.

## **2. Nudges and choice architecture in the theory of consumer choice**

Providing consumers with access to information is considered to be the basic method of promoting sustainable consumption. Thus, informative instruments used to influence the behaviors of consumers are perceived as crucial to activities as economical consumption of water and electric energy, waste segregation, etc. The use of informative instruments is based on the assumption that consumers make decisions on the basis of complete and perfect information, are capable of processing it fully and, while making decisions, they aim at maximizing usefulness.

To use the terminology of behavioral economics, informative instruments refer to the activity of the so-called System 2. In accordance with the concept of the functioning of the mind (consciousness and subconsciousness) provided by D. Kahneman, two subsystems can be distinguished: System 1 and System 2. The former functions in a fast and automatic manner without or with little effort, beyond conscious control, whereas the latter draws necessary attention to the activity that requires mental effort [Kahneman, 2012]. This means that informative instruments are efficient as long as given consumer decisions are made using System 2.

The impact of increasing access to information on the sustainable behaviors of consumers is not unequivocally confirmed by scientific research. On the contrary, there is evidence that access to information does not always ensure optimization of individual decisions [Abrahamse et al., 2005, pp. 273-291]. This problem has been analyzed in the research conducted by, e.g., J.J. Staats et al., who used the example of a media information campaign regarding the greenhouse effect [Staats et. al., 1996, pp. 189-203]. Analysing the relation between access to information and pro-ecological behaviors of consumers,

P. Stern stated that even properly designed information campaigns may not cause permanent, but only short-term, changes in the models of consumption among individuals [Stern, 1999, pp. 461-478].

The explanation of this phenomenon can be sought in the concept of reduced cognitive resources of individuals [Lehner et al., 2016, p. 167]. In accordance with the idea, economic entities make decisions under many constraints, including reduced access to information and limited ability to process them, basing on the perspective of their own experiences [Simon, 1979, p. 501]. In other words, most decisions are made using System 1, which, consequently, diminishes the efficiency of those instruments of public policy that are targeted at System 2, i.e. informative instruments.

From the point of view of the efficiency of informative instruments of modifying sustainable consumption, considerable importance is attached to the reduced capability of processing information. It implies that faced with an overwhelming amount of information, individuals are either not able or not willing to make the effort to process the information. It is our natural tendency to attempt to reduce the cognitive resources involved in analysing decision-making situations [Navon, 1984, pp. 216-234] by using simplified methods of drawing conclusions, known as heuristics. The development of the concept of heuristics and errors referred to as cognitive biases is related to the most essential publications of D. Kahneman and A. Tversky, who attached particular attention to the issues of anomalies in the decision-making processes of consumers, differing from the classical theory of maximizing usefulness [Kahneman, Tversky, 1979, pp. 263-291, Kahneman, 1982, pp. 160-173]. In most cases, heuristics are positive phenomena because they both shorten and simplify decision-making processes by offering quick prompts when decisions must be taken under pressure of time or given cognitive limitations [Hammond et. al., 1998]. This means that the cognitive effort necessary for processing new information may be treated as a certain category of transaction cost that is borne by an individual in the decision-making process. Taking this cost into consideration can imply that rapid, intuitive decisions, which from the perspective of neoclassical economics, are not optimal in terms of usefulness, could seem rational when account is taken of “the cognitive cost”, i.e. the effort that an individual would have to make in order to fully process information in decision-making processes.

R. Thaler’s and C. Sunstein’s publication *Nudge: Improving decisions about health, wealth and happiness* is perceived as crucial to the deliberations regarding the implementation of the achievements of behavioral economics for designing instruments of public policy. Despite its scientific character, the publication started a new trend in research on the global scale. The authors pointed at the possibility of planning decision-making situations of the market participants in such a way that their individual well-being is either increased or, at least, not reduced, thus maximizing social welfare [Thaler, Sustain, 2008].

R. Thaler and C. Sustain use the phrase ‘Libertarian paternalism’ to name the assumption of the possibility to modify a decision-making situation within the framework of public policy. In accordance with the libertarian approach, it is necessary to guarantee freedom and free choice for the citizens. However, paternalism means the

conviction that public intervention in decision-making situations is justified if either individual and/or social welfare is greater [Thaler, Sustein, 2008, p. 16].

The same authors employ the term ‘nudges’ to denote the methods of changing the context of decision-making. In this paper, they will be referred to as behavioral instruments, owing to the subject of research, i.e. influencing sustainable development policy. They are instruments of planning consumer decisions by rearranging a decision-making situation while not changing the width of the cafeteria of consumer choices. Therefore, in the subject literature such activities are known as choice architecture, choice designing or behavioral engineering. The authors explain that “choice architecture refers to the informational or physical structure of the environment which influences the way in which choices are made” [Thaler, Sustein, 2008]. In the context of consumer behaviours, choice architecture comprises activities aiming at the change of the context of consumer decision-making situations in terms of management of consumption measures in such a way that the probability of making socially optimal choices is increased.

Nudges make use of both the innate cognitive skills of individuals and the natural way in which they process information. P. G. Hansen defines them as “any attempt at influencing people’s judgment, choice or behavior in a predictable way made possible because of the cognitive biases in individual and social decision-making posing barriers for people to perform rationally in their own interest, and working by making use of those biases as an integral part of such attempt” [Hansen, 2014, p. 23]. Hence, *nudges* refer to the introduction of purposeful changes in a decision-making situation that, by exerting influence on the behavior of individuals in the decision-making process, contribute to the achievement of benefits by either an individual or society in general. Moreover, they are used as instruments meant to increase the effectiveness of policies [Thaler, Sustein, 2008].

Therefore, the basic assumption is that nudging tools do not reduce choice for the consumers and do not aim at changing individual systems of values. They involve simplification of the supplied information or the use of default choices in a way that facilitates making socially desirable decisions [Thaler, Sustein, 2008]. C. Sustein suggests that default, warnings, changing layouts, changing context of decision making, drawing attention to social norms and patterns ought to be included in the category of nudges. Additionally, the authors of the paper believe that the category also comprises decision points [further: Soman et. al., 2010, pp. 64-68]. But economic and fiscal instruments such as taxes or subsidies do not belong here [Sustein, 2014]. In a way, nudges are similar to marketing instruments, which are well recognized in managerial theory and practice. However, nudges are used by social planners and are carefully selected in order to improve the welfare of consumers, but not to sell more products [Croson, Treich, 2014, p. 337].

R. Thaler and C. Sustein indicate that the force of behavioral instruments and the significance of their usage are particularly considerable in situations where individuals:

1. do not have their own experiences in a particular domain and make a given type of decision for the first time,
2. do not have access to complete information or are not capable of processing it, or

3. do not receive feedback within a short time period as regards the effects of their decision [Thaler, Sustein, 2008].

These issues appear to be particularly important in modifying sustainable consumption models related to anthropopressure:

1. Firstly, individuals who make decisions regarding consumption do not have personal experience of the effects of pressure exerted on the environment by the behaviours of the entire consumer public. The dependence between consumption and the state of the environment is long-term and spatially dispersed. For an individual, there is no clear correlation between consumer behaviors and their ecological consequences, which reduces the sense of responsibility.
2. Secondly, particularly complex dependencies observed in ecosystems contribute to the fact that it is virtually impossible to achieve full access to information about the cause and effect relationships between consumption and the state of the environment without specialist knowledge.
3. Thirdly, the consequences of unsustainable behaviors of consumers are suspended in time, and they frequently refer to the intergenerational transfer. Therefore, the use of nudges in influencing sustainable consumption appears to be particularly justified.
4. Presently, the concept of choice architecture can be regarded as a theoretical approach. In economic practice, there seems to be more interest in the possibility of implementing nudges into shaping the policy of socio-economic development. The achievements of R. Thaler and C. Sustein were mentioned, among others, by the President of the United States Barack Obama and the Prime Minister of Great Britain David Cameron. Both R. Thaler and C. Sustein were enlisted to help design behavioral instruments of public policy. This, in turn, made possible their practical application in modifying the behaviors of market entities [Olejniczak, Śliwowski, 2014]. For example, D. Cameron established the *Behavioral Insights Team*, composed of specialists in the field of behavioral sciences, with the aim of testing the efficiency of such instruments as nudges [Croson, Treich, 2014, p. 338]. One cannot help but wonder whether they would not be worth implementing in the Polish economic practice, especially in the field of sustainable consumption, which is particularly interesting from the perspective of the authors of this paper.

### 3. Nudging tools in designing instruments of sustainable consumption

The present state of knowledge and scientific research allow for the recognition of a wide spectrum of nudging tools. Their classification system (suggested by M. Lehner, O. Mont and E. Heiskanen, and based on the recommendations of R. Thaler and C. Sustein) defines four basic forms of nudging tools [Lehner et al., 2016]:

1. Simplification and framing of information,
2. Changes to the physical environment,

3. Changes to the default policy,
4. The use of social norms.

The authors of this paper also introduce (5) decision points.

The aforementioned types of instruments may be used in the shaping of sustainable consumption in its various spheres. However, analysis of relevant literature shows that the most frequently studied aspects in this area are: consumption of food, transport, consumption of electric energy and water.

*Simplification and framing of information* denotes a deliberate change of the way in which information conveyed to decision-makers is presented. Simplification means that information is conveyed to the decision-makers in the possibly most intelligible way and in an amount which makes its processing possible. Framing can be defined as “the conscious phrasing of information in a way that activates certain values and attitudes of individuals” [Lehner et al., 2016, p. 168]. Hence, it signifies a “process by which people devise a specific conceptualization of an issue by consciously phrasing or presenting information in a way that activates particular values of individuals” [Snow et al., 1988]. This particular form of nudging tools refers to the concept of reduced cognitive resources of individuals and to decision-making by means of System 1. Research conducted by V. Stocke indicates that while striving for reduction of tension in a decision-making situation, individuals avail themselves of accessible knowledge, irrespective of its reliability [Stocke, 2002]. Thus, the way of formulating the problem has a considerable impact on the choice that is made.

R. Thaler and C. Sunstein explain the impact of nudges through framing, using the example of a choice cafeteria. They point at the possibility of composing the menu so that the consumption of healthy food increases, for example by means of placing certain dishes in central positions, displaying them or writing their names on the first page of the menu [Thaler, Sunstein, 2008]. A field research of the choices consumers make when dining out was conducted by V. Filimonau et al. [2017, pp. 161-170], whose experimental observations among restaurant consumers confirmed the impact of purposeful designing of menus on consumer choices [Filimonau et al., 2017, pp. 161-170].

According to J. S. Hammond et al. [1998], framing may make use of the aversion to loss. It means that individuals ascribe certain value both to gains and losses and suffer more as a result of a loss than they enjoy a gain [Blavatsky, 2011, pp. 127-128]. Thus, placing emphasis on the possibility of gaining or loss in the presentation of a decision-making situation affects the choices made by consumers. As a result of the *perverse effect*, people are more eager to embark on an activity if they are familiarized with the negative consequences of renouncing this activity than when they are informed of the positive effects of initiating it [Tyszka, 2010, p. 22]. This effect is widely used in sustainable consumption policies. It indicates that when informing consumers of the consequences of their choices a greater effect can be achieved by presenting the negative consequences of certain choices than by showing the positive effect of certain behaviors on health or the state of the environment.

In the literature, an interesting discussion (from the perspective of the research subject) can be observed on the possibility of classifying ecological labeling as behavioral instruments. It seems that eco-labeling has an informative character and does not change

the decision-making context, but provides certain information for the consumers. According to F. Ölander and J. Thøgersen, eco-labeling ought to be regarded as one of the elements of choice architecture [Ölander, Thøgersen, 2014, pp. 341-356]. On the one hand, J. Thøgersen's research shows that eco-labels have a considerable influence on the behaviors of market entities, but this is the case only provided that consumers are familiar with particular labels and understand their meaning [Thøgersen, 2005, pp. 143-178], which proves their informative importance. On the other hand, in accordance with the claims of E. J. Johnson et al. [2012] and with subsequent research conducted by F. Ölander and J. Thøgersen [2014], consumers make choices regarding ecological products in as fast and intuitive a way as when they choose other products. This means that conveying information about eco-labels in more explicit and noticeable ways (i.e. taking them into consideration in the planned decision-making context) intensifies their effect. Furthermore, choice architecture can help improve the way in which eco-labels are presented. Research regarding the effect that the presentation of eco-labels has on consumer perception was conducted by S. L. Heinze and R. Wüstenhagen, who analyzed the impact that labels regarding the energy efficiency of electrical devices affects market choices. The research confirmed that the design of labels considerably modifies the decisions made by the purchasers [further: Heinze, Wüstenhagen, 2012, pp. 60-70]. Therefore, one may assume that while eco-labels as such have an informative character, the way of presenting them can constitute one of the elements of choice architecture.

Another form of nudging tools regards changes to the physical environment, which means a physical change of the decision-making context and the institutions used for making a given decision. As an example can serve changing the size of a plate during a meal or the location of products on store shelves. In each case, what changes is not the range of possible choices but the way of presenting them. Research conducted by B. Wansink [2004] regarded the following issues: the influence of changes in the visibility of and access to certain products on increasing the amount of healthy food consumed in canteens. The research confirms that easy access to unhealthy goods considerably increases its consumption. Meanwhile, a study conducted by S. Kallbekken and H. Sælen proves that changing the size of a plate has an influence on the amount of consumed food. Research of this kind conducted among the guests of Norwegian hotels indicates that thanks to replacing plates with smaller ones, it was possible to reduce the amount of wasted food by approx. 20% [Kallbekken, Sælen, 2014, pp. 325-327]. Lehner et al. [2016] strongly emphasize the necessity to design appliances in an appropriate way. For instance refrigerators should use a sound alarm to remind users not to leave fridge doors open for too long. Meanwhile, field experiments conducted by P. G. Hansen show that after placing colorful footprints leading to dustbins, about 46% more people began leaving their rubbish in the bins rather than on pavements [quoted after: Olejniczak, Śliwowski, 2014].

The third group of nudging tools comprises changes in the default policy. Defaults are settings or choices that apply to individuals who do not take active steps to change them [Brown, Krishna, 2004, pp. 529-539]. Their influence is related to the *status quo* effect, which



E. Johnson includes in the group of most powerful and popular nudging tools [Johnson et al., 2012]. The status quo effect means that individuals prefer the present state more than that which can be achieved and, consequently, strive for maintaining the existing status quo and are unwilling to take any action in order to change it [Zaleśkiewicz, 2011, p. 331]. Research conducted by J. S. Hammond et al. demonstrates that this effect is very strong and individuals feel attachment even to newly acquired items. In one experiment, the participants who had received either a mug or a bar of chocolate were later asked who would like to exchange the received item for another one. In statistical terms, it was expected that half of the analyzed group would be eager to make the exchange, but in fact only one out of ten participants agreed to it [Hammond et al., 1998]. Subsequent research on the status quo effect confirms its impact on the choices made by consumers. For example, research conducted by B. Madrian and D. Shea proves that changing the default from non-enrollment to enrollment into the retirement plan increased the level of savings significantly [Madrian, Shea, 2001].

The effect is widely used in promoting sustainable consumption. A study conducted by E. J. Johnson and D. Goldstein examines the impact of simple policy defaults on the decision to become an organ donor, finding large effects that significantly increase donation rates. The study proves that in the countries where the default option is presumed, participation is significantly higher than in those where a person must actively choose to opt into enrolling [Johnson, Goldstein, 2003, pp. 1338-1339].

The fourth group of nudging tools includes social norms. Sustainable behaviors of consumers may result from social influence (both informative and normative) stemming from social comparisons [Matel, 2016, p. 58]. This is related to the so-called *herd behaviour*. Primary research on this subject conducted by A. Banerjee shows that in a game of sequence when the first two players choose a certain option, the third player (despite his or her personal convictions and possessed information) also selects this option [Banerjee, 1992]. This means that individuals tend to conform to a group. The behavior of the group forms a certain social norm that has an influence on the choices of individuals.

Research regarding the influence of social norms on shaping desired ecological behaviors of consumers was conducted by N. J. Goldstein. Having studied a group of hotel guests, Goldstein proved, among other things, that informing them that the majority of the guests reused their towels, considerably altered the behaviors of the participants of the social experiment. In the rooms, the following information was placed: "Almost 75% of guests who are asked to participate in our new resource savings program do help by using their towels more than once". In the control group, customers were informed of the positive influence of reusing towels on the natural environment. Using a social norm as a persuasion method effected a considerably greater change in customer behaviors than information regarding the positive impact of certain behaviors on the environment [Goldstein et al., 2008, pp. 472-482].

The dependence between the application of social norms and financial incentives was tested by J. P. Ferraro and M. K. Price. They analyzed the impact of conveying information provoking social comparisons regarding water consumption in households with other instruments. By means of field experiments, they proved that social comparisons

had a stronger impact on reducing water consumption than financial incentives. It should be noted that the difference in the obtained results was the most striking in the case of households using large amounts of water [Ferraro, Proce, 2011].

As regards the impact of social norms, R. Thaler and C. Sustain [2008] also reflect on the possibility of using external factors to reinforce self-control, for example publicly declaring to refrain from certain acts or to undertake an activity, such as signing a written commitment to segregate rubbish. R. Thaler and C. Sustain point at the relationship between the effect of self-control and the discount phenomenon. They maintain that it is much easier to undertake an obligation to do something in the future than to commit oneself to certain activities at the moment when they need to be undertaken. On the other hand, external self-control reduces the possibility of withdrawal from the obligations already made.

According to the authors of this paper, the so-called decision points can also be used to develop the behavioral instruments of sustainable consumption. Their application is based on the theory proposed by R. Thaler and H. Shefrin and regarding the divergence between the motives of satisfying the future and current needs of an individual, i.e. the divergence between what consumer behaviors an individual (as a planner) ought to adopt and what activities the person is willing to undertake (as a doer) [Thaler, Shefrin, 1981].

The process of assessing the moral aspects of a certain behavior is similar [further: Bialek, Terbeck, 2016]. Although individuals plan their consumption and purchase decisions in a purposeful manner, they frequently act impulsively or routinely while making the actual decisions. Decision points are instruments used in order to support individuals in maintaining self-control in decision-making situations by changing their mode of behaviour from impulsive to cautious. D. Soman et al. [2010, p. 67] explain that “a decision point can be defined as any intervention that is designed to get an individual to pause and think about the consumption they are currently engaged in”. Hence, they are an interference into decision-making processes owing to which a consumer needs to make an effort while making a decision, pause (instead of acting impulsively), and rethink the decision. As an example can serve the consumption of unhealthy food in large packages, which are conducive to uncontrolled overeating. When products are sold in small packages, a consumer must reflect and actively make the decision as to whether buy another portion. Hence, this requires incurring a certain transaction cost. Similar importance can be attached to providing information that reminds consumers of long-term objectives at the moment of decision-making. Research conducted by M. Bialek and P. Sawicki proves that those respondents that were asked to adopt the perspective of an expert in decision-making situations made less risky and less impulsive decisions [Bialek, Sawicki, 2014]. For D. Soman et al. [2010], decision points also include purposeful planning of intervals in consumer behaviors in order to rethink certain decision.

#### **4. Limitations in the implementation of behavioral instruments of shaping sustainable consumption**

In the literature, apart from presentation of the results of research regarding potential applications of choice architecture in promoting socially desirable consumer behaviors, a debate is happening on the implementation of these results.

What poses a serious barrier to the implementation of nudges is the distinction between their long-term and short-term impact on the behaviors of market entities. The majority of the research concerns short-term influence of behavioral effects on the change of behaviors of economic entities, which results from the usage of experimental methods. There is a considerable dearth of research covering long time spans. Such studies were conducted by H. Allcott and S. Mullainathan, who cooperated with the company OPOWER in their research on the influence of information regarding social norms on the consumption of electric energy. They provided to households with comparative information regarding the consumption of electricity in similar households. The research showed that within a short period of time, the effect was appreciable (approx. 12%), but in a long-term perspective, it decreased (to approx. 2%) [Allcott, Mullainathan, 2010, pp. 1204-1205]. Hence, one may suspect that the use of nudges in the routine behaviors of purchasers is limited.

The aforementioned example indicates another, perhaps crucial, problem. It regards the difficulty in drawing general conclusions on the basis of experiments (usually short-term ones) conducted in controlled conditions. At the core of the problem is the issue of external validity [Campbell, Stanley, 1963]. The term denotes the possibility to observe the relationships between dependent and independent variables established in a certain experiment in another research environment, preferably in field conditions. Consumer behaviors constitute a particularly complex process dependent on many factors such as the effect of learning or cultural contexts. Hence, in practice it is difficult to draw conclusions as to the possibility of implementing certain instruments, particularly when their effects are not easily observable in the natural environment.

The problem of external validity can be illustrated with the example of designing nudge tools using social norms. A certain behavior is perceived as a social norm and consumers are eager to imitate the indicated behaviors under one condition: these behaviors need to occur in a certain society with rather high frequency. As Cialdini et al. [2006, pp. 3-15] indicate, conveyance of information regarding the present pro-ecological behaviors of consumers that are on a low level will have a reverse effect. Attention will be drawn to the fact that most people do not obey certain social norms, which will give people a mental consent to ignore them (the herd effect). On the other hand, however, ethical principles require that the conveyed information ought to be truthful. Owing to this, in practice, unlike in laboratory experiments, the application of social norms is reduced only to behaviors occurring in a society with high frequency. Unfortunately, this limitation is not taken into consideration in experimental situations.

Another problem related to the use of choice architecture is the issue of the particular impact of nudges on certain groups of recipients, which was already observed by R. Thaler and C. Sustein. These effects have a stronger impact on the behaviors of

either less informed or less experienced people [Sunstein, Reisch, 2013, pp. 398-402]. For example, defaults have an effect because consumers are not aware that they have choices, or because the transaction costs of changing from the default are too high, defaults impinge upon liberty [Johnson et al., 2012, pp. 487-504]. This, in turn, gives rise to ethical concerns.

The issue regarding the very interference in the choices made by consumers is a question of esthetics. The opponents of choice architecture claim that the usefulness of consumers resulting from the choices made by them can only be assessed from their individual perspective. Hence, some scientists claim that it is not appropriate to affect these choices by designing decision-making contexts in the belief that a social planner knows better what is more useful to the consumer.

According to the authors of this paper, this is not a valid argument. Firstly, research shows that individuals tend to be myopic and uncertain about the future (for example uncertain about the likelihood and extent of global climate). This, in turn, makes them attach more importance to immediate gratification than to the future consequences of their decisions, causes them to act impulsively and perceive consumption aims in a short-sighted manner [Kielczewski, 2011]. Furthermore, individuals are often overly optimistic about the future. Therefore, they underestimate the possibility of the occurrence of negative phenomena. According to E. J. Johnson et al. [2012], “tools are available to the choice architect to address each type of intertemporal bias”. For example, drawing attention to the delayed options can refocus the decision-maker, generating more patient choices [Weber et al., 2007, pp. 516-523].

Secondly, one must agree with the view that “there is no neutral architecture – any way a choice is presented will influence how the decision-maker chooses” [Johnson et al., 2012]. This means that regardless of any attempts to make a decision-making context neutral, each market decision is made in certain “initial conditions”. For example, since consumers display the tendency to purchase products located at eye level, neutral conditions would mean leaving this part of the shop space unfilled. Whatever the position of products the decisions of customers are altered in one way or another. Default options will always be selected more frequently than other options. Hence, any interference aiming at maximizing individual and/or social welfare does not seem to be unethical as long as the aims of the structure which generates the behavioral instruments are ethical.

## 5. Conclusion

Most instruments of promoting sustainable consumption are based on the assumption that better access of consumers to information will result in considerable changes in consumption models. The analysis of microeconomic bases of sustainable development using psychological and sociological knowledge shows that individuals make their consumption decisions on the grounds of simplified conclusion schemes and frequently do not process all the available information. These limitations (which are traditionally regarded as a barrier to sustainable consumption) can be used for designing a new group of instruments referred to as behavioral instruments. They are related

to planning decision-making situations in a way that is conducive to sustainable consumer behaviors. Such an effect can be achieved by using people's natural behavioural tendencies and the ways of perceiving individuals in decision-making situations. The current state of research on the behavioral instruments of shaping sustainable consumption allows for distinguishing their four basic forms - simplification and framing of information, changes to the physical environment, changes to the default policy, use of social norms – although a similar role is played by decision points.

While planning to apply behavioral effects to design instruments of shaping sustainable consumption, attention needs to be drawn to the complexity of consumer behaviors and the diversity of the factors which have an impact on the market decisions made by individual entities. It is possible to accept the viewpoint expressed by M. Lehner et al. [2016, p. 166], who believe that nudges ought to be regarded chiefly as supplementary to the traditional instruments of sustainable development policy rather than as their substitutes.

### The authors' participation in the preparation of the article

Dariusz Kielczewski, PhD, Professor of the University of Białystok – development of the research concept, preparation of the introductory section, carrying out the literature research, developing results – 33%

Tomasz Poskrobko, ScD – development of the research concept, preparation of the introductory section, carrying out the literature research, developing results – 33%

Anna Matel, MScEng – development of the research concept, preparation of the introductory section, carrying out the literature research, developing results – 33%

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