

Environmental Policy Implementation: Can We Reduce Failures Without Changing Objectives?

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ABSTRACT

Purpose: To demonstrate the necessity of reverse mapping in the implementation process of environmental policy.

Design/Methodology/Approach: A representative survey (of the adult population of Bulgaria) on pro-environmental behaviour and public attitudes towards relevant policies; data analysis conducted through ANOVA and factor analysis.

Findings: There is a gap between public approval of ecological goals and support for concrete measures. Preferences regarding policy tools depend on their perceived beneficial or harmful impact on the material situation of individuals. No more than 30% of citizens are willing to pay for ecological improvements.

Practical Implications: Individual preferences should be monitored throughout the process of environmental policy implementation and used as evidence to inform changes in policy development.

Originality/Value: The notion that individual preferences regarding policy tools are significant in the implementation of environmental policy; the composite indicator of pro-environmental behaviour.

Keywords: *policy tools, environmental policy implementation, implementation models, individual preferences regarding environmental policy tools, backward mapping implementation.*

Izvajanje okoljske politike: ali lahko zmanjšamo neuspehe, ne da bi spremenili cilje?

POVZETEK

Namen: prikazati nujnost vzratnega mapiranja v procesu izvajanja okoljske politike.

Načrt/metodologija/pristop: reprezentativna anketa (med odraslim prebivalstvom Bolgarije) o prookoljskem vedenju in javnih stališčih do ustreznih politik; analiza podatkov z ANOVA in faktorsko analizo.

Ugotovitve: obstaja razkorak med javnim odobravanjem okoljskih ciljev in podporo konkretnim ukrepom. Preference glede političnih orodij so odvisne od tega, ali se zaznava, da pozitivno ali negativno vplivajo na materialni položaj posameznikov. Plačevati za okoljske izboljšave je pripravljenih največ 30 odstotkov državljanov.

Praktične implikacije: posameznikove preference je treba spremljati skozi celoten proces izvajanja okoljske politike in jih uporabiti kot dokazila za usmerjanje sprememb v oblikovanju politik.

Izvirnost/vrednost: opozorilo, da so preference posameznikov glede političnih orodij pomembne pri izvajanju okoljske politike; sestavljeni kazalnik prookoljskega vedenja.

Ključne besede: *orodja politike; implementacija okoljske politike; modeli implementacije; preference posameznikov glede orodij okoljske politike; implementacija z vzratnim mapiranjem.*

JEL: D78, Q56, H83

1 Introduction

Environmental policy is probably the only area in which the administration and experts are more important than politicians, not because they have more powers, but because implementation is more important for achieving the desired results compared to policy formulation. The tools that can effectively stimulate people's pro-environmental behavior can be found within the framework of the implementation process. The likelihood of this happening at the macro-political level of governance is small for at least two reasons. On the one hand, this probability is limited due to the specificity of ecosys-

tems, local environmental problems, and public relations regarding their solution. On the other hand, the volatility of human behavior, which is difficult to predict due to the influence of unconscious and irrational factors, leads to unpredictability of reactions to the measures taken and to the need for these measures to be constantly adjusted and even supplemented. This turns the administration from a „politicians' headquarters“ into an active initiator of specific tools for achieving policy goals. Moreover, due to the horizontal nature of sustainability goals, seeking compliance with them is part of the administration's commitments, regardless of the sector in which it operates.

There are at least two reasons the implementation of environmental policy is more important than goal setting. One is related to the policy essence, and the other relates to the development process.

The long-dominant traditional model assumes a rational and coherent link between problems and policy in which optimal tools are prescribed to solve policy issues, regardless of the individual preferences to policy tools. The increasingly current behavior perspective, however, focuses on the effects of individual-level perceptions of policy tools. However, research on citizens' potential preferences for policy tools is limited. This deficit encourages the perception of instrument choice as an expert-technical endeavor, especially with regard to policies where there is no clear political dividing line. In such an approach, the question of why the outcomes of certain policies is very limited, despite relative clarity and/or agreement on key objectives, remains open. In this context, the present study considers environmental policy as particularly relevant for the study of preferences for policy tools.

Almost 60 years after the Club of Rome Report, which gave the first impetus to the environmental policy, the results of its implementation remain questionable. Even after the 2015 Paris Agreement on climate change, which in some way changes the traditional approach by recognizing the need to limit certain human activities, skepticism that policies will actually deliver results still exists (Laitos and Okulski, 2017). Despite some individual improvements in selected indicators and specific locations, the overall decline in environmental quality continues with unwavering strength, and no country has achieved environmental sustainability (Howes et al., 2017).

It seems that environmental goals are, in general, commonly shared. Proof of this is the process outlined after 1992 by the successive Rio Earth Summits. This process led to the adoption in 2015 of the 17 Sustainable Development Goals (United Nations, 2015), adopted by the Governments of all Member States of the international organization (193 in total). Of course, a particularity of these goals is their weak specification, and it is difficult to dispute the statement that if we describe people's goals at a high level of abstraction – “to have a good life” – then almost everything is a means to achieve these goals (Alemanno and Sibony, 2015).

Environmental policy follows two alternative approaches to solving identified problems: technological innovation and consumption change. In some

ways, the two approaches are interconnected. It is expected, and even seems logical, that technological change will increase the sustainability of production consumption, so that the economy will not only pollute and/or deplete natural resources. This approach clearly has its limitations. Electric motors, for instance, pollute less, but their production involves the use of many more resources. In addition, the issue of their disposal seems, at least for now, insoluble and extremely harmful to the natural environment. In general, the history of technology shows that many discoveries that are the basis of modern life have caused and continue to cause intractable environmental problems.

The second approach, which is consumer-oriented, seems even more contradictory. Even when not explicitly identified, changing behavior has long been at the heart of environmental programs (Bujold et al., 2020). However, the shift of pollution sources from production processes to consumption processes makes pro-environmental behavior of citizens essential for reducing pollution (Carducci et al., 2021). Modern consumer culture, which is strongly influenced by marketing rather than actual needs, has a beneficial impact on economic growth, but at the same time, a detrimental impact on the environment. The paradox here is that this also applies to products that meet certain environmental standards – they are more on the trajectory of consumerism than of environmental consumption.

Environmental policy can hardly achieve a significant effect without eliminating the reasons for the problems for which it is undertaken. When human activities are oriented primarily towards maximizing individual benefit, consideration for nature remains in the background. A society in which the benefit pursuit is the main factor of individual behavior can probably protect natural resources through policies if there is no contradiction between these two goals, and they are naturally achieved simultaneously. For the moment, however, this seems impossible - ecology is either expensive, or leads to a reduction in jobs, or makes it difficult for individuals. This, in most cases, leads to a refusal of either production, consumption, or ecology.

Despite the logical contradictions in the approaches to environmental policy, there is no reason to believe that it has become an occasion for new political cleavage. The thesis that achieving real results related to sustainability requires limiting economic growth (Asara et al., 2015) remains, at least for now, marginal in the policy debate. On the contrary, the big question is how to maintain the pace of economic growth and restore the ecological balance at the same time.

Within a simplistic vision of policy objectives, there is a focus on the efficient use of resources to achieve ecological goals, without much attention to the demand or behavioral characteristics of audiences (Shafir, 2012). Thus, policymaking is typically seen as an activity focused on the calibration of policy tools – such as the size of sanctions or incentives – rather than on considerations of the nature of the instruments and mechanisms themselves (Capano et al., 2019).

Beyond the contradictory approaches of the environmental policy, the process of its formation and implementation contains additional pitfalls. Environmental policy flows from top to bottom – from institutions to citizens and from the supranational through the State to the local level of governance. Although citizens are directly affected by environmental pollution, they, except in isolated cases, do not feel it directly. The individual's commitment to the environment is more of a cultural and informational origin than a material one, related to immediate needs. Not only at the beginning of the global process to sustainability but also now, the initiators of environmental policies are international expert circles and networks. In most cases, specific policies arise from global or international agreements, turn into national strategies and environmental laws, and then into regional programs and local plans. This largely seems logical. In the conditions of free trade, which turns countries into "race to the bottom" of regulations and active policies, independent environmental policy at the state level of governance would be a factor with adverse consequences for competitiveness. Therefore, international agreements on environmental policy, which in a sense set limits to the global "race to the bottom," are the incentives for measures taken at other levels of governance.

This article develops only one aspect of environmental policy implementation – the adaptation of policy to the preferences of affected individuals and the specific tools for their implementation. It seems to us that in such a task, there is a significant potential for improving the results of measures related to sustainability. At the same time, this issue cannot be solved in advance and in principle because of the strong dependence of human behavior on random factors. The first part of the article justifies the idea of implementation as a process that can improve performance, including by reformulating the tools. In the second part, based on the Bulgarian case, one of the main challenges facing the implementation of environmental policy is examined – the preferences of affected citizens regarding policy tools. On this basis, conclusions are drawn on how the administration can improve the relevant ecosystem through its own behavior.

2 Implementations as a Choice of Tools

In the theory, the issue of policy implementation is not new. As early as the 1970s, Jeffrey Pressman and Aaron Wildavsky opened this research field, proving that this stage of the policy process can significantly worsen the policy effect (Pressman and Wildavsky, 1984). The two authors study the policy process in a federal state, focusing on the transition from decisions at the central level to the actions of local authorities. They prove that a policy decision can be rendered ineffective by passing through the so-called implementation chain. The main claim is that the more agents are involved in the chain, the greater the probability of unsuccessful implementation.

The subject of Pressman and Wildavsky's study is the implementation of a federal job creation program in Auckland. Although the program is designed

and funded at the federal level, its implementation passes through several different agents: administrative agents or structures that allocate resources, local authorities that adapt the program to the local context, implementing organizations or institutions that directly implement the program and provide services, and finally – the final beneficiaries. The eventual failure of otherwise well-designed policies, according to Pressman and Wildavsky, can be caused by the presence of a series of approval points, the complexity of the actions, the relationships between the individual agents, etc.

The implementation chain of Pressman and Wildavsky is vertical. They study the transition and development of policies from the federal to the state level of governance. This fact is a reason to believe that their statements are not applicable in the conditions of unitary countries, where implementation is primarily horizontal coordination between various governmental and non-governmental agencies and organizations. The difference between the vertical implementation chain and the process of horizontal coordination is significant. In the first process, the relative freedom of each governmental level, the so-called discretion, is much more pronounced due to the presence of empowered, self-governing, independent, politically constituted communities. The vertical implementation chain does not replace horizontal coordination – they occur simultaneously. In the case of federal states, as well as in the case of more cultural than economic phenomena, such as environmental policy, the vertical implementation chain has a leading importance due to the lack of hierarchy between the main participants in it.

Pressman and Wildavsky's idea of implementation, however, contains several starting points for the present study. On the one hand, they prove that this stage does not imply only the implementation of the decision taken at the higher level, but is a creative process oriented towards maximizing the result. Accordingly, the result is a consequence of many factors, which, among other things, also relate to the relative freedom of each individual agent to make choices and solve problems. On the other hand, Pressman and Wildavsky defend the thesis that implementation is not technical, but, like formulation and decision-making, is a political process, during which the choice of policies or specific measures to achieve collective goals is exposed to the pressure of political or private interests. On the other hand, the failure of policies is also possible due to the last link in the implementation chain – the end-users of public services.

To determine the relative importance of the so-called implementation pitfalls, Howes et al. (Howes et al., 2017) use a categorization from other studies (Althaus et al., 2017; Kamieniecki and Kraft, 2012). According to the authors, these can be categorized as structural reasons, implementation traps, or problems with knowledge of the problem. The emphasis in our study is on the second group, which House et al. categorize as "implementation-related". We check the possibility of improving the effect of policies by controlling their quality.

We accept that the implementation is a process by which policy is converted into action (Barrett, 2004). The first question that this definition raises is who

is the main agent of the transformation of goals into actions. The second - given that the goal does not predetermine the action, what are the possible actions and what determines their choice. There is no agreement on both questions in the literature.

According to Pülzl and Treib (2007), research on implementation develops in three successive stages. The first, which began in the 1970s, raises the question of the potential gap between the common goal and the concrete actions for its implementation, the temporal and substantive difference between the law and the results of its application (Bardach, 1977). According to the same authors, this stage is rather pessimistic because it proves that policy intentions are not fully realized or are modified due to the complexity and sometimes unpredictability of the implementation process. The second and third stages are related to the analysis of implementation models. Research from this stage contrasts the top-down approach, in which a policy decision is implemented through the actions of a series of agencies, with the bottom-up approach, in which street level bureaucrats solve problems in a highly decentralized environment. Top-down theorists see policy designers as the central actors and concentrate their attention on factors that can be manipulated at the central level. Bottom-up theorists emphasize target groups and service deliverers, arguing policy really is made at the local level (Matland, 1995). The attempt to reconcile the two models leads to the identification of four paradigms that relate to the political-administrative relation and the degree of conflict within the implementation process. These four paradigms include low conflict-low ambiguity (administrative implementation), high conflict-low ambiguity (political implementation), high conflict-high ambiguity (symbolic implementation), and low conflict-high ambiguity (experimental implementation) (ibid.)

Our approach rejects the top-down approach without fully coinciding with the bottom-up approach. The reason is that our reasoning provides a different perspective on the understanding of implementation than the traditional one. The latter can improve the policy process by adapting specific measures to local specificities and, above all, to the attitudes and behavior of those affected. Such reasoning abstracts from the possible political-administrative conflict and considers the relative freedom of the administration to further develop political decisions. Such a perspective on the reasoning about implementation is related to the search for flexible forms of public governance that would allow for maximum consideration of the specificities of the place and time in which the policy is implemented. Matland (1995) summarizes the existence of three main criticisms of the top-downists: the interruption of the cyclical relationship and the failure to consider the lessons learned from previous implementations; the understanding of implementation as a purely administrative, technical process of implementation and the bias towards legal policy regulations. These three features of top-down approaches reject any possibility of policy being tailored to end-users. Accordingly, in this approach, outcome orientation, even if it exists, is sought solely based on theoretical considerations about what is "right" and "necessary."

The criticism of bottom-up approaches relates to the limited possibilities for political control and the overestimation of local autonomy and its resource provision to achieve public goals (*ibid.*). We claim that policy cannot be successful if the final links in the implementation chain cannot, for one reason or another, influence the policy design. This is not about their inclusion in the policy development, but about their active presence in the implementation process, when the policy needs to be adapted or even reformulated.

One of the first attempts to reconcile the two extreme models - Elmore's concept of forward and backward mapping, was developed back in the 1980s (Elmore, 1979). The idea of the model is that public authorities and target groups should jointly create the policy design. Forward mapping consists of specifying precise political goals, developing detailed "means-ends" schemes and specifying clear outcome criteria by which the policy is to be evaluated at each stage. Backward mapping consists of precisely specifying the behavior that needs to be changed at the lowest level, describing a set of operations that can ensure the change, and repeating the procedure upwards in steps until the central level is reached (*ibid.*). At first glance, this model contradicts efficiency, due to the slowness of the process. Therefore, its application in practice is most often limited to its first part - forward mapping with the participation of representatives of target groups. In the absence of reverse mapping, however, many issues become challenging – the changing attitudes of the affected parties over time and the emergence of new stakeholders; the possible lack of a clear and constant relationship between attitudes and behavior, as well as a mandatory connection between social group affiliation on the one hand and attitudes and behavior on the other. The lack of reverse mapping is a possible answer to the question of why "in many countries, effective shaping of public policies, programs, and projects let alone their implementation and monitoring, institutionalization, and evaluation, is one of the weakest points of public governance (Mencinger et al., 2017). In fact the implementation is not a one-way process at all (Sager et al., 2024). It is rather a process of interaction between independent agents incl. those affected by the policies – the end users of policy results. The failure of policies should be sought not only in the institutions but also in the preconceptions and behavioral stereotype of the end-users. For instance, when citizens are engaged, motivated, and willing to change their behavior, it is much easier for Governments to achieve their policy goals, in part because all citizens are joint participants in actions that have collective benefits. When citizens are excluded, antagonistic to Governments, and focused on their short-term interests, public policy becomes much more difficult to implement and the outcomes are poor (John, 2018).

The analysis of implementation, as well as of the policy process as a whole, concerns not only the question of "who is involved and what kind of interaction is there between the different agents", but also "what for does this interaction take place". In this sense, regardless of the implementation model (top-down, bottom-up or hybrid), this process is related to the choice of policy tools. And if the goal is abstract and can (at least in theory) be achieved in many ways,

the instrument is a concrete technique that changes individual behavior so that the overall goal is achieved. The choice of instrument is no less important than the choice of the goal, because the instrument must make people do something that they would not otherwise do (Schneider and Ingram, 1990).

This article focuses on the last part of the implementation chain. The question of how the end-user of public services can influence the success of policies is rarely a subject of research. In principle, both implementation and the entire chain are foreseen as a one-way process: from formulation at the political level, through implementation, where multiple state and/or territorial agencies participate, to the end-users. Each subsequent link in the implementation chain applies the decisions of the previous one, considering the specific context of its activity, and then makes decisions for its own activity, seeking efficiency. Since each link in the chain is relatively free in making decisions for its own activity, as well as because of the time distance between the formulation and the achievement of results, the risks of policy failure appear. A solution has been consistently sought in recent years within a logic of collaborative governance (Ansell et al., 2017), as well as shaping policy design through the participation of all stakeholders. The question that remains unanswered, however, is who represents the end-users and to what extent this representation is credible in terms of the future behavior of the affected individuals towards the instruments. The issue is further complicated because even if there is support in principle, the affected individual, whether a person or an organization, may not respond adequately to the instruments used, and thus create a risk to the achievement of the objectives. Overcoming or limiting this risk is usually sought in effective communication to present the measures to the affected individuals, especially in cases where they are unpopular or have a high social cost (Wenzelburger and Hörisch, 2016).

Institutions responsible for achieving common goals can change the behavior of individuals in the community through “stick, carrot, or sermon” (Bemelmans-Videc et al., 2011). This metaphor corresponds to the three ways in which the collective will, embodied in political power, can change individual behavior: coercion, incentives, and persuasion. It corresponds to the different resources that legitimate institutions use to influence individuals - power, public finances and information, as well as to the different techniques that public authorities in modern societies (and not only) use to achieve common goals - regulations, economic incentives, incl. taxes and fees, communication and exhortation. Despite the existence of multiple categorizations of tools (see e.g., Howlett, 2023), the above-mentioned study has had a significant impact on research in recent years, not only in the field of evaluation but in the theory of public policies in general (Olejniczak et al., 2025).

Knowledge on policy instruments and implementation patterns is brought together against the backdrop of current debates on behavioural science findings (Loer, Neher, 2024). In the last few decades, with the introduction of behavioral science into policy research, a new tool has emerged – nudges, which unconsciously change the architecture of individual behavioral choices

(Thaler and Sunstein, 2008; Klunin et al., 2024). Despite many criticisms of this approach, not coincidentally defined as libertarian paternalism (Sunstein, 2014) due to its “hidden” intervention, these tools are widely used and highly effective in certain areas of public management (Naru, 2024). Based on these criticisms, some similar categories, also inspired by behavioral science, have emerged, such as “Nudge plus” (Banerjee, 2021) or “Boosts” (Grune-Yanoff, and Hertwig, 2016). The goal of Nudge plus is not to use behavioral insights to create a one-time change, but to foster a state or environment where these interventions help establish a new equilibrium of self-reinforcing and beneficial behaviors that embed reflection as part of the nudge. With greater transparency, the agent becomes aware of his or her biases, which are systematically repeated with heuristics, i.e., they undergo perspective transformation (Banerjee, 2021). The common denominator behind Boosts policies is the idea of empowering people by expanding their competencies. Boosts are rationally based regulatory strategies designed to improve people’s ability to manage emotional reactions by overcoming biased thinking and undeliberate choices (Jolls and Sunstein, 2005). Thus, while classical nudges are considered bias-preserving, Boosts are considered bias-eliminating techniques (Di Porto and Rangone, 2015) aimed at improving people’s competence to exercise their freedom of choice.

In the broadest sense and based on whether policy tools guide or encourage appropriate behavior, they can be divided into “hard” and “soft” policy tools (Hood, 2007; Banerjee et al., 2021). Hard tools are those that guide people’s behavior through formulated rules and directives, and financial incentives such as fines, taxes, and subsidies. On the other hand, soft tools are those that seek to guide people’s behavior by providing additional information or by changing the information environment in which they make choices. Several studies have already examined public support specifically for these soft policy tools (Aghion et al., 2010; Banerjee et al., 2021).

Although implementation – the choice of a policy instrument – is a process in which multiple agents interact, exchanging expertise, influence, and often interests, the instrument must be able to achieve the goal in a specific situation. At this stage, we are not discussing the question of what the implementation model should be to choose the optimal instrument. The question is, rather, what the instrument should be to be determined as optimal. In this case, the question is not about the choice but about the evaluation.

Policies, and therefore instruments, achieve several goals simultaneously, and this is precisely the great challenge in their formulation. However, their main purpose is to change people’s behavior and to reconcile or replace their individualistic goals with common ones. Without this, no instrument can achieve results and therefore, its use becomes meaningless.

Instruments and goals are linked in the sense that the use of policy tools involves implicit or explicit assumptions and expectations about the effect that the implementation of the tools has on those affected by them. It is crucial for policy development that the behavior resulting from the use of instruments

in practice is what is expected. Whether these goals are purely social constructs with few empirical referents or reflect a more objective assessment of the actual behavior of the relevant groups of actors, this actual behavior is critical to the relationship between goals and instruments (Howlett, 2019).

The point is that no social technique acts directly. It is refracted through the attitudes, motivations and behavioral stereotypes of the affected individuals. In recent years, the application of behavioral science in public management has been mainly associated with the tools of nudge. However, it allows us not only to nudge, but also to establish and consider in advance that regulations work because people are interested in them, or because they inertially comply with the community and the authorities in it, or because the repressive or controlling apparatus in the community works well, etc. The reasons can be many. In any case, however, the effectiveness of the tools depends on the reactions of the individuals whose behavior is a prerequisite for achieving the goals. Ecological goals can be achieved and the tools chosen in connection with them can work if people are ready to reduce their consumption, or if they consume environmentally friendly products, or if they contribute to recycling, etc. Similarly, achieving sustainability goals depends on how economic agents organize the production process, what technologies they use, etc. Therefore, attitudes towards tools matter. Specific instruments may work where public attitudes are favorable and have no or minimal effect where this is not the case.

Existing research does not deny the relationship between policies and public attitudes. In most cases, however, the solution to the possible contradiction between policies and public attitudes is sought in the inclusion of stakeholders in the process of policy development and in collaborative governance (Emerson et al., 2012). The expectations are that the eventual contradictions will be overcome by finding a common point of view between the participants or by informing them. However, it is logical that citizens and their organizations can support the goals, and yet, in the process of implementing the instruments, adjust their behavior in such a way that the goals cannot be achieved.

Studies that prove the existence of certain preferences for policy tools are not often conducted. This is probably because the instrument is seen as a technique, the development of which is more a matter of expertise than of interests and attitudes. However, some significant connections between public attitudes and policy tools are already empirically proven.

For instance, Haselswerdt et al. (Haselswerdt et al., 2015) demonstrate that the way public policies are implemented has significant consequences for public attitudes towards them. The authors conducted a series of research experiments to test how citizens react to alternative instruments such as tax breaks and spending programs. Their study shows that citizens prefer tax breaks to direct subsidies, not in principle, but only because this is the current state of the measures taken. In cases where direct subsidies are applied or when no measures are taken at all, preferences for tax breaks decrease. The study also shows that ideology and political preferences also matter – conservatives prefer tax breaks to a much greater extent, but the same prefer-

ence prevails among liberals and is similarly influenced by the status quo. The authors conclude that the status quo of policy structures citizens' perceptions of the instruments.

Anna Wielicka-Regulska (Wielicka-Regulska, 2020) studies food consumption to establish the relationship between public attitudes and policy tools. Her preliminary hypothesis is that pro-environmental behavior (specifically consumption of local and/or seasonal products, consideration of the carbon footprint of food) is associated with favorable attitudes towards the implemented policy tools (green public procurement, higher VAT on unhealthy food, regulation allowing retailers to provide short-term food with a shelf life to charities as a tax-free donation, a levy on the amount discarded for distributors, a deposit for plastic bottles). The results of the study prove that the attitude towards the different instruments is not the same, and that while the acceptance of green public procurement and increased VAT is strongly expressed, this is not the case for the deposit for plastic bottles, as well as the penalty fee on discarded food. The author concludes that "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" (Wielicka-Regulska, p. 447).

A recent study by Andersson and Almqvist (2022) aims to establish public preferences for nudges compared to traditional policy tools. The study is representative of the Swedish adult population and establishes public attitudes towards instruments from different policy areas. Based on the data obtained, the authors argue that, in general, information and subsidies are perceived more positively than other types of instruments – taxes, regulations, and nudges. According to them, the explanation is partly related to individualistic ideological views, support for political goals, as well as certain socio-demographic variables. The authors assume that the explanation can also be sought in the fact that the preferred instruments – information and subsidies – restrict individual freedom less and, to a limited extent, lead to direct material losses for individuals (Andersson and Almqvist, p. 22).

It would not be an exaggeration to note that current research on public preferences for policy tools is related to "nudges". Accordingly, they serve to support and affirm or, conversely, to reject an unconventional type of instrument. Regardless of their direct implications, these studies are of utmost importance because of the principal thesis that public preferences for policy tools matter. The study by Dominic H. Enste and Jennifer Potthoff (Enste and Potthoff, 2021) makes a significant contribution to the further development and argumentation of the above thesis. According to the cited authors, the development and communication of effective environmental policies require dividing the population into smaller units and identifying the full range of their environmental attitudes, behavioral patterns, requirements, and expectations. They use the concept of social milieu, which describe groups of people who are similar in terms of life, values, mentality, and lifestyle (Schip-

perges, 2019). Social milieu is simultaneously defined by attitudes and value orientations, social status, and generational affiliation. The authors conclude that changing human behavior to combat the climate change crisis requires an intervention that is different from traditional economic theory or a purely legal approach. Individual characteristics, cognitive boundaries, social factors, and group affiliation significantly influence the actions and decisions of individuals (Enste and Potthoff, 2021, p. 86). Therefore, the choice of policies must be accompanied by specific studies of public preferences, and the tools must be tailored to the characteristics of those they will affect.

3 Bulgarian Case: “Environmental Policy If We Don’t Pay For It And If It Is Not a Burden For Us”

The present study aims to establish the public preferences of citizens towards environmental policy tools. The traditional categorization of tools was used, according to which the behavior of individuals is influenced by prohibitions (regulations), incentives, or the dissemination of information. Due to the unconventional nature of the classic “Nudge” (Thaler and Sunstein, 2008), public attitudes towards it are established primarily through experiments and are difficult to include in standard questionnaires. However, some modified categories, also inspired by behavioral sciences, such as “Nudge plus” (Banerjee, 2021) or “Boosts” (Grune-Yanoff and Hertwig, 2016), can be classified as incentives or information dissemination techniques.

The research model was developed based on the following assumptions:

1. The environmental policy outcomes’ achievement depends on the pro-environmental characteristics of individual behavior.
2. The policy tools that transform goals into action aim to change the behavior of individuals so that they become possible. In a policy-driven society the prerequisite for the effectiveness of the process are individuals who respond relevantly to specific measures, changing their behavior in accordance with the common goals.
3. The behavior of individuals (whether person or organization) is multifactorial. There are connections and dependencies between the factors of behavior themselves. The reactions of individuals to policies depend on their preferences towards them, their attitudes, beliefs and convictions, as well as their socio-demographic characteristics.
4. Even in the presence of favorable attitudes towards policy tools, environmental behavior may remain unchanged due to the existence of more important incentives for individuals’ actions.
5. The relative strength of policy tools as a driver of behavior depends on trust in the institutions involved in policymaking, but not only. In many cases political affiliation can be much less important than others factors.

The present survey was conducted in the period 4-14 April 2024 among 1008 Bulgarian citizens aged 18 and over. The study is representative of the adult

population of Bulgaria. It is based on a nationally representative two-stage nested sample, implemented after preliminary stratification of the universe by administrative region (NUTS-3), settlements and size of the settlement, a random route of movement across the territory of the nest and selection of respondents starting with a starting address plus a step. The maximum permissible stochastic error is $\pm 3.1\%$. The registration method is a direct standardized interview.

One of the main hypotheses drafting the questionnaire is that environmental policy in Bulgaria has not led – at least so far – to a significant spread of pro-environmental individual behavior. Taking steps towards the development of behavioral models, a number of researchers are striving for a comprehensive review of the models and variables of behavior – Hines et al. (Hines et al., 1987), Stern (Stern, 2000), Kollmuss and Agyeman (Kollmuss and Agyeman, 2002), etc. Two dominant approaches have been used to study environmental behavior, one focused on impact and the second on intention. Intention refers to behaviors that contribute to environmental sustainability and emphasizes the outcome of the behavior. Impact-oriented makes assumptions based on motivations, rather than focusing on the outcome of the behaviors. The New Environmental Paradigm is considered the “gold standard” for measuring attitudes (Dunlap et al., 2000) and is a widely used and well-validated measure designed to assess an individual’s belief system about nature. Stern (Stern, 2000) adopts an intention-oriented approach to understanding pro-environmental behavior as actor-defined behavior with the intention of changing the environment. Stern distinguishes three types of behavior: environmental citizenship, political support, and personal behavior. Environmental citizenship behavior includes actions such as joining environmental groups and environmental activism. Political support includes accepting government decisions that aim to protect the environment, including raising taxes and prices. The final category of behavior is personal behavior, which includes “the purchase, use, and disposal of personal and household products that have an impact on the environment” (Stern, 2000).

One of the most important classifications of consumer actions, also used in this study, is that of Kaiser et al. They identified 65 self-reported environmental indicators in six groups: energy conservation, mobility and transportation, waste reduction, consumerism, recycling, and social behaviors towards environmental protection (Kaiser et al. 2003).

Based on numerous meta-analyses, Kurisu (2015) makes several useful classifications of various pro-environmental actions (behaviors). Subgroups of environmental behavior are energy efficiency at home; waste and recycling; water consumption; energy saving; personal transportation; purchasing green products; environmental activism. Possible reasons for environmental/non-environmental behavior are summarized as knowledge; norms; environment (infrastructure); perceived impact (utility); cost/benefit balance; abilities; habits; real opportunity. Some of them are defined as intrapersonal, and others as contextual. The leading variables in many studies can be divided into psycho-

logical (control, responsibility); cognitive (knowledge); demographic (gender, age, education, income, place of residence) (Kurusu, 2015).

For the study purpose, a composite indicator of pro-environmental behavior was created that covers a large part of the known pro-environmental practices. Similar to the measurement of environmental perception, there is no scientific consensus on which instrument to use to measure pro-environmental behavior. The number of behaviors used to measure pro-environmental behavior varies greatly across studies (from 3 to over 50 different behaviors), leading to a wide heterogeneity in the results. Behaviors can be attributed to different behavioral clusters (e.g., water/energy saving, political action, etc.). Going a step further, some studies group behaviors into composite coefficients (Binder and Blankenberg, 2017; Schmitt et al., 2018) to capture the relevant behavior more adequately. Although Kaiser (1998) notes that the use of composite scores to measure pro-environmental behavior is controversial because it assumes that aggregation across different types of behavior will capture relevant aspects of a particular type of environmental behavior and involves different ways of aggregating behavior into a composite variable, the goals of the present study suggest precisely such an approach. In many studies, authors combine different developed scales or create completely new ones (Mónus, 2020).

Based on the detailed review of the available data and empirical studies, three aggregate indicators were created for this study. The aggregate indicator for pro-environmental behavior is composed of 21 specific behavioral actions, which we believe cover the groups of behaviors identified in the literature - preference for seasonal, locally grown food; reading product labels given their potential harm to health; striving to reduce waste; participating in environmental campaigns; recycling; efforts for energy efficiency; using a car, etc. The aggregate indicator for awareness of environmental problems is composed of 8 specific perceptions of real problems – air pollution; water pollution; soil pollution; climate change; the extinction of some animal and plant species; depletion of natural resources; natural disasters; epidemics. The aggregate indicator for knowledge includes the declared level of 2 actions - the purposeful pursuit of self-education about environmental problems; and reading articles and watching shows; and 6 self-reported levels of familiarity with specific categories and groups of practices - the zero-waste concept; green energy sources; environmental standards; eco-labels for appliances; the harms of the production of most goods that are purchased.

The design of the questions focused on closed-answer questions with both 2 and 5 degrees of answers. The main assumption behind such a design is that we need to quantify as much as possible the differences regarding environmental policy among respondents. Choosing among different degrees in the answers scale allows us to identify significant differences in the attitude between different groups of responders. Quantification helps us to draw clear conclusions by splitting significant from insignificant differences in the attitude. It was already mentioned that the number of participants and

the sample selection approach make the survey nationally representative. It means that the number of responses and the design of the questions allow us to use quantitative statistics like Cronbach's Alpha, Factor analysis, ANOVA, and Chi-square. These classic statistics are used because of their robustness and high accuracy. In terms of results interpretation, it is a bit of a conservative approach since there are different statistical methods available to be used but the main idea is to identify essential trends in data by using classical and highly reliable statistics. In other words, the classical design of the data analysis puts us on the safe side. With that respect, we use Cronbach's Alpha, Factor analysis, ANOVA, and Chi-square as methods for analyzing data from the nationally representative survey. The statistical analysis of the procedure follows six steps:

1. When we had preliminary clarity about which primary indicators form a composite indicator, then we only checked their internal consistency with Cronbach's Alpha.
2. When we did not have prior clarity on which primary indicators formed a composite indicator, we applied factor analysis. After the extraction of the factors, we checked the internal consistency of the primary indicators they consist of with Cronbach's Alpha.
3. After we established the composition of the composite indicators, we calculated average scores for each composite indicator.
4. We have grouped the average scores of composite indicators into five groups based on the mean plus/minus one standard deviation and plus/minus two standard deviations:
 - a. Very weak – below mean minus two standard deviations.
 - b. Weak – between mean minus two standard deviations and mean minus one standard deviation.
 - c. Moderate – between mean minus one standard deviation and mean plus one standard deviation.
 - d. Strong – between mean plus one standard deviation and mean plus two standard deviations.
 - e. Very strong – above mean plus two standard deviations.
5. We compared the average scores of different groups of respondents using ANOVA.
6. We examined relationships between grouped composite indicators using Chi-square.
7. ANOVA compares the means of three or more groups to determine whether there are any statistically significant differences between them. Analysis of variance is used to test the hypothesis that several means are equal. It tests the hypothesis that all group means are equal by analyzing the variance within groups and between groups. ANOVA helps determine whether observed differences in sample means are likely due to real effects or just random variation. If the p-value from ANOVA is below a certain

threshold (e.g., 0.05), it suggests that at least one group mean is significantly different from the others.

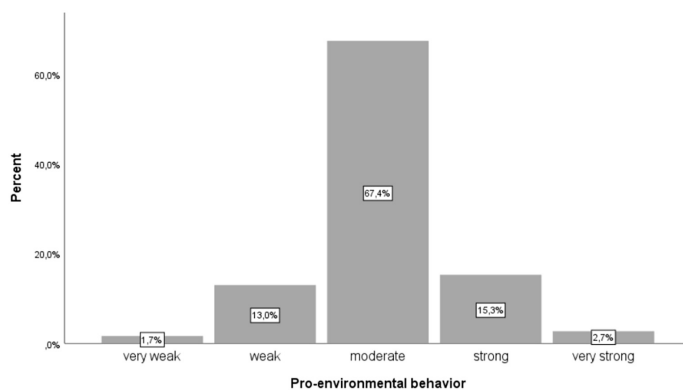
Factor analysis is a statistical method that attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance that is observed in a much larger number of manifest variables. Factor analysis is used to identify underlying relationships between observed variables. It reduces a large set of variables into fewer latent factors, which represent common patterns in the data. Each factor captures the shared variance among multiple variables, helping to explain correlations between them. Researchers often use it in psychology, marketing, and social sciences to uncover hidden dimensions like intelligence, customer preferences, or attitudes. The technique assumes that observed variables are influenced by both common factors and unique error components. Cronbach's Alpha is a measure of internal consistency. It is a score indicating the probability of two or more variables to measure a single underlying trait. In this survey, it is essential for estimating consistency between similar questions and is a benchmark for including them in the same composite indicator.

4 Results: Lack of Clustering in Preferences to Policy Tools

The results show a huge clustering of respondents' answers around the average values of the composite indicator for pro-environmental behavior.

67,4% of respondents have "moderate" pro-environmental behavior. The high levels on the scale – "strong" and "very strong" pro-environmental behavior, slightly exceed the corresponding low levels on the five-point scale of the composite indicator. Cronbach's alpha is 0.913, indicating excellent internal consistency. The percentages of the empirical distribution are close to the expected percentages of the normal (Gaussian) distribution, which are 2.3:13.6:68.3:13.6:2.3.

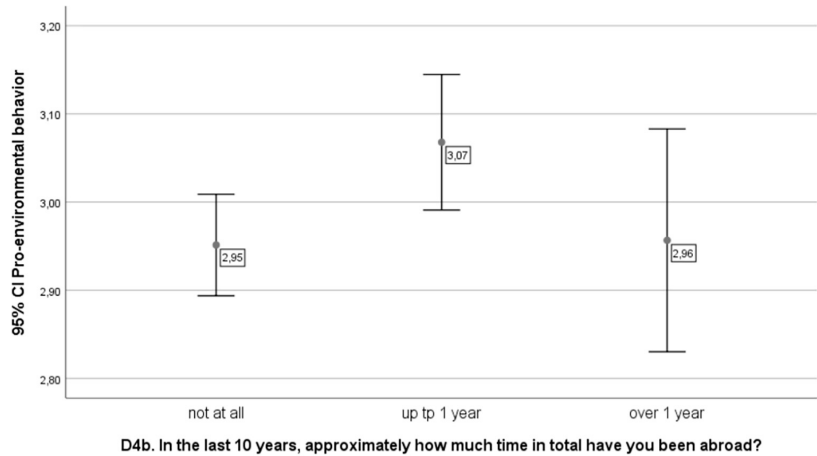
Figure 1. Pro-environmental behavior



Source: Own.

There is a statistically significant relationship between pro-environmental behavior and time spent abroad. ANOVA statistics show a significant difference ($p=0,048$) between pro-environmental attitudes among respondents with short stay abroad and those without experience abroad.

Figure 2. Mobility

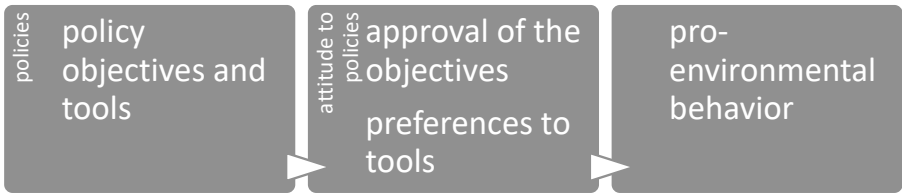


ANOVA					
Pro-environmental behavior					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2,405	2	1,203	3,051	,048
Within Groups	318,492	808	,394		
Total	320,897	810			

Source: Own.

There are many reasons for the relatively unfavorable picture of pro-environmental behavior. What interests us in this case is the influence of policies on environmental behavior. Our assumption is that if attitudes towards policies are unfavorable, then their influence on environmental behavior will be limited.

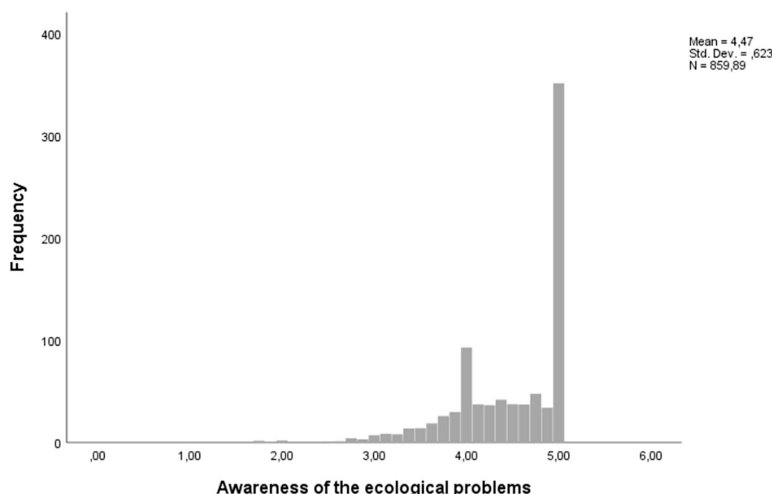
Figure 3. Research model



Source: Own.

The survey recorded an extremely high level of awareness of environmental problems. Between 55 and 65% of respondents believe that water, soil, air pollution, climate change, natural disasters, and epidemics are real problems. Slightly smaller are the share of respondents who believe that the disappearance of natural resources is a completely real problem (48.6%), as well as the disappearance of some animal and plant species (51.8%). Cronbach's alpha is 0.913, indicating excellent internal consistency.

Figure 4. Awareness of the ecological problems



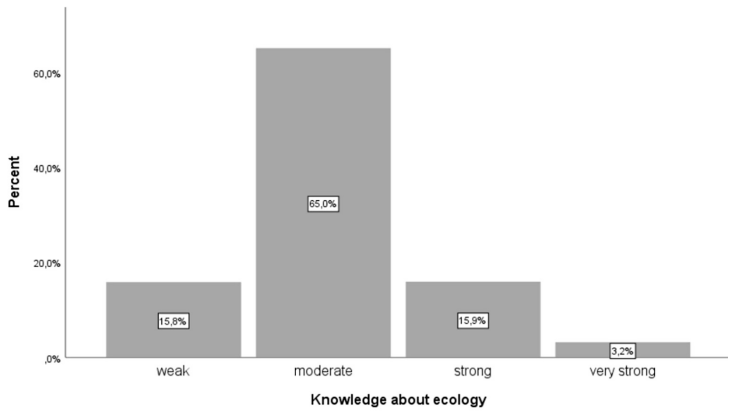
Source: Own.

The composite indicator, which includes awareness of all the above-mentioned types of environmental problems, shows a huge concentration at the highest level of the scale - the share of those who believe that environmental problems are not real is insignificant. The distribution is heavily skewed towards the right end of the scale. Very often, but not always, such extreme skewness indicates the presence of so-called social desirability bias. It is possible that respondents are indeed very aware of the ecological problems, but it is also possible that they have responded in a way that they know is expected of them.

Environmental awareness has both a cognitive component, based on knowledge, and an emotional component, based on perception. The study found a statistically significant relationship between environmental behavior and the degree of awareness of environmental problems - the higher the awareness, the higher the degree of pro-environmental behavior.

The problem is that despite this, moderate adherence to pro-environmental practices in everyday life prevails. In contrast to the high level of awareness of environmental problems, the level of knowledge about ecology is rather moderate. In this sense, the latter indicator corresponds to a much greater extent to the insufficient presence of environmental practices in everyday life.

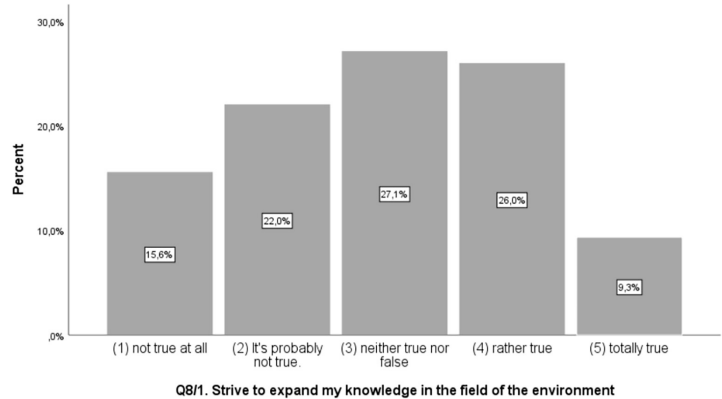
Figure 5. Knowledge about ecology



Source: Own.

Cronbach's alpha is 0.912, indicating excellent internal consistency. According to the overall knowledge indicator used in the study, 65% of citizens have a moderate level of knowledge about ecology, 16% have a strong level of knowledge, and 3% have a very strong level of knowledge. Since this is a self-assessment of knowledge, it is possible that this distribution simply reflects the high level of awareness of the problems.

Figure 6. Strive to expand knowledge



Source: Own.

In any case, the interest in environmental issues is present - 35% of the surveyed individuals express the opinion that they purposefully strive to expand their knowledge in the field of the environment. Environmental knowledge is generally considered a prerequisite for voluntary action (Frick et al., 2004). Although theoretically, knowledge seems to play a significant role in pro-environmental behavior, empirical evidence is inconclusive, as shown by some meta-analyses (Bamberg and Möser, 2007). Therefore, environmental knowl-

edge is considered a necessary but not sufficient condition for an individual's pro-environmental behavior (Kollmuss and Agyeman, 2002).

With a high awareness of environmental problems and moderate interest in knowledge about them, the insufficient environmental orientation of the daily behavior of individuals is more related to policies and attitudes towards them. Of course, the preferences for policy tools stated in the study reflect intuitive, unthinking, preliminary attitudes.

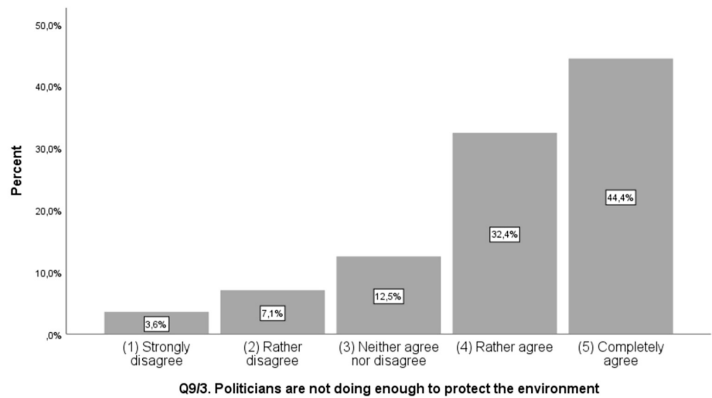
A significant part of adult Bulgarian citizens does not recognize their own responsibility for achieving environmental goals. Only slightly over 50% of them believe that environmental protection also depends on their own behavior. In practice, Bulgarian society is divided into two, almost equal parts: one believes that it should contribute to environmental protection, the other – does not see the connection between its own behavior and the achievement of green goals. Almost half of the Bulgarian population supports the statement that environmental protection is the duty of institutions, and it is not right to put emphasis on what individuals do.

Perceived control refers to individuals' perception of whether they can change or achieve a desired outcome through their actions or not. External focus attributes outcomes to external forces, while internal focus suggests that outcomes can be achieved through people's behavior. People with internal perceived control are more likely to take action (Johnson et al., 2004). Individuals with external perceived control cannot imagine environmental problems being solved without general government prescriptions and prohibitions (Kauder et al. 2018) – people tend to externalize responsibility and demand collective action. Denial of personal responsibility appears to be a major obstacle to pro-environmental behavior (Lorenzoni et al., 2007). The transfer of responsibility "outside" and the exoneration of one's behavior is also confirmed by the feeling that nothing depends on the individual citizen - 7 out of 10 people share the opinion that decisions on important issues in the country do not depend on them, but on a narrow circle of individuals, and 5 out of 10 respondents are convinced that the individual consumer cannot influence production and pollution.

The data show a significant tendency to shift responsibility for the state of the environment to institutions. At the same time, however, there is a huge distrust of politicians and environmental policies. Almost 80% of respondents believe that "politicians are not doing what they should", approximately the same share is of the opinion that certain people are getting rich from environmental protection measures.

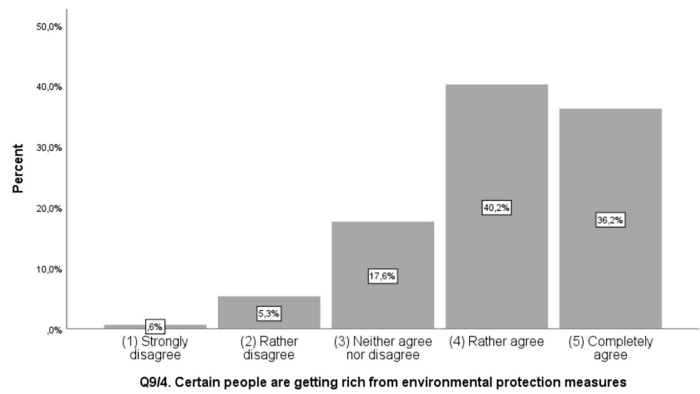
The current environmental policy also provokes distrust. According to the majority, it is necessary, but it is not effective and is not implemented properly, and it is "just another way for some people to get rich". There is a high level of skepticism towards the display of environmental concerns behind which other interests are hidden.

Figure 7. Evaluation of the activities of politicians



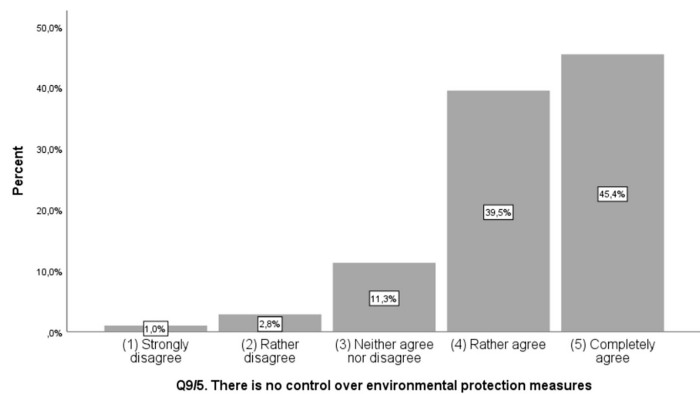
Source: Own.

Figure 8. Integrity assessment



Source: Own.

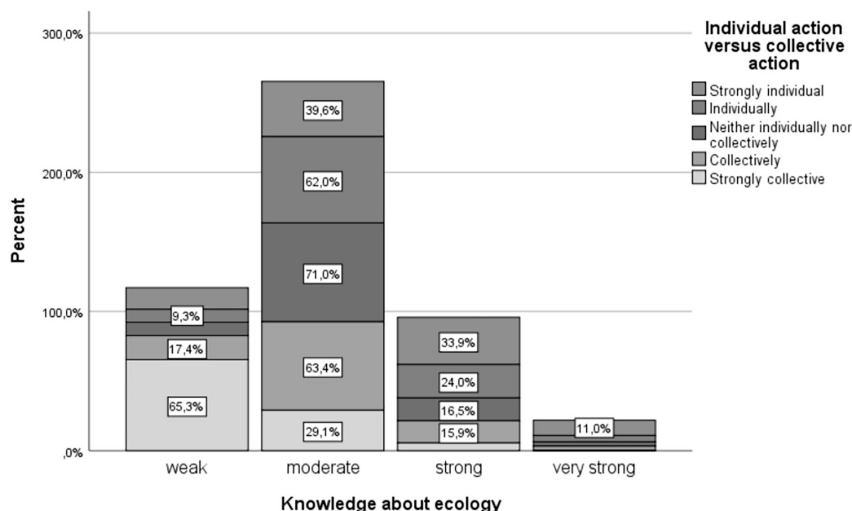
Figure 9. Evaluation of control effectiveness



Source: Own.

Given this mindset, the likelihood that citizens will not comply with measures stemming from unpopular politicians whose decisions fuel corrupt practices is enormous. The results of previous studies demonstrate that people with a high level of political support tend to comply with policies and accept institutional directives. An insufficient level of support, on the other hand, is an obstacle to the smooth implementation of environmental policy and it may end in failure (Wan et al., 2015).

Figure 10. Individual action versus collective action



Source: Own.

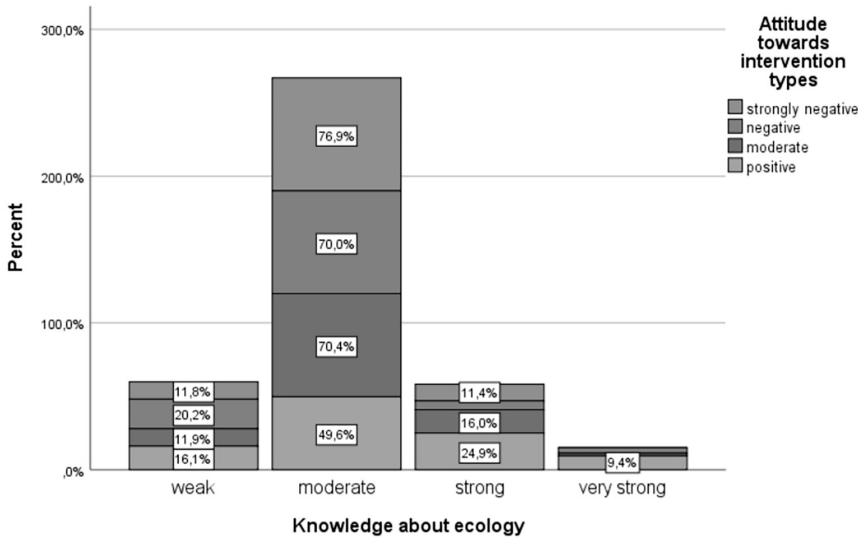
Chi-square = 69.95, $p = 0.000$, indicating the presence of a statistically significant relationship. The level of environmental knowledge is statistically significantly related to attitudes towards intervention types (Chi-square = 49.76, $p = 0.000$). The higher the knowledge, the more aware one is of the importance of own behavior in solving environmental problems. Similarly, the higher the environmental knowledge, the more support for soft approaches in environmental policy increases.

Environmental knowledge can be described as the amount of information that people have regarding environmental problems and their ability to understand and assess their impact on their surroundings (Blankenberg and Harm, 2019). According to older research, the possession of such environmental knowledge increases the likelihood of pro-environmental behavior (Hines et al., 1987).

The study does not register a significant difference between public preferences for different types of intervention: regulations and administrative control, negative and positive incentives, and dissemination of information about policies. Favorable public attitudes prevail in all four cases. At this level of policy instruments specification, citizens tend to express their support for environmental policies in general. The majority of respondents even believe that

control over the implementation of environmental measures is not sufficient, which, however, should not be perceived as a desire to strengthen coercive instruments, but only as a desire to comply with environmental measures.

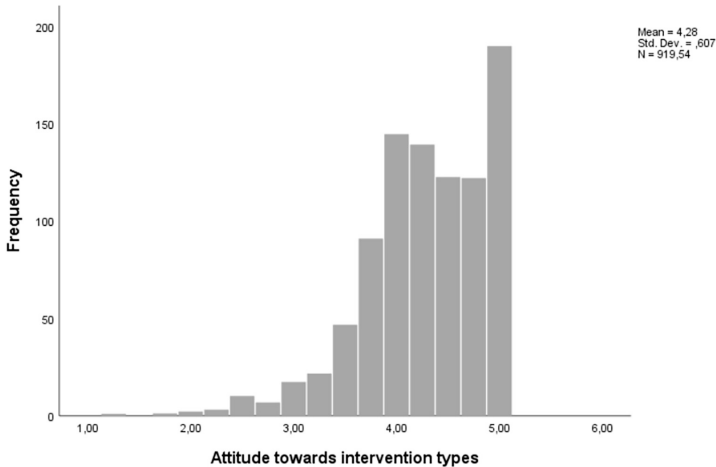
Figure 11. Environmental knowledge



Source: Own.

Although public preferences are favorable for all approaches to achieving environmental goals, the deviation from the meaning in the aggregate indicator of instrument preferences shows relatively greater support for soft tools related to information. Although the difference is small, support for soft tools is still higher among respondents with a higher level of environmental knowledge.

Figure 12. Attitude towards intervention types



Source: Own.

Cronbach's alpha is 0.659, indicating questionable internal consistency. At a more concrete level of policy tools specification the preferences of citizens become more specific. In this study, respondents stated their preferences for 15 different tools that are widespread in environmental policies in EU countries. Among the tested environmental protection alternatives, the proposals to introduce monetary incentives for citizens who return glass packaging receive the greatest support (approximately 8 out of 10 people completely or somewhat agree), followed by lower prices for lower electricity consumption, incentives for stores that allow you to return unwanted products, incentives for manufacturers that use recycling, and lower prices for lower water consumption. The proposals that are associated with paying a price/fine by citizens are the least approved, such as: paying more taxes and fees that go to environmental measures; higher taxes for citizens who do not recycle; paying a higher price for an environmentally friendly product; and fines for citizens who do not recycle

Through factor analysis, based on the combination of preferences declared by respondents, 5 subscales have been identified. The latter cannot be mechanically reduced to the "stick, carrot, and sermon". They differ in two more criteria: who they affect (an individual citizen or a specific economic organization) and whether the instrument is incentive or punitive.

The first subscale brings together four tools that, in the most general sense, can be defined as financial incentives that increase the income before taxes or disposable income of the affected individuals (both people and organizations). In this 1st factor includes both direct subsidies and tax reduction. These are positive financial incentives. Additional testing with Cronbach's Alpha showed a value of 0.806, indicating good internal consistency.

The second subscale includes taxes, prices or fines that punish citizens' behavior in case it is inconsistent with environmental goals. All four instruments in this 2nd factor included in are negative financial measures that "punish" citizens by reducing disposable income or increasing their expenses. Additional testing with Cronbach's Alpha showed a value of 0.879, indicating good internal consistency.

The third subscale combines negative financial tool aimed at organizations with behavior that is irrelevant to the environment. These instruments increase the costs or reduce the profits of economic entities. Additional testing with Cronbach's Alpha showed a value of 0.896, indicating good internal consistency.

The fourth subscale includes two tools. They reduce the costs of consumers with pro-environmental behavior. These are more of positive incentive tools for pro-environmental consumption. Additional testing with Cronbach's Alpha showed a value of 0.912, indicating excellent internal consistency.

The fifth subscale again includes two tools, which are united based on their punitive and/or prohibitive nature. These are sanctions, that can be direct prohibitions or fixed high prices of harmful products. Additional testing with

Cronbach's Alpha showed a value of 0.622, indicating questionable internal consistency.

The subscales are presented in order of respondents' preferences. The greatest support is for positive financial incentives (subscale 1), and the least - for sanctions (subscale 5). This result shows support for measures that are beneficial for the material state of individuals. If the policy tools harm it the support for them decrease.

Table 1. Main results of the study: public preferences towards policy tools

Tools	Subscales (factors)	In a statistically significant relationship with:
Introduce incentives for manufacturers who use recycled products	1 st Positive financial incentives for citizens	1. Education (F = 4.17, p = 0.016) 2. Socio-professional group (F = 3.37, p = 0.005) 3. Place of residence (F = 7.90, p = 0.000)
Introduce incentives for stores that allow to return unwanted products – clothing, batteries, etc.		
Introduce monetary incentives for citizens who buy second-hand electrical appliances		
To introduce monetary incentives for citizens who return glass packaging		
I'm willing to pay more taxes and fees that go specifically to environmental measures	2 nd Negative financial incentives for citizens	1. Gender (F = 14.06, p = 0.000) 2. Age group (F = 4.41, p = 0.001) 3. Education (F = 26.08, p = 0.000) 4. Socio-professional group (F = 4.28, p = 0.001) 5. Income group (F = 4.83, p = 0.000) 6. Place of residence (F = 8.18, p = 0.000)
I'm willing to pay a higher price for a more environmentally friendly product.		
Taxes should be higher for citizens who don't recycle		
Fine citizens who don't recycle		
Fine companies that don't recycle	3 rd Negative financial incentives for enterprises	1. Education (F = 5.26, p = 0.005) 2. Place of residence (F = 4.56, p = 0.004)
Taxes should be higher for companies that don't recycle		
Fine stores that don't have separate collection containers		
Introduce lower prices for lower water consumption	4 th Positive incentive for pro-environmental consumption	1. Gender (F = 9.36, p = 0.002) 2. Place of residence (F = 6.27, p = 0.000)
Introduce lower prices for lower electricity consumption		
Cars should be banned from entering downtown	5 th Sanctions	1. Gender (F = 18.21, p = 0.000) 2. Socio-professional group (F = 2.83, p = 0.015) 3. Place of residence (F = 4.09, p = 0.007)
Prices of plastic goods should be higher		

Source: Own.

The study does not establish a significant relationship between citizens' preferences and indicators of their socio-demographic situation: income group, age group, educational group, place of residence, gender, marital status, type of employment, international mobility. The preliminary hypothesis is that higher income groups, more educated, younger people and those groups that have lived abroad for a long time in the last three years have a different attitude towards environmental policy tools. This hypothesis is not confirmed by the data obtained. They show that the socio-demographic characteristics of the respondents do not structure attitudes towards environmental policy tools, except in isolated cases.

Men and women differ significantly in pro-environmental behavior (Eisler et al., 2003). Women show higher pro-environmental behavior than men (Longhi, 2013), report stronger pro-environmental attitudes (Zelezny et al., 2000) and are more willing to take pro-environmental actions (Stern et al., 1993). However, some studies find no or very small effects of gender (Blocker and Eckberg, 1997), which can be explained by the chosen behavior. In the present study, gender was statistically significantly associated with attitudes on three of the subscales: 5, 4 and 2. In the latter two subscales, the deviations from the mean in women were much larger.

Age is generally considered a key predictor of pro-environmental behavior, but the results of empirical studies are contradictory. On the one hand, young people are considered to behave less environmentally friendly than older people (Casaló and Escario, 2018), partly because the latter are more motivated by improving the quality of the environment for the next generation (Shen and Saijo, 2008). At the same time, younger people generally consider it less necessary to behave pro-environmentally, because they believe that technological progress will deal with future environmental problems (Benn, 2004). From the perspective of the present study, belonging to an age group only matters for the acceptance of financial tool that "punish" citizens for environmentally unfriendly behavior (2nd subscale). The group between 30-39 years old is more likely to accept this category of tools.

Higher levels of education and employment have been identified as positive predictors of pro-environmental behavior (Casaló and Escario, 2018). Education is generally expected to affect environmental concerns by increasing knowledge about environmental issues, but the analysis of concerns about global warming shows that education (treated as endogenous) has no effect on this type of concern (Chankrajang and Muttarak, 2017). In the field study, education is statistically significantly associated with three of the categories studied – positive incentives (1st subscale); negative financial incentive (2nd subscale) and financial sanctions for companies (3rd subscale). In all three categories, higher education is associated with a higher level of acceptance of the above categories.

Social group membership is statistically significantly associated with three of the identified subscales – 1st, 2nd and 5th. Managers and freelancers are most supportive of financial "penalties" on citizens. At the same time, the unem-

played group most strongly supports both types of incentives – for pro-environmental behavior (1st subscale) and for low consumption (5th subscales).

The amount of personal income is statistically significantly related to preferences for 2nd subscale – negative financial tools over citizens. The higher the income, the higher the support for these tools. Income in general has a controversial effect on pro-environmental behavior (Whitmarsh and O'Neill, 2010). Higher incomes are correlated with low individual pro-environmental behavior, and poorer people declare increased use of public transport and reduced heating costs (Longhi, 2013). However, most people are likely to engage in pro-environmental behavior if it is not costly (money, time, efforts and convenience) (Diekmann and Preisendorfer, 2003).

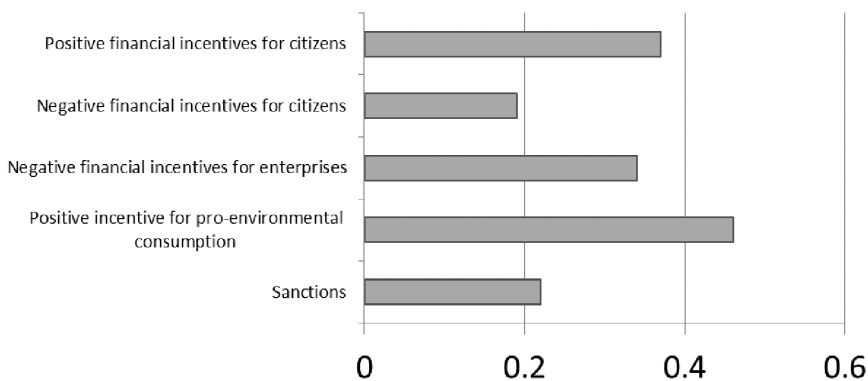
The place of residence is the only indicator that is in a statistically significant relationship with all five subscales. Support for positive incentives (1st subscale) is highest in the capital, for negative financial incentives for citizens (2nd) – in small towns; for negative financial stimuli on companies (3rd) – again in the capital; for stimuli for reduced consumption (4th) – in regional and small towns; for prohibitive and punitive measures (5th) – in the capital.

Around 30% of respondents hesitate to believe that they themselves should be fined if they do not implement individual sustainable practices. Around 35% of the respondents believe that the prices of plastic products could be higher. Approximately the same share of respondents declares their willingness to pay more for an ecological product. The remaining almost 70% oppose this perspective – to pay for an ecological policy.

The study establishes a very strong, statistically significant relationship between the composite indicator of ecological behavior and preferences for the tools. The higher the level of pro-environmental behavior, the stronger the preferences for sanctions (subscale 5th), negative financial incentives for companies (subscale 3rd) and negative financial tools or citizens (subscale 2nd). Pro-environmental behavior is related to all groups of tools, but its high levels are associated with preferences for sanctions.

The latter correlation can be interpreted as meaning that restrictive measures have a greater effect than incentives. This puts us in the difficult situation of interpreting a seemingly contradictory situation. People prefer incentives and would change their behavior to a greater extent because of them – as we have already shown, incentives are the most preferred approach among the tools studied. At the same time, people with pro-environmental behavior declare preferences for sanctions – perhaps this hides an unfavorable assessment of the policies followed, or distrust, even dissatisfaction with “other” citizens... Obviously, these are questions for other studies, but the contradiction between “incentives for me” and “sanctions for others” must be taken into account when formulating environmental (and not only) policy.

Figure 13. Correlation with pro-environmental behavior



Source: Own.

5 Conclusion

Since Pressman and Wildavski, hardly anyone doubts that implementation matters. This is especially true for environmental policy, where for many reasons the achievement of results seems difficult to achieve, despite the existing agreement on the goals.

The question, however, is what in the implementation needs to be changed to improve the process as a whole, so as to accelerate the achievement of the desired results. The theoretical review has led us, to use Elmer's term, to reverse mapping, i.e. to identify the necessary changes in the behavior of the individuals affected and to take concrete measures to accelerate this change. This reverse mapping presupposes a certain degree of discretion on the part of the administration engaged in the policy implementation, as well as sufficient capacity of this same administration to participate actively in shaping the policy design.

Research on citizens' preferences for environmental policy tools largely proves the above thesis.

1. They are contradictory and poorly structured, as a result of which, based on their establishment at a certain point in time, their future state cannot be predicted. This makes it necessary to monitor them in the process of implementation and to adapt the initial policy plan.
2. They are specific, which is why transferring knowledge about preferences for policy tools established in another political and cultural context is not a reliable basis for policy development.
3. Social group affiliation does not predict attitudes towards environmental policy tools.
4. Age group is not a predictor of preferences for environmental policy tools.

Only the expansion of the share of people for whom pro-environmental behavior is a commitment can make reverse mapping unnecessary. In Bulgaria, these people are about 30% and are willing to pay for ecology. There are not many, but it is a good start.

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