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POLITICAL, ENVIRONMENTAL AND SOCIAL DETERMINANTS OF PRO-ENVIRONMENTAL BEHAVIOUR IN RUSSIA

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In the context of global environmental and climate change caused by human impact, the study of pro-environmental behaviour and its determinants is important. At present, research on determinants of pro-environmental behaviour in Russia is sparse. Our study addresses this evidence gap and looks at the political, environmental and social determinants of pro-environmental behaviour. Adult participants (N=462, mean age = 36.73 years, SD = 11.77, 56.7% females) took part in an online survey measuring personal values, environmental motivation, environmental concern, connectedness to nature, institutional trust, political values, populism, patriotism and pro-environmental behaviour. The results show that different types of pro-environmental behaviour are predicted by different variables. Despite this, some common patterns emerge. The strongest predictor of all behaviour types was integrated regulation, the most autonomous form of environmental motivation. Hedonic values negatively predicted all pro-environmental behaviour, except resource conservation. For waste management and social behaviour, some environmental predictors had very high explanatory power, while for resource conservation, sustainable purchasing and climate relevant actions, a greater number of predictors with low explanatory power was observed.

JEL Classification: Z.

Keywords: pro-environmental behaviour, values, attitudes, knowledge, motivation, patriotism, trust, Russia.

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Introduction

In the face of increasing threats posed by environmental degradation and climate change related to human activity, research on pro-environmental behavior and its determinants has become critically important (IPCC, 2021; Clayton et al., 2016). Specifically, this research is crucial for the development of interventions to promote change in environmental behavior (Nielsen, 2017).

There is a growing body of international research on the role of environmental attitudes, values, norms, motivation, connectedness to nature, environmental knowledge and political ideologies in predicting environmental behaviour (Arendt & Matthes, 2016; Bertoldo et al., 2013; Carrus et al., 2005; Cruz, 2017; Frick, 2004; Pelletier, 2020; Steg et al., 2014). In Russia, research on predictors of pro-environmental behavior is still sparse, and studies have so far mostly focused on values, environmental norms and environmental concern (Soyez, 2012; Zibenberg et al., 2018; Unal, Steg, Granskaya, 2019; Sautkina, 2019; Shabanova, 2019; Ivanova, Sautkina, 2020). There is currently a large gap in the evidence regarding the role of other, multiple, psychological determinants of pro-environmental behaviour in Russia, and the aim of this research is to contribute to filling this gap.

Environmental Knowledge plays an important role in determining pro-environmental behaviour (Geiger, Otto & Diaz-Marin, 2014). This is defined as knowledge about the existence of environmental problems, their significance, their consequences for humans and nature, and ways to resolve them (Frick, Kaiser, Wilson, 2004; Gifford, Nilsson, 2014). A lack of environmental knowledge has been recognised internationally as a major barrier to pro-environmental behaviour, and may act as an important factor in Russia as well.

Environmental Concern is defined as the perceived importance of environmental issues (Berenguer et al., 2005; Hornsey et al., 2016). Although environmental concern has been extensively studied as a determinant of pro-environmental behaviour, there is an attitude-behaviour gap surrounding it (Tam & Chan, 2017). The role of environmental concern needs to be better understood, especially in Russia, where its levels are high, yet the levels of pro-environmental behaviour are low (Sautkina, 2019; Shabanova, 2019; Ivanova, Sautkina, 2020).

Connectedness to Nature is defined as the relationship perceived by individuals, expressed in a sense of kinship and affective connections between them and the natural world (Schultz et al., 2004; Mayer & Frantz, 2004). Previous research indicates that Connectedness to Nature is closely related to pro-environmental behavior (Hartig et al., 2001; Frantz et al., 2005; Mackay & Schmitt, 2019), however this relationship has not yet been studied in Russia.

Pro-environmental Motivation is a significant predictor of pro-environmental behavior (Pelletier et al., 1999; Baxter, Pelletier, 2020). Building on Deci and Ryan's Theory of Self-

Determination, the Motivation Toward the Environment Scale (Deci, Ryan, 1985; Pelletier et al., 1998) regards environmental motivation as consisting of intrinsic and extrinsic motivation, as well as amotivation. Each of these three types predict pro-environmental behavior in a different way. The role of this tripartite environmental motivation has not yet been studied in Russia.

Values represent one of the most important factors explaining environmental attitudes and behavior (Steg, Perlaviciute, Van der Werff, Lurvink, 2014). However, cross-cultural evidence on this relationship remains mixed, making it important to continue exploring the role of values in the present study.

Political ideology is an important predictor of pro-environmental attitudes and behaviour in Western cultures (Cruz, 2017; Mccright & Dunlap, 2011). However, in other cultural contexts, the traditional left-right distinction might not hold (Thorisdottir et al., 2007). In non-Western cultures, political orientation indicators, for example, political values, may be researched as predictors of pro-environmental behaviour (Agissova & Sautkina, 2020).

Populism has been found to be a barrier to pro-environmental action in Western societies due to its relationships with certain political ideologies (Lockwood, 2018). However, the core definition of populism assumes a democratic belief that politics should be an expression of the will of the people (Mudde, 2004, 2007), which may not necessarily be related to particular ideologies. In this study, we aim to explore whether or not, in Russia, populism is related to, and impedes, pro-environmental behaviour.

Another factor influencing pro-environmental behaviour is Institutional Trust, for example, trust in public institutions, scientists, industry and environmental groups (Tam, 2019; Cologna, Siegrist, 2020). So far, there is little and mixedevidence on the role of institutional trust in determining pro-environmental behavior.

Finally, exploring relationships between Patriotism, pro-environmental attitudes and behaviour is a new scientific territory (Milfont et al., 2020; Hamada, Shimizu & Ebihara, 2021). More patriotic people seem to be more concerned about the environment, have a sense of moral obligation to preserve the nature of their country and choose to act pro-environmentally (Wang, Rothenberg, Matthews, 2019). Patriotism has not yet been studied in Russia as a predictor of pro-environmental behaviour, and is included in the present study as another measure of political orientation.

In this paper, we explore the relationships between these different social, political and environmental constructs, and their role in determining pro-environmental behaviour in Russia.

Methods

Participants

We determined the sample size based on an *a priori* power analysis conducted using GPower. The results of the power analysis showed that a total sample of at least 245 participants was required to achieve a power of .95 with a medium effect size (f-squared = .15) and an alpha (α) of .05 for multiple regression analysis (i.e., fixed model, R-squared deviation from zero).

The sample for this study involved 462 participants: 56.7% were females, the mean age was 36.73 years (SD = 11.77). The sample was largely educated: 56.5% had tertiary education. One-third of the participants lived in Moscow (31.2 %), 6.3% in Saint Petersburg, and the remaining 62.8% in other cities in Russia. The majority of the participants resided in cities with a population of over 1 million people (60%). Only 6.3% of the sample reported that their education or type of routine activity (professional and/or volunteer) was related to the protection of nature or ecology.

Participation in the study was voluntary and anonymous. The online survey was presented to participants as an academic research on people's everyday values, goals and behaviours.

Measures

Values. A short version of Schwartz's value scale (1992), including 16 values, developed, tested, and validated by Steg et al. (2014) was used to assess four value types: altruistic, biospheric, egoistic and hedonic. A Russian version of the inventory was used (Ünal, Steg, Granskaya, 2019). The evaluation of the importance of each value as a guiding principle of one's life was given on a 9-point scale, ranging from −1 = *opposed to my principles*, 0 = *not important*, to 7 = *extremely important.*

Pro-environmental Motivation. The 24-item Amotivation Towards the Environment Scale (AMTES) was used (Pelletier et al., 1999). This scale measures people's level of intrinsic motivation, four subtypes of extrinsic motivation (i.e., integrated regulation, introjected regulation, external regulation, intrinsic regulation and identified regulation), and amotivation. Respondents rated each item on the extent to which it corresponded to why they cared for the environment, on a 7-point Likert scale, ranging from 1 = *absolutely true* to 7 = *absolutely false.*

Connectedness to Nature. The Connectedness to Nature Scale developed by Mayer and Frantz (2004) was used (Chistopol'skaya et al., 2017). The scale consists of 14 items that assess the extent to which respondents feel like they are a part of the natural world on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

Environmental Concern. The environmental concern scale (Schultz, 2001) was used. Respondents rated the level of importance of the consequences of environmental problems on each

of 12 items on a 7-point Likert scale (1 = *least important* to 7 = *most important*). The items denote 3 main areas of concern: egoistic, altruistic and biospheric.

Environmental Knowledge. Environmental Action-related knowledge developed by (Geiger, Otto, and Diaz-Marin, 2014) was used. The items are in a multiple-choice question format with only one correct choice out of five options.

Pro-environmental Behavior. A 33-item pro-environmental behavior scale, developed for the Russian cultural context (Ivanova et al., 2021) was used to measure pro-environmental behavior. The scale included five major groups of pro-environmental behavior: waste management ('I recycle household waste (plastic, glass, paper)', 'I limit the amount of purchased items (clothes, equipment, etc.)'), social behavior ('I tell other people about the environmental lifestyle in personal conversations or through social media', 'I donate to nature protection and environmental initiatives'), resource conservation ('I turn off appliances (TVs, radios, computers, tablets) when I do not use them', 'I save water when I shower, brush my teeth, wash dishes'), sustainable purchasing ('I buy local food (grown within 160 km)', 'I buy food with organic certificates, produced without the use of chemicals'), climate relevant actions ('I order prepared meal delivery' (reversed item), 'When I go on vacation, I replace air travel with train travel'). Respondents were asked to rate how often they performed certain actions (e.g., "I use reusable bottles, mugs, thermos flasks") on a scale from 1 = *never* to 5 = *always*.

Trust. Trust was measured using 8 items from the trust scale (Hagen, Middel, and Pijawka, 2015). Respondents rated their level of trust in each of the 8 different sources of information on climate change (i.e., corporations/large organizations, government organizations, environmental organizations, state media, independent media, scientists, religious leaders, and teachers) on a 5-point Likert scale ranging from 1 = *strongly distrust* to 5 = *strongly trust.*

Political Values. A Russian adaptation (Kholod, 2016) of the 34-item scale of core political values (Schwartz et al., 2010) was used. Respondents rated their level of agreement with each item on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The items denote eight-core political values (i.e., equality, free enterprise, traditional morality, law and order, blind patriotism, civil liberties, accepting immigrants, and foreign military intervention).

Populism. Populist attitudes were measured using an 8-item populist attitude scale (Van Hauwaert, & Van Kessel, 2018). Respondents rated their level of agreement with each item on a 5-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree.*

Patriotism. A 5-item patriotism scale was used (Kosterman and Feshbach, 1989; Li, & Brewer, 2004). Respondents rated their level of agreement with each item on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree.*

Results

Correlations between variables

Correlations between variables are presented in Supplementary Information.

Pro-environmental variables were mostly well inter-correlated, with moderate to strong, significant, positive correlations observed (r = 0.4-0.7) between Biospheric Values, Connectedness with Nature, Environmental Motivation and Environmental Concern.

Correlations between psychosocial and pro-environmental variables were weak to moderate (r = 0.2-0.39). Some psychosocial variables (i.e. Altruistic Values, Institutional Trust and Patriotism) significantly correlated with a wider number of pro-environmental variables.

Altruistic Values positively correlated with Connectedness with Nature, Environmental Motivation and Environmental Concern, and negatively with Environmental Amotivation and Environmental Knowledge.

Institutional Trust positively correlated with Biospheric Concern, Connectedness with Nature, Environmental Motivation (except Amotivation) and Environmental Concern.

Patriotism had positive correlations with Biospheric Concern, Connectedness with Nature, Environmental Motivation (except Amotivation and External regulation) and Environmental Concern, and a negative correlation with Environmental Knowledge.

Among conservative political values, Law and Order, Traditional Morality and Blind Patriotism were weakly positively correlated with most forms of Environmental Motivation and those of Environmental Concern, and negatively with Environmental Knowledge. The value of Foreign Military Intervention positively correlated with some forms of Environmental Motivation and negatively with Environmental Knowledge. It is of particular importance that weak yet significant, positive correlations were observed between Environmental Amotivation and the values of Traditional Morality, Foreign Military Intervention and Blind Patriotism, which generally reflect conservative political ideologies. Previously, research also found negative relationships between conservative political ideologies and environmentalism. Amotivation could be one of the explanations for such negative relationships. Other than these values, Environmental Amotivation was positively related only to Egoistic Values.

Among self-transcendent political values, Equality was positively, albeit weakly, correlated with Biospheric Values, Environmental Motivation (except Amotivation and External Motivation) and Environmental Concern. The value of Civil Liberties was weakly related only with some forms of Environmental Motivation.

The self-enhancement value of Free Enterprise had a weak correlation with the External Regulation form of Environmental Motivation.

The value of Accepting Immigrants, reflecting openness to change, had weak positive correlations with Connectedness with Nature, External Regulation and with Environmental Knowledge. Other than this, Environmental Knowledge was only positively related with Identified Regulation.

Populism positively correlated with Biospheric Concern,and had very weak correlations with a few forms of Environmental Motivation.

Egoistic values had positive yet weak relationships with Biospheric Values, Environmental Motivation, but no relationship with Connectedness to Nature.

Hedonic values showed a very small number of weak significant correlations with pro-environmental variables, and were positively related with Biospheric values, External Regulation and Egoistic Environmental Concern.

Determinants of pro-environmental behaviour

The results show that different types of pro-environmental behavior were explained by different sets of variables (Table 1). The regression models presented include only significant determinants of behavior types. Socio-demographic variables are only related to Sustainable Purchasing and Climate Relevant Actions. Income positively predicts Sustainable Purchasing and negatively Climate Relevant Actions. Age and Gender were positive predictors of Sustainable Purchasing. Climate Relevant Actions are explained by City Size. Those who lived in cities with a population from 250,000 to 1 million performed Climate Relevant Actions less than residents of other settlement sizes.

Waste management behaviour was most strongly predicted by Integrated Regulation, and to a lesser degree, by Environmental Knowledge, and negatively by Hedonic values.

Social pro-environmental behaviour was predicted, most strongly, by Integrated Regulation, as well as by Connectedness with Nature, Institutional Trust and Introjected Motivation. Slightly less predictive power for this behavioral type was shown by Hedonic values (negative) and the value of Equality (positive).

Resource Conservation Behaviour was most strongly (positively) predicted by Integrated Regulation. Other positive predictors included Biospheric Concern and Populism. In addition, Free Enterprise negatively predicted this behaviour type.

The strongest predictor for Sustainable Purchasing Behaviour was Integrated Regulation. This behaviour type was also positively predicted by Egoistic Values and Egoistic Environmental Concern, as well as by Connectedness with Nature and Populism. Political Values such as Traditional Morality and Free Enterprise also predicted this type of behaviour (positively and negatively, respectively). Hedonic values were a negative predictor of this behaviour type.

Finally, Climate Relevant Actions were predicted by Integrated Regulation (positively) as well as Hedonic and Egoistic values (negatively).

Tab. 1. Regression of studied variables on pro-environmental behavior categories

	Waste Management		Social Behaviours		Resource conservation		Sustainable Purchasing		Climate relevant actions	
	β	t	β	t	β	t	β	t	β	t
Hedonic value	-0.09*	-2.39	-0.09*	-2.8			-0.15**	-3.23	-0.1*	-2.16
Egoistic value							0.1*	2.26	-0.14*	-2.92
Integrated motivation	0.54**	13.83	0.4**	8.37	0.28**	5.89	0.23**	4.15	0.24**	5.41
Introjected motivation			0.14**	3.24						
Biospheric concern					0.15*	3.19				
Egoistic concern							0.1*	2.15		
Connectedness with nature			0.18**	3.96			0.11*	2.07		
Institutional trust			0.13**	3.49						
Knowledge	0.14**	3.68								
Populism					0.12*	2.78	0.1*	2.13		
Free Enterprise value					-0.19**	-4.5	-0.09*	-2.09		
Equality value			0.07*	2.08						

Traditional morality value					0.16**	3.27		
Gender					0.16**	3.73		
Age					0.11*	2.23		
Income					0.08*	1.98	-0.2**	-4.39
City size (population)							-0.09*	-1.98
	Adj R^2 = 0.31, F (3, 458) = 70.12, p <0.001	Adj R^2 =0.494, F (6, 455) =76, p <0.001	Adj R^2 = 0.189, F (4, 457) = 27.9, p <0.001		Adj R^2 = 0.296, F (11, 447) = 18.5, p <0.001		Adj R^2 = 0.122, F (5, 455) = 13.7, p <0.001	

Notes. β = Standardized beta. t = Obtained t-value; «*» — p <0.05; «**» — p <0.001; Adj R^2 = Level of variance; F (Regression df, Residual df) = F-Ratio; p = Significance level.

Discussion

In this study, we explored environmental, social and political determinants of pro-environmental behaviour in Russia.

First, we analysed correlations between variables. Consistent with previous findings (Gifford, Nilsson, 2014; Schultz, 2001), pro-environmental variables included in this study were positively and strongly interrelated.

Despite the fact that correlations between, on the one hand, social and political variables, and, pro-environmental variables on the other, were more modest, important patterns emerge from the data. First of all, altruistic values, institutional trust and patriotism seem to be positively related with most pro-environmental variables. The role of altruistic values in determining pro-environmental variables (such as environmental attitudes, ecocentrism and pro-environmental behaviour) is well known (Schultz & Zelezny, 1999; Steg et al., 2014). Our results add to the growing evidence on the important role played by institutional trust in determining pro-environmental attitudes and behaviour and show that in Russia trust may encourage pro-environmental attitudes (Smith & Mayer, 2018; Kulin & Sevä, 2021). Studies exploring positive relationships between patriotism and pro-environmental attitudes and behaviour are only starting to emerge, and our findings are in line with the existing evidence (Milfont et al., 2020; Hamada, Shimizu & Ebihara, 2021).

Mixed evidence on the question of how different types of political values are related to environmental variables emerges from our study. At present, little is known on this topic, and further research is needed both in Russia and elsewhere (Agissova & Sautkina, 2020).

It seems important to further explore the relationships between environmental knowledge and other environmental and psychosocial variables, which, in our study, appear to be mostly negative. Only a strong form of environmental motivation (identified regulation) and the value of acceptance of immigrants were positively related with environmental knowledge, which may denote, respectively, relationships with environmentalism (Geiger, Otto & Diaz-Marin, 2014) and openness to change, observed earlier in the literature (Dietz, Kalof & Stern, 2002).

In the future, it seems important to build models linking these different psysocial and pro-environmental variables to explain pro-environmental behaviour.

The strongest predictor of all pro-environmental behaviour types is integrated regulation. It is not surprising that the strongest form of pro-environmental motivation predicts all behaviour types, as "integrated regulation occurs when an instrumental behavior has been valorized to an extent such that it becomes part of the person's self-definition" (Pelletier et al., 1998, p.442). In the latter study, integrated regulation was also the strongest predictor of pro-environmental behaviour, compared to other types of environmental motivation.

Our results show that in Russia hedonic values negatively predict all pro-environmental behaviour types, except resource conservation. This is consistent with previous research findings (Steg et al., 2014).

Specific patterns of determination for waste management behavior by environmental knowledge may be an important driver to solve the problem of waste-related environmental pollution (Mintz et al., 2019; Ruliana, Soemantojo & Asteria, 2019).

Social pro-environmental behavior, in addition to integrated motivation, is positively explained by intrinsic motivation. These findings suggest that acting pro-environmentally in a more socially overt manner can be motivated by both internal (possibly, eudaimonic) rewards and external (social) rewards.

In our study, populism was a positive predictor of resource conservation behaviour, and further research is needed to better understand this relationship. Generally, populism is negatively related to certain aspects of pro-environmental behaviour, such as climate change action (Hornsey, Harris, & Fielding, 2018). A possible explanation of our findings is related to the fact that, in Russia, resource conservation is not necessarily identified as a pro-environmental behaviour (Ivanova et al., 2020; Valko, 2021). Free enterprise value may negatively predict resource

conservation because it is a self-enhancement value, and a similar tendency was observed in Kazakhstan (Agissova & Sautkina, 2020).

Sustainable purchasing was determined by a variety of variables, among which was egoistic concern, previously shown to be related to eco-purchasing (Kareklas, Carlson & Muehling, 2014). Among socio-demographic variables, gender, age, education, income and city size all acted as positive predictors of this behaviour type. Women buy environmentally sustainable goods more often than men, which is consistent with previous research findings (D'Souza & Taghian, 2017). The older people were, the more income they had, the higher their education levels, and the bigger the city in which they lived, the more eco-friendly purchases they made, which may be reflective of their access to sustainable buying options (Casaló & Escario, 2018).

In our study, climate-relevant behaviour was negatively predicted by income, meaning that people with higher incomes could afford, and used, less climatically sustainable options, which is also relevant for residents of small cities in Russia.

Finally, it is important to consider why for waste management and social behaviour some environmental predictors had very high explanatory power, while for resource conservation, sustainable purchasing and climate relevant action, a greater number of predictors with low explanatory power were observed. Further research is needed to understand which variables work better at predicting different types of pro-environmental behaviour.

These findings shed new light on the field of psychological determinants of pro-environmental behaviour, in Russia. They give a more detailed view on the role of environmental, political and psychosocial predictors of pro-environmental behavior. Further research is needed to investigate how some new findings could vary cross-culturally. Our findings are based on surveys which used self-reporting and a correlational study design. Future research should overcome these limitations. Finally, future studies could look at how highly politicised attitudes, such as climate change related concern and beliefs, interplay with political variables in Russia.

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