The Ranking and Rating of Climate Change in Romania: Trends and Individual-Level Determinants

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The Ranking and Rating of Climate Change in Romania. Trends and Individual-Level Determinants. The analysis investigates the ranking and rating questions of climate concern with a view to reveal Romanian respondents' attitude towards the seriousness of climate change in the period of 2009–2019 based on the Special Eurobarometer research. The results show that climate change is seen in Romania as a severe but a less important problem. The multivariate analyses show that educational status represents the individual-level variable that clearly determines climate concern whether it is a ranking or a rating type of measurement. It has also been demonstrated that climate-change-related concern is interlinked with other attitudes towards climate change. This points to the fact that although climate concern has a less stable socio-demographic root, it forms a coherent environment belief.
Sociológia 2022, Vol. 54 (No. 2: 144-167)
https://doi.org/10.31577/sociologia.2022.54.2.6

Key words: *climate change; climate concern; Eurobarometer; socio-demographic background*

Introduction

The United Nations Framework for Climate Change defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable periods" (UNFCCC, 1992: 7). This discourse recognizes that climate change is a phenomenon "complicit" with human activities, wherefore bringing about changes in social activities is a prerequisite of mitigating and resolving the issue at hand (Doran and Zimmerman, 2009; Urry, 2011; Tsitsoni and Toma, 2013).

Accordingly, climate change induced by human activities is a "well-established and relatively unequivocal" fact (Urry, 2011: 8). Nevertheless, the media abounds with disaster discourses representing the problem, rather moderate positions, and also vehement, sceptical discourses contesting the contribution of human activities to climate change (Urry, 2011; McCright et al., 2010). In the context of assessing climate change, reflexive modernity revising the negative effects of modernization (e.g. environmental pollution generated by industrialization) clashes with the "anti-reflexivity" paradigm which sustains the capitalist apparatus, puts environmentalist progressive movements on the side lines, and makes climate change look like an inexistent, natural, or

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overreacted issue (McCright and Dunlap, 2010, 2011). Therefore, it comes as no surprise that public opinion polls on climate change reveal respondents' support for its prevention and their scepticism about the phenomenon at the same time (Whitmarsh, 2011; Čermák and Patočková, 2020; Kolářová, 2020). It has been shown, inter alia, that the public endorses measures and actions aimed at mitigating climate crisis, whereas active participation in these actions is decreasing once it comes to performing more costly or cumbersome activities (e.g. installing solar panels, paying extra taxes, etc. – Dietz et al., 2007).

Empirical studies showed that climate-change-related concerns, knowledge, and awareness as well as the level of endorsement of climate protection policies show large variations worldwide (Lee et al., 2015). The same can be said about the frequency of empirical studies related to different regions' climate-change-related concerns. East-Central European countries are "understudied" in terms of their environmental concern (Marquart-Pyatt, 2012). However, this does not mean that there is a lack of valuable research. In the last decade, there has been a continuous interest in the region in environmental sociology in general and in climate-change-related sociological studies in particular. Indicative examples are, among others, the studies included in the 2012 special issue of the *Czech Sociological Review* focused on the environmental values of the region, such as: DeGroot et al. (2012); Hadler and Wohlkönig (2012); Marquart-Pyatt (2012); the studies of Jankó et al. (2018) on Hungarians' climate-change-related attitudes; the papers of Čermák and Patočková (2020), Kolářová (2020) on the Czech people's climate concerns; etc. These works show that environmental concern experienced in countries across the East-Central European region differs from the situation on the ground in other countries: environmental protection is not a top priority issue in these countries still struggling with economic challenges, and climate change is perceived as an abstract threat (Čermák and Patočková, 2020) that is near in time but geographically remote (Jankó et al., 2018); and even if there is a growing climate sensitivity in the region, it is hard to define it along socio-demographic variables (Marquart-Pyatt, 2012; Nistor, 2013; Čermák and Patočková, 2020).

The present analysis intends to contribute to these regional studies on climate concern and makes use of Special Eurobarometer data (Special Eurobarometer 72.1, 75.4, 80.2, 83.4, 87.1, 91.3)[2] on climate change in order to study Romanian citizens' climate concern. To this end, I will be using descriptive statistics to indicate changes in climate concern taking place in the period of 2009–2019, and then I will perform multivariate analysis for the 2019

[2] The Special Eurobarometers used here were realized in the years 2009, 2011, 2013, 2015, 2017, and 2019. Underlying data for the desk research were downloaded from the GESIS Zacat website (https://zacat.gesis.org/webview/).

data to identify the individual-level determinants of climate concern. Dependent variables selected for the analysis approach climate concern in relative as well as absolute terms. Thus, my task is also to reveal whether there is any difference as regards the determinants of climate concern when attitudes are operationalized through rating and ranking questions.

Climate change and public opinion: a review of socio-demographic determinants

The majority of research studies in environmental sociology focusing on general environmental concern and on some of its specific expressions indicate a negative correlation between age and environmental concern (e.g. Lee and Norris, 2000). Positive attitudes towards the environment are in correlation with a high level of educational attainment (e.g. Gelissen, 2007; Lee and Norris, 2000), while concerning the effects of income levels, research results point in two directions: either they fail to reveal a clear connection or we come across examples of high income levels offering favourable conditions for raising individuals' awareness about environmental problems (e.g. Witzke and Urfei, 2001; Franzen and Vogel, 2013). As regards the relationship between gender and environmental concern, a frequently reported result is that "women are modestly more concerned about general environmental issues than men" (McCright, 2010: 68–69). These outcomes were explained by the socialization and role model theories of gender studies (Zelezny et al., 2000). Environmental cleavage based on political identification has been the focus of several research studies in environmental sociology, whose results clearly draw attention to the role of left-wing identification in terms of environmental concern (Neumayer, 2004; Freire, 2006; Witzke and Urfei, 2001) while at the same time point out the inadequacy of these political fault lines for the segmentation of environmental concern in post-socialist countries such as Romania (Nistor, 2010, 2013).

If the role of the above-discussed variables is taken into account specifically regarding environmental concern measured in relation to climate change, then we can witness research studies replicating these results. A hot topic of ongoing studies carried out in the USA is how far political orientation and climate concern are interlinked. Research reveals a strong polarization of views on climate crisis. Upon investigating the 2001–2010 Gallup Polls data, McCright and Dunlap (2011) found that Democrats as well as Liberals take a view corresponding to the dominant scientific discourse, i.e. they show concern for human-induced climate change, whereas Republicans are rather sceptical about the reality of climate crisis. McCright et al. (2016) performed a similar analysis for the European Union relying on the 2008 data of Special

Eurobarometer. The authors point out that compared to the USA there is no such clear-cut left wing – right wing type of identification in the post-communist countries, but Western European countries were found to exhibit similar trends to the ones suggested by the US data (cf. McCright and Dunlap, 2011). Policy analyses focusing on climate change mitigation show that right-wing political parties tend to push back climate policies in the EU as well, and notable examples are those referring to Hungary or Poland (Lockwood, 2018). By the same token, the whole group of the Visegrád Countries (V4) are referred to as showing lukewarm ambitions in climate mitigation, mostly due to the populist agendas that tend to push back global cooperation (Březovská and Karásková, 2021). These macro-level attitudes on climate change do not translate into similar micro-level trends, and studies reveal no or only weak associations between political orientation and climate-change-related attitudes in the region (e.g. Čermák and Patočková, 2020). The same can be revealed in Romania as well, where studies (Nistor, 2010, 2013) did not show clear associations between political self-placement and environmental concern. This has to do with the fact that the Romanian public is hesitant in political self-identification (only approx. 60% of the public places themselves along the political spectrum), and so the content of the left, centre, and right labels remains unclear for the majority of the citizens (Comșa, 2020).

McCright et al's (2016) analysis of Eurobarometer data also points out that – in addition to political identification – age, gender, and educational status make up the relevant explanatory variables of attitudes towards climate change: women, younger respondents, and persons with a high level of educational attainment are associated with more climate concern (McCright et al., 2016). Furthermore, similarly to other previous research (e.g. Marquart-Pyatt, 2012), a weaker correlation has been shown between these variables and climate concern in the case of post-communist countries.

The correlation between gender and climate concern is not so straightforward, data pointing in both directions, which prompts literature to note down "robust and inconclusive results" in reference to this correlation (McCright, 2010: 66). Looking into the 2001–2010 Gallup Polls data, McCright (2010) found a higher level of climate concern with women as compared to men, and this difference persisted even when controlling for the other socio-demographic variables. But it should be underlined that we are dealing with slight differences. Age-related research also shows an ambivalent picture: while some of the studies report a higher level of climate concern with the younger generation when compared to older age-groups (McCright, 2009; UNDP & Oxford University, 2020), other data do not bear out a clear correspondence between age and climate concern.

Overall, educational status has a positive effect on climate concern, but there is also evidence that the impact of educational background is mitigated by political affiliation: higher educational achievement increases climate concern among left-wingers, whereas it has been observed to beget sceptical attitudes in the majority of right-wingers (McCright, 2009).

McCright (2009) calls attention to the current reality that sociological research on climate change tends to investigate climate concern rather than climate knowledge. The former set of research affirms that environmentally responsible values in general as well as membership in environmental organizations yield a positive impact on climate concern, meaning that there exists some sort of congruence between specific climate concern and environmental concern in general. Lee et al's (2015) investigation based on the 2007–2008 Gallup Polls data covering 119 countries revealed that educational status and belief in human-induced climate change are the prime explanatory variables of climate concern. On that account, the authors envisage education as a distinct possibility to lead people on the path towards an increased climate change awareness.

Fagan and Huang's (2019) international study covered 26 countries: it showed that 68% of the respondents considered climate crisis as a major threat. The research in question also underscored that an increase in the level of climate concern took place in most of the countries during the five-year period between 2013 and 2018 and that there was a more pronounced concern at the individual level in this regard among people with higher educational qualifications, women, and respondents of the younger generation.

According to the recent Peoples' Climate Vote (UNDP & University of Oxford, 2021) study which covered a total of 50 countries, 64% of the respondents view climate change as an urgent matter. As for climate concern, educational status proved to be the strongest explanatory factor – in all of the studied countries, a greater proportion of higher education graduates think of the climate issue as a pressing matter compared to their fellow countrymen with lower levels of schooling. A division along gender lines does not provide a clear-cut distinction in terms of respondents' sensitivity towards the climate issue. The group of individuals aged less than 18 years shows the highest proportion of respondents (69%) seeing climate change as an emergency, but numbers yielded by the 18–35 (65%) as well as the 36–59 (66%) age-groups do not lag far behind the data obtained from the youngest generation. However, young people's advantage of approximately ten percentage points over the oldest generation (senior citizens aged 60+) is a significant one.

Under the aegis of Special Eurobarometer initiated by the European Commission, surveys on climate change are made on a periodic basis in the EU. Although the produced results are often longitudinally disputable since

they have not made use of the same set of questions consistently every time in analysing the subject, they more or less allow for setting up a trend line mapping Europeans' views on climate change (Lorenzoni and Pidgeon, 2006).

In the light of the 2008–2011 Special Eurobarometer data on climate change, Ortega-Egea et al. (2014) claim that 56–63% of the EU Member States' population participated in various activities aimed at combating the climate crisis. Their analyses based on 2008 Eurobarometer data reveal the following underlying factors acting as key determinants in whether or not respondents will perform any activities related to the prevention of climate change in the EU: gender (women tend to be more engaged in activities of this sort, although there is a weak correlation in this sense), age (non-linear relationship: members of the 45–56 age-group are the most involved in activities tackling climate change), high educational attainment, and left-wing political orientation.

On the basis of the 2008 Special Eurobarometer data Vainio and Paloniemi (2011) concentrated their investigation on the population of Finland and found that belief in the anthropogenic origin of climate change is positively related to activities aimed at halting or mitigating climate change. Again, relying on the same dataset, Tsistoni and Toma (2013) place the countries of Greece and Great Britain side by side with a view to compare them in terms of climate concern and willingness to engage in activities for climate protection. They found that in both of the countries, despite the divergent country-specific attitudes towards the climate issue, access to information was the most powerful explanatory variable for respondents' performance or non-performance of activities targeting climate protection.

Likewise, a further analysis based on Special Eurobarometer 2008 and 2009 data was made to highlight the situation in Romania (Nistor, 2013). The Special Eurobarometer questionnaires asked respondents to indicate whether they would be willing to pay more for energy derived from renewable sources. There are three variables significantly accounting for willingness to pay, as follows: young age (but not the youngest age-group: 15–24), high educational status, and positive attitudes towards climate change. Income level was an inconsistent predictor, while specific attitudes towards climate change affected willingness to pay: the more serious respondents consider the climate crisis, the more willing they are to bear higher costs related to renewable energy sources (Nistor, 2013).

The ranking and rating of climate change

The present analysis takes two approaches to climate-change-related concern. Special Eurobarometer research on the climate crisis both looked into the

priority level respondents attached to climate change among a series of other issues and asked participants to indicate how serious a problem they thought climate change was. Hence, the first one is a ranking type and the second one a rating type question.

Ranking type questions require a fairly high cognitive input on the part of the respondents, particularly when asked to set up a ranking list based on a large set of items (Alwin and Krosnick, 1985). On the other hand, the rating type of questions ask respondents to assign weight to the same item, which makes answering faster and easier: "ranking tasks take three times longer than similar rating tasks and involve a considerable decrease in respondent burden" (Alwin and Krosnick, 1985: 536). However, precisely because of the less energy input, the quality of rating questions can fall short of that of the ranking ones. Also, under the "pressure" of socially desired responses, surveyees tend to attach importance to questions they know that are socially desirable or are (high) on the agenda. Therefore, it should not come as a surprise that climate-change-related Eurobarometers reveal relatively high levels of climate concern among the European population, but at the same time they also point out the inferior importance of climate change when set against other types of issues such as economy, education, or terrorism (Lorenzoni and Pidgeon 2006; Corner et al., 2011).

Dietz et al. (2007: 186) come to similar conclusions: "surveys that ask problems to be listed or ranked may lead to environmental problems to have relatively lower ranking than other social issues even when rating questions show substantial concern". Previously, Dieckmann and Franzen (1999) and Franzen (2003) also drew attention to the rating vs. ranking type of problems: based on several international surveys, the authors argue that environmental concern shows an immensely diverse picture on a worldwide scale depending on whether rating or ranking questions are asked. Accordingly, based on the "how serious" type of rating questions, environmental concern is more pronounced in developing and post-socialist countries, whereas the results of the "how important" questions reveal greater environmental concern in countries of the developed world since their affluence makes it easier for them to indicate environmental protection as a priority.

We can quote in this regard Leiserowitz (2007), who sums up the 2000 and 2006 results of the survey performed by GlobeScan in 34 countries and finds that the majority in each country sees climate change as a serious or very serious issue. However, this does not imply that they think of the question as an urgent matter: looking at it globally, climate crisis emerges as a problem with a relatively low degree of priority as opposed to issues such as war, poverty, or unemployment. Relying on Australian data, Leviston et al. (2014) report

similar findings: climate change occupied the third place on the list of 16 items ranking various issues.

Method and research questions

Throughout the analysis, I made use of the already mentioned Special Eurobarometer datasets: 72.1, 75.4, 80.2, 83.4, 87.1, and 91.3. Based on descriptive statistics, the first part of the work looks into the changes in Romanian citizens' attitudes towards the climate change in the period of 2009–2019. The topic of climate concern will be addressed in relative (ranking) – juxtaposed to other problems – as well as absolute terms (rating).

Ranking questions were operationalized in two ways. As a first step, questionnaires presented a list including a series of problems and asked: "Which of the following do you consider to be the single most serious problem facing the world?" In a subsequent stage, a further question was put: "Which other do you consider to be serious problem?" At most, four problems could be selected altogether: one as a top priority, followed by three other important issues. This way, the analysis provides us an overall picture of the proportion in which respondents consider climate change as the top priority as well as of the percentage indicating respondents who, albeit do not see climate crisis as a problem of the first order, still rank it among important issues in the second round. In addition to these two rankings, respondents also had to provide a personal rating as to the seriousness of climate change on a scale ranging from 1 to 10 (1 stood for "not important at all" and 10 corresponded to "absolutely important").

In the first part of the analysis, I will present some descriptive statistics regarding the ranking and rating of climate change in Romania throughout the researched period. In order to better appreciate the trends occurring in Romania, they will be compared to the EU average and to the case of the V4 countries.

The second part of the investigation is centred on a regression analysis. This time, data on the year 2019 (i.e. the 91.3 Special Eurobarometer dataset) served as the basis of my study. The multivariate analysis included the climate-change-related ranking and rating questions as dependent variables and socio-demographic as well as some climate-change-related variables as independent variables.

Research questions aimed to answer the following questions: Can any difference be found between the ranking and rating type of climate concern in Romania? How has Romanian citizens' sensitivity towards the climate issue evolved in the past decade? The multivariate analysis seeks to find out whether there have been any changes in the explanatory variables of the climate crisis

as compared to previous Romanian analyses (Nistor, 2013). Another question is whether the facts described in the literature supporting that higher education graduates, women, younger respondents, and those in a better financial position exhibit higher levels of climate concern will hold true in the Romanian context on the other hand. A few climate-change-related specific variables were also included in the regression models with a view to investigate whether respondents seeing climate change as a more serious problem are more willing to attach priority to climate change among a series of other problems.

Results and discussion

The Ranking and Rating of Climate Change

As can be seen from the table below (Table 1), 9–16% of Romanian respondents found climate change to be the most serious problem in the period under study (2009–2019), which puts it in third-fourth place on the ranking list of the problems considered.

Table 1: **Ranking list of global issues as seen in Romania** (proportion of respondents considering a specific problem as the most serious one)

	2009 (%)	**2011 (%)**	**2013 (%)**	**2015 (%)**	**2017 (%)**	**2019 (%)**
Poverty, hunger, lack of drinking water	42	36	44	37	27	22
Climate change	**12**	**16**	**9**	**12**	**9**	**11**
International terrorism	7	5	4	10	20	15
Economic situation*	27	30	29	24	14	23
Armed conflicts	2	2	2	6	9	7
The increasing of global population	1	1	2	2	6	5
Proliferation of nuclear weapons	1	1	1	2	5	4
Spread of infectious diseases	7	5	7	7	9	10
Access to energy	n. d.	2	n. d.	n. d.	n. d.	n. d.
Other	2	9	2	3	2	2

Source: author's calculations based on the datasets of Special Eurobarometer 72.1, 75.4, 80.2, 83.4, 87.1, 91.3

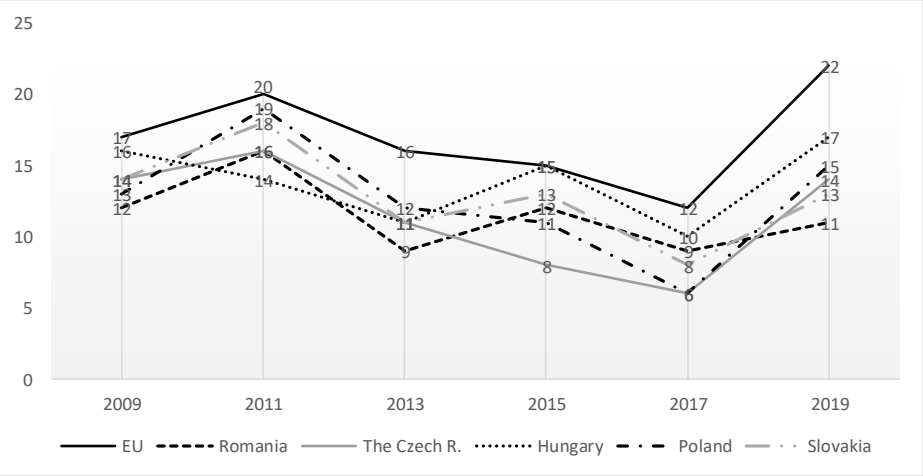
Notes: * stands for named economic crisis in 2009; n. d. = no data – the problem was not listed in the respective year.

In the light of previous Romanian findings (e.g. Nistor, 2010; Stanculescu and Marin, 2008; Voicu, 2020) showing that Romanian citizens are among the environmental laggards of the EU and are oriented towards economic security, there is a low share of citizens with post-modern value orientations (which also implies the greater importance given to freedom, environmental protection, and

reflexivity). Further, they attach more importance to local rather than to global threats (and, by the same token, even if they associate climate change with rising summertime temperatures, they tend to consider that the threat is quite distant – IRES, 2019) and lack information on the causes and consequences of climate change (MMSC, 2013). Therefore, it comes as no surprise that climate change does not constitute a priority issue for the Romanian public.

Figure 1 presents the Romanian situation comparatively, and it can be observed that Romania fits quite well into the trends occurring in the V4 region: each of these five countries score below the EU average in what regards the percentage of those considering climate change as the most important problem.

Figure 1: **Percentage of respondents in the EU, Romania, and the V4 countries indicating climate change as the most pressing global issue**



Source: author's calculations based on the datasets of Special Eurobarometer 72.1, 75.4, 80.2, 83.4, 87.1, 91.3

These discrepancies are particularly evident in 2019, when all of the five countries are with 5–11 percent points below the EU average. Consequently, the data confirm the allegations that the V4 (and Romania as well) have a lukewarm concern about climate change (Březovská and Karásková, 2021). And, even if there is a growing climate change awareness in these countries, this global issue tends to be less important and less urgent compared to economic security. It is also true that, albeit yielding varying proportions, the EU, Romania, and the V4 show a similar trend: slight changes in the prioritization of the climate crisis can be observed in each of the cases (see also

Čermák and Patočková, 2020). This situation is generated by the relative context: depending on what issues make it onto the agenda, citizens will either turn away from or pay more attention to climate change (cf. issue attention cycle – Downs, 1972). Obviously, country-level specificities demonstrate their impact on the data: reading the data longitudinally, the citizens of the Czech Republic seem to be the least climate concerned, which probably can be accounted for by findings suggesting that Czech citizens' climate scepticism is above the European level (Čermák and Patočková, 2020; Századvég, 2020). The case of Hungary is also worth mentioning: at the end of the period under study, out of the five countries, Hungary yields the highest percentage of individuals considering climate change as the most pressing issue. It can be speculated that this situation occurs on the ground of the much politicized and mediatized issue of climate change in Hungary. Climate change has long been on the agenda of the Hungarian opposition, and it is suspected that the recent "Christian conservative green policy" announced by the government in 2020 is a way of the governing party to reach out to younger Hungarians (Vaski, 2020). This policy does not deny climate change, but it presents specific ways (e.g. by rejecting global initiatives and accentuating local solutions) of addressing the problem (Varga, 2020). In any case, the recognition of the urgency of climate change by the entire Hungarian political spectrum leads to a much lesser presence of climate sceptics in the country (Századvég, 2020), and debates occur not so much about whether climate change exists or not (cf. epistemic scepticism – Čermák and Patočková, 2020) but about how the problem should be solved.

Table 2: **Ranking list of the most pressing global issues as seen in Romania** (proportion of respondents considering a specific problem among the first four items)

	2009 (%)	**2011 (%)**	**2013 (%)**	**2015 (%)**	**2017 (%)**	**2019 (%)**
Poverty, hunger, lack of drinking water	67	66	78	71	63	56
Climate change	**42**	**46**	**38**	**38**	**35**	**42**
International terrorism	27	30	24	41	54	46
Economic situation*	56	65	70	62	43	57
Armed conflicts	25	29	21	32	35	35
The increasing of global population	9	10	11	10	20	20
Proliferation of nuclear weapons	9	10	11	12	24	27
Spread of infectious diseases	33	30	33	34	38	43
Access to energy	n. d.	11	n. d.	n. d.	n. d.	n. d.
Other	9	4	2	3	3	2

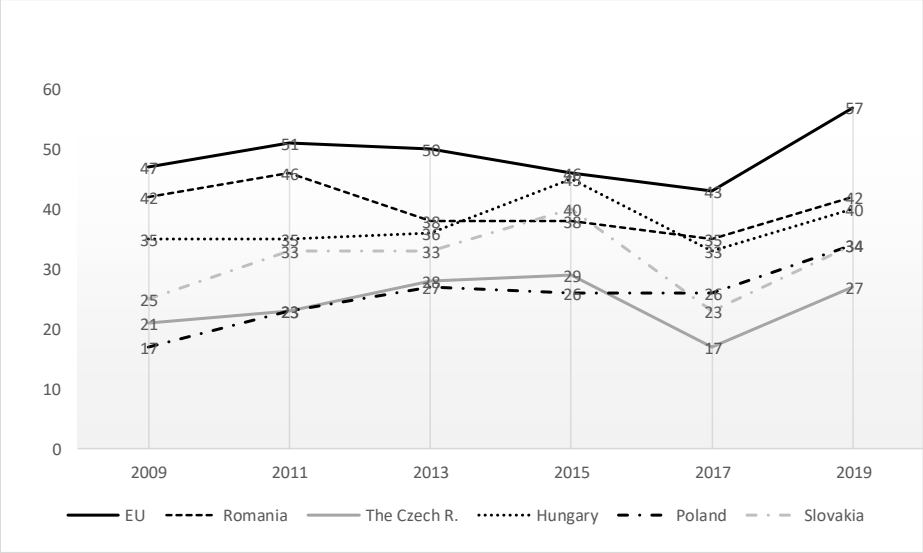
Source: author's calculations based on the datasets of Special Eurobarometer 72.1, 75.4, 80.2, 83.4, 87.1, 91.3

Notes: * stands for named economic crisis in 2009; n. d. = no data, the problem was not listed in the respective year.

The following question asked respondents to select three further issues that they deem important from the list provided to them. Based on this question and the previous one, the possibility arises as to create a cumulative variable consisting of the proportion of surveyees who place climate change above everything else and of their peers who, albeit do not see climate crisis as a problem of the first order, still rank it among the major problems (Table 2).

A comparison to EU-level and V4 data (Figure 2) reveals that Romania lags behind the EU average also on the list ranking the top issues with respect to assessing the gravity of climate crisis. However, here again, the Romanian data fit quite well into the ongoing processes in the region.

Figure 2. **Percentage of respondents in the EU and Romania indicating climate change among the four most pressing global issues**



Source: author's calculations based on the datasets of Special Eurobarometer 72.1, 75.4, 80.2, 83.4, 87.1, 91.3

As was the case of *Figure 1*, we cannot reveal a steady trend, the attitudes towards climate change showing both ascending and descending periods in each of the countries. Reading *Figure 1* and *2* together, it can be surely concluded, however, that the end of the period (2019) witnessed the rising "popularity" of the climate change problem in the EU, the V4, and Romania alike. Thus, even the citizens of the countries referred to as being less good performers in terms of climate mitigation and adaptation strategies (e.g. the *Climate Change Performance Index* ranks the V4 countries and Romania

among the medium or low performers – Březovská and Karásková, 2021) are becoming more concerned about climate change. Obviously, the recent pandemic situation has altered this trend: according to the already mentioned data of the 2021 Special Eurobarometer on climate change (Special Eurobarometer 513, 2021), the importance given to the spread of infectious diseases tops the list of the most pressing problems in many countries of the EU. But even in such context climate change is still considered to be the most important problem by 18% of the Europeans (and it is listed among the four most important problems by 49% of the EU citizens), the corresponding percentages being 7% and 26% in Romania, 8% and 37% in Hungary, 12% and 38% in the Czech Republic, 11% and 41% in Poland, and 12% and 39% in Slovakia respectively.

Regarding the rating of the seriousness of climate change on a scale ranging from 1 to 10, the datasets related to Special Eurobarometer research also provide the re-coded versions of the possible answers given to the questions: the value ranges of 1–4, 5–6, and 7–10 correspond to rating the climate issue as not important, fairly important, and extremely serious respectively. The submitted responses indicated an average around the value of 7 for Romania throughout the period examined, suggesting that Romanian respondents tended to see climate change as a serious issue all along, and the same can be said about V4 countries as well. It also becomes apparent from the table below that assessing the seriousness of the problem produced slightly higher values for Romania than the EU as regards most of the studied years.

Table 3: **Assessing the seriousness of climate change in Romania, the EU, and the V4 countries (2009–2019)**

Scale Mean (1–10 scale)						
	EU	**Romania**	**The Czech Republic**	**Hungary**	**Poland**	**Slovakia**
2009	7.10 (2.21)	7.28 (2.24)	7.17 (2.21)	7.45 (2.07)	6.51 (2.25)	7.33 (2.17)
2011	7.39 (2.16)	8.02 (1.93)	7.63 (2.35)	8.04 (1.97)	7.37 (2.09)	8.23 (1.81)
2013	7.22 (2.16)	7.22 (2.14)	7.30 (2.14)	7.98 (1.86)	7.04 (2.31)	7.94 (1.91)
2015	7.24 (2.12)	7.91 (2.03)	7.08 (2.18)	7.67 (2.01)	6.77 (2.15)	7.36 (2.03)
2017	7.66 (2.15)	7.72 (2.14)	6.99 (2.18)	8.12 (1.82)	7.05 (2.10)	7.47 (1.90)
2019	7.90 (2.09)	7.78 (2.17)	7.62 (2.15)	8.31 (1.73)	7.68 (2.04)	7.80 (1.71)

Source: author's calculations based on the datasets of Special Eurobarometer 72.1, 75.4, 80.2, 83.4, 87.1, 91.3.
Notes: Standard errors in parentheses.

The researched questions stand as examples of the already mentioned – *how important* vs. *how serious* – question types. The first case brings up the relative importance of the problem, where respondents need to decide on the prioritization of a series of issues and indicate which ones they see more pressing or perhaps more threatening to their person. Previous research has shown in this regard that countries with a materialistic thinking and struggling with environmental challenges are facing serious environmental issues, especially on the local level, although the environment itself cannot be found among the priorities (it is unimportant). By contrast, post-materialist and economically sound countries face less severe environmental problems on the local level, their importance not being diminished, however (Dieckmann and Franzen, 1999; Franzen, 2003). This fault line seems to be less dramatic in the case of global environmental issues. Although these – owing to their media impact – are considered serious problems all over the world, the already mentioned divide continues to be the case for the priorities: respondents of countries in a weaker economic position tend to attach less importance to climate change when set against several other, especially economic issues.

Evidently, as other previous research has pointed out, climate change does not constitute a problem of the first order in most of the countries (Lorenzoni and Pidgeon 2006; Corner et al., 2011), implying that the difference observed between Romania and the EU (or the V4 and the EU) is not necessarily lying in ranking the problems but rather in the proportion of surveyees seeing climate change as an issue of primary importance or directly as a top priority: there is an overwhelming majority in post-socialist countries voting for economic problems and far less for climate change in comparison to the EU.

The socio-demographic basis of the ranking and rating of climate change

Reports on Special Eurobarometers make use of descriptive analyses to note how attitudes vary towards the climate crisis along different socio-demographic variables. This way, consistent with other, previously referenced research, Special Eurobarometer studies also confirm the EU-level tendency of younger respondents, higher education graduates, individuals in a better financial position, and urban inhabitants to consider climate change as the most severe problem and list it among other issues of the highest severity. There remains, however, the question whether such tendencies remain the same in the case of a multivariate analysis. In order to explore this question, binary logistic and ordinary logistic regression analyses were conducted for the three dependent variables (climate change being a top priority, included among the most pressing issues and rating its level of severity).

The independent variables of the regression analysis are made up of a series of socio-demographic variables as well as several specific, climate-change-related variables (see *Table 4* for the descriptive statistics).

Table 4: **Descriptive statistics of the independent variables**

Frequencies (%)			
Age			
15–24 years: 12%	25–39 years: 23%	40–54 years: 29%	55+: 35%
Gender			
Female: 53%		Male: 47%	
Education			
Under 15 years: 15%	16–19 years: 61%	20+ years: 34%	
Subjective income proxy. Responses to the question: *During the last twelve months, would you say you had difficulties paying your bills at the end of the month…?*			
Very frequently: 6%	From time to time: 42%	Almost never: 53%	
Political self-placement on the left–right scale – only 67% of the respondents place themselves somewhere along this axis, out of whom:			
Left: 21%	Centre: 43%	Right: 36%	
Type of settlement			
Village: 45%	Town: 29%	City: 26%	
Seriousness of climate change			
Not a serious problem: 7%	Moderately serious problem: 24%	Very serious problem: 70%	
Information on EU values: Responses to the question: *To what extent do you feel informed about the EU's fundamental values?*			
Not well: 20%	Moderately well: 42%	Well: 40%	
Factor scores			
Climate responsibility Factor score on 6 agents (national government – mentioned by 53%, EU – 23%, local/regional authorities – 43%, industry – 46%, you personally – 27%, environmental groups – 37%) as a multiple response to the question: *In your opinion, who within the EU is responsible for tackling climate change?* Factor analysis with Varimax rotation resulted in a one-factor solution, which explains 45% of the initial variance of the variables (KMO = 0.828; df = 15; $p < 0.001$).			

Age is measured as age-groups, gender is a dummy variable, and education is measured as a three-categorical variable. Income is measured by a proxy three-categorical variable, which stands for the subjective appreciation of income, i.e. whether or not respondents have difficulties in paying the bills. Residence is a categorical variable, and political self-identification is measured as left, centre, and right. In accordance with previous Romanian data (Comșa,

2020), only 65% of the respondents could place themselves along the political spectrum, wherefore I have also calculated alternative models (not presented here for the sake of simplicity) in which I excluded this variable from the predictors, but the results remained the same along the other predictors. As far as political self-identification is suspected to have little to do with climate concern in Romania, the model includes a three-categorical variable through which the respondents had to answer the level of their information about EU values. Given that climate change mitigation is one of the hot topics on the EU agenda (Lorenzoni and Pidgeon, 2006), I believe this variable can be read also as a proxy for respondents' information level about EU initiatives, including climate change. There were included climate-change-related specific variables as well: the rating of climate change (categorical variable, i.e. the dependent variable of the ordinal logistic regression model) and the belief in the collective responsibility in combating climate change. This last variable can be considered also as a proxy for the belief in human-induced climate change, based on the rationale that the more responsible surveyees hold the specific institutions for combating the climate crisis, the more they accept that society plays an active role in fighting climate change.

An important remark to be made on regression models is their low explanatory power. The applied independent variables account for a mere 7–17% of the climate concern variance. This outcome also supports literature findings suggesting that a segmentation of the various aspects of environmental concern in East-Central Europe cannot exactly be performed based on socio-demographic variables (Marquart-Pyatt, 2012; Hadler and Wohlkönig, 2012). The only socio-demographic variable exerting significant influence on both the ranking and rating of climate change is educational status: what we experience is that the less educated are less inclined to prioritize climate change and to rate it as a serious problem in comparison with their highly qualified peers. This result is consistent with earlier findings indicating that educational status constitutes the strongest explanatory variable of environmental concern as regards the East-Central European region (e.g. Hadler and Wohlkönig, 2012; Lee and Norris 2000; Čermák and Patočková, 2020; specifically on Romania: Stanculescu and Marin, 2008; Nistor, 2010, 2013). Results replicate also the outcomes of intercultural studies according to which the level of schooling constitutes the most powerful explanatory variable of climate concern (e.g. Ortega-Egea et al., 2014; Lee et al., 2015; McCright et al., 2016; UNDP & Oxford University, 2020).

Table 5: **Regression models on the ranking and rating of climate change**

	Logistic regression: climate change is the most important problem		Logistic regression: climate change is among the most important problems		Ordinal logistic regression: seriousness of climate change
	B	Exp(B)	B	Exp(B)	
Age (reference: 55+)					
15–24	-0.071	0.931	-0.051	0.950	-0.193
25–39	-0.133	0.875	-0.025	0.975	0.344*
40–54	0.394	1.478	0.023	1.023	0.295
Female	-0.026	.974	0.015	1.011	-0.124
Education in years (reference: 20+)					
Under 15 years	-0.479*	0.787	-0.463*	0.729	-0.588*
16–19 years	-0.467*	0.627	-0.102	0.903	-0.084
Income (reference: ends are met)					
Very difficult	0.360	1.587	0.191	1.210	-0.917***
Coping	0.292	1.339	0.702**	2.016	-0.438*
Political placement (reference: right)					
Left	-0.403	0.669	0.151	1.153	0.075
Centre	-0.135	0.873	0.028	1.028	-0.241
Residence (reference: city)					
Village	0.296	1.344	0.726**	2.068	-0.303
Town	-0.156	0.856	0.156	1.169	-0.101
Rating of climate change (reference: very serious)					
Not a serious problem	-0.588**	.556	-0.985***	0.387	
Serious problem	-0.098	.907	-0.901**	.406	
Climate change needs collective responsibility (factor score)	0.319**	1.375	0.451***	1.571	0.703***
Informed about EU values (reference: well-informed)					
Not informed	-0.331*	0.718	-0.324*	0.723	-0.709*
Moderately informed	-0.098	0.907	-0.193	0.825	0.093
	Nagelkerke R^2 = 0.073 Chi^2 = 28.790; df = 17; $p < 0.05$		Nagelkerke R^2 = 0.117 Chi^2 = 89.169; df = 17; $p < 0.001$		Nagelkerke R^2 = 0.169 Chi^2 = 87.356; df = 16; $p < 0.001$

Source: author's calculations based on the datasets of Special Eurobarometer 91.3

Nonetheless, results only partially support previous international findings indicating a significant relationship between climate concern and age. Accordingly, our study has succeeded in demonstrating this connection only with reference to the rating type of climate concern, where results are in line

with conclusions corroborating the existence of a significant relationship between age and climate concern. Nevertheless, this is a non-linear relation since not the youngest respondents but the 25–39 age-group considered climate change a more serious issue when compared to the oldest age-group (e.g. Hamilton, 2011; Ortega-Egea et al., 2014; Nistor, 2013; McCright et al., 2016). All in all, we can say that an unstable relationship exists in Romania between age and climate concern, which is also dependent on the manner in which the latter is operationalized.

In the light of the conflicting results in the literature (McCright, 2010) and previous experiences in Romania (e.g. Lee and Norris, 2000; Nistor, 2013), it was not surprising that gender does not constitute a significant explanatory variable, and the situation of political identification is not much different either. However, a somewhat unexpected outcome is produced by the variable that represents the proxy for material well-being and that stands for the subjective appreciation of income: results are contradictory in the case of ranking and rating type of climate concern. On the one hand, we can see that lower-income persons think of the climate crisis as a less severe issue, while, on the other hand, lower income increases the likelihood that respondents will assign priority to climate change. This outcome is inconsistent with the affluence hypothesis (Dieckmann and Franzen, 1999; Franzen 2003), as we did not find evidence supportive of the assumption that better financial situation sensitizes respondents to environmental problems. Our results seem to confirm, in some measure, the conclusion of Lee et al's (2015) intercultural study indicating that the less privileged groups (such as people with low income and/or a poor health status) are more concerned about hazards associated with climate change compared to their peers in socially more privileged positions. That said, results may as well be compromised by the imperfect nature of the income variable applied in our study (it measures the presumed, not the actual income), wherefore there may also be a methodological reason underlying the obtained results.

Results related to place of residence are inconclusive. All the same, the tendency of ranking climate change among the top three problems points to rural residence significantly increasing the chances of climate crisis to make it to the top of the issues list. This outcome may be linked to the above described income-related concern: while it is true that East-Central Europe's temperate climate can still prevent us from experiencing the negative effects of climate change in full swing (Marquart-Pyatt, 2012), we can also see that these adverse effects are often thematized in connection with the rural population, agriculture, and drought, which makes it possible that the rural background reflects this situation.

Not surprisingly, in line with previous Romanian (Nistor, 2013), regional (e.g. Hadler and Wohlkönig, 2012), and international results (e.g. McCright, 2009), we found that climate concern forms part of a coherently structured climate belief: the more serious a problem climate change is considered by an individual, the more prioritized it becomes on their list, and the more responsibility a person attributes to a number of social institutions in the prevention of climate crisis, the higher levels of climate concern they will exhibit (e.g. Lee et al., 2015). Finally, we can also notice that the less informed respondents are about EU values (among which combating climate change is also assigned a key role), the lower levels of climate concern they will show.

Conclusions

Descriptive analyses suggest that 9–16% of Romanian respondents found climate crisis to be the most serious problem in the period under study, which puts it in third-fourth place in the ranking list of global issues. In the same period, the EU-level proportion of respondents considering climate change the main problem is in the range of 12–22%. Consequently, even if Romania fits quite well the case of other countries in the region, e.g. the V4, it is lagging behind EU values in all of the studied years. This difference becomes particularly conspicuous by 2019 as this year sees the EU's 22% set against Romania's merely 11% concerning the proportion of surveyees prioritizing climate change. In the period examined, we can find a great many Romanian respondents placing problems of material nature above everything else, leaving a small number of individuals attaching importance to the environment as well.

If we consider the percentage of those who put climate change among the four most pressing global issues, we can witness a much larger group of survey participants. Whereas a similar situation becomes visible at the V4 and the whole EU level, the discrepancy between the proportions does not go away. E.g., in 2019, the European Union registers a proportion of 57% as opposed to Romania's 45% in this regard. These figures are clearly telling of the finding so frequently included in the literature that even thirty years after the regime change issues of material nature have Romanian people's almost undivided attention and occupy the first place in their minds, denying environmental protection to take up a privileged position in this country (Marquart-Pyatt, 2012; Voicu 2020).

On the flip side, when rating questions are used for the assessment of climate concern, we can see Romanian respondents deeming it a serious issue. Upon looking into the severity of the problem by itself, the responses obtained suggest that Romanian citizens consider climate change a very severe issue. In conclusion, it can be said that the climate crisis is seen in Romania as a severe

but less important problem of which citizens are well aware, but as yet they have other priorities in view.

The multivariate analysis sought to ascertain the individual-level variables driving respondents to exhibit higher levels of climate concern. Our results provide evidence that, just like back in 2009 (Nistor, 2013), educational status represents the individual-level variable that clearly determines climate concern whether it is a ranking or a rating type of measurement. The effects of other individual variables show less consistency. Also, it has been demonstrated that climate-change-related concern is interlinked with other attitudes towards climate change, which points to the coherent structure of climate belief. There is therefore a socio-demographically diffuse group of Romanian inhabitants who see a connection between the various aspects of climate change and who consider this an important and urgent topic. The results indicate that in Romania assigning a coherent socio-demographic background to climate concern is just as difficult a task at the end of the decade under study as it was back in the year 2009 (Nistor, 2013). In particular, the ranking type of climate concern still forms a less prevalent, socio-demographically diffuse (except for educational status) attitude among the population. Nevertheless, climate concern constitutes a coherent environmental belief as well, which leads us to the conclusion that despite climate concern having less roots in socio-demographics, it is a very specific, logically structured standpoint.

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