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Social Worlds of Attitudes Towards Anti-COVID-19 Vaccination: a Multi-Sited Approach to Contextualise a European Society

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Abstract

What does the balance of attitudes towards the anti-COVID-19 vaccination look like in an Eastern European Society of today? We compared what the Romanians in Romania, interviewed on the subject in the Flash Eurobarometer 494, say with what those from other European Union countries say. From the "discussion with the data" we understood that there are not only ani-vaxxers, pro-vaxxers and hesitants. Other categories matter, between them. We tried to see how much it mattered, in the pro- or anti-vaccination beliefs, not only the usual demographic conditionings of education, age, gender or residential environment, but also personal pre-pandemic vaccination experiences, as an adult, or trust in institutions relevant to the COVID-19 vaccination.

Keywords: Social World, Vaccination, Covid-19, Multi-Sited Approach, Trust In Institutions Questions

Can we talk about groups of anti-vaccines or hesitants in COVID-19 vaccination in terms of "social worlds"? At first glance, the option would not be indicated, because the term social is, itself, a vague one. Yes, it is vague, one can say, but there are, in fact, social groups with diffuse borders, even within the same country, that seem to have specific cultures of rejecting or avoiding the COVID-19 vaccine. By contextualizing them comparatively, one can reach the identification of some types of social antivaccination groups for COVID-19. Recent analysis practices are using the concept of the social world to describe how cultures and their related groups are structured regarding this type of vaccination (MacLean et al, 2021). In line with those practices, we will continue to try to contextualize the opinions regarding the anti-COVID-19 vaccination in Romania, in a comparative perspective, using the data of the flash Eurobarometer 494, made in May 2021 by IPSOS for DG COMM, the European Commission (IPSOS 2021). Which are the countries of the European Union (EU) that are similar or differ greatly from Romania, from this point of view.

A simplifying perspective coming from common knowledge could orient us to answers in terms of age, education, and residential environment. It would be expected that the most reluctant to the idea of anti-COVID-19 vaccination would come from the youth with access to social networks online and with a relatively low level of education. That's all? Are demographic segments favourable or unfavourable to vaccination the same in all EU countries?

The answer that we present here, with survey data, claims that we are dealing, very likely, with relatively diffuse social groups

pro- or anti-vaccination COVID-19, structured on several criteria, relatively different by groups of countries. To these groups, we will call social worlds. The option comes, on the one hand, on a line of lasting thinking in social research (Strauss 1978), but also starting from recent research from studies of substantiation of public policies in the field of health (MacLean et al, 2021). The approach here is, also, complementary to considering public debates on how to devise public policies on vaccination against COVID-19 for different social grouping, including old people, those having co-morbidities and disabled ones (Gogging and Ellis 2020).

Approach

To understand one Eastern European society on attitudes toward anti-COVID-19 vaccination we adopted a quantitative multi-sited approach (Beauchemin 2014) by comparing the results of the same regression model in different regions and countries of Europe. We started from the view that understanding the attitudes on COVID-19 vaccination in a European country might be useful to compare contexts as given by causal models between East and West, among different countries in Europe, and among different regions of the same country selected for the case study.

For a first identification of the phenomenon that interests us, we have resorted to a measurement of the orientation of the interviewed people to the anti-COVID-19 vaccination through three indicators, selected from a longer list of questions of the aforementioned survey. The selection started from the premise that a person is oriented in favour of the idea of vaccination against COVID-19 if he/she supports to a greater extent than a) vaccination has more benefits relative to the costs; (b) `serious diseas-

es have disappeared by vaccination`; c) COVID-19 vaccination `is a civic duty`. It is a measurement made by reference to the actional, cognitive and affective-moral dimensions of attitude, under the three-dimensional model of measuring any attitude (Rosenberg&Hovland, 1960). In other words, we considered that anti-vaxxers evaluate costs as higher than the benefits, that serious diseases cannot be overcome by vaccination and do not link the decision to vaccination to a civic responsibility toward public health. A pro-vaccination attitude index (IPVO) was compiled (by a factor score) the answers to the questions associated with the three indicators mentioned. The higher the positive value of the index, the more intense the attitude in favour of vaccination. The higher the negative value of IPVO, the more intense the anti-vaccination attitude is. Values close to zero indicate a hesitant attitude.

In the analysis, however, we tested the hypothesis (H1) that claims that attitudes towards vaccination to prevent COVID-19 have not only quantitative variations, of intensity, between the two pro- and anti-vaccination poles. Based on this hypothesis, through a different procedure, we combined the three indicators mentioned above and generated six types of vaccination attitudes. Besides the extreme categories of pro-vaxxers and anti-vaxxers (AV), there were also four intermediate categories: AV concerning COVID-19 but with the acceptance of the idea that vaccination "in general" can be good, hesitant with an attitude of medium intensity, AV with moderate intensity attitude but accepting the idea that the anti-COVID-19 vaccination it is a civic duty and AV with a moderate intensity attitude but accepting the idea that vaccination, in general, can be useful (see Annex). We have measured, therefore, the main variable analysed – the attitude towards the anti-COVID-19 vaccination both quantitatively, by an index (IPVO) and qualitatively by the six types of attitudes mentioned.

How citizens differ, in terms of their attitude towards vaccination against COVID-19, was determined by using both measurements.

A second hypothesis (H2) that we have adopted, argues – starting from the existing literature and the survey data available for testing – that qualitative or quantitative variations in attitudes towards COVID-19 vaccination are dependent on status characteristics, medical experiences, and trusted expectations of subjects (Figure 1). Nationally representative surveys for England and Ireland, for example (Murphy et al. 2021), indicate a higher propensity of resistance/hesitation to the COVID-19 vaccine for young women in the suburbs in low-income population groups. Also, there it was found that the distrust in the medical Authorities and the doctors favour the attitudes of resistance or hesitation about the anti-COVID-19 vaccination. All these status factors, personal experiences, and confidence expectations act on attitudes towards the COVID-19 vaccination through values, norms, or ideologies that could not be measured with the available survey data from the Eurobarometer.

The social world of COVID-19 vaccination can be approximated, however, by the factors mentioned regarding the status-experiences-trust. Of course, it is about groups or social worlds with variable geometry that we can approximate with the help of the available data. These data allow us to identify the social worlds of attitudes toward COVID-19 vaccination by combining information about EU countries and the status-experience-trust characteristics of the population in those countries.
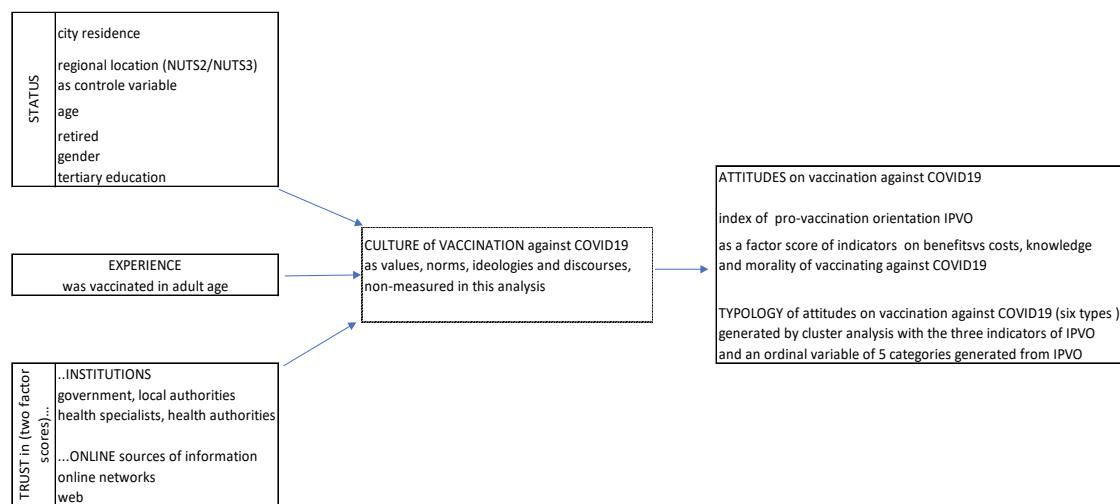

Figure 1: The theoretical model of analysis

To be able to place Romanians in the European context of their attitudes towards the anti-COVID vaccination, we have resorted to two types of descriptive and explanatory analyses. At the descriptive level, we have grouped the EU countries from the perspective of the major similarities they have in terms of specific attitude profiles, measured by IPVO averages on the main categories of status factors. This is how we found, as expected, that Romania belongs - in terms of the attitudinal profile associated with the COVID-19 vaccination - to the group formed by Poland, the Czech Republic, and Lithuania. The characteristics of the people interviewed in this grouping are compared, on the topic under discussion, with the characteristics of six other groupings of EU countries. Subsequently, through prediction analysis, we establish the specificity of the attitudinal profile of Romanians from the perspective of the social worlds of vaccination against COVID-19. The technical details of the analysis

will be mainly written in the notes at the end of the material or the footer of the tables/graphs.

In the last section of the material, we analyse the factors that influence the intentions of vaccination in those who, at the time of the survey, were still unvaccinated against COVID-19. In the series of preachers, we have also included the measure regarding the attitude towards the COVID-19 vaccination, to see to what extent these attitudes matter to the expected behaviours in the field.

The European Context
EU countries are grouped in terms of attitudes towards COVID-19 vaccination, specified on 17 categories of status-experiences-trust, into seven groups (Figure 2). From this point of view, Romania appears in the similar group it forms with Poland, the Czech Republic and Lithuania. Surprisingly, the attitudinal profile of people in these countries related to COVID-19 vaccination is closest to that of Austria and France. Hard to say why it is so, but the whole analysis indicates a high degree of validity of the data. Secondly, the grouping of countries to which Romania belongs naturally resembles another grouping formed by the smaller Eastern countries (Hungary, Croatia, Bulgaria, Slovenia, Slovakia, and Latvia). The countries of the old European Union, different from France-Austria, are separately placed in four groups.
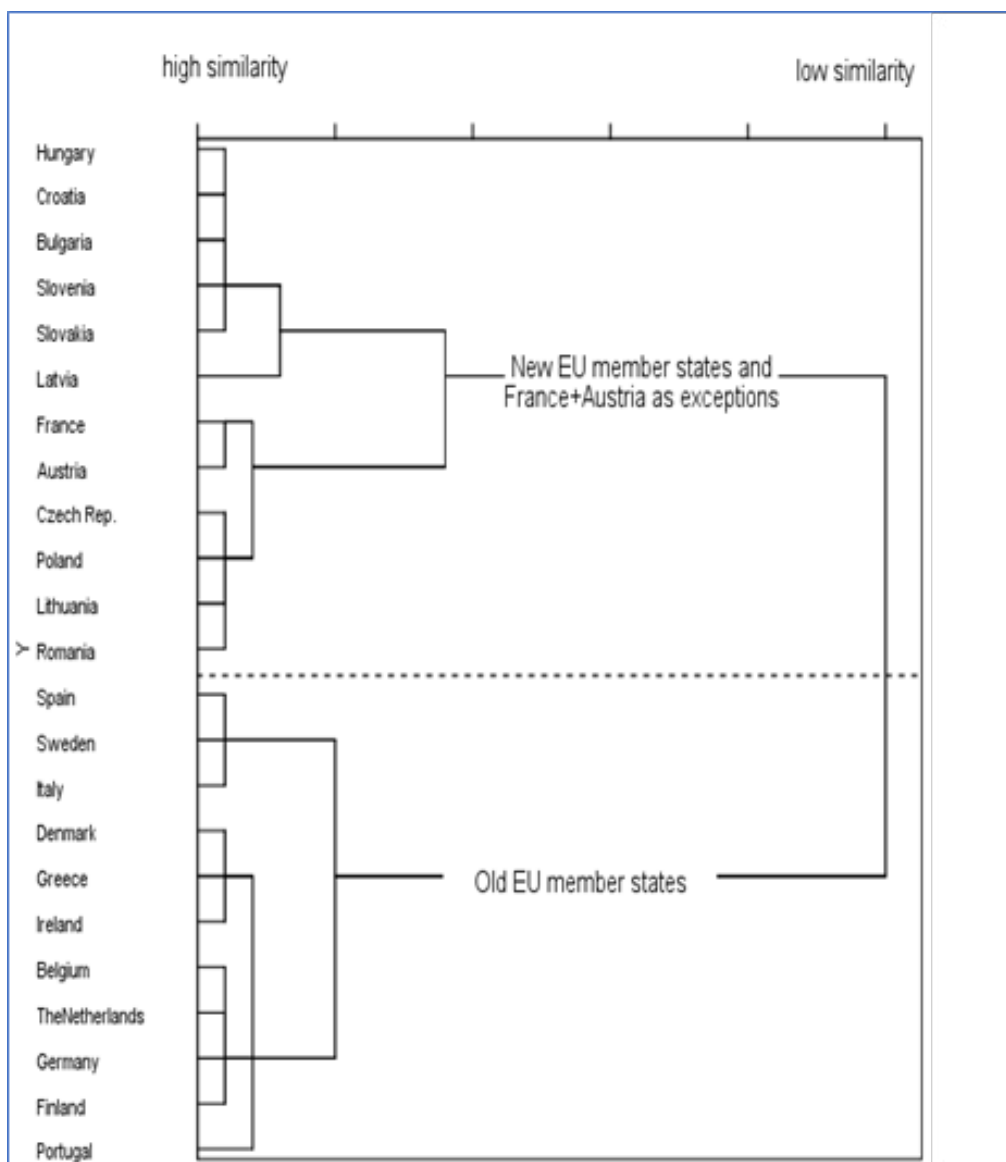
Figure 2: Clustering of European Union countries by similarity patterns of attitudes on vaccination against COVID19

Data Source
EB 494. Cluster analysis of provaccination orientation against COVID-19 (IPVO) by countries of EU (excepting Malta, Cyprus Republic, Luxembourg and Estonia having subsamples that are smaller than 100 interviewees). The profile of each country is given by averages of IPVO function of gender (2), age (3), tertiary education (2), retirement (2), living in large cities (2), being vaccinated as adult (2), trusting online networks (2), trusting health professionals (2). Figures in parentheses indicate the number of measurement categories). Hierarchical cluster analysis by furthest neighbour, squared Euclidean distances. For example attitudes on vaccination against COVID-19 are highly similar in the Austrian and the French subsamples. All data processing was done with a weighted variable as provided by

the data producer (w87), a post stratification weight with age, gender, region and activity status.

The specificity of the seven groups of European countries in terms of attitude towards the COVID-19 vaccination appears clearly when we intersect it with another grouping made but at an individual level, regarding the types of motivations underlying the acceptance or non-acceptance of the vaccine in question.

Table 1: Types of individual attitudes on vaccination against COVID-19 by clusters of EU countries

Clusters of countries of similar orientation of vaccination for interviewed people	Individual typology of attitudes on vaccination against COVID19						Total	
	Anti-vaxxers (AV)	AV accepting vaccination in general	Moderate AV but accepting vaccination in general	Moderate AV accepting civic duties	Middle range orientation	Pro vaccination (PV)	%	average level of IPVO
small countries of Eastern Europe (HU,HR, BG, SI, SK, LV)	18.1	16.8	15.3	5.6	18.9	25.3	100	-40.8
mainly larger countries of Eastern Europe (PL, RO, CZ, LT)	13.5	11.8	19.8	4.9	16.3	33.7	100	-16.6
France and Austria	11.6	12.8	20.5	7.2	14.7	33.1	100	-15.8
Italy Spain and Sweden	4.4	6.0	22.1	8.6	8.8	50.0	100	29.3
Ireland Denmark and Greece	6.2	11.2	22.2	5.0	13.6	41.9	100	11.7
mainly Western Europe	10.7	8.4	15.5	7.8	16.9	40.8	100	-1.4
Portugal	9.2	2.0	17.2	29.4	4.9	37.2	100	3.6
Total	9.8	9.5	19.1	7.7	13.9	39.9	100	.1

Data Source

Flash Eurobarometer 494. Shadow indicates the table cell where column and line values are positively associated by a significant degree of less than 0.05 significant level, by using adjusted standardized residuals. Example: The percentage of people that are pro-vaccination oriented in Italy-Spain-Sweden is 50% and the figure is significantly higher than expected.

If we change the perspective from a group of countries to EU countries, we will come to a similar picture. Romania is, according to the survey data we work with, in the group of the top 10 states with the maximum share of anti-vaxxers, in the ninth place. Of the 10 states, nine are former communist countries.

From the perspective of the types of attitudes concerning the anti-COVID-19 vaccination, we register (Table 2) the same belonging Romania to the main group of Eastern European countries, former communists (Latvia, Slovakia, Hungary, Bulgaria,

Poland, and Romania). Austria's presence in the group which also includes Hungary, and Slovakia refers to the idea of an association of anti-vaccination against COVID-19 and with a culture of central Europe (Chesnais 1981).

The fact that Romania is in the category of countries with a significant share of anti-vaxxers does not mean that the whole country is the same. Anti-vaxxers are concentrated, according to the survey data we are working with here, mainly in the CENTER development region. Anti-vaxxers who are more tolerant and accept that the vaccine, in general, can be good for other cases, are located mainly in the regions of South-East and South-West Oltenia. The region of the capital city together with Ilfov is specific for those with medium attitudinal orientation, between anti- and pro-vaccination. For the rest of the regions in the country, there are no significant associations with the type of attitude towards the anti-COVID-19 vaccination.

Table 2: Types of individual attitudes on vaccination against COVID-19 by EU countries

	Anti-vaxxers (AV)	AV accepting vaccination in general	Moderate AV accepting civic duties	Moderate AV but accepting vaccination in general	Middle range orientation	Pro vaccination (PV)	Total
Latvia	25	18	7	17	16	18	100
Slovakia	20	15	4	17	18	25	100
Hungary	19	13	5	17	18	28	100
Austria	18	12	7	13	17	34	100
Bulgaria	16	21	2	12	24	25	100
Poland	14	11	5	22	16	33	100
Romania	14	12	5	17	14	37	100
Slovenia	15	25	2	15	22	22	100
Croatia	15	16	15	15	14	24	100
Greece	5	16	3	23	14	41	100
France	11	13	7	22	14	33	100
The Netherlands	10	11	5	14	21	39	100
Germany	11	8	9	15	17	41	100
Czech Republic	12	14	5	17	22	30	100
Sweden	6	5	6	10	11	62	100
Spain	4	5	8	22	10	51	100
Italy	4	7	10	24	8	47	100
Ireland	7	5	9	20	12	47	100
Finland	10	7	7	19	12	45	100
Portugal	9	2	30	17	5	37	100
Belgium	11	9	7	22	11	39	100
Denmark	8	8	6	23	15	41	100
Lithuania	11	14	5	21	14	36	100
European Union	10	10	8	19	14	40	100

Data source: Flash Eurobarometer 494. Shadow indicates the table cell where column and line values are positively associated by a significant degree of less than 0.05 significant level, by using adjusted standardized residuals. Countries with very small samples are not included in the analysis (Cyprus, Estonia, Malta, Luxembourg).

Conditionings that give the "social worlds"

Across the entire sample, attitudes conducive to COVID-19 vaccination are stronger for male retirees with a higher level of education in major cities. The fact of having been vaccinated at least once as an adult, regardless of the disease prevented, favours pro-vaccination attitudes against COVID-19. Also, in the series of conditions favourable to the vaccination attitude against COVID-19 is the trust in the governmental or local Authorities and the doctors. In contrast, high trust in social networks on the internet disadvantages pro-vaccination guidelines.

Attitudes of refusal or hesitation in anti-COVID vaccination are favoured by values of opposite direction to those specified for the aforementioned factors (Table 3). This is a picture, overall, of the EU total. When the analysis is repeated on specific groupings of countries, the relations are different. In the group of maximum interest here, the one that includes Romania, the significant relations and the intensity of the effects of influencing the attitude towards vaccination are different. The first term of comparison is given by the situation in the small countries of Central or Eastern Europe. In the group of countries that includes Romania, residency in large cities counts for the attitude towards the anti-COVID vaccination, as it is in the total EU sample. In contrast, this factor is insignificant in the case of interviewees from small EU countries in the centre or east of the EU, but it is significant in the grouping that includes Romania.

Table 3: Predictors of the attitudes of support/refusal on vaccination against COVID-19 by clusters of European Union countries

Predictors	European Union	Small countries in CEE	PL RO CZ LT	Austria , France	Italy, Spain, Sweden	Ireland, Denmark, Greece	BE NE DE FI	Portugal
large city*	7.989 **	11.054	8.002 *	15.979 **	5.024	3.761	3.284	3.668
age	0.660 ***	0.590 ***	0.654 ***	0.481 *	0.252	0.400	0.682 ***	0.742 **
retired*	6.667 *	17.824 ***	-4.367	31.403 ***	6.379	21.957 **	14.128 **	-10.118
man	8.318 ***	1.944	13.424 **	21.194 ***	-1.274	3.979	7.274 *	5.538
tertiary education*	6.171 ***	7.332 *	10.083 **	10.560 *	13.966 ***	1.996	2.342	10.277
had the experience of being vaccinated as adult	24.068 ***	29.045 ***	29.449 ***	37.169 ***	26.108 ***	19.229 ***	32.933 ***	27.189 **
index of trust in institutions	31.899 ***	44.780 ***	35.000 ***	31.430 ***	24.003 ***	30.964 ***	32.042 ***	16.493 ***
index of trust in online networks and web	-14.391 ***	-9.648 ***	-10.369 ***	-16.908 ***	-16.435 ***	-14.047 ***	-14.708 ***	-0.973
constant	-59.595 ***	-85.681 ***	-66.964 ***	-95.602 ***	-10.265	-30.425 **	-74.726 ***	-69.160 ***
R2	0.188	0.187	0.160	0.248	0.156	0.212	0.229	0.076
N	25980	6055	4136	2067	3065	3091	4062	1011

Data source: Flash Eurobarometer 494. OLS regressions with the index of pro-vaccination orientation (IPVO) as a dependent variable, by EU and clusters of countries. Malta, Cyprus and Luxembourg are not included in the analysis due to the very small subsamples coming from these countries. Significant regression coefficients are marked by *** p=0.001, ** 0.01, * 0.05. To control for the subnational regional effect in the survey we used the command cluster in STATA, to generate robust standard errors. A regression model that is not presented here included as a predictor, for the whole EU sample, the percentage of fully vaccinated people by country (data source: Our World in Data, https://ourworldindata.org/coronavirus, for August, 5th, 2021). R2=0.193. The new regression coefficient for the new predictor is positive and significant for p=0.001 and the other regression coefficients will continue to be significant.

The comparison of the populations of the former communist countries, dominated by antivaccination attitudes against COVID-19, with the populations of Italy, Spain, and Sweden, especially oriented toward pro-vaccination, says a lot about the socio-cultural conditions in the field (Table 2). In the three countries of the Old European Union, the attitude towards vaccination against COVID-19 is not so strongly structured on social worlds, on characteristics of residence, gender, age, and occupation, as in the former communist countries. Even the experience of having been vaccinated as an adult matter less, albeit significantly, in the three EU societies than in the societies of the central and eastern PARTS of the EU. Only the level of education (measured here by tertiary education) has a stronger impact in Italy-Spain-Sweden compared to the effect in the former communist countries on the anti-COVID-19 vaccination attitude.

Trust in institutions and doctors stimulates the pro-vaccination anti-COVID option in Eastern and Central European countries more than in pro-vaccination ones in the Old European Union. Trust in online networks alone has greater effects on vaccination attitudes in the Old compared to the New EU (results of the regression analysis not presented here).

Conditioning the attitude towards anti-COVID vaccination through the experience of having endured a vaccination as an adult, for whatever disease, has a peculiarity in Romania. According to the survey data we use here, the lowest vaccination rate for an adult, different from that for COVID-19, was recorded, at the time of the survey, in Romania (41%), compared to an average of 70% for the total EU and 59% for the total former communist countries in the EU. The very small percentage of ever-vaccinated adults in Romania explains, to a great extent,

where the Romanians' resistance to the anti-COVID-19 vaccination comes from and, at a regional level, why Eastern Europe has been more resistant to the anti-COVID-19 vaccination than the Western one. The situation was similar in 2019, for Romania, with the survey data from another Eurobarometer (Vulpe 2020, Vulpe&Rughiniș 2021).

Consequently, public policies to increase the rate of vaccination against COVID-19 could get higher performance if focused mainly on the areas/categories where rates of general vaccination before epidemics were low and on how to increase the public trust in institutions that are relevant for the vaccination against COVID-19. Low general vaccination rates, in Romania, are, specific to the rural population, low-educated people and women (the specification is based on a multivariate analysis that was not included in the presentation).

A more detailed image could be gotten if one considers the predictors of IPVO by each of the eight development regions of Romania, and for the country as a whole (Table 4). Sociodemographics are less relevant in predicting the attitude towards vaccination against COVID-19 by NUTS 2 regions in Romania compared to the situation in Eastern Europe. Residence milieu, age, gender, retirement and education do not count as significant predictors in Bucharest-Ilfov, North-West, South-West and South-East regions. Men are more pro-vaccination oriented in Centre regions, younger persons disfavour the vaccination against COVID-19 in the West region, and retired persons are significantly in favour of pro-vaccination in South Muntenia.

Trust in institutions and general vaccination experiences are by far the most relevant predictors of attitudes towards an-

ti-COVID-19 at the regional level. The higher the trust in Government, local administration, health Authorities and health specialists, the higher the propensity of adopting a pro-vaccination attitude against COVID-19. It is especially in the Centre and North-West regions that trust has a maximum positive impact on pro-vaccination attitudes. The negative impact of trust in online networks towards anti-COVID-19 vaccination is limited to people from West, North-West, South-West and South Muntenia.

Table 4: Predictors of the attitudes of support/refusal on vaccination against COVID-19 in Romania and its NUTS 2 regions

Predictors	Development region in Romania								Romania
	Bucuresti-Ilfov	Centre	Nort-West	West	South-West	South Muntenia	South East	North-East	
large city*	8.08	12.61	6.96	-11.78	7.25	-8.12	-35.65	13.86	-1.41
age	0.03	0.05	0.04	-1.75 *	0.62	0.04	-0.06	1.59 **	0.36
retired*	2.36	32.87	2.76	29.76	-53.35	49.11 *	29.01	-49.95	2.60
man	-21.98	47.72 **	11.46	-0.38	9.45	6.97	29.71	6.74	9.65
tertiary education*	19.21	30.68	19.67	36.75	-9.07	5.24	21.07	31.32	19.85 **
had the experience of being vaccinated as adult	-15.24	-21.41	47.12 *	68.35 ***	17.77	47.94 **	46.93 **	46.77 **	31.75 ***
index of trust in institutions	30.98 ***	43.42 ***	41.77 ***	38.61 ***	23.76 *	38.32 ***	28.65 ***	33.55 ***	33.30 ***
index of trust in online networks and web	-2.52	-6.43	-21.36 *	-20.51 ***	-35.89 ***	-20.70 ***	-9.12	-13.86	-16.64 ***
constant	1.99	-56.05	-60.38	15.31	-28.07	-33.29	-51.22	-100.74	-50.20
R2	0.16	0.27	0.23	0.32	0.24	0.32	0.26	0.20	0.18
N	126	116	198	100	89	121	141	183	1007

Data source: Flash Eurobarometer 494. OLS regressions with the index of pro-vaccination orientation (IPVO) as a dependent variable, by NUTS 2 regions of Romania and for the whole country. Significant regression coefficients are marked by *** p=0.001, ** 0.01, * 0.05. Robust standard errors.

To what extent can the previously discussed relationships, in the total sample, also be found in those who were unvaccinated at the time of the survey, in May 2021? We will answer this question in the next section.

Vaccination Intentions of Un-Vaccinated People
Focusing the analysis on those who were not vaccinated at the time of the survey is important. They represented, at the time of the survey, around 57% of the population over the age of 15 in the EU (Table 5). Those who already had a COVID-19 vaccination accounted for 37% of the sample. Naturally, vaccinated appear with a high acceptance attitude of the vaccination against COVID-19. Non-vaccinated people have strongly differentiated attitudes towards coronavirus vaccination, depending on the intention they had. Those who intended to get vaccinated soon had, again naturally, a very favourable attitude to vaccination (the average of the IPVO index is equal to 33.5). Those who declared themselves to be undecided seem to be, to a large extent, anti-vaxxers.

A more accurate picture of the socio-demographic and cultural conditionings of vaccination intention results from the inspection of the data in Table 5. Eastern European countries whose grouping, which is also part of Romania, are characterized by reduced intention, well below the European average, of vaccination against COVID-19. The strongest intention to reject vaccination in terms of intentions is for Eastern Europeans in small countries with less than ten million inhabitants. At the opposite pole are the citizens of Belgium-Netherlands-Denmark-Finland with the highest proportion of vaccination for the unvaccinated.

Across the EU, the positive attitude towards COVID-19 vacci-

nation is a factor favouring the intention to vaccinate, keeping under control the effect of the other factors in the model. The finding may seem pleonastic, but it refers to a very important actional premise: if you want to increase the number of those who get vaccinated, it is fundamental to communicate with them in such a way as to structure an attitude favourable to this kind of vaccination.

Otherwise, the typical European, still unvaccinated against COVID-19, at the time of the survey, tends to get vaccinated especially if he is a man with residency in a large city, has had at least the experience of another vaccine as an adult, has a high level of trust in institutions of central and local government and doctors and lives in a country with a high vaccination rate at the time of the survey [1,10].

A country-by-country examination of prediction relationships, according to model 1 of Table 5, indicates the great variability of statistically significant prediction relationships. The only factor that appears with a positive and significant effect in the prediction of vaccination intentions in the unvaccinated, in all EU countries, is the attitude towards this type of vaccine (IPVO). In the case of unvaccinated Romanians, the level of trust in the relevant administrative or medical Authorities is added with a positive effect. The only country in the EU that still has a similar prediction configuration is Ireland. In the case of the two countries, the impact of trust in the relevant institutions on the intention to vaccinate is maximum. Hard to say why that's the case. It can be the effect of objective situations, but it can also be the effect of how subjects are selected or data is weighted. These are likely different conditions that, however, lead to the same result.

Table 5: Predictors of intentions to vaccinate against COVID-19 for unvaccinated people

	Predictors	Model 1	Model 2	Model 3
Status	large city*	0.095	0.151 *	0.174 **
	age	0.001	0.000	0.000
	retired*	-0.160	-0.039	-0.024
	man	0.121 *	0.115 *	0.114 *
	tertiary education*	-0.062	0.025	0.021
Experiences	had the experience of being vaccinated as adult	0.314 ***	0.260 ***	0.251 ***
	index of trust in institutions	0.308 ***	0.276 ***	0.282 ***
	index of trust in online networks and web	-0.033	-0.032	-0.028
	index of provaccination orientation against COVID19 (IPVO)	0.014 ***	0.014 ***	0.014 ***
Countries of similar IPVO (Portugal as reference)	Small countries in CEE		-0.815 ***	-0.289 *
	PL RO CZ LT		-0.466 ***	-0.093
	Austria , France		-0.237 *	-0.030
	Italy, Spain, Sweden		0.126	0.171
	Ireland, Denmark, Greece		-0.254	-0.150
	BE NE DE FI		0.367 **	0.464 ***
Country experience	% people fully vaccinated (Our World in Data, as source)			0.021 ***
	Pseudo R2	0.195	0.205	0.207
	N	16957	15614	15614

Data source: Eurobarometer 494. Ordinal regression has as dependent variable intentions to vaccinate of the about 16957 interviewees that at the survey moment were not vaccinated.

Conclusion

The Romanian way of reporting on the anti-COVID-19 vaccination fully fits into the specific model of the former communist countries of Eastern and Central Europe (Table 1 and Table 2). In these, plus Austria, we meet the highest propensity towards anti-vaccination against COVID-19. In the north (Sweden, Finland, Ireland) and the south of the European Union (Italy and Spain) the greatest concentration of pro-vaccinists occurs, by contrast.

The approach confirms the hypothesis that holds that the social worlds of attitudes toward COVID-19 vaccination are structured not only quantitatively but also qualitatively. There are not only pro-vaxxers, anti-vaxxers, and hesitants but also intermediate categories, qualitatively structured. So are the anti-vaxxers who accept, however, that vaccination in general, in other situations, is good, or those who are moderately anti-vaxxers but who accept the idea that vaccination is a civic duty or those who are moderately anti-devastating but who argue that vaccination in general, in other cases, is good.

Inside Romania, the anti-vaxxers were, at the time of the survey (May 2021), located mainly in the Center development region. The moderate anti-vaxxers, with acceptance of the need for vaccination but other diseases or other cases, were located especially in the south of the country, in the south-eastern development regions, and the South-West Oltenia. The rest of the types of attitudes towards the anti-COVID-19 vaccination are not significantly associated with any of the regions of Romania.

The analysis centred only on the vaccination intentions of the unvaccinated makes it clear that attitudes matter a lot. Those who have been registered as having a strongly favourable attitude to vaccination are determined to get vaccinated soon (Table 5). Another proof is that the level of effective communication is very important in the equation of increasing the number of those vaccinated.

Both attitudes to vaccination and vaccination intentions are significantly dependent on the socio-demographic composition and previous life experiences. At the European Union level, those with well-structured intentions to get vaccinated, being unvaccinated, live in major cities, have the culture of previous vaccination as adults, and, simultaneously, trust the government of the country in which they live, local Authorities, and doctors.

References

1. Beauchemin, C. (2014). A manifesto for quantitative multi-sited approaches to international migration. International Migration Review, 48(4), 921-938.
2. Chesnais, J. C. (1981). Histoire de la violence en Occident de 1800 à nos jours. Paris: R. Laffont.
3. Goggin, G. & Ellis, K. (2020): Disability, communication, and life itself in the COVID-19 pandemic, Health Sociology Review, DOI: 10.1080/14461242.2020.1784020
4. Ipsos European Public Affairs for European Comission, DG COMM. (2021). Attitudes on vaccination against COVID-19. Report.
5. MacLean, S., Dwyer, R., Pennay, A., Savic, M., Wilkinson, C., Roberts, S., ... & Room, R. (2021). The 'social worlds' concept: a useful tool for public health-oriented studies of drinking cultures. Addiction Research & Theory, 29(3), 231-238.
6. Murphy, J., Vallières, F., Bentall, R. P., Shevlin, M., McBride, O., Hartman, T. K., ... & Hyland, P. (2021). Psychological characteristics associated with COVID-19 vaccine hesitancy and resistance in Ireland and the United Kingdom. Nature communications, 12(1), 1-15.
7. Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, Affective and Behavioral Components of Attitudes. In M. J. Rosenberg, & C. I. Hovland (Eds.), Attitude Organization and Change: An Analysis of Consistency among Attitude Components. New Haven, CT: Yale University Press.
8. Strauss, A. (1978). A Social World Perspective. Studies in symbolic interaction, 1, 119-128.

9. Vulpe, S. (2020). Understanding Vaccine Hesitancy as Extended Attitudes. Eur. Rev. Appl. Sociol., 13, 43-57.
10. Vulpe, S. N., & Rughiniș, C. (2021). Social amplification of risk and "probable vaccine damage": A typology of vaccination beliefs in 28 European countries. Vaccine, 39(10), 1508-1515.