


FACTORS PREDICTING PUBLIC PERCEPTIONS ABOUT THE IMPACT OF COMMUNITY ENLARGEMENT IN SETTLEMENTS OF ARMENIA

Vahan Yengidunyan*  <https://orcid.org/0009-0008-9038-2642>
post-doctoral student, Faculty of Sociology, Yerevan State University, Armenia
E-mail: vahan.engidunyan@ysu.am

Abstract: In 2022, the elections of local self-government bodies in the Republic of Armenia ended the process of community enlargement, which was started in 2011. The community enlargement process deviated several times from the initial implementation methodology, and was conceptually revised in 2018 after the velvet revolution. Currently, multiple deviations and changes from the prescribed approaches have created a situation where a number of communities have been enlarged using the pre-2018 methodology and the rest using the post-2018 methodology. As a result, there was no coincidence that complaints arose, especially among the population of small rural settlements related to the possible deterioration of the socio-economic condition of settlements, the weakening of local self-governance and the disproportionate increase of dependence on large settlements. Illegitimate communal enlargement implies an uncontrollable increase of mistrust among the population towards the policies implemented at the local level and those who implement them, which can lead to the disruption of public life. In this context, the lack of knowledge related to the public perceptions of the changes implemented in the enlarged communities, especially in the context of the discussed problems and the risks arising from them, makes the implementation of research aimed at clarifying the abovementioned issue more than relevant. In April-June 2024, a survey was conducted in the enlarged communities of RA, with the aim of identifying, in addition to a number of research problems, public perceptions of the impact of community enlargement in individual settlements and the factors affecting them. As a result of the ordinal regression analysis carried out in this context, it becomes clear that among a number of research variables, only social capital, place leadership and population dispersion index in enlarged communities meet the statistical assumptions for inclusion in the specified regression model. The odds ratios calculated in the later stages of the model construction show that in the case of social capital, place leadership and dispersion index, the transition to each next category increases the probability of recording positive perceptions of community enlargement among the population. Thus, the proposed hypothesis is also confirmed, according to which: *Each 1-level increase in social capital, place leadership and dispersion index in enlarged communities increases the probability of recording positive perceptions of community enlargement impact among residents.*

Key words: *community enlargement, social capital, place leadership, dispersion index, ordinal regression, comparative probability*



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Relevance of the research problem

In 2022, the elections of local self-government bodies in the Republic of Armenia ended the process of community enlargement. The legal start of community enlargement was perhaps given by the amendments on the administrative territorial division of RA adopted in 2011 and the concept of "Enlargement of communities and formation of inter-community associations"¹, where the new roadmap of territorial reforms was outlined. However, as it became clear later, the community enlargement process deviated several times from the initial implementation methodology, and was conceptually revised after the velvet revolution in 2018. Thus, after the enlargement, there are 71 communities in RA, of which 64 are enlarged, 5 are separate communities inhabited by different national minorities and 2 urban units (Yerevan and Gyumri). Currently, multiple deviations and changes from the outlined approaches have created a situation where a number of communities have been enlarged using the pre-2018 methodology (for example, Kapan, Odzun, Ani and Byureghavan enlarged communities) and the rest using the post-2018 methodology. At the same time, according to the "Law of the Republic of Armenia on Amendments and Changes to the Law "On Local Referendum" approved by the RA Government in 2019², the results of the community unification or secession vote would now have an advisory nature, which implied maintaining an insufficient level of local democracy and decision-making. As a result, complaints arose, especially among the population of small rural settlements. The main concerns were related to the possible deterioration of the socio-economic condition of settlements, the weakening of local self-governance and the disproportionate increase of dependence on large settlements. Illegitimate community enlargement implies an uncontrollable increase of mistrust among the population towards the policies implemented at the local level and those who implement them. Socio-spatial practices reproduced with similar relations turn into dysfunctional units of public life. The listed problems, which lie at the basis of the functioning mechanism of spatial reproduction in enlarged communities, can disrupt the stability of social relations, leading to social, economic and political upheavals, if their causality is not clarified and necessary steps are not taken. In the context of assessing the impact of community enlargement in RA, there are a number of studies that reveal the changes in the socio-economic (Khachatryan, 2020; Petrosyan & Khachatryan, 2021; Hovakimyan et al., 2021), and political (Khachikyan et al., 2021) life of the society. Although they provide comprehensive knowledge about the impact of community enlargement in RA, the lack of knowledge related to public perceptions of the changes implemented in enlarged communities, as well as the identification of socio-spatial practices of territorial management, especially in the context of the discussed problems and the risks arising from them, make the implementation of research aimed at clarifying the abovementioned problem even more relevant. In this context, the research, carried out in April-June 2024, the purpose of which was to find out the socio-spatial practices of territorial management in the enlarged communities of RA. The research also referred to the public perceptions regarding the impact of community enlargement in individual settlements and the identification of the factors affecting them. To address this research problem, a predictive analysis was conducted, including a number of variables such as sense of place, social capital in the context of territorial reforms, place leadership, population dispersion in enlarged communities, etc. In

¹ https://www.e-gov.am/u_files/file/decrees/arc_voroshum/11/qax44-18_1.pdf

² <https://www.arlis.am/DocumentView.aspx?DocID=137889>

the preparation stage of data analysis, only place leadership, social capital and the dispersion index were selected, which met the initial conditions for ordinal regression calculation (exclusion of a large number of critical cases, 20% or less proportion of zero cells in combinations of categories of the independent variable with the dependent variable).

Based on both the discussed approaches and the results of the selection of independent variables determined by the preliminary data analysis, the following research hypothesis is proposed: *Each 1-level increase in social capital, place leadership, and dispersion index in enlarged communities increases the probability of recording positive perceptions of community enlargement impact among residents.*

Research sample

For the implementation of the research, a multidimensional random sample was built, covering all marzes of the Republic of Armenia. In the first stage, a stratified proportional sample was constructed according to the permanent population of RA marzes, then a cluster sample was formed, setting the size of each cluster to 14. Taking into account the lack of information on the variations of the investigated variables due to previous similar studies, for the calculation of the sample size, the coefficient of the design effect 1.55 was chosen, which is in the widely used range (1.5-2) for the construction of similar samples (Mashayekh-Amiri et al., 2023). Assuming a 95% confidence level, a 5% margin of error, and a 50% prevalence of the phenomenon, the sample size formed by the design effect is 600.

Descriptive data analysis and testing of key assumptions of regression

Before conducting the analysis, the variables of perceptions of the impact of community enlargement, as well as local leadership, social capital and dispersion index were rescaled for inclusion in the ordinal regression. In particular, the 5-point scale of perceptions about community enlargement was converted into a 3-point scale ("completely negative" and "rather negative" options together, and "completely positive" and "rather positive" options together) and a 4-point ordinal scale of local leadership was formed on the basis of the arithmetic mean of the sum score, where 1-leadership with insufficient skills and democracy, 2-leadership with low skills and democracy, 3-leadership with sufficient skills and democracy and 4-leadership with high skills and democracy. In the case of social capital, an ordinal scale was also formed based on the results of the arithmetic mean of the sum score (1-low, 2-medium, 3-high). Finally, in the case of the dispersion index, a binary scale was formed based on the median of the ordered distribution of index values (in this case, the median is 4, so all results not exceeding 4 were recoded as low values and those above 4 as high).

As a result of the crosstab analysis of the variables included in the regression, it becomes clear that by moving to each subsequent category of place leadership, social capital and dispersion index, the proportion of the population who believe that community enlargement has had a positive impact on them and on other residents of their settlement is rising. In particular, only 9.1% of residents indicating the presence of leadership with insufficient skills and democracy in their settlements indicated that enlargement had a positive impact, while among residents indicating the presence of leadership with high skills and democracy, this indicator is 50%. In the context of social capital, among those recording low, medium and high levels, the percentage of perception of the positive impact of community enlargement is 10.3%, 27.2% and 54.7%, respectively. Finally, in the context of the dispersion index, residents who live in enlarged communities with high population dispersion are more likely

to think that enlargement has had a positive impact (37.9%) than those who live in more concentrated enlarged communities (26.5%) (Table 1).

Table 8

The crosstab analysis of variables

Variable	Variants	Negative %	Neutral %	Positive %
Place leadership	Leadership with insufficient skills and democracy	54.5	36.4	9.1
	Leadership with low skills and democracy	33.3	50.9	15.8
	Leadership with sufficient skills and democracy	26.2	44.7	29.1
	Leadership with high skills and democracy	15.0	35.0	50.0
Social capital	Low	40.2	49.6	10.3
	Medium	29.9	42.9	27.2
	High	11.7	33.6	54.7
Dispersion index	Low	33.7	39.8	26.5
	High	14.8	47.3	37.9

Before performing the regression analysis, a number of assumptions were also checked. In particular, in order to rule out possible multicollinearity between independent variables a correlation analysis was performed using Kendall's correlation coefficient. The obtained results prove that the only significant relationship is between social capital and place leadership, which, however, records an average result (Tau b=0.56) (Table 2).

Table 9

Correlation coefficients of independent variables

Variables	Indicators	Place leadership	Social capital	Dispersion index
Place leadership	Correlation Coefficient	1.000	.557	-.014
	Sig. (2-tailed)	-	<.001	.715
	N	546	546	546
Social capital	Correlation Coefficient	.557**	1.000	.031
	Sig. (2-tailed)	<.001	-	.449
	N	546	546	546
Dispersion index	Correlation Coefficient	-.014	.031	1.000
	Sig. (2-tailed)	.715	.449	-
	N	546	546	546

The hypothesis of parallel lines was also checked, according to which the coefficients describing the interactions between independent and dependent variables are the same, regardless of the thresholds (cutoff points) of individual categories of the dependent variable. The non-significant result of the calculated Chi-square test ($p < 0.05$) supports the null hypothesis that there is parallelism (Table 3).

Table 10

Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	df	Sig.
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Null Hypothesis	147.972			
General	137.596	10.375	6	.110

The construction method and accuracy of the regression model

Based on the ordinal scaling of the dependent variable, the method of ordinal regression analysis was used (Denham, 2016). According to the descriptive coefficients of the distribution of the dependent variable (skewness=-0.37, kurtosis=-1.271), as well as the Kolmogorov-Smirnov test of normality (Test statistic=0.211, df=546, p<0.001) the distribution of the variable is non-normal. Additionally, looking at the weights of the individual categories in the overall distribution, it becomes clear that 42.1% of the received data is centered around the "Neutral" option, while the weights of the "Negative" and "Positive" options are 27.8% and 30.0%, respectively. Due to the abovementioned distribution, the logit function was chosen for the construction of the relationship of the variables. The choice of this function is also due to the possibility of simpler interpretation of the coefficients and, consequently, the relationships of the variables.

Within the framework of the constructed regression model, the significant differences of the latter from both desired and null models were checked. The difference recorded in the case of the null model was significant and the p-value of that difference from the desired model exceeded the value of 0.05. The discussed results state the applicability of the constructed ordinal regression model and the possibility of further interpretation of the obtained data (Table 4). In parallel, the explanatory power of the model was also calculated, according to which about 19.7% of the variation of the dependent variable is predicted by the independent variables included in the model.

Table 11

Model Fitting Information & Goodness-of-Fit

Test	Model	-2 Log Likelihood	Chi-Square	df	Sig.
Model Fitting Information	Intercept Only	252.634	N/A	N/A	N/A
	Final	147.972	104.662	6	<.001
Goodness-of-Fit	Pearson	N/A	29.863	36	.755
	Deviance	N/A	34.099	36	.559

Discussion of the main results of the ordinal regression model

The log-odds of the thresholds of the dependent variable, which were calculated by comparison with the highest threshold, were distinguished by the ordinal regression analysis. Specifically, the log-odds of being in the "Negative" category is -2.993, while the log-odds of being in the "Negative" and "Neutral" categories is -0.902. Generalizing, the following ordinal regression model is constructed.

$$\text{logit}P(Y \leq j) = B_j + \beta_{CL} * X_{CL} + \beta_{CM} * X_{CM} + \beta_{L1} * X_{L1} + \beta_{L2} * X_{L2} + \beta_{L3} * X_{L3} + \beta_{DL} * X_{DL}$$

where B_j is threshold's, and are β_{CL} , β_{CM} , β_{L1} , β_{L2} , β_{L3} , β_{DL} logarithmic coefficients of individual categories of social capital, place leadership, and dispersion index, respectively. It is noteworthy that the coefficients assigned to all categories of both dependent and independent variables are significant (p<0.05), which allows to accept the results of further calculations.

As a result of the exponential transformation of the abovementioned log-odds, the odds ratios are formed. Since the application of the calculated coefficients is in the context of

comparison with the categories of each independent variable and a specific fixed category (for each variable, it is their highest possible level), the exponential transformation of the log-odds gives the odds ratios with respect to the fixed category. So, moving on to the independent variables, let's look at social capital. As a result of the analysis, it becomes clear that being at each subsequent level of social capital increases the probability of recording positive perceptions about the impact of community enlargement. Since the odds ratios of the variables are less than 1, the $1 - EXP(E)$ ratio is most useful for describing comparisons with fixed categories. For example, in the case of belonging to the "Low" category of social capital, the probability of recording positive perceptions about the impact of community enlargement is 0.66 times lower, compared to the "High" category. For those in the "Medium" social capital category, the odds are 0.59 times slower. A similar picture exists also in the context of place leadership. In particular, among the respondents who indicated that leadership in their settlements is implemented with insufficient skills and democracy, the probability of recording positive perceptions of the impact of enlargement is 0.79 times lower than among those respondents who indicated the presence of leadership with high skills and democracy. However, in the category of "Leadership with sufficient skills and democracy", the abovementioned ratio drops sharply to 0.41. Finally, if we look at perceptions of the positive impact of enlargement, according to population dispersion in the enlarged communities, then it becomes clear that the probability of recording positive perceptions about enlargement among the population of settlements of enlarged communities with a low dispersion index is 0.56 times lower than among the population of settlements of enlarged communities with a high dispersion index (Table 5).

Table 12

Parameter Estimates

Type	Variables	Estimate	Exp (E)	1-EXP (E)	Std. Error	Wald	df	Sig.
Threshold	[Dependent = Negative]	-2.993	-	-	.264	128.58 3	1	<.001
	[Dependent = Neutral]	-.902	-	-	.230	15.383	1	<.001
Location	[Capital=Low]	-1.079	0.34	0.66	.314	11.834	1	<.001
	[Capital =Medium]	-.883	0.41	0.59	.243	13.168	1	<.001
	[Capital =High]	0	-	-	-	-	0	-
	[Dispersion= Low]	-.828	0.44	0.56	.183	20.534	1	<.001
	[Dispersion= High]	0	-	-	-	-	0	-
	[Leadership= 1]	-1.547	0.21	0.79	.339	20.830	1	<.001
	[Leadership =2]	-.953	0.39	0.61	.283	11.331	1	<.001
	[Leadership =3]	-.531	0.59	0.41	.236	5.061	1	.024
	[Leadership =4]	0	-	-	-	-	0	-

As a result of the performed analysis, it becomes clear that although the odds ratios of the categories of independent variables are smaller than 1, meaning that belonging to a given category reduces the likelihood of reporting positive perceptions of the impact of enlargement, however, paying attention to the dynamics of coefficients of individual variables, we can claim that the belonging of residents to each subsequent level of social capital, place leadership and dispersion index increases the probability of recording positive perceptions of the impact of community enlargement among these residents.

Generalizing the obtained results, we conclude that the proposed hypothesis is

confirmed: *Each 1-level increase in social capital, place leadership and dispersion index in enlarged communities increases the probability of recording positive perceptions of community enlargement impact among residents.*

Conclusion and recommendations

As a result of the conducted ordinal regression analysis, it became clear that social capital, perceptions of place leadership and the index of population dispersion in enlarged communities predetermine the dynamics of perceptions regarding the impact of community enlargement among the population of the enlarged communities of RA. Accepting the accuracy of the built model, the level of explanation of the variation of the dependent variable, as well as considering the odds ratios and their high significance, we can confirm the proposed hypothesis that: *Each 1-level increase in social capital, place leadership and dispersion index in enlarged communities increases the probability of recording positive perceptions of community enlargement impact among residents.*

For the further improvement of the model, we suggest carrying out similar studies, where the influence of other independent variables on the results, explanatory potential and accuracy of the model will be checked.

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Conflict of Interests

The author declares no ethical issues or conflicts of interest in this research.

Ethical Standards

The author affirms this research did not involve human subjects.