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FACTOR ANALYSIS OF SOCIO-ECONOMIC DEVELOPMENT OF ENLARGED COMMUNITIES IN THE RA

The administrative territorial reforms implemented in the Republic of Armenia (RA) are new challenges, which lead to the need of developing and implementing new tools aimed at local socio-economic development of communities. At this stage of the RA administrative territorial reforms, it is very important to discuss the positive or negative impact of enlargement, therefore, the assessment of the current situation by highlighting the problems, and pointing out the main ways of effectively using the available resources, can shortly contribute to increasing the efficiency of community management.

Even though the enlarged communities in the RA have certain similarities in terms of expenditure directions and sources of income, we should not forget that each community also has its characteristics of socio-economic development and a unique potential for development. Within the framework of this article, based on the factor analysis of socio-economic indicators of several enlarged communities of the RA, it becomes clear that the agricultural sector is significantly separated from the production activities in Ararat, Parakar, Noyemberyan and Gavar communities, and the agricultural sector in Alagyaz and Tsaghkahovit communities does not have an impact on the local level of employment, which allows us to assume that the potential and resources in the field of agriculture are not used effectively, which in turn is due to the lack of the minimum funds necessary for the development of agriculture.

Keywords: *local economic development, factor analysis, enlargement*

JEL: O18, R11, R58

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INTRODUCTION. The significance of the choice of the given topic is due to the importance of assessing the impact of the administrative territorial reforms launched in the RA on the local economy, especially when there are very few such oriented analyses in the field after enlargement. In addition, in the conditions of the possible expansion of the scope of authorities delegated to communities in the coming years by the concept of decentralization of the RA authorities, it is very important to identify the local economic features of the enlarged communities, to assess the level of efficiency in the use of local resources as a result of the enlargement, as well as the interdependence of local economic activity areas.

The purpose of the article is to evaluate the impact of the enlargement of the RA communities on local economic development through factor analysis, highlighting the main challenges and obstacles to local economic development.

The main objective of the research is to carry out a factor analysis based on several indicators characterizing the socio-economic condition of the communities enlarged in the relatively early stages as a result of the administrative territorial reforms in the RA, to find latent factors based on the results of the factor analysis, to interpret the obtained results and to unite the relevant communities that have ensured significance in the same factor group, as well as to identify the cause-and-effect relationships between the socio-economic indicators of the communities that provided significance as a result of the factor analysis.

LITERATURE REVIEW. Several foreign authors have repeatedly referred to the importance of assessing the impact of community enlargement on local economic development in their works.

In many local surveys, such as the one developed by the Communities Finance Officers Association, the "Local Governance Annual Index" provides an opportunity to evaluate the changes made in different directions in the RA local self-government system through clear tools.

There are many different methods of assessing the impact of community enlargement on local economic development in international practice.

Especially, the faculty of Economics and Business, Universitas Indonesia have developed a model for assessing local economic development performance by utilizing primary data collected from 3 regions in Indonesia using a participatory approach of 304 respondents in Singkawang, Bau-bau, and Kupang. It is observed that to achieve the local performance model two

different models are implemented. First is the human resource, infrastructure, social capital, and financial capital that positively impact entrepreneurial strategy. While institutions, technology, local government, and central government have no impact on entrepreneurial strategy. Second entrepreneurial strategy has a positive impact on local economic development (local performance) (Rofikoh Rokhim, Permata Wulandari and Sari Wahyuni, 2021).

Other scientific approaches to evaluating the impact of community enlargement on local economic development are also widely used, where the term “decentralization” is used instead of community enlargement, which expresses the “decentralization of authorities”. In this context, we can mention Thiessen’s approach (2003), who proposed an appropriate tool to assess the impact of decentralization on local economic development, taking as dependent variables the level of GDP growth, average annual investment in GDP, and as independent variables local spending and relative indicators of incomes, the specific weight of local own incomes in total incomes, revealing as a result that the positive relationship between the mentioned independent and dependent variables becomes negative at some point. The toolkit used by Gemel (2013) is also interesting, within which the main dependent variables are the annual growth rate of GDP, and as independent variables the share of revenues in total revenues and the share of expenditures in separate expenditures, revealing that there is a positive relationship from the point of view of income decentralization. and negative - in terms of cost decentralization (Jorge Martinez-Vazquez, Santiago Lago-Peñas, Agnese Sacchi, 2015).

In one of his articles, Jan Bucek referred to the importance of local economic development, stating that local self-governments play an supportive and important role in establishing small and medium enterprises. These activities are often initiated by external actors (e.g. state, and local associations of entrepreneurs), but with important involvement and implementation role of local self-governments. They have crucial roles in delivering information and assistance on business start and expansion, as well as local access to detailed information on various programs and resources available for the support of SMEs. All these institutions have an important role in generating and sustaining new businesses at the local level. However, their networks' institutions have been concentrated in large urban centers. Until now, they have not sufficiently addressed localities facing social and economic decline. The only exception is the long term expected establishment of First Contact Points in selected smaller and peripheral centers. It is really a local SMEs development addressing initiative. The most widely used tools in SMEs development are (some of them are discussed in detail in the next sections): transparent local regulatory framework, advisory, consulting

services within local self-government, regional advisory, and information centers, business innovation centers/business incubators/incubator houses, first contact points (Jan Bucek, 2014).

In some studies carried out by foreign researchers, the importance of evaluating the mutual influence of indicators characterizing the level of local GDP and the level of decentralization has also been considered.

There has been an ongoing debate between the theoretical literature and the empirical point of view that decentralization is an effective strategy to promote economic growth and development, especially in developing countries. In theory, decentralization can be looked at as a way to stimulate an increase in economic growth, providing considerable opportunities for better governance. The potential benefit of devolving fiscal responsibilities from the central government to the lower government is to increase the efficient provision of public service, which in turn, will promote economic growth. Related to the theory, decentralization is expected to have a positive relationship with economic growth. On the other hand, decentralization can also have a negative relationship with economic growth if it is not accompanied by improving the capability of local government apparatus and better political accountability. Some studies in literature state that the impact of decentralization on economic growth through the allocation of efficient benefits will lead to an increase in economic growth. However, due to several investigations on the empirical results in some countries it has been found out that the effect of fiscal decentralization on economic growth has produced different outputs (Siti Aisyah, n.d.).

In one of the analyses carried out, the authors have tried to evaluate the degree of decentralization of costs and revenues in the EU countries and several post-Soviet states of Eastern Europe on local economic development, as a result of which they have revealed that the decentralization of revenues has a small negative effect on economic growth, and the decentralization of costs tends to promote economic development (Mykola Pasichnyi, Tetiana Kaneva, Maksym Ruban and Anton Nepytyaliuk, 2019).

As a consequence of community enlargement, decentralization emerges as a facilitator for local economic development. The latter is delineated as a collaborative process involving local self-government bodies, community civil society organizations, residents, as well as regional and state government entities. This collaborative environment aims to pool local skills, resources, and capacities to foster economic opportunities and stimulate economic growth at the local level. An effective avenue for local economic development lies in the formulation of a community economic development strategy. Such a strategy serves to define the engagement and collaborative efforts of all stakeholders, aligning their contributions in support of community economic development.

Several local analyses underscore the existing gap in the economic development link between local governments and communities. This gap is characterized by a lack of community-focused authorities for local economic development and insufficient financial resources.

RESEARCH METHODOLOGY. Among the general methods of scientific cognition, the method of comparison of empirical research, analysis, combination, and factor analysis methods have been used in the research.

Here a factor analysis has been carried out using the SPSS tool, for which the necessary database has been collected taking into account the results of the push sent to the 24 enlarged communities.

The data available in the factor analysis base show the socio-economic development indicators of the enlarged communities, in particular, the areas of agricultural and production lands in the communities, the number of operating commercial and manufacturing enterprises, the number of employees in the operating enterprises, as well as the number of unemployed, pensioners, households and beneficiary families. Some of the data in the factor analysis database have been calculated by means of indicators (relative indicators) to the total.

Based on the results of the factor analysis, it has become possible to distinguish 4 factor groups, as a result of which 2 factor groups have been distinguished and the results have been interpreted according to the significance of the enlarged communities.

As a result of the application of the combination method, the results of the factor analysis are compared with the main development directions and the main resources of local economic development in the five-year development plans of the communities that are of great significance.

In the research, the method of induction is also used, as a result of which it has become possible to spread the existing situation in the communities and the existing problems of the relevant sectors to the general system and come up with recommendations for systemic reforms.

The socio-economic indicators of the factor analysis base have been formed based on the results of the survey sent to 24 communities, most of which are calculated and presented in relative values.

ANALYSIS. Due to the current challenges of the RA administrative and territorial reforms, it becomes more important for communities to take into account the features of local socio-economic development when developing long-term and short-term plans for local economic development, specify the steps to be taken in their direction, and be able to carry out long-term planning of the community's economic development taking into account the features of the settlements of the enlarged community.

Table 1

Factor Analysis: Socio-Economic Development Indicators by Communities.¹

Community	Share of Agricultural Lands in Relation to Total (%)	Share of Productive Lands in Relation to Total (%)	Number of Manufacturing Enterprises Operating in the Community	Number Of Commercial Enterprises Operating In the Community	Number of Employees of Enterprises Operating in the Community in Relation to the Population (%)	Number of Unemployed in Relation to the Population (%)	Number of Pensioners in Relation to the Population (%)	Number of Households	Number of Beneficiary Families in Relation to the Population (%)
Tsaghkahovit	72	0.6	0	27	3	14	18	2725	12
Alagyaz	82	0.4	1	10	4	18	18	980	19
Charentsavan	61	2.0	12	280	4	3	12	9303	2
Jrvez	57	1.5	14	80	7	0	11	2538	1
Yeghegis	90	0.1	22	28	2	2	1	1666	3
Meghri	83	3.0	26	316	43	1	21	3285	2
Tatev	81	0.2	4	28	1	2	3	1079	2
Ani	88	0.1	17	59	2	1	0	4914	4
Lori Berd	86	0.8	9	23	1	6	1	1562	5
Berd	40	0.3	22	301	2	1	6	8491	3
Arevut	95	0.4	1	0	0	0	2	176	0
Metsadzor	87	0.5	2	0	5	0	2	112	0
Ararat	31	1.1	34	314	4	5	15	9961	5
Paraqar	69	3.2	59	245	3	0	4	6386	1
Byureghavan	53	8.8	8	75	4	1	14	2920	3
Tsaghkadzor	62	0.4	4	122	27	0	4	2200	4
Vayk	19	0.1	17	156	12	5	18	3360	4
Ashocq	80	0.8	5	29	1	5	6	1982	2
Artik	100	0.4	4	139	1	1	7	11786	4
Pambak	63	0.2	34	70	1	0	0	4424	5
Tumanyan	50	0.3	0	22	3	0	5	1606	2
Noyemberyan	84	8.3	73	347	4	1	4	6500	3
Gavar	77	1.0	48	235	1	1	7	7680	3
Chambarak	77	0.2	30	181	0	5	13	4657	5

¹ The data have been calculated by the author based on the results of a survey sent to the communities. In the analysis, the indicators of the aforementioned data, 2023, are used. The results of the factor analysis are summarized in Tables 2-6.

For this analysis, several relative indicators of the socio-economic development of 24 enlarged communities have been considered, which can express the current state of employment and unemployment of the population in the communities, as well as the existing potential of economic development.

Table 2

Communalities: Results of Factor Analysis

<i>Communalities</i>		
<i>Indicator</i>	<i>Initial</i>	<i>Extraction</i>
Share of Agricultural Lands in Relation to Total (%)	1.000	.802
Share of Productive Lands in Relation to Total (%)	1.000	.590
Number of Manufacturing Enterprises Operating in the Community	1.000	.790
Number of Commercial Enterprises Operating In the Community	1.000	.915
Number of Employees of Enterprises Operating in the Community in Relation to the Population (%)	1.000	.804
Number of Unemployed in Relation to the Population (%)	1.000	.968
Number of Pensioners in Relation to the Population (%)	1.000	.894
Number of Households	1.000	.808
Number of Beneficiary Families in Relation to the Population (%)	1.000	.930

The data presented in Table 2 allow us to explain that most of the indicators included in the analysis of the received factor model play a significant role in the new factor model formed. A relatively low index of variation is provided by the "Share of Productive Lands in Relation to Total" indicator, only 59% of the variation of which is explained by the model, which is a relatively low percentage of variation compared to other indicators.

Table 3

Total Variance Explained: Results of Factor Analysis

<i>Component</i>	<i>Initial eigenvalues</i>		
	<i>Total</i>	<i>% of Variation</i>	<i>Cumulative %</i>
1	2.808	31.200	31.200
2	2.301	25.565	56.765
3	1.357	15.082	71.847
4	1.035	11.501	83.348
5	.787	8.739	92.088
6	.419	4.660	96.748
7	.184	2.043	98.791
8	.084	.930	99.720
9	.025	.280	100.000

Table 3 shows that 83.2% of the variation due to the 9 indicators considered for the factor analysis can be explained by the 4 main factors obtained in the model.

In the next table, let us try to present the loads of indicators according to certain factor groups.

Table 4

Rotated Component Matrix

<i>Rotated Component Matrix</i>				
	<i>Component</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Share of Agricultural Lands in Relation to Total (%)	-0.084	.039	-.083	.887
Share of Productive Lands in Relation to Total (%)	.539	-.061	.462	.286
Number of Manufacturing Enterprises Operating in the Community	.864	-.137	.027	.155
Number of Commercial Enterprises Operating In the Community	.886	-.063	.245	-.256
Number of Employees of Enterprises Operating in the Community in Relation to the Population (%)	-.007	-.064	.883	-.146
Number of Unemployed in Relation to the Population (%)	-.135	.973	-.044	.017
Number of Pensioners in Relation to the Population (%)	.100	.577	.511	-.538
Number of Households	.803	.012	-.270	-.301
Number of Beneficiary Families in Relation to the Population (%)	-.067	.960	-.063	.016

As we can see from the data in Table 4, a relatively strong positive relationship is observed in Factor 1 concerning the following indicators: **"Number of Manufacturing Enterprises Operating in the Community"**, **"Number of Commercial Enterprises Operating in the Community"**, **"Number of Households"**, in which the mentioned baseline indicators are more than 0.8. Accordingly, Factor 1 can be conventionally called **"Community Production Capabilities"**.

Indicators with factor 2 are also mostly in a large and positive regression relationship. Here, the indicators - **"Number of Unemployed"** and **"Number of Beneficiary Families"**, have relatively positive coefficients, so we will conventionally call Factor 2 **"Economically Inactive Population"**.

Considering the low significance of the indicators in Factor 3 and Factor 4, we consider it appropriate to focus the analysis on the first and second factor groups.

Table 5

Values of factors according to enlarged communities of the RA

<i>Community</i>	<i>Factor 1 "Community Production Capabilities"</i>	<i>Factor 2 "Economically inactive population"</i>
Tsaghkahovit	-.61697	2.49519
Alagyaz	-.72906	3.75358
Charentsavan	.97107	.06197
Jrvez	-.43827	-.63587
Yeghegis	-.47853	-.33825
Meghri	.41753	-.09830
Tatev	-.91317	-.48046
Ani	-.12428	-.26168
Lori Berd	-.64481	.24378
Berd	.94541	-.39663
Arevut	-1.13274	-.88420
Metsadzor	-1.17664	-.91170
Ararat	1.48150	.64597
Paraqar	1.61492	-.56741
Byureghavan	.23473	-.06052
Tsaghkadzor	-.81032	-.62323
Vayk	-.27733	.27244
Ashocq	-.72686	-.06642
Artik	.64984	.06404
Pambak	.15949	-.43218
Tumanyan	-1.05625	-.71380
Noyemberyan	2.75615	-.13881
Gavar	1.35652	-.15078
Chambarak	.49006	.61559

Based on the factor groups formed as a result of factor analysis, let us try to interpret the characteristics of each community, the general social situation and the potential of local economic development based on the significance shown in a specific factor group, and as a result, we will also present the local economic challenges of the communities and outline the main directions of local economic development. Thus:

"Community Production Capabilities" factor group

Essentially, the significance provided by Ararat, Parakar, Noyemberyan, and Gavar communities in the "Community Production Capabilities" factor group allows us to conclude that the mentioned communities have a relatively large share of agricultural land in the total land, but this indicator is not significant in the factor group "Community Production Capabilities", **which allows us to assume that the possible use of agricultural land in these communities is not related to their production activities. The lack of connection between the community's agriculture and production activities is also confirmed by the high importance of agricultural lands in the 4th factor group formed as a result of the factor analysis, which is significantly different from other indicators.**

The high significance of the Ararat community among the communities that have secured significance in the "Community Production Capabilities" factor group is due to the fact that there are several production enterprises operating in the community, in addition to the large human capital and potential in terms of ensuring involvement in further possible production enterprises and various branches of agriculture. Most of the population here is engaged in trade, household services (about 38% of the population), as well as industry (about 19% of the population). There are food, soft drink, mineral water, and furniture manufacturers, as well as windows and jewelry manufacturers. The community is also notable for agricultural products processing enterprises, where wine, brandy, preserves, confectionery, etc. are produced.

Even though the location of the Ararat community is very favorable and it is close to the capital and the regional center, the possibility of processing industrial and agricultural products in the community and the possible provision of all conditions for investments are still not fully used. The insufficient development of agriculture is mainly caused by the scarcity and often insufficient water for irrigation. In addition, there are several other conditions that hinder the development of the local economy, such as the poor condition of the roads in the fields, idleness of production capacities, insufficient work of agricultural processing equipment, wear and tear of the existing agricultural machinery, as well as an unfavorable irrigation system.¹

In the Parakar community, which has achieved significance in the first factor group, in recent years, after the enlargement, around 545 mln. Armenian drams expropriation of plots of communal importance was carried out, as indicators they are not always used for agricultural purposes and often remain uncultivated. In such conditions, the local government should be able to apply certain developed policies to the agricultural lands, promoting the development of local economies. At the same time, taking into account the fact that the Parakar community is close to the capital, the community-owned lands here can be attractive in terms of investment, so we can consider this as a motive for attracting further possible investments.

It should be noted that in the Parakar community, as well as in the Ararat community, there are also several reasons that significantly hinder agriculture: insufficient condition of farms, lack of agricultural equipment, low yield, insufficient water for irrigation, poor condition of roads in the middle of the fields, lack of pedigree cattle breeding, sale and processing of agricultural products. lack of opportunities, etc.²

¹ Ararat community 2022-2026 five year development plan, <https://araratcity.am/Pages/DocFlow/Def.aspx?nt=1&a=v&g=0c5c8168-5671-42e9-a86d-7bd8cc80f5cb>

² Parakar community 2022-2026 five year development plan, https://parakar.am/upload/DocFlow/Projects/Th2212011640127112_5zarg.pdf

However, the significance provided by the Parakar community in the first factor group may be due to the presence of enterprises operating in the community. They are mainly concentrated in the fields of producing plastic goods, public catering, producing semi-finished products, restaurant and hotel services, jewelry production, as well as pharmacy chain and printing.

Noyemberyan is the other community that has achieved significance in the first factor group, which stands out from other communities with its unique strategic directions for agricultural development and they are aimed at "Smart Agriculture", promoting innovative tourism, establishing innovative agro centers, and creating opportunities for processing agricultural products.

Another significant community is Gavar, where the "Sevan" mineral water factory operates, there are also several small shoe factory-cooperatives, a lemonade factory, noodle and semi-finished products, organic fertilizers production, as well as knitting, milk screening, and procurement bakeries.

As a result of the factor analysis, during the formation of the first factor group, Ararat, Parakar, Noyemberyan, and Gavar communities, compared to other communities, have been distinguished by the number of their local production and commercial enterprises, as well as households. At the same time, in these communities, a significant separation of the agricultural sector from the community's production enterprises has been observed. The latter is justified both by the negative index of agricultural lands of the mentioned communities in the first factor group (Table 4), and in the fourth factor group, where only a high level of the relative index of agricultural lands has been observed. And even though in Ararat, Parakar, Noyemberyan, and Gavar communities there is a land resource necessary for the development of agriculture, however, when analyzing the causes of this problem in-depth, it becomes clear that the development of agriculture is significantly hindered by the uncontrollable price of services provided in the agricultural market, as a result of which agricultural cooperatives are not beneficial for themselves and provide affordable services to local residents. In addition, there aren't any minimum conditions for the development of agriculture in several communities: irrigation water, equipment for agricultural activities, etc. It turns out that in the enlarged communities under consideration, agriculture develops to an incomplete extent and potential, and has a local character due to the lack of targeted mechanisms for the management of the sector and the absence of minimal infrastructure.

"Economically inactive population" factor group

Alagyaz and Tsaghkahovit communities, providing relatively high significance in this factor group, have extremely high indicators of unemployment, beneficiary families, as well as the number of pensioners, which may allow us to assume that the social condition of these communities is not so good. In addition, there is a lack of manufacturing enterprises in the community, and the number of commercial enterprises is the lowest compared to the

observed communities. However, agricultural land in these communities has a fairly large share of the total land of the communities compared to the other enlarged communities considered. **In the second factor group, the inverse comparison of the indicators of the unemployed, production and commercial enterprises in the mentioned communities allows us to conclude that the production potential of the mentioned communities is not fully used by the human capital of the communities.**

It should be also noted that after the enlargement, the Alagyaz and Tsaghkahovit communities have seen an increase in their incomes, which, however, was accompanied by a high dependence on the state budget. However, in these communities, a large amount of capital expenditure was incurred after enlargement, but this was not accompanied by the provision of long-term solutions to social problems.

In the second factor group, the significance provided by these communities is also a result of the fact that the activity of local governments is quite detached from developing long-term solutions to the social problems of the community residents, because the authorities of the community leaders in this area are mainly related to the implementation of short-term social programs in places and the overcoming of social problems.

When presenting further proposals, it is necessary to address them with the logic of a systemic and long-term solution, under which five-year community development programs will have more practical significance.

CONCLUSIONS.

1. As a result of the factor analysis of the socio-economic indicators of the enlarged communities in the relatively early stages, the production activity of Ararat, Parakar, Noyemberyan, and Gavar communities, which secured significance in the "Community Production Capabilities" factor group, is mostly separated from agriculture, which confirms the negative value of the agriculture index in that factor group and the inverse comparability of indicators of manufacturing, commercial enterprises and households and agricultural sectors operating in the mentioned communities in the first factor group.

This again proves the fact that in Ararat, Parakar, Noyemberyan, and Gavar communities there are no factories engaged in processing agricultural products and the agriculture here is significantly cut off from other branches of the economy, which in turn is due to the insufficient condition and depletion of resources at the local level, as well as the inconsistency of the policies aimed at the development of agriculture at the regional and state level with the existing problems in practice.

It turns out that the availability of land, the main resource necessary for agricultural development, is not a guarantee for the development of agriculture

in communities, because often many communities lack the necessary agricultural equipment, there is no irrigation water system, as well as qualified labor operating agricultural equipment.

However, after the enlargement, as a result of combining several resources - land, human capital, it becomes more realistic to develop a policy aimed at the development of agriculture and its effective implementation, taking into account the climatic conditions of each settlement.

2. In the second factor group "Economically Inactive Population", the existing potential of the agricultural sector in the Tsaghkahovit and Alagyaz communities is not used effectively, which confirms the inverse comparability of the indicators of the unemployed and production and commercial enterprises of the mentioned communities in the second factor group.

The incomparably small number of production and commercial enterprises operating in the mentioned communities also motivates local governments, especially within the framework of the authority of the head of the community, to develop a practically applicable agricultural policy in the long term.

Even though local governments have very little relationship with local production activities and economic activities in the community, and at the same time, the enterprise operating in the community does not pay a large number of taxes arising from its activities, such as income tax and profit tax, to the community budget, and accordingly has no share in the formation of the community's incomes, therefore, local governments are often not interested in promoting these businesses locally, as they often have more priority solving problems aimed at ensuring the minimum living conditions of their residents.

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