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Halyna Voznyak[1,2], Andrii Stasyshyn[2], Vasyl Koval[2]
[1]State Institution "Institute of Regional Research named after M. I. Dolishniy of National Academy of Sciences of Ukraine"
[2]Ivan Franko National University of Lviv
Ukraine

EVALUATION OF SELF-SUFFICIENCY OF TERRITORIAL COMMUNITIES AS THE BASIS FOR ENSURING THEIR SUSTAINABLE DEVELOPMENT

Purpose. *The article aims to evaluate the level of financial self-sufficiency of territorial communities in terms of ensuring their sustainable development.*

Methodology / approach. *An approach that involves the consequent implementation of compositional, empirical, and taxonomic stages based on the calculation of empirical parameters (based on the structural-spatial approach using the linear weighting) of structural levels (revenue and expenditure components) of financial self-sufficiency for the city, town, and village communities was developed to achieve the set objective. The general level of financial self-sufficiency is calculated based on the integral approach. The communities are ranged by the criterion of the efficiency maximization in the management of financial resources to achieve economic development.*

Results. *The results of the evaluation for 73 communities showed that city territorial communities in Lvivska oblast had high (Lvivska) and moderate (Stryiska, Pustomytivska, Horodotska, Sudovovyshnyanska, Chervonohradska, Sambirska, and Kamyanko-Buzka) levels of financial self-sufficiency in 2021, so they were able to secure sustainable economic growth. The article reveals that 75 % of town communities had low levels of financial self-sufficiency (from 0.218 to 0.372), which is the consequence of weak fiscal capacity and, thus, low financial independence and high budget subsidiarity. Sokilnytska (0.788) and Solonkivska (0.637) village communities showed positively high results and 33 % had a moderate level of revenue component of financial self-sufficiency (from 0.414 to 0.553). The situation is triggered by their close location to the oblast center and sufficient fiscal independence. The ranking of communities by the criterion of the efficiency maximization in the management of financial resources revealed four groups. The group with a moderate level (45 communities) is the largest.*

Originality / scientific novelty. *The article develops a scientific and practical approach to the evaluation of self-sufficiency of territorial communities. Unlike others, it provides the combined (integral) evaluation of the significance of the components of territorial communities' financial self-sufficiency and allows the detection of the complementary impact of financial self-sufficiency on ensuring sustainable economic development of the territory.*

Practical value / implications. *The article offers a set of tools to evaluate financial self-sufficiency of territorial communities. Their application by local governments will serve as the informational-analytical basis for the elaboration of measures to strengthen the capacity and self-sufficiency of territorial communities with modernizing the existing strategies or developing the territorial economic growth (or recovery) programs. The application of the methodological approach makes it possible to identify budget planning deficiencies timely and improve the efficiency of the use of financial resources of local self-government bodies.*

Key words: *sustainable development, territorial community, financial self-sufficiency, financial capacity, financial resources, evaluation.*

Introduction and review of literature. The russian invasion of Ukraine in February 2022 caused financial-economic, security, and humanitarian problems and significantly complicated the living activity and development of all territorial communities without exceptions (both those in the rear and those in the areas of hostilities and at frontline territories). Nevertheless, in addition to returning its territories, Ukraine is implementing the second stage of decentralization reform. Its major objectives include the transfer of executive powers to local governments, their division among the levels based on the subsidiarity principle, and the creation of a sufficient resource base for local governments to exercise their powers. It makes quite relevant the need to detect the development directions of the territorial communities in a long run and achieve their self-sufficiency as a criterion of efficiency of administrative-territorial reform and changes caused by decentralization. Self-sufficient communities and a powerful local governance system are the basis for the recovery and progress in Ukraine. Sufficient financial resources and opportunities for their accumulation are the keys to the long-term development of territorial communities. In this context, the issues related to the evaluation of financial self-sufficiency of territorial communities as the ground for securing their sustainable development are of special practical interest. The existing set of tools for the research is somewhat fragmented and does not contribute to the elaboration of timely measures to secure the sustainable development of communities. Therefore, it is time to improve the approach to the evaluation of the self-sufficiency of communities that would result in making assumptions regarding their capacity for self-development and maintenance of sustainable development.

Scientific explorations show that a range of current studies related to the strengthening of financial self-sufficiency of territorial communities lacks the unity of approaches to an understanding of the essence of the concept and its evaluation tools and sustainable development maintenance mechanisms. The authors of the study (Yegorycheva & Lakhizha, 2016) suggest examining a financially self-sufficient community in terms of maximization of its own and delegated powers of local governments. They emphasize that a financially self-sufficient community should cover the full scope of its liabilities, while the accumulation of resources should not be spontaneous and chaotic but based on the optimization of the management of available financial resources, which is impossible without the use of prospective opportunities of the territorial community. Other studies focus on general economic aspects and highlight the following components: area, developed infrastructure, sufficient necessary human capacity and financial resources to address local matters in the interest of community residents, and the implementation of own and delegated powers of local self-government bodies (Luta & Pigul, 2015; Protsenko, 2016). The article "Community care and independence: self-sufficiency or empowerment?" offers interesting views of community residents (disabled and older service users, family members, and social service staff) in Great Britain regarding the vital services granted to them and what should be done to make them more accessible, as well as what feelings define the residents' quality of life and if local authorities are capable to

guarantee it. The researchers argue that a self-sufficient community should secure these services without waiting for help from the state (Vernon & Qureshi, 2000). The conclusions of other interesting studies (Behrman et al., 2012; Gathergood, 2012; Henager & Mauldin, 2015) outline the ways to achieve the financial goals of the residents and foster their financial stability and wellbeing based on the theory of psychological self-sufficiency (PSS).

For the purpose of the research, a territorial community is regarded as financially self-sufficient if it has an efficient mechanism for generation and management of financial resources, can independently secure the complete realization of social services for the community residents, and is capable of self-development in the long run based on self-realization, self-governance, and self-funding. The criterial conditions for the achievement of a territorial community's self-sufficiency include a well-developed financial-economic system with high adaptive capacity under the impact of internal and external challenges, the financial capacity to meet the needs of the population for vital services, the capacity and financial-organizational autonomy of local government, and the established interrelations in the system of public administration and public finance.

The issues of development of territorial communities and ensuring their sustainable development, including on the basis of decentralization, remain to be very relevant (Vasyltsiv et al., 2021) and under the influence of the Covid-19 pandemic (Ivanov et al., 2021). Ensuring local development using financial policy tools and improving the social capital of territorial communities is a priority area of modern research (Bridger & Alter, 2006; Petrushenko et al., 2017). In addition to the financial component, the center-periphery relations that display themselves through social, economic, and managerial effects have an essential impact on territorial communities' socio-economic development (Storonyanska et al., 2020). It is impossible to achieve high living standards failing to secure an appropriate level of wellbeing (Voznyak et al., 2022a). Based on the construction of empirical time series, the relationship between the financial well-being of territorial communities as a set of determinants of the effectiveness of realizing the economic potential of the territory and the rates of economic growth of the regions was revealed. Meanwhile, the study claims that a sign of self-sufficiency of residents of a territorial community is financial well-being (Voznyak et al., 2022b). At the same time, the fact that culture is the basis and resource for local development is being discussed. Active theoretical and empirical discussions prove, on the one hand, that demographic and socio-economic imbalances are severe constraints of resources' and agents' mobilization in the framework of development processes. On the other hand, the richness of material and non-material heritage, brightness of oral traditions, and strong sense of community and cultural identity are important local assets that can be transformed into efficient development tools using relevant policy and programs (Silva et al., 2018).

The critical analysis of approaches to the evaluation of financial self-sufficiency of territorial communities shows a fragmented nature of a range of methodologies and initiatives. Indeed, some studies of financial self-sufficiency of village communities

suggest evaluating it by the income of local budget (Krupin, & Pelehatyy, 2015), and some offer spatial evaluation of financial self-sufficiency based on Moran's I statistic (Kozera & Głowicka-Wołoszyn, 2016). Meanwhile, some other authors argue that index models should be used for evaluation with the system of parameters that characterize both a territorial community's internal capacity and the efficiency of its management. The factors of impact on the community's economic self-sufficiency are suggested to be detected based on the Fishbone Diagram that allows establishing the relationship between the effect and force of a factor's impact (Umanets et al., 2018). These studies are somewhat limited as they do not include the construction of valid data series due to the deficit of financial-economic parameters commensurate by a spatial-temporal feature and the sigmoid nature of economic processes. Interesting estimates of financial support for social development at the local level were obtained by the authors (Shkolnyk et al., 2018), which serve as an indicator of sustainable development and territory and welfare growth.

The indicative (simple) method of evaluation of territorial communities' financial capacity is most commonly used in international practice. The method of financial self-sufficiency evaluation through the ratio between revenues and expenditures of local budgets is widely applied:

$$FS_t^n = \frac{OI_t^n}{OE_t^n + FC_t^n + LP_t^n + CC_t^n}, \quad (1)$$

where FS_t^n – financial capacity of the *n* community in the *t* period;

OE_t^n – revenues of the *n* community in the *t* period, including grants and subventions;

OI_t^n – expenditures of the *n* community in the *t* period;

FC_t^n – investment of the *n* community in the *t* period;

LP_t^n – borrowed funds of the *n* community in the *t* period attracted for socio-economic initiatives;

CC_t^n – capital expenditures of the *n* community in the *t* period (Accountinguide…, 2022).

The domestic practice demonstrates the limited opportunities for the evaluation of financial self-sufficiency of communities. There is the methodology for the evaluation of capacity of territorial communities elaborated by the Cabinet of Ministers of Ukraine (CMU) in 2016. It was tested for 159 communities established in 2015. It is based on criteria that characterize the main socio-economic parameters impacting the development of a territorial community. The following are the criteria for evaluation of communities' capacity: the number of the population permanently residing at the territory of a capable territorial community, the number of pupils in general secondary educational establishments located at the territory of the community, the area of the community, budget fiscal capacity index of the territorial community, and the share of local taxes and fees in the community budget revenues (CMU, 2015). It is worth mentioning that the methodology has a number of disadvantages that reduce its reliability and practical significance of the test results like the application of an index

evaluation method for each criterion with disproportionate evaluation intervals or the application of an expert method with a high statistical error to build the scale of levels and ranges of the parameters.

In 2021, the Ministry for Communities and Territories Development of Ukraine presented the Draft Methodological Recommendations regarding the Evaluation of Territorial Communities' Financial Capacity developed to determine the capacity and ability of communities to maintain the quality of public services provided to the population and meet the interests of the residents of respective territories. The methodology is based on a capacity development index of territorial community that includes such parameters as general fund revenues (per capita), the share of expenditures for the maintenance of the Territorial Community's Council and its executive authorities in the budget of the territorial community, capital expenditures (per capita), the subsidiarity of the territorial community's budget, the percentage of wages in the expenditures of the general fund of the territorial community's budget, expenditures for culture and sports (per capita), the share of the territorial community's revenues from transfers from the state budget, the share of local taxes and fees in the revenues of the general fund of the territorial community's budget (Methodological recommendations, 2021). It eliminates the gaps in the CMU's methodological recommendations, namely, it allows making comparative analysis of the financial capacity of territorial communities not only by the integral indicator but also by the respective criteria and stipulates the use of a comparable evaluation range for each parameter (the value of each indicator ranges from 0.5 to 1). The use of threshold (critical) values of indicators is an essential benefit. However, the absence of an indicator for evaluating the effectiveness of a territorial community as a criterion for the effectiveness of using the financial capabilities of territories to achieve economic development goals in the methodology of the Ministry of Community Development of Ukraine can be considered as a reason for reducing its statistical and practical value.

Considering the abovementioned, the practical value of elaboration of valid tools to evaluate the financial self-sufficiency of territorial communities is increasing since the obtained results will serve as an analytical basis for the update of development strategies or measures of reinforcement of self-sufficiency of territorial communities.

Further, our attention will be focused on two practical issues: (1) the development of a set of tools to evaluate the financial self-sufficiency of territorial communities and (2) its testing on the example of all communities in Lvivska oblast.

The purpose of the article – to evaluate the level of financial self-sufficiency of territorial communities in terms of ensuring their sustainable development.

Methodology. The methodological approach to the evaluation of self-sufficiency of territorial communities provides for the gradual implementation of the following consequent stages: compositional, empirical, and taxonomic (Figure 1).

The compositional stage stipulates the forming of an informational-analytical research system through the selection of a group of indicators of financial self-sufficiency of the communities and choosing the research base and period.

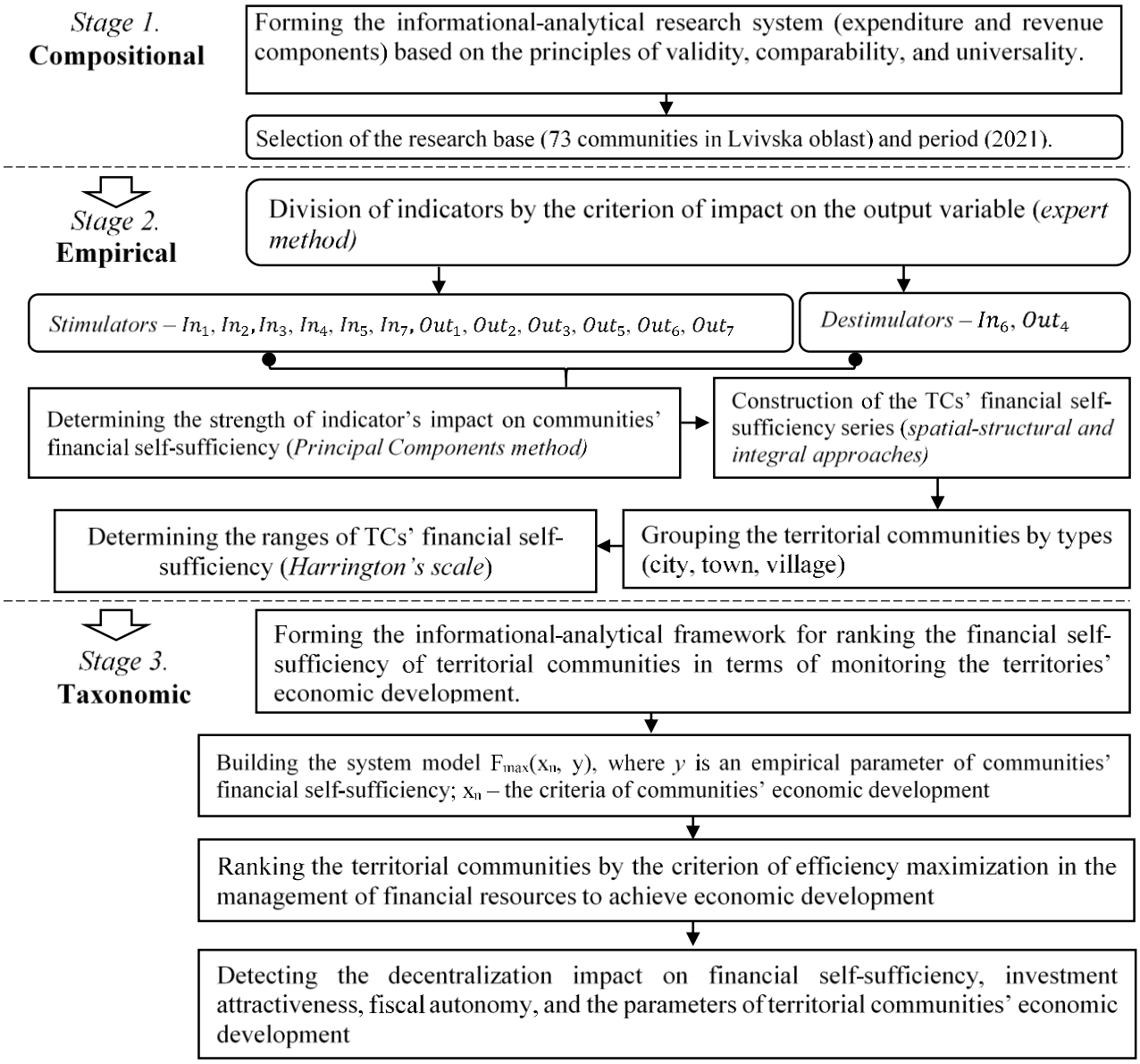

Figure 1. The stages of evaluating the financial self-sufficiency of territorial communities

Source: developed by the authors.

The empirical stage of the research is based on the use of structural-spatial and integral approaches and the implementation of the following substages: determination of the significance of the indicators' impact on financial self-sufficiency of the communities, construction of the financial self-sufficiency series of communities, their grouping by types, and determination of financial self-sufficiency ranges. The implementation of this stage allows detecting the structural (revenue and expenditure components) and general (integral) levels of self-sufficiency of territorial communities. This mixed approach eliminates the statistical error of the limited dynamic data since the decomposition of the main components of self-sufficiency of territorial communities is applied.

The system of indicators that comprehensively determine the financial self-sufficiency and the efficiency of the communities' activity can be formalized as follows

(Formula 2):

$$f_i\begin{pmatrix} InC \\ OutC \end{pmatrix} = f_i\begin{pmatrix} \uparrow In_1;\uparrow In_2;\uparrow In_3;\uparrow In_4;\uparrow In_5;\downarrow In_6;\uparrow In_7 \\ \uparrow Out_1;\uparrow Out_2;\uparrow Out_3;\downarrow Out_4;\uparrow Out_5;\uparrow Out_6;\uparrow Out_7 \end{pmatrix}, \quad (2)$$

where InC – revenue component of financial self-sufficiency of communities;

$OutC$ – expenditure component of financial self-sufficiency of communities;

In_1 – the own revenues of communities per capita, USD;

In_2 – the share of the own revenues (without transfers) of communities in the GRP, %;

In_3 – the share of local taxes and fees in the community's revenues, %;

In_4 – the ratio between own revenues and general fund of the community's revenues, coefficient;

In_5 – the level of fiscal autonomy of the community (the ratio of tax revenues and own revenues (without transfers)), coefficient;

In_6 – subsidiarity level, %;

In_7 – the ratio between local taxes and community transfers, coefficient;

Out_1 – capital expenditures per capita, USD;

Out_2 – the share of capital expenditures in total expenditures, %;

Out_3 – general fund expenditures per capita, USD;

Out_4 – expenditures for performance of national functions per capita, USD;

Out_5 – economic activity expenditures per capita, USD;

Out_6 – social expenditures per capita, USD;

Out_7 – housing expenditures per capita, USD;

↑ – positive impact on financial self-sufficiency;

↓ – negative impact on financial self-sufficiency of territorial communities.

To build the commensurate series of values for the financial self-sufficiency indicators of communities, the parameters are normalized for each group by Formula (3) for stimulating indicators and Formula (4) for destimulating indicators:

$$a_i^{sn} = {x_i^n}\Big/{k_{nor}}, \quad k_{nor} \geq x_{max}^N, \quad (3)$$

$$a_i^{dn} = {k_{nor}}\Big/{x_i^n}, \quad k_{nor} \leq x_{min}^N, \quad (4)$$

where a_i^{sn}, a_i^{dn} – normalized values of the *i* stimulating indicator and destimulator of the *n* TC;

k_{nor} – reference values of the indicators;

x_i^n – output value of the *i* indicator of the *n* territorial community;

x_{max}^N, x_{min}^N – maximum and minimum values of the *i* indicator within the *N* set of territorial communities.

The subsidiarity indicator has a mixed impact on the output variable since the grants for territorial communities are both reverse (negative values) and basic (positive values). Normalization for subsidiarity indicator is made by Formula (5):

$$\left\{ \begin{array}{l} \text{if } a_i^{rev} < 0, \text{then } a_i^{rev} = 1 \\ \text{if } a_i^{rev} > 0, \text{then } a_i^{dn} = {x_{min}^N}/{x_i^n}, \end{array} \middle| \; x_{min} \in (0; \infty) \right\}, \quad (5)$$

where a_i^{rev} – the normalized value of the *i* subsidiarity indicator.

Based on the principal components analysis, the coefficients of the weight of indicators' impact on territorial communities' financial self-sufficiency are calculated by Formula (6). The values of the coefficients are constant for all territorial communities, and the totals of all indicator coefficients within the components and components for each territorial community are equal to 1.

$$w_i^k = {\left|VPC_i^k\right|}/{\sum_{i=1}^m \left|VPC_i^k\right|}, \quad (6)$$

where w_i^k – the coefficient of the weight of impact of the *i* indicator of the *k* group.

This method for the calculation of the weight coefficients for the impact on financial self-sufficiency of territorial communities was selected due to the availability of numerous variables with various units, which eliminates collinearity (a variable has several values, for instance, 0 or 1) in the process of construction of data series.

The structural (revenue and expenditure components) levels of financial self-sufficiency of communities are calculated based on the spatial-structural approach, using linear weighting by Formula (7), and the total level of financial self-sufficiency of territorial communities is calculated based on the integral approach by Formula (8).

$$\text{C}FSS_k^n = \sum_{i=1}^j w_i^k \cdot a_i^n, \quad (7)$$

$$FSS_n = \sum_{k=1}^m w_k^n \cdot \text{C}FSS_k^n, \quad (8)$$

where $\text{C}FSS_k^n$ – structural levels of financial self-sufficiency of the *k* component of the *n* territorial community;

FSS_n – integral empirical coefficient of financial self-sufficiency of the *n* territorial community;

w_k^n – coefficient of the weight of impact of the *k* group on the forming of financial self-sufficiency of the *n* territorial community.

The *taxonomic stage* enables reasoning the levels of financial self-sufficiency of territorial communities in terms of evaluating the efficiency of the use of the territory's economic capacity based on the results of community rankings. The ranking based on the maximization of financial self-sufficiency as the outcome parameter and effectivization of the use of financial-economic parameters as endogenous factors of community development serves as an informational-analytical framework for the research of decentralization effects, namely its impact on financial self-sufficiency, investment attractiveness, fiscal autonomy, and the parameters of economic development of communities.

Territorial communities are worth ranking by the criterion of efficiency maximization in the management of financial resources for the achievement of economic development based on Equation (9), using Model (10).

$$f_i\begin{pmatrix} InC \\ OutC \end{pmatrix} = FSS_n \underset{max}{\longrightarrow} f_i(DvC) = \begin{pmatrix} Dv_1 \\ Dv_2 \\ Dv_3 \\ Dv_4 \end{pmatrix}, \quad (9)$$

$$F(f_i\,(DvC); FSS_n\,) \underset{(x;y)}{\longrightarrow} max \quad (10)$$

where DvC – parameters of the economic development of communities;

Dv_1 – the number of large taxpayers per 10,000 of the population;

Dv_2 – grants for socio-economic development of the territories per capita, USD;

Dv_3 – the number of active taxpayers per capita;

Dv_4 – the share of taxes paid to the local budget by the ten largest taxpayers, %.

The suggested approach was tested for 73 territorial communities of Lvivska oblast established as a result of the decentralization reform on a new administrative-territorial basis (2021). The statistical basis for calculations consists of the data of the regional statistics office and the openbudget.gov.ua website. The basis of an informational-analytical framework for evaluation was formed and the parameters were selected following the principles of validity, universality, and comparability.

Results and discussion. The evaluation by the suggested methodology shows the results that will be described below. Own revenues were a significant determinant of growing financial self-sufficiency of territorial communities in Lvivska oblast in the selected period (indicators 18.5 % and 19.0 %, Table 1).

Table 1

Coefficients of influence of indicators on financial self-sufficiency of territorial communities in Lvivska oblast, 2021

Indicators	Coefficients, %
I. Revenue component	
1. The community's own revenues per capita, USD	18.5
2. The share of the community's own revenues (without transfers) in GRP*, %	9.2
3. The share of local taxes and fees in the community's own revenues, %	11.2
4. The ratio between own revenues and general revenue fund, coefficient	19.0
5. The level of the community's fiscal autonomy, coefficient	11.2
6. Subsidiarity level, %	16.1
7. The ratio between local taxes and community transfers, coefficient	14.7
II. Expenditure component	
1. Capital expenditures per capita, USD	19.1
2. The share of capital expenditures in the total expenditures, %	15.9
3. General fund expenditures per capita, USD	17.8
4. Expenditures for the performance of national functions per capita, USD	13.3
5. Economic activity expenditures per capita, USD	18.9
6. Social expenditures per capita, USD	3.3
7. Housing expenditures per capita, USD	11.7

Note. *GRP is calculated based on the GRP volume index in Lvivska oblast in 2021 to 2020.

Source: calculated based on the data on the website openbudget.gov.ua using Formula (7).

The indicator of the share of own revenues (without transfers) of community in GRP had the least impact in the revenue component (9.2 %). Subsidiarity level has a comparatively high impact on financial self-sufficiency of communities in the revenue

component (16.1 %), which can be a sign of excessive transfer dependence of communities on the state budget, while the lack of concerted division of powers does not stimulate local governments to increase their local budget bases. The essential role of local taxes and fees in the revenue base of the communities (11.2 %) shows the positive impact of the decentralization reform on revenues of local budgets and the efficient operation of the financial management of communities.

The indicators of capital investment per capita (19.1 %) and economic activity expenditures per capita (18.9 %) had the strongest impact on financial self-sufficiency of territorial communities in 2021 in the expenditure component. It shows that growing financial self-sufficiency of territorial communities is among the priorities of local governance development in Ukraine. Logically, social expenditures (3.3 %) had the least impact on financial self-sufficiency of communities in Lvivska oblast.

Based on the calculated coefficients of the weight of impact, the levels of self-sufficiency of territorial communities in Lvivska oblast in 2021 were determined and grouped into three types: city, town, and village communities. Lvivska community was the leader among all city territorial communities in Lvivska oblast in 2021, for instance, by the revenue component (0.815) (in fact, its own revenues four times exceeded those in Belzka community and 2.5 times those in Sambirska community). Pustomytivska, Sambirska, Stryiska, Kamyanka-Buzka, Chervonohradska, Brodivska, Horodotska, Truskavetska, Yavorivska, and Zhydachivska territorial communities had the moderate levels (Harrington scale, 0.4–0.6 range) of financial self-sufficiency by the revenue component. This situation proves that communities not only have sufficient sources to generate revenues but also can efficiently manage their own funds. Turkivska community had a critically low level of financial self-sufficiency among city communities, with a rate of 0.217. The levels of financial self-sufficiency by expenditure component of Stryiska (0.600), Lvivska (0.561), and Sudovovyshnyanska (0.538) communities were the highest (Table 2).

Much higher capital expenditures and economic activity expenditures of the mentioned territorial communities determine their high positions in the total ranking of city communities. Meanwhile, a substantial divergence in the level of expenditure component of financial self-sufficiency of city territorial communities was observed for Rudkivska (0.189) and Hyrivska (0.182) communities.

With regard to town territorial communities in Lvivska oblast in 2021, it is worth noting that the levels of revenue and expenditure components of their financial self-sufficiency were below moderate and very low (Table 3). Namely, Borynska community had a critically low level of the revenue component (0.149), while Shchyretska (0.168), Pomoryanska (0.181), Zhuravnenska (0.198), and Pidkaminska (0.191) – the expenditure component of financial self-sufficiency. Slavska community is characterized by a moderate financial self-sufficiency level in both components (0.569 and 0.586, respectively). There was a significant differentiation between town and city communities by the revenue component of financial self-sufficiency. Indeed, if 26.2 % of city communities had moderate and high levels of financial self-sufficiency by the revenue component, the share among the town communities was

18 % (3 communities with moderate levels among the total of 18 communities).

Table 2

The levels of financial self-sufficiency of city territorial communities: spatial-structural approach, 2021

TC	Components		Levels	TC	Components		Levels
	InC	*OutC*			*InC*	*OutC*	
Lvivska	0.815	0.561	*Very high*	Novokalynivska	0.327	0.266	*Low*
Pustomytivska	0.594	0.366	*Moderate*	Peremyshlyanska	0.314	0.257	
Sambirska	0.563	0.256		Sokalska	0.307	0.282	
Stryiska	0.563	0.600		Rava-Ruska	0.299	0.274	
Kamyanka-Buzka	0.559	0.245		Novoyavorivska	0.296	0.365	
Chervonohradska	0.528	0.294		Buska	0.293	0.317	
Brodivska	0.491	0.259		Sudovovyshnyanska	0.293	0.538	
Horodotska	0.491	0.402		Bibrska	0.292	0.340	
Truskavetska	0.488	0.229		Zhovkivska	0.288	0.284	
Yavorivska	0.450	0.250		Hyrivska	0.275	0.182	
Zhydachivska	0.407	0.241		Belzka	0.272	0.210	
Boryslavska	0.397	0.323	*Low*	Rudkivska	0.268	0.189	
Morshynska	0.396	0.273		Mostyska	0.263	0.271	
Hodorivska	0.377	0.281		Skolivska	0.263	0.321	
Radehivska	0.346	0.259		Novorozdilska	0.257	0.337	
Lvivska	0.815	0.561		Novokalynivska	0.252	0.261	
Pustomytivska	0.594	0.366		Peremyshlyanska	0.243	0.263	
Sambirska	0.563	0.256		Sokalska	0.243	0.244	
Stryiska	0.563	0.600		Rava-Ruska	0.217	0.226	
Kamyanka-Buzka	0.559	0.245					

Note. The communities are ranked by the revenue component.

Source: calculated based on the data on the website openbudget.gov.ua and Table 1 using Formula (8).

Meanwhile, the ratio between city and town communities with moderate levels of financial self-sufficiency by the expenditure component was 1:2.

Table 3

The levels of financial self-sufficiency of town territorial communities: spatial-structural approach, 2021

TC	Components		Levels	TC	Components		Levels
	InC	*OutC*			*InC*	*OutC*	
Slavska	0.569	0.586	*Moderate*	Krasnenska	0.336	0.217	*Low*
Ivano-Frankivska	0.529	0.309		Velykolyubinska	0.315	0.260	
Dobrotvirska	0,465	0.275		Zhuravnenska	0.304	0.198	
Novoyarychivska	0.358	0.372	*Low*	Kulikova	0.297	0.218	
Hnizdychivska	0.355	0.472		Lopatynska	0.275	0.262	
Shchyretska	0.352	0.168		Pidkaminska	0.244	0.191	
Pomoryanska	0.339	0.181		Medenytska	0.242	0.219	
Shidnytska	0.338	0.406		Borynska	0.149	0.246	*Critical*

Note. The communities are ranked by the revenue component.

Source: calculated based on the data on the website openbudget.gov.ua and Table 1 using Formula (8).

Among village territorial communities, Sokilnytska (0.788) and Solonkivska (0.637) communities had high levels of financial self-sufficiency. 33 % of all village

communities in Lvivska oblast in 2021 had moderate levels of the revenue component of financial self-sufficiency (from 0.414 to 0.553).

It is worth mentioning that fiscal autonomy and significant amounts of tax revenues are the triggers of moderate and high levels of financial self-sufficiency among village communities, especially those close to the oblast center (Sokilnytska, Solonkivska, Murovanska, Obroshynska, Pidberiztsivska, Zymnovodivska) (Table 4). Interestingly, reverse grants are present in village territorial communities with high and moderate levels of the reverse component of financial self-sufficiency. For instance, the reverse grants in Sokilnytska community amounted to 7.49 %, and in Zymnovodivska – 0.33 %. Strilkivska (0.265 and 0.163, respectively) and Dobrosynsko-Maherivska (0.268 and 0.177) territorial communities had critically low levels of financial self-sufficiency in both components.

Table 4

The levels of financial self-sufficiency of village territorial communities: spatial-structural approach, 2021

TC	Components		Levels	TC	Components		Levels
	InC	*OutC*			*InC*	*OutC*	
Sokilnytska	0.788	0.483	*High*	Hrabovetsko-Dulibivska	0.377	0.292	*Low*
Solonkivska	0.637	0.615		Rozvadivska	0.316	0.263	
Murovanska	0.553	0.590	*Moderate*	Shehynivska	0.315	0.273	
Obroshynska	0.504	0.338		Ralivska	0.288	0.261	
Pidberiztsivska	0.490	0.565		Zabolotsivska	0.284	0.262	
Zhovtanetska	0.479	0.287		Kozivska	0.282	0.207	
Trostyanetska	0.431	0.248		Dobrosynsko-Maherivska	0.268	0.177	
Zymnovodivska	0.414	0.442		Strilkivska	0.265	0.163	
Davydivska	0.381	0.670	*Low*	Biskovytska	0.226	0.289	

Note. The communities are ranked by the revenue component.

Source: calculated based on the data on the website openbudget.gov.ua and Table 1 using Formula (8).

The integral evaluation of financial self-sufficiency of territorial communities indicates whether a community is capable to secure financial autonomy and a proper level of socio-economic growth and provision of public services in the long run. The obtained results confirm the hypothesis that city territorial communities in Lvivska oblast had moderate and low levels of financial capacity to secure economic development in 2021, except for Lvivska community. Meanwhile, low financial self-sufficiency was peculiar to all communities, excluding Lvivska, Stryiska, Pustomytivska, Horodotska, Sudovovyshnyanska, Chervonohradska, Sambirska, and Kamyanka-Buzka (Figure 2). High level (Harrington scale) of financial self-sufficiency in Lvivska and Stryiska territorial communities is determined by the significant fiscal capacities of their local budgets that allow them to independently secure the proper level of services provision, including in education, culture, healthcare, social protection, and housing, as well as infrastructure development in the respective territorial community.

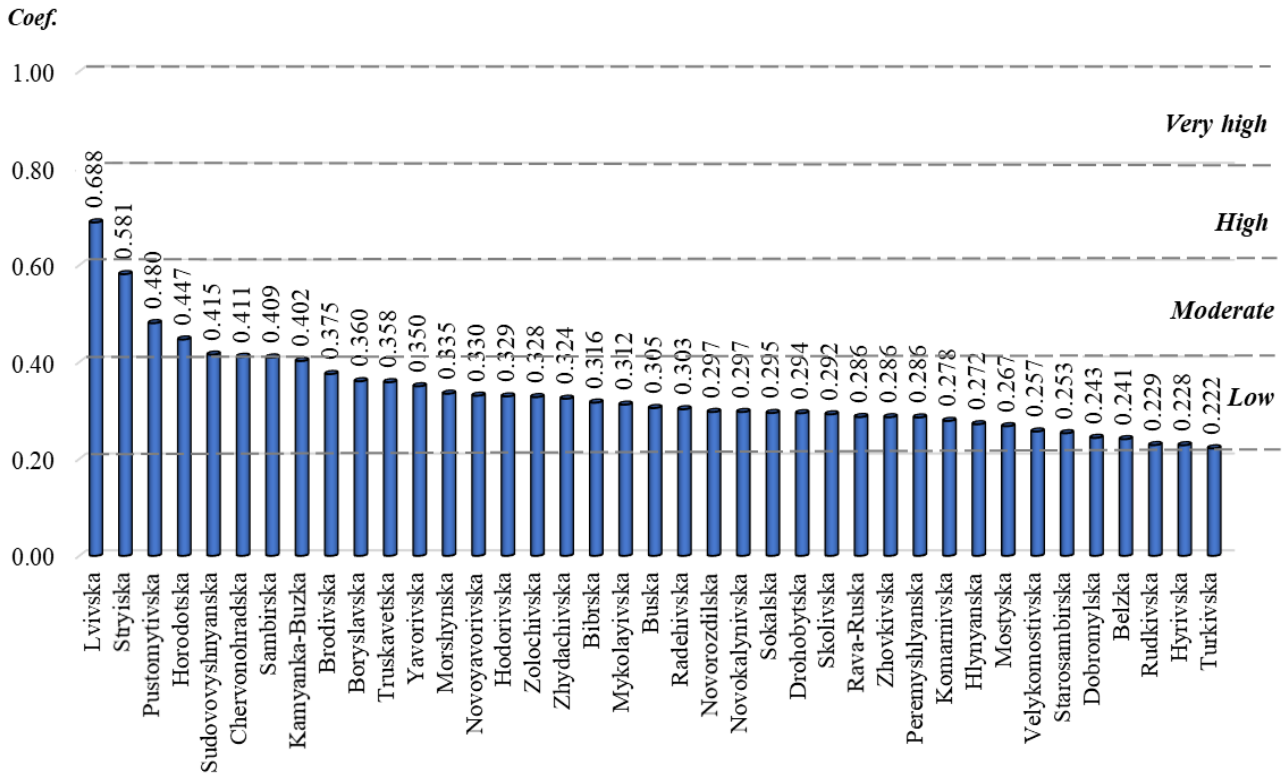

Figure 2. The levels of financial self-sufficiency of city territorial communities: integral approach, 2021

Source: calculated by the author based on the data in Table 1 and Table 2 using Formula (9).

Meanwhile, none of the town territorial communities in Lvivska oblast had high financial self-sufficiency levels in 2021 (Figure 3).

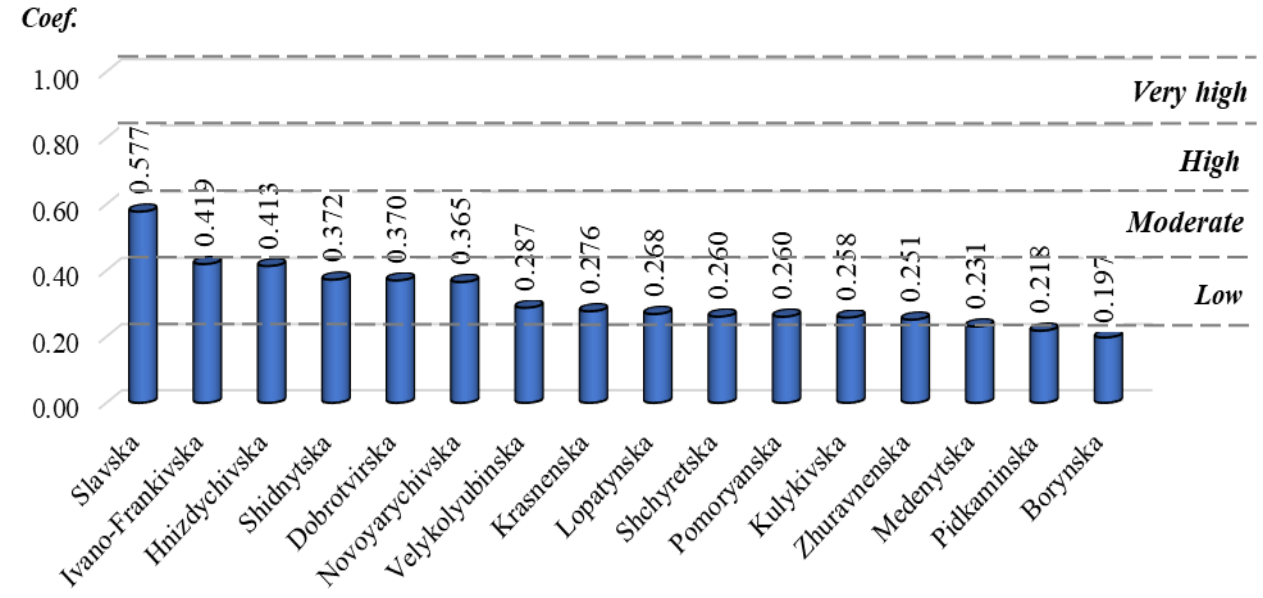

Figure 3. The levels of financial self-sufficiency of town territorial communities: integral approach, 2021

Source: calculated by the author based on the data in Table 1 and Table 3 using Formula (9).

Slavska, Ivano-Frankivska, and Hnizdychivska territorial communities were characterized by moderate levels of financial self-sufficiency (0.577; 0.419, and 0.413, respectively). Interestingly, 75 % of town communities had low financial self-sufficiency levels (from 0.218 to 0.372), which is the result of weak fiscal capacity and thus low financial autonomy and high budget subsidiarity level. A poor amount of subsidies for the economic development of territories with low population density and branching of the network of budget institutions is the exogenous factor in forming of low financial self-sufficiency levels of communities.

The integral evaluation shows the existence of a causal relationship between the financial self-sufficiency of territorial communities and the parameter of distance to the oblast center with high center-periphery interactions. Financial self-sufficiency of Sokilnytska (0.636) and Solonkivska (0.626) territorial communities is the highest not only among village communities but also among all of them in Lvivska oblast (Figure 4). It is worth mentioning that 64.7 % of village territorial communities in Lvivska oblast were characterized by low levels of financial self-sufficiency and only 29.4 % had moderate levels (from 0.421 to 0.572). Transfers and redistribution of national taxes had the strongest impact on financial self-sufficiency of village territorial communities. It should be noted that the conducted evaluation of financial self-sufficiency levels for 73 communities in Lvivska oblast indicates the growing risks of financial imbalances.

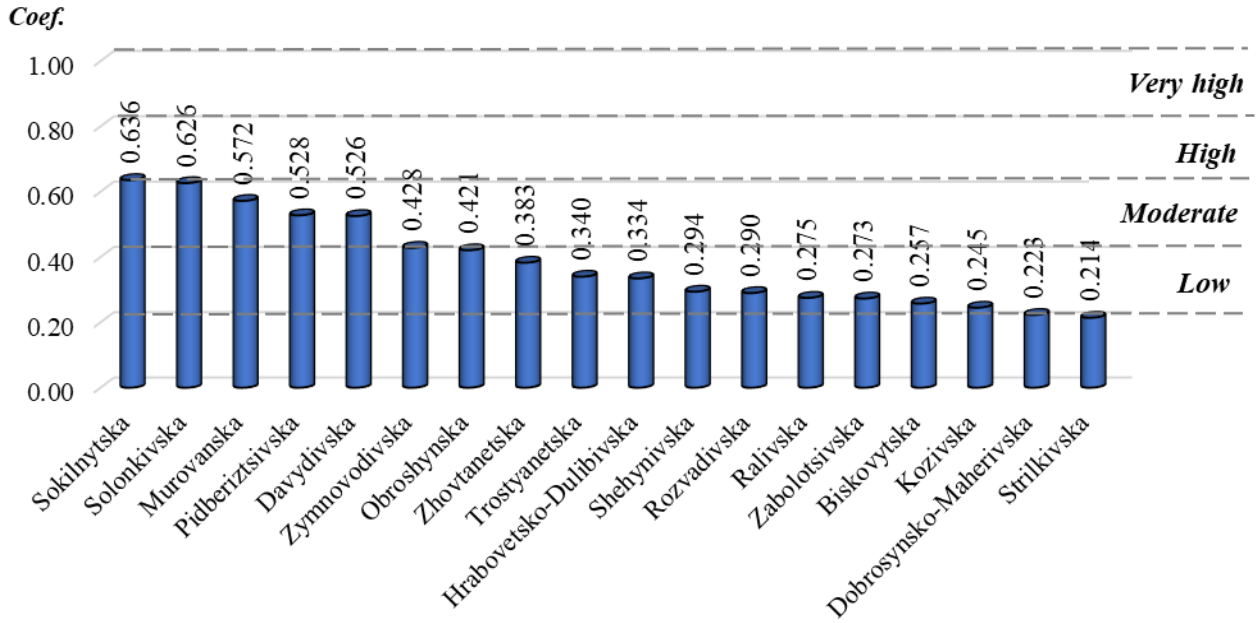

Figure 4. The levels of financial self-sufficiency of village territorial communities: integral approach, 2021

Source: calculated by the author based on the data in Table 1 and Table 4 using Formula (9).

The groups of territorial communities were determined by ranking according to the criterion of maximizing the efficiency of financial resource management to achieve high rates of economic development and ensuring a high level of community welfare, taking into account the parameters of economic development of communities.

Four groups of territorial communities were identified as the result of ranking:

I. Communities that use available financial resources to the maximum efficiency (the coefficient equals 1.00);

II. Communities with high efficiency in the management of financial resources but small volumes of financial capacity uninvolved in terms of improving the economic development parameters (0.90–0.99);

III. Communities with moderate levels of efficiency in the management of financial resources and substantial volumes of uninvolved financial capacity (0.60–0.89);

IV. Communities with low levels of efficiency in the management of financial resources and poor financial capacity (0–0.59).

Interestingly, the first group with the highest level of financial self-sufficiency and efficient management of financial resources for economic development includes Lvivska, Sokilnytska, Solonkivska, Stryiska, Slavska, Obroshynska, and Yavorivska territorial communities (Table 5).

Table 5

Ranking of territorial communities: the criterion of financial self-sufficiency maximization in terms of ensuring the economic development of a territory, 2021

TC	Coef.	Gr.	TC	Coef.	Gr.	TC	Coef.	Gr.
Lvivska	1.00	I.	Truskavetska	0.85	III.	Zhovkivska	0.68	III.
Sokilnytska	1.00		Rozvadivska	0.85		Rava-Ruska	0.68	
Solonkivska	1.00		Ralivska	0.84		Belzka	0.67	
Stryiska	1.00		Zhydachivska	0.83		Krasnenska	0.67	
Slavska	1.00		Dobrotvirska	0.83		Shchyretska	0.67	
Obroshynska	1.00		Zhovtanetska	0.82		Velykolyubinska	0.66	
Yavorivska	1.00		Mostyska	0.80		Skolivska	0.65	
Sudovovyshnyanska	0.99	II.	Hnizdychivska	0.79		Zhuravnenska	0.64	
Dobrotvirska	0.99		Drohobytska	0.78		Zabolotsivska	0.64	
Kamyanka-Buzka	0.99		Kamyanka-Buzka	0.78		Starosambirska	0.63	
Pustomytivska	0.97		Brodivska	0.77		Lopatynska	0.61	
Sambirska	0.97		Borynska	0.77		Pomoryanska	0.60	
Zolochivska	0.96		Mykolayivska	0.76		Radehivska	0.58	IV.
Novoyavorivska	0.94		Biskovytska	0.75		Bibrska	0.57	
Hodorivska	0.94		Morshynska	0.74		Turkivska	0.56	
Davydivska	0.93		Novokalynivska	0.74		Medenytska	0.55	
Horodotska	0.92		Yavorivska	0.74		Dobrosynsko-Maherivska	0.53	
Ivano-Frankivska	0.92		Buska	0.73		Hlynyanska	0.52	
Pidberiztsivska	0.91		Velykomostivska	0.73		Kozivska	0.52	
Novorozdilska	0.90		Hrabovetsko-Dulibivska	0.72		Shehynivska	0.52	
Murovanska	0.90		Rudkivska	0.71		Peremyshlyanska	0.51	
Chervonohradska	0.89	III.	Novoyarychivska	0.71		Kulykivska	0.50	
Zymnovodivska	0.89		Strilkivska	0.71		Pidkaminska	0.48	
Boryslavska	0.88		Dobromylska	0.69		-	-	-
Pustomytivska	0.88		Komarnivska	0.69				
Trostyanetska	0.88		Sokalska	0.69				
Shidnytska	0.87		Hyrivska	0.69				

Note. Gr. – group of territorial communities.

Source: calculated based on the data on the website openbudget.gov.ua, Figure 2–4, and Formula (10) using OnFront softaware.

The group of communities with moderate levels of financial self-sufficiency in terms of securing the economic development is the largest (45 territorial communities of Lvivska oblast). Therefore, a set of tools for evaluation of self-sufficiency of territorial communities is offered and tested in the process of the research (on the example of 73 communities in Lvivska oblast). It is based on the calculation of an empirical parameter for the levels of two structural components (revenue and expenditure). Unlike the existing one, the practical value of the obtained result (Krupin & Pelehatyy, 2015; Kozera & Głowicka-Wołoszyn, 2016; Khirivskyi et al., 2022) allows evaluating the capacity of territorial communities for self-development and maintenance of sustainable growth. Moreover, it is worth specifying some limitations peculiar to the offered methodological approach (that do not affect the quality and reliability of the obtained result much) in terms of comparative temporal research of the components of financial self-sufficiency of the communities. It is caused by a statistical vacuum with regard to the development of a valid and harmonized informational-analytical system of indicators in dynamics.

Conclusions. The results of this research give us the possibility to draw the following conclusions and generalizations:

- analysis and evaluation of financial indicators for 73 territorial communities in Lvivska oblast in 2021 show that 83.6 % of the communities cannot be regarded as financially self-sufficient. The share of basic grants in own revenues was over 50 % for more than 12.3 % of communities, which is a significant challenge for the sustainable development of communities. High subsidiarity levels of local budgets are the destructive factor for improvement of their financial self-sufficiency;

- evaluation of the revenue component of the financial self-sufficiency of communities indicates that the system of horizontal budgetary alignment causes the increasing withdrawal of funds from the budgets of more financially self-sufficient communities when there is a large number of communities with low tax revenues per capita and high levels of basic grants, which affects economic development. It makes the issue of improving budget alignment extremely important;

- ranking according to the criterion of maximizing the financial self-sufficiency of communities in relation to the economic development in Lvivska oblast reveals that the communities with high levels of financial self-sufficiency do not always show high socio-economic development paces. The situation is triggered by the lack of a comprehensive informational-analytical framework for monitoring financial self-sufficiency of the communities in the process of elaboration and implementation of territorial development strategies, including financial resilience and independence and fiscal autonomy. It is worth mentioning that the goals of local development strategies are mostly directed at meeting the social needs of the population rather than ensuring the economic development and the improvement of financial self-sufficiency of communities. In other words, it is high time to harmonize the local economic development programs with the opportunities for the establishment of a resource base. The time has come to harmonize the local economic development programs with opportunities to create a resource base.

The introduction of the system of financial self-sufficiency monitoring of territorial community, the implementation of a scientific-methodological approach to a complementary evaluation of financial autonomy and the causal relationship between financial self-sufficiency and economic development, and the update of budgetary aligning mechanisms allow avoiding the risks of financial failure for the communities with low levels of own revenues and increasing the own revenues of communities that can eventually become the basis for the improvement of capacity and self-sufficiency of territorial communities. The strengthening of financial self-sufficiency of territorial communities based on resilience, financial autonomy, competitive advantage generation, and minimization of risks and threats of strategic goals achievement is an essential task for the economic development of contemporary communities. These issues can serve as directions for further research. Deeper argumentation of obtained recommendations needs additional analytical calculations, which is the ground for further research by the selected topic.

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