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FINANCIAL WELL-BEING OF TERRITORIAL COMMUNITIES AND THE ECONOMIC GROWTH OF THE REGIONS OF UKRAINE: ASSESSMENT AND MODELING OF INTERRELATION

Purpose. *The purpose of the article to assess and model the interrelation between the financial well-being of territorial communities (TCs) and regional economic growth in Ukraine under conditions of uncertainty.*

Methodology / approach. *The empirics of assessment and modeling of a causal relationship between the financial well-being of TCs and economic growth of regions is based on: the construction of time series for empirical parameters of territorial communities' financial well-being (substantiation of structural elements of financial well-being, TCs clusterization by the criteria of profitability, and calculation of integral coefficients); multidimensional estimation of regional economic growth (multiplicative approach, principal component analysis); detection of impact ("pressure" force) of TCs' financial well-being on the paces of regional economic growth (index and regression methods).*

Results. *Based on the results of the integral assessment with preliminary clusterization of TCs by their revenues, the article reveals that in 2020, the weighted average level of TCs' financial well-being in Ukrainian regions was the highest in Zakarpattia (0.592), Kherson (0.534), Zaporizhzhia (0.513), and Chernivtsi (0.512) oblasts, while the lowest – in Ivano-Frankivsk (0.281) oblast. In 2010–2020, Ivano-Frankivsk (0.48 %), Poltava (0.06 %), Rivne (0.16 %), Ternopil (0.25 %), Khmelnytskyi (0.35 %), and Chernihiv (0.54 %) oblasts demonstrated higher annual average economic growth paces, while Dnipropetrovsk (-0.86 %) and Kherson (-0.94 %) oblasts – negative ones.*

Originality / scientific novelty. *The article enhances the methodological approach to the complementary assessment of TCs' financial well-being and regional economic growth, which has contributed to modeling the ability of territories' economies to increase investment-economic capacity and the causal relationship between economic growth determinants and the financial capacity of territorial communities in regions.*

Practical value / implications. *The article offers and substantiates the action-oriented approach to the assessment of regional economic development. Its implementation contributes to making the spatial breakdown of the system's economic condition and building the architectonics of economic progress determinants to determine the "divergence areas" of regional development.*

Key words: *economic growth, territorial community, region, Ukraine, financial well-being, financial capacity, causality.*

Introduction and review of literature. Aggravation of crisis phenomena in Ukraine (caused by both external and internal triggers) produces disturbing trends that affect the financial-economic system and multiply negative effects both in the country and territorial communities. In this sense, the issues of determining the financial well-

being level of TCs as an essential indicator of economic, managerial, and security stability and resilience under conditions of uncertainty are becoming increasingly important. Considering the change of organization of financial relationships on various levels of public management in Ukraine, assessment of the impact and modeling of the relationship between the financial well-being of territorial communities and the economic growth of regions they belong to is of practical interest. The available methodological framework of the research of TCs' financial well-being is fragmental and incomplete and doesn't help to carry out a comprehensive analysis and simulation modeling and prediction of financial well-being's impact on regional economic growth and thus the development of timely measures to achieve the balanced development of territories. Therefore, it is high time to elaborate a set of tools that will be based on the understanding of the evolution of the welfare concept in compliance with the principles of data accessibility, indicators universality, and capacity for comparative analysis.

In our opinion, financial well-being should be regarded as an indicator that shows the financial condition of an entity (financial and property assets) and a set of characteristics of a competitive living environment from the viewpoint of opportunities for people to receive decent income, realize and develop personal capacity under conditions of security and freedom of choice. Financial well-being is defined by the income level, but its absolute equivalent isn't an objective measure of financial well-being. A higher income level can be eliminated due to: (1) availability of one source of income that instantly causes a significant decline in an entity's well-being in case of crises (loss of job, disability); (2) solely consumption-based (forced or conscious) economic behavior of an entity that limits the capacity of income sources differentiation and further growth of well-being; (3) additional expenditures caused by the need to buy drugs and medicine, maintenance of disabled family members, additional expenditures on housing and transport, etc. A high well-being level is a criteria feature of the quality of life and living standards, while financial well-being is the feature of securing the self-sufficiency of residents of territorial communities.

Scientific research shows that the galaxy of current studies is based on the individualization of well-being analysis in the context of self-assessment when the well-being on an individual level is a complex indicator of wellness and normal living activity, the experience of positive emotions, opportunities for development and communications, control over life, and the sense of one's goal (Huppert, 2009). Meanwhile, the subjective assessment of well-being by the population can be objectivized and supplemented with the most significant statistical data. Accordingly, the results of calculating the happiness index show that income, social assistance, and health that can be quantified impact the happiness level the most (Helliwell et al., 2019). With regard to the information on emotional perception of well-being by the population, it can be the ground for the public policy if average well-being scores are considered (O'Donnell & Oswald, 2015).

The complex assessment of well-being with the combination of sociological and statistical parameters is an essential information basis for efficient public and regional policies. The unification of methodological approaches to well-being assessment

allows comparing its level among different types of territories and socio-demographic groups. Therefore, the issue of creating an integrated and multidimensional well-being parameter that would be based not only on subjective (individualized) estimations remains open (Ruggeri et al., 2020).

The critical analysis and generalization of various approaches to the analysis of well-being show the development of numerous assessment methodologies. Some share of them is used by international organizations, creating the ground for interstate comparisons – Human Development Index, Happy Planet Index, OECD Better Life Index, International Living Index, Consumer Confidence Index, Genuine Progress Index, etc. (Hagerty et al., 2001; Sharpe, 1999). These indices are promoted as the 'beyond GDP' approaches, indicating the lack of objectivity from the viewpoint of assessment of economic well-being (Berik, 2018). Some states are testing the methodology of calculating the Index of Sustainable Economic Welfare (ISEW), which allows calculating the contribution of a state (region) to the general level of well-being by calculating the benefits and losses from economic activity (Bleys, 2013).

Meanwhile, there are some initiatives on localization of well-being assessment by calculating how it is influenced by specific conditions (Cylus & Smith, 2020). Scientific research on TCs' well-being is increasingly relevant. The states with long-lasting local governance traditions test the methodologies of TCs' well-being calculation that cover the parameters of education, human resources activity, income, and housing (McHardy & O'Sullivan, 2004). Mostly environmental and infrastructural problems and peculiarities of securing the well-being of the population in certain types of settlements, including rural and remote ones, are in the focus of TCs' wellbeing research. Despite the features of TCs, well-being is considered as the factor and result of their resilience (Maybery et al., 2009). The prerogative of creating economic conditions for well-being remains on the national level, while TCs receive the main functional liabilities regarding the introduction of social innovations and maximum civic engagement (Kluvánková et al., 2018). Social entrepreneurship is considered as an efficient form of securing the TCs' well-being at the intersection of economic and social goals. Social entrepreneurship entities operate in the strategic for domestic consumption industries, and they can provide assistance to socially vulnerable categories of the population (Mckinnon et al., 2021). However, social priorities are relevant for the developed TCs, while the financial component of well-being remains more significant for developing TCs and those under conditions of uncertainty.

Well-being assessment across its components allows substantiating the capacity of certain directions of public and regional policies. The concept of financial well-being outlines the economic factors of its generation: an economic interpretation of well-being stipulates the consideration of income impact resulting in a higher consumption level (Fuentes & Rojas, 2001). Methodological approaches to the assessment of financial-economic aspects of well-being generation were first addressed in the late 1980s, when economic well-being was suggested to be calculated based on the following parameters: consumption, expenditures, life expectancy; income distribution (poverty, unequal income); accumulation of production resource reserves

(finance, housing, natural resources, environmental costs, human capital, investment); security (unemployment, diseases, disintegration of families, ageing) (Osberg, 1985). Testing of the methodology in Canada, the USA, and some OECD countries allows solving a range of conceptual issues, namely detecting the problems of the shadow economy, taking into consideration the life expectancy, modeling the risks of unemployment and poverty in old age, determining financial losses from diseases, etc. The integration of parameters of impact on the environment, despite the difficulties in the monetary assessment of pollution parameters, has become the most significant conceptual problem (Osberg & Sharpe, 2002).

The development of the financial well-being analysis methodology includes methodological approaches to the assessment of its impact on other progressive processes. The relationship between the well-being of the population and environmental condition is proven, so it raises the issue of a new category of "nature's well-being" (Brymer et. al., 2019). The understanding of well-being as utility and sustainable development goals remains relevant and requires the harmonization of methodologies for evaluating these categories (Neumayer, 2007). Coordination of social, economic, and environmental goals is still the relevant discussion regarding the development of sustainable human well-being that needs balance with the departure from utopian models (Michalos, 1997). Assessment of the impact of financial well-being on economic growth is an urgent scientific task that combines social and economic aspects of progressive changes. The results of the assessment are important for decision-making since they allow applying a critical "pressure" of financial well-being on the economic growth of a territory (state, region) and its ability to increase investment capacity (Voznyak et. al., 2022). However, methodological developments should take into account the parameters that would represent the quality-of-life features of economic progress (Ferrara & Nisticò, 2015; Khirivskyi et al., 2022; Storonyanska et al., 2021; Vasyltsiv et al., 2021).

Well-being should serve as an alternative indicator of economic growth (as opposed to GDP), indicating the limits in quantitative parameters and being the catalyst of transition to a social model less dependent on growth (Thiry, 2015; Rushchyshyn, et al., 2021). Methodological developments regarding the evaluation of the impact of well-being on economic growth should be tested by different countries considering their specifics since, for instance, developing countries can have lower causal effects due to the vicious circle of poverty as they face financial instability and unfair income distribution (Islam et al., 2017; Voznyak et al., 2021).

The impact of well-being on economic growth should be researched both holistically and across individual components, showing their significance. These can be both the main parameters of income and consumption and the parameters of the social relations and social capital system (Zakharov et al., 2020). The indicators of social capital have a stronger impact on subjective estimations of well-being in developed societies than personal demographic and family features (Hooghe & Vanhoutte, 2011). The impact of economic parameters on well-being in subjective estimations is less significant in the developed countries where the basic needs of the

population are satisfied: the wealthier is the society, the more well-being is defined by social relationships and job satisfaction, while income remains the decisive factor for developing countries (Diener & Seligman, 2004).

Despite the progressive nature of ideas regarding the growing role of social aspects in the well-being of the population, they acquire these features if the basic needs related to economic processes are met. Therefore, the development of financial well-being assessment methodology as an indicator of the impact of economic factors on the population remains a relevant scientific task. Methodological approaches to the assessment of financial well-being at the national level require an adaptation considering territorial specifics – regions and territorial communities. Modeling the relationship between the processes of territorial communities' well-being generation and the economic growth of regions they belong to is among the essential results of methodological adaptations. The practical significance of obtained results for further development of regions and territorial communities increases under conditions of uncertainty as the financial well-being of TCs as a set of determinants is defined by the efficiency of realization of a territory's economic capacity and the level of financial capitalization of obtained results. Therefore, regional economic growth correlates with the financial capacity of TCs, the economic behavior of households, and conditions of rational financial decision-making.

The purpose of the article to assess and model the interrelation between the financial well-being of TCs and regional economic growth in Ukraine under conditions of uncertainty.

Methodology. The methodology of assessing the impact of TCs' financial well-being on regional economic growth includes the following consequent stages: (1) construction of a series of empirical indicators of territorial communities' financial well-being based on the spatial approach; (2) calculation of regional economic growth coefficients in Ukraine based on the temporal approach; (3) assessment of the impact of TCs' financial well-being on regional economic growth.

Stage I. The following indicators were selected following the principles of data accessibility, universal parameters, and capacity of comparative analysis by the criteria of dynamics and space to assess the financial well-being of Ukrainian TCs (for 2017 and 2020): revenues of the general fund per capita, USD; budget subsidiarity level, %; capital expenditures per capita, USD; the share of management staff cost in the revenues of general fund, %. 12 TCs were selected to carry out the research within each region of Ukraine and further divided into 3 groups by the profitability criteria (the most profitable, moderately profitable, and the least profitable).

To construct homogeneous time series of indicators for each group of TCs within a region we use normalization by the formula (1) for stimulating and destimulating indicators (2):

$$a_{it}^{sn} = {x_{it}^{n}}\Big/{x_{\max t}^{N}}, \quad (1) \qquad a_{it}^{dn} = {x_{\min t}^{N}}\Big/{x_{it}^{n}}, \quad (2)$$

where a_{it}^{sn}, a_{it}^{dn} – normalized values of the i stimulating and destimulating

indicator for the *n* TC in *t* period;

$x^N_{\max t}, x^N_{\min t}$ – maximum and minimum values of the *i* indicator in *t* period within the *N* set of TCs in a region;

The mixed method of data normalization and additional condition (formula 3) are applied for the subsidiarity level indicator since it can have a controversial nature of the impact on the TCs' financial well-being.

$$a^{sn}_{it} = 1 - {x^n_{it}}\Big/{x^N_{\max t}}, \text{ if } a^{sn}_{it} < 0, then\ a^{sn}_{it} = 1 \quad (3)$$

The weight coefficients within each group of TCs for a selected set of territories are calculated following the principal component analysis, and the integral coefficient of a TC's financial well-being is constructed based on the multiplicative approach.

Stage II. There are numerous approaches to the assessment of regional economic growth in global and domestic economic discourses on the grounds of overcoming the negative socio-economic development trends in some areas and maintaining sustainable development, as well as based on the assessment of an innovation-oriented economy and following the smart specialization direction. Therefore, the lack of universal, valid, and consolidated empirical parameter constitutes the methodological vacuum in the research of regional economic growth.

The suggested assessment approach is grounded on growth coefficients of the indicators of the economic system development. The data of regional statistical offices served as the statistical basis for the calculation of regional economic growth parameters in Ukraine. The information-analytical framework of assessment was developed and parameters were selected following the principles of validity, universality, and comparability.

The following indicators were selected to assess the regional economic growth in Ukraine: GRP per capita, USD; capital investment per capita, USD; foreign direct investment per capita, USD; consumer price index, %; the volume of sold products (goods, services) by small businesses per one employed, thousand USD; personal income tax per capita, USD; corporate income tax per one enterprise, USD.

Taking into account the fact that the indicators have different dimensions and orientations, the correct normalization will help bring the indicators to the [0; 1] range and compatible series. The economic growth indicators are normalized based on the calculation of the growth coefficients by the chain method (4):

$$a^n_{it} = {x^n_{it}}\Big/{x^n_{it-1}}, \quad (4)$$

where x^n_{it-1} – the value of the *i* indicator of the *n* oblast in *t-1* period;

a^n_{it} – growth coefficient of the *i* indicator for *n* oblast in *t-1* period.

The construction of an empirical regional economic growth parameter in Ukraine stipulates the use of the multiplicative approach following the principal component analysis. The suggested authors' methodology allows revealing the structure of relationships between indicators and constructing integral coefficients of economic growth based on the temporal-spatial approach. This method for calculating the integral coefficients of economic growth also takes into account the non-linearity of social and

economic processes by the use of the logarithm function.

Stage III. The impact of TCs' financial well-being on economic growth paces is detected based on the calculation of press index and press factor by the formulas (5–6):

$$IndPr_n = \frac{\left({}^{FW_n}/_{EG_n}\right)_t}{\left({}^{FW_n}/_{EG_n}\right)_{t+1}}, \quad (5)$$

$$FPr_n = 1 - IndPr_n, \quad (6)$$

where $IndPr_n$ – the force of impact ("pressure") of TCs' financial well-being on the economic growth of the *n* region;

FW_n – TCs' financial well-being of the *n* region;

EG_n – economic growth level of the *n* region;

t – period;

FPr_n – factor of financial well-being's impact on economic growth paces of the *n* region.

The press index shows how much the regional economic growth paces change if TCs' financial well-being level changes by 1 % for a certain period. If the press factor exceeds zero ($FPr_n > 0$) and the parameter grows in dynamics, there is an effect of "direct impact", i.e. the reduction of the financial burden on the economic system of the region at the growing financial well-being of TCs. If the press factor is below zero ($FPr_n < 0$) and is decreasing in dynamics, economic growth is limited due to the lack or minimum maintenance of the TCs' financial well-being.

Results and discussion. *1. Empirics of territorial communities' financial well-being: spatial approach*. The results of the evaluation based on the suggested methodology allow arguing about the following issues. In the analyzed period, an excessive transfer dependence of local budgets on public budget can be observed. The lack of harmonized liabilities division does not stimulate local governments to increase their base of local budgets. Financial indicator of budget subsidiarity level had the highest weight significance in Vinnytsia oblast in 2017 (260.5 %), indicating the excessive dependence of TCs' capacity in the region on the centralized financial assistance (Table 1). In 2020, the highest weight values were observed for the indicator of the general fund revenues (31.02 %), while the indicator of capital expenditures had the lowest weight significance. TCs in Volyn oblast faced the structural transformation of weight coefficients in 2017–2020 toward the reduction of budget subsidiarity and general fund revenues from 26.29 % to 23.11 % and from 29.31 % to 26.23 %, respectively. In 2017, TCs of Dnipropetrovsk oblast had the highest values of weight coefficients of financial well-being by the determinants of general fund revenues (26.81 %) and capital expenditures (26.13 %), while in 2020, all financial determinants had high weight values, excluding the budget subsidiarity level (21.94 %).

For TCs in Zaporizhzhia oblast (2017), general fund revenues and budget subsidiarity level had much higher weight coefficient values than other financial determinants (33.74 % and 35.43 % against 15.53 % and 15.30 %). Yet, in 2020, the weight significance of the share of management staff cost in the total general fund

revenues increased to 23.09 % at the reducing weight of capital expenditures to 11.28 %. A similar situation with the relationship between weight coefficients was observed in the TCs of Ivano-Frankivsk oblast, where the financial determinant of capital expenditures had a critically low value in 2017 (8.52 %) compared to the other indicators that ranged from 29.38 % to 31.20 %. The trends show that the orientation of local governments on the increase of their territorial development capacity remains low. In 2020, the situation changed, so the structure of financial determinants' weights was optimized.

Table 1

Weight significance coefficients of financial well-being indicators of TCs in Ukrainian regions, 2017, 2020, %

TCs in regions	2017				2020			
	Parameters							
	General fund revenues	Budget subsidiarity level	Capital expenditures	The share of management staff cost in the total revenues of the general fund	General fund revenues	Budget subsidiarity level	Capital expenditures	The share of management staff cost in the total revenues of the general fund
Vinnytsia	25.76	26.05	24.54	23.65	31.02	26.66	13.26	29.06
Volyn	29.31	26.29	25.22	19.17	26.23	23.11	23.83	26.82
Dnipropetrovsk	26.81	22.49	26.13	24.57	27.19	21.94	25.01	25.86
Donetsk	28.22	21.62	23.65	26.50	27.76	25.76	27.12	19.36
Zhytomyr	26.52	23.71	24.40	25.36	29.73	24.49	26.24	19.53
Zakarpattia	25.71	24.23	24.44	25.62	27.25	24.24	22.03	26.48
Zaporizhzhia	33.74	35.43	15.53	15.30	30.80	34.82	11.28	23.09
Ivano-Frankivsk	31.20	30.90	8.52	29.38	27.07	25.64	22.71	24.58
Kyiv	25.00	25.00	25.00	25.00	30.38	17.57	28.45	23.60
Kirovohrad	22.51	33.27	12.75	31.47	28.17	16.83	27.73	27.27
Lviv	29.75	29.66	10.81	29.78	26.90	22.07	25.93	25.09
Luhansk	30.38	30.09	23.63	15.89	42.79	43.52	3.87	9.82
Mykolaiv	26.43	25.24	25.80	22.53	28.98	26.41	27.36	17.26
Odesa	30.17	30.97	24.43	14.43	26.39	23.26	24.11	26.23
Poltava	30.97	8.90	30.01	30.12	30.87	19.64	26.03	23.47
Rivne	27.66	23.78	22.46	26.10	27.44	24.38	21.96	26.22
Sumy	30.26	27.01	22.48	20.26	28.77	23.35	22.35	25.52
Ternopil	28.69	25.53	25.00	20.78	25.18	24.13	24.89	25.79
Kharkiv	39.14	22.24	32.25	6.37	28.72	20.80	27.80	22.68
Kherson	28.30	27.91	21.81	21.99	31.91	31.97	14.82	21.30
Khmelnytskyi	27.00	24.67	25.43	22.89	28.82	24.80	22.44	23.95
Cherkasy	25.28	26.67	20.34	27.70	28.74	18.71	26.01	26.53
Chernivtsi	28.55	28.76	17.09	25.61	30.80	31.00	9.57	28.63
Chernihiv	31.81	30.12	18.05	20.02	26.96	25.56	23.38	24.11

Source: calculated based on the data (Financial capacity of ATH).

The balance method of analyzing the weight coefficients allowed detecting that in 2017, Zaporizhzhia (33.74 %), Chernihiv (31.81 %), Poltava (30.97 %), Sumy (30.26 %), Odesa (30.17 %), and Luhansk (30.38 %) oblasts had the highest weight values of the financial well-being determinant of the general fund revenues. In 2020, Vinnytsia (31.02 %), Zaporizhzhia (30.80 %), Kyiv (30.38 %), Poltava (30.87 %), Kherson (31.91 %), and Chernivtsi (30.80 %) oblasts entered the group of regions with high weight significance of revenues determinant. It is worth mentioning that there weren't any TCs in 2017 where the weight by the revenues indicator exceeded 40 %. Meanwhile, in 2020, the weight coefficient of the general fund revenues for the TCs in Luhanska oblast was 42.79 %.

The value of the weight significance coefficient for the indicator of budget subsidiarity level in 2017 was the highest for the TCs in Zaporizhzhia (35.43 %), Ivano-Frankivsk (30.90 %), Kirovohrad (33.27 %), Luhansk (30.09 %), Odesa (30.97 %), and Chernihiv (30.12 %) oblasts and the lowest in Donetsk (21.62 %), Poltava (8.9 %), Kharkiv (22.24 %), and Dnipropetrovsk (22.49 %) oblasts. Meanwhile, in 2020, the situation with the significance of budget subsidiarity changed drastically, so the level of TCs' budget dependence on subsidies reduced, showing the growth of TCs' financial capacity. By the way, an essential reduction of weight significance of budget subsidiarity level was observed for TCs in Kyiv (from 25.0 % to 17.57 %), Kirovohrad (from 33.27 % to 16.83 %), Cherkasy (from 26.67 % to 18.71 %), and Chernihiv (from 30.12 % to 25.56 %) oblasts. Some TCs in Ukrainian regions demonstrated the opposite picture, namely Poltava (subsidiarity weight increased from 8.9 % to 19.64 %) and Kherson (from 27.91 % to 31.97 %) oblasts.

Weight coefficients of the capital expenditures indicator in 2017–2020 were quite volatile. The maximum coefficient value in 2017 was recorded for TCs in Poltava oblast (30.01 %) and in 2020 for Kyiv (28.45 %), Kirovohrad (27.73 %), Mykolayiv (27.36 %), and Kharkiv (27.80 %) oblasts. It indicates a positive trend since the role of TCs in economic dynamics adjustment on the local level increases, and the growth of capital expenditures is essential for the solution of priority tasks related to regional economic stabilization. It is worth mentioning that the TCs in regions with low general fund revenues demonstrate the lowest weight coefficients of the financial indicator of capital expenditures, for instance, the TCs in Luhansk (3.87 %), Chernivtsi (9.57 %), and Zaporizhzhia (11.28 %) oblasts. The increasing significance of capital expenditures and growing capital expenditures in the total structure of TCs' budget expenditures allow investment in large infrastructural projects, secure the capacity of important economic sectors, promote the new jobs in all qualification categories, and foster the generation of central budget revenues (corporate tax revenues, personal income tax revenues, etc.), thus assuring that the government performs its social obligations.

The empirical parameter of TCs' financial well-being in Ukrainian regions is calculated based on a multiplicative approach. Taking into account the unequal creation of TCs in the regional dimension in 2017, the value of the parameter was calculated following the principle of data accessibility. The TCs for 2020 were selected based on

the cluster approach – four TCs in each category of the highest, moderate, and lowest general fund revenues. Interestingly, in 2017, Honcharivska territorial community had the highest financial well-being empirical parameter value in Vinnytska oblast (0.816), and Losynivska – the lowest (0.205). Meanwhile, in 2020, Vinnytska TC had the highest financial well-being level (0.980), and Murafska – the lowest (0.092). Slobozhanska TC was the leader by the financial well-being parameter in Dnipropetrovsk oblast in 2017 (0.912), but its well-being level decreased to 0.683 in 2020. Instead, Troyitska TC demonstrated the highest well-being parameter value (0.947). The trend of changing financial well-being empirical parameters for TCs in Lviv oblast is quite interesting. Trostyanetska (0.925) and Davydivska (0.801) TCs had the highest values in 2017 and Slavska (0.850) and Solonkivska (0.694) in 2020.

The average level of TCs' financial well-being in Ukrainian regions in 2017 ranged from 0.370 to 0.744. Kirovohrad (0.744), Sumy (0.647), Luhansk (0.634), Kharkiv (0.620), and Cherkasy (0.606) oblasts were among the leaders by the average TCs' financial well-being level (Figure 1a). Dnipropetrovsk (0.377) and Ternopil (0.370) oblasts were the outsiders. In 2020, the average level of TCs' financial well-being in Ukrainian regions ranged from 0.281 to 0.592. The highest values of TCs' financial well-being parameter among territorial communities with moderate financial well-being levels were in Zakarpattia (0.592), Kherson (0.534), Zaporizhzhia (0.513), and Chernivtsi (0.512) oblasts (Figure 1b). Interestingly, the lowest level of TCs' financial well-being was in Ivano-Frankivsk oblast (0.281). The average level of TCs' financial well-being declined in all oblasts, excluding Zakarpattia oblast.

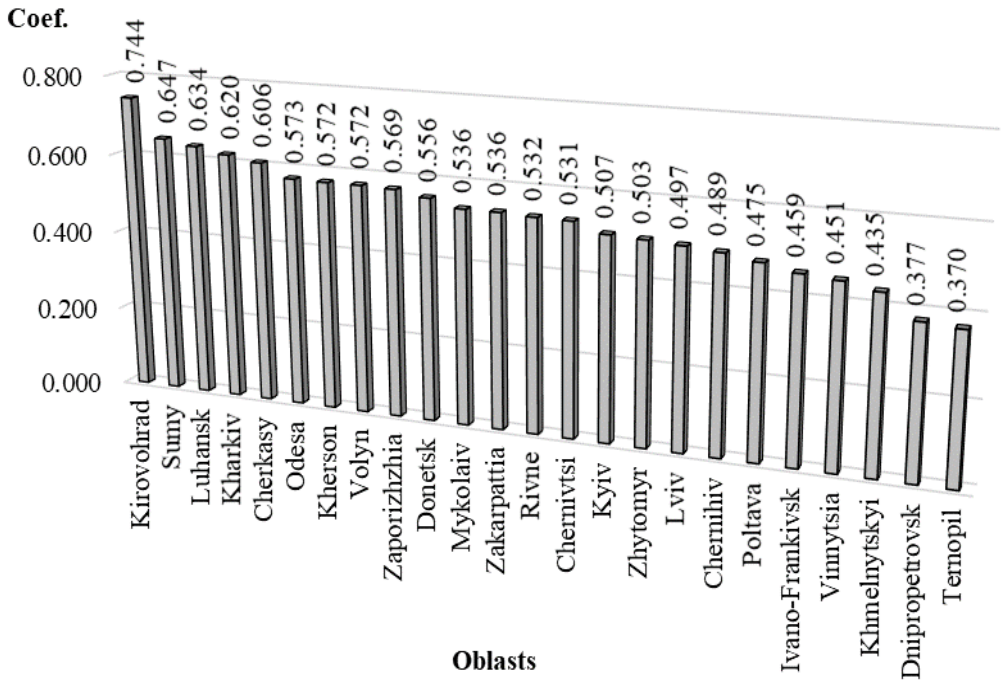

Figure 1a. The weighted average level of TCs' financial well-being in Ukraine: regional breakdown in 2017

Source: compiled based on the authors' calculations.

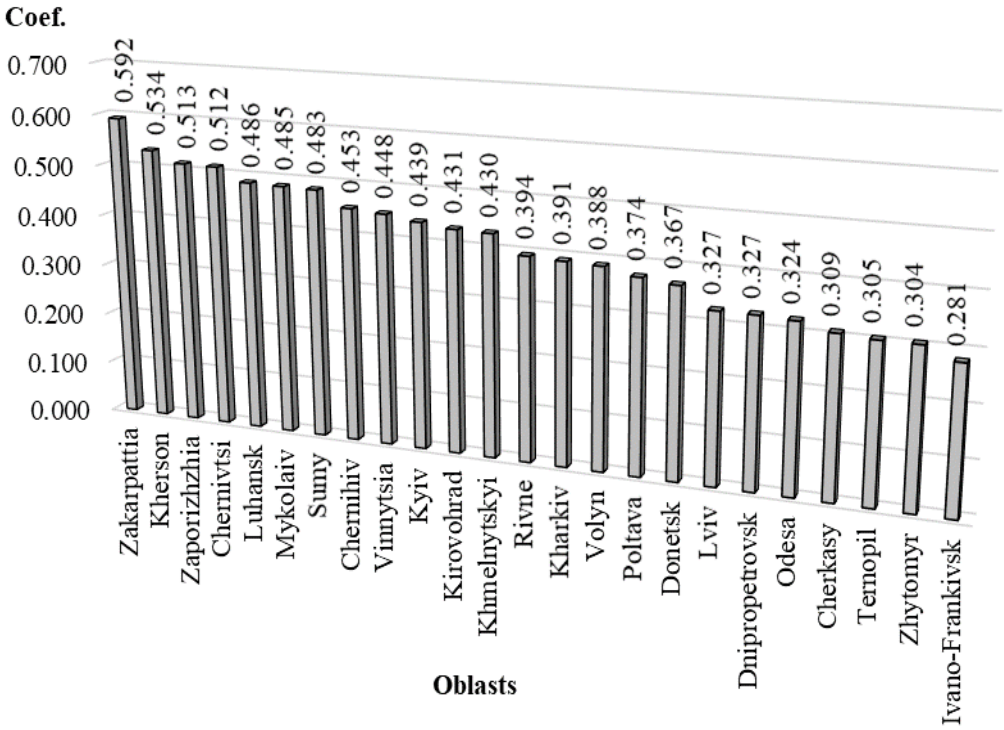

Figure 1b. The weighted average level of TCs' financial well-being in Ukraine: regional breakdown in 2020

Source: compiled based on the authors' calculations.

2. Empirics of economic growth in Ukrainian regions: temporal approach.

The calculated empirical parameters of economic growth in Ukrainian regions in 2011–2020 show the regress of regional economic systems. The empirical parameters of economic growth in Vinnytsia and Volyn oblasts in 2011 were 1.163 and 1.099, respectively. They declined to 0.949 and 0.952, respectively, in 2020. The same situation was in other oblasts. In 2011, the level of economic growth in Dnipropetrovsk oblast was 1.118, in 2017 – 1.223, and in 2020, the level declined to 0.914 (Table 2). Interestingly, 2016–2017 showed the economic recovery on the regional level, but the systemic crisis has generated economic stagnation, affecting economic growth paces. Kyiv oblast demonstrated positive economic recovery paces in the analyzed period, excluding 2014–2015 and 2020. Economic growth in Lviv oblast in 2011 was 0.784. The recovery of economic capacity to the level of 1.080–1.118 was observed in 2015–2016.

Average annual economic growth paces in Ukrainian regions verify the hypothesis of the low level of the territories' endogenous development, excessive financial dependence on revenues from the public budget, and the financial inability of TCs to meet their and delegated obligations, secure the development of social infrastructure, and implement economic reforms (Figure 2). Ivano-Frankivsk (0.48 %), Luhansk (0.11 %), Poltava (0.06 %), Rivne (0.16 %), Ternopil (0.25 %), Khmelnytskyi (0.35 %), and Chernihiv (0.54 %) oblasts in 2010–2020 demonstrated the positive average annual economic growth paces. Dnipropetrovsk (0.86 %) and Kherson (0.94 %) oblasts showed the most negative average annual economic growth paces.

Table 2

Empirical parameters of economic growth in Ukrainian regions, 2011–2020

Regions	Years/coefficients									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Vinnytsia	1.163	1.072	1.165	0.756	0.889	1.082	1.188	1.199	1.157	0.949
Volyn	1.099	1.100	1.219	0.761	0.909	1.021	1.161	1.138	1.228	0.952
Dnipropetrovsk	1.118	1.101	0.994	0.760	0.957	0.962	1.223	1.176	1.111	0.914
Donetsk	1.209	1.051	1.112	0.591	0.736	1.038	1.171	1.305	1.017	0.955
Zhytomyr	1.123	1.149	1.040	0.840	0.821	1.095	1.158	1.170	1.142	0.987
Zakarpattia	1.165	0.937	0.933	0.926	0.905	1.158	1.109	1.098	1.150	0.927
Zaporizhzhia	1.066	1.046	1.009	0.753	0.969	1.107	1.199	1.093	1.038	0.992
Ivano-Frankivsk	1.274	0.981	1.012	0.736	1.112	1.108	1.109	1.078	1.132	1.048
Kyiv	1.125	1.096	1.094	0.741	0.976	1.092	1.102	1.133	1.139	0.944
Kirovohrad	1.307	1.109	1.067	0.861	0.791	1.095	1.100	1.099	1.114	0.984
Lviv	0.784	1.434	1.213	0.607	1.080	1.118	1.125	1.148	1.186	0.963
Luhansk	1.139	1.081	1.066	0.622	0.566	1.044	0.981	1.055	1.092	1.011
Mykolaiv	1.095	0.959	1.097	0.711	1.008	1.134	1.130	1.048	1.204	0.939
Odesa	0.937	1.146	1.055	0.768	0.910	1.101	1.132	1.082	1.080	0.976
Poltava	1.032	1.227	1.089	0.741	0.883	1.133	1.171	1.146	1.216	1.006
Rivne	1.149	1.160	1.094	0.664	1.009	1.007	1.234	1.093	1.112	1.016
Sumy	1.192	1.039	1.051	0.733	1.091	1.110	1.107	1.094	1.132	0.990
Ternopil	0.986	1.083	0.960	0.841	1.283	0.797	1.163	1.183	1.087	1.025
Kharkiv	1.171	1.124	1.107	0.670	1.016	1.036	1.054	1.127	1.119	0.974
Kherson	1.136	1.036	0.989	0.812	0.846	1.070	1.216	1.102	1.203	0.906
Khmelnytskyi	1.149	0.979	1.282	0.666	1.103	0.898	1.193	1.145	1.070	1.035
Cherkasy	1.063	1.115	1.074	0.430	1.608	1.109	1.102	1.232	1.069	0.976
Chernivtsi	1.119	1.057	1.020	0.787	0.773	0.985	1.180	1.101	1.197	0.966
Chernihiv	1.148	1.093	1.012	0.809	0.892	1.138	1.331	1.166	1.094	1.054

Source: compiled based on the authors' calculations.

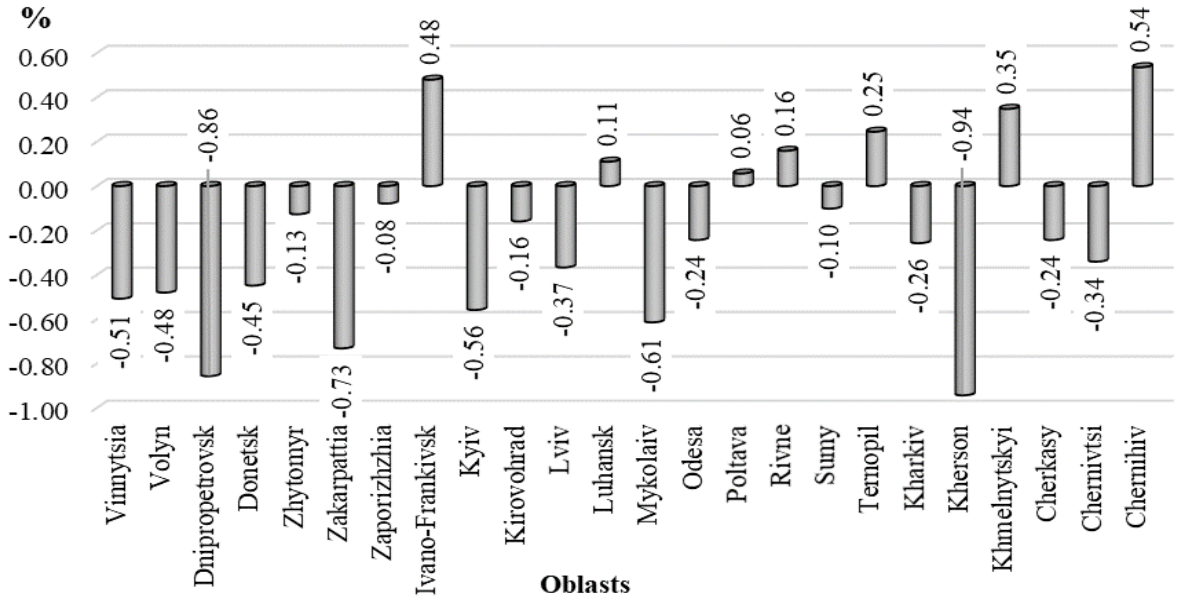

Figure 2. Average annual economic growth paces in Ukrainian regions, 2010–2020, %

Source: compiled based on the authors' calculations.

3. The impact of TCs' financial well-being on regional economic growth. The results of the analysis show that there is a kind of a "pressure" effect in Ukraine that is displayed in the ability of the territory's economy to increase its capacity and is accompanied by the growing favorable impact of financial well-being on regional economic growth. It is worth mentioning the inconsistency and differences between economic growth paces at the regional level and the paces of the change of parameters that characterize the TCs' financial well-being. Therefore, the favorable impact of TCs' financial well-being grows in the regions with a consistent trend toward the growth of economic capacity and GRP paces. The results of the research show that economic growth at the level of 1 % can be expected for Vinnytsia, Dnipropetrovsk, Zakarpattia, Zaporizhzhia, Kyiv, Mykolayiv, Kherson, Khmelnytskyi, Chernivtsi, and Chernihiv oblasts subject to the improvement of TCs' financial well-being (Figure 3).

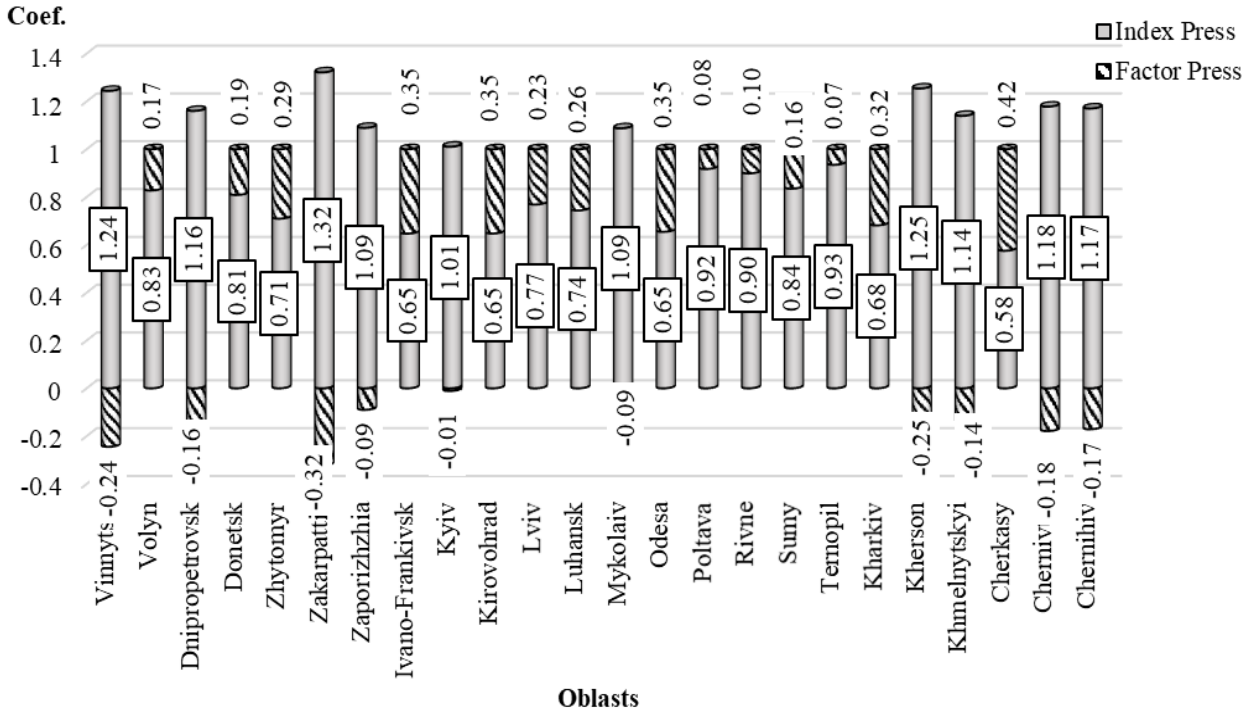

Figure 3. The impact of TCs' financial well-being on economic growth in Ukrainian regions, 2010–2020

Source: compiled based on the authors' calculations.

The TCs' financial well-being has a direct impact on economic growth of territories in Cherkasy, Donetsk, Zhytomyr, Volyn, Ivano-Frankivsk, Kirovohrad, Lviv, Luhansk, Odesa, Poltava, Rivne, Sumy, Ternopil, and Kharkiv oblasts. The reverse relationship between the development of the regional economic system and TCs' financial well-being is recorded for the rest of the Ukrainian oblasts.

Regional economic growth as a determinant of reproduction of intensive economic capacity increase and regional financial development has a causal relationship with the TCs' financial well-being. Therefore, the TCs' financial well-being depends on regional economic growth determinants and the level of financial independence that is the result of the financial decentralization reform implementation. For instance, the level of TCs' financial well-being in Lviv oblast has a direct impact

on capital investment and GRP at the level of 0.05 % and 0.02 % with the statistical probability of 90 % and 95 %, respectively (formula 7).

$$FD_t^{LV} = \underset{(2.706^{**})}{0.631} + \underset{(1.076^{*})}{0.047} CInv_t^{LV} + \underset{(3.650^{**})}{0.016} GRP_t^{LV} - \underset{(2.251^{*})}{0.002} ICP_t^{LV} \quad (7)$$

$$R^2 = 0.958 \quad DW = 2.22$$

where FD_t^{LV} – the level of TCs' financial well-being in Lviv oblast in *t* period;

$CInv_t^{LV}$ – capital investment in Lviv oblast in *t* period (growth coefficients per capita, USD);

GRP_t^{LV} – GRP in Lviv oblast in *t* period (growth coefficients per capita, USD);

ICP_t^{LV} – consumer price index in Lviv oblast in *t* period (%).

The priority directions of regional economic growth in Ukraine include the development of high financial well-being level in territorial communities provided the maintenance of their financial resilience and autonomy, development of competitive advantages, planning of socio-economic processes in the medium and long run, and the minimization of risks and threats from the implementation of economic goals and tasks. Indeed, only efficient use of the funds from local budgets can help achieve the cumulative economic effect, create value added, and increase the TCs' investment capacity as the regional development determinant.

Conclusions. The financial well-being of territorial communities constitutes a set of determinants that define the efficiency of territorial economic capacity implementation and the level of financial capitalization. The parameter of TCs' financial well-being in Ukrainian regions (selected based on the cluster approach – four TCs in each group with the highest, moderate, and lowest general fund revenues) was the highest in Zakarpattia (0.592), Kherson (0.534), Zaporizhzhia (0.513), and Chernivtsi (0.512) oblasts and the lowest in Ivano-Frankivsk (0.281) in 2020 and Dnipropetrovsk (0.377) and Ternopil (0.370) oblasts in 2017.

The construction of empirical parameter of regional economic growth in Ukraine based on the multiplicative method and principal component analysis has allowed revealing the structure of the relationship between the indicators and calculating the integral coefficients of economic growth based on the temporal-spatial approach. Ivano-Frankivsk (0.48 %), Luhansk (0.11 %), Poltava (0.06 %), Rivne (0.16 %), Ternopil (0.25 %), Khmelnytskyi (0.35 %), and Chernihiv (0.54 %) oblasts in 2010–2020 demonstrated the positive average annual economic growth paces. The highest negative economic growth paces were recorded in Dnipropetrovsk (-0.86 %) and Kherson (-0.94 %) oblasts.

Further research can cover the examination of the temporal and causal relationship between regional economic growth and financial well-being across two vectors – TCs and households, as well as substantiation of the need to increase the financial capacity of TCs and secure the resilience of Ukrainian households following the development trends in a specific time lag.

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