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3.5. THE IMPACT OF PUBLIC ADMINISTRATION ON THE PROVISION OF SOCIO-ECONOMIC DEVELOPMENT OF THE REGION

The problem of reconciling the social and economic interests of the region has always in the attention of leading scientists and specialists. As a rule, inefficient public policy is primarily reflected in the inefficient use of resources. For example, in countries characterized by strong oligarchic influences, underdeveloped civil society, the availability of significant natural resources does not ensure a decent standard of living and a correspondingly high level of socio-economic development. Ukraine undoubtedly possesses sufficient natural-resource potential, capable of ensuring the proper standard of living of the population. However, years of independence have convinced that no power system has been able to transform the use of available resource potential into stable indicators of socio-economic development. In fact, today there is a situation where at least the minimal rates of economic growth are provided by the resource-oriented production and export specialization of the national economy of Ukraine. However, this state of affairs contradicts the concept of development of the leading states of the world and widens the gap in the dynamics of development between our country and leading economies.

The current state of economic and social growth of the regions is determined by the need to formulate a comprehensive and systematic approach to ensure their balanced development. This approach should not only ensure effective economic development, but also create conditions for improving the well-being of the population of the regions. The strategic goal of Ukraine's state policy should be to ensure balanced development of regions based on a combination of economic and social components of growth. Thus, the effective solution of the problems of the regions depends on the development of effective state development programs, which should be based on a comprehensive analysis of their potential, a general assessment of their development opportunities and identification of the main directions of socio-economic growth.

Various aspects of ensuring the socio-economic development of the region have been discussed for several centuries by both theorists and practitioners. But despite such substantial scientific work, some theoretical and practical bases for determining the impact of public administration on regional development remain poorly understood. In addition, many management decisions remain formal and politically involved. Thus, the lack of activity of territorial communities in solving problems of socio-economic development of territories is one of the main problems that hinder the dynamic socio-economic development of the regions of Ukraine. Therefore, given the need to implement a real concept of regional development, it is an important and extremely urgent issue to identify the dependence of the socio-economic development of the region on the quality of public administration and determine the strength of its influence.

Despite various initiatives to improve governance mechanisms, public administration in the country is carried out in a functional format. Every year, this model of government work becomes less effective, as serious issues remain to be resolved, including: overloading of targets due to lack of consistency and consistency, unnecessary governmental functions and excess regulation, bureaucracy, lack of important and much-needed public administration competencies and management, etc.

In turn, important steps in the context of the modernization of public administration in Ukraine are the implementation of appropriate reforms and the adoption and implementation of certain initiatives. Yes, the reform of public administration is a priority for the Government, since the activity of public institutions and the quality of the decisions taken affect the economic growth in the country and the standard of living of the population. That is why the Public Administration Reform Strategy of Ukraine for 2016-2020¹ aims at ensuring effective public administration - the

¹Report on Implementation of the 2016-2020 Strategy of Public Administration Reform in Ukraine in 2018. [Electronic resource]. Available at: https://www.kmu.gov.ua/storage/app/sites/1/reform%20office/03_zvit_eng_web.pdf.

availability of modern structures, proper procedures for policy formulation and development of legislation, professional civil service, clear and transparent mechanisms of accountability of institutions. According to the Concept of Public Administration Reform in Ukraine, the purpose of the reform is to create an effective public administration system that will provide quality public services to citizens at a level that meets European standards, ensure optimal use of public funds and will be able to respond timely and adequately to socio-economic, external, political and other challenges¹.

Exploring the perspective directions of development of the public administration system of Ukraine at the present stage², we can note such characteristic features that reflect its environment and the main causes of change and transformation.

1. There is a dominance of value chaos (corruption of officials and public authorities and local self-government has institutional character), lack of responsibility for mistakes and crimes in the management by civil servants, underdevelopment of the state corporation, which in the end gives rise to even more problems state structures.

2. The new generation of management technologies in public administration is becoming less applicable to traditional hierarchical structures, but the failure to apply them in the long run will weaken the country's competitiveness and serious losses of efficiency. In addition, it is necessary to take into account the fact that the capabilities of a linear-functional public administration system are designed to use traditional administrative-command methods.

3. The creation of a qualitatively new model of public administration through the introduction of business methods in the activities of executive authorities is partly explained by the urgent need to accelerate economic growth. Therefore, there is logic of the process approach, which underlies the automation of the activity of state structures, thus acting as a catalyst for the development of new platform solutions that will in the future determine the nature of interaction of the state with the citizen and society.

Therefore, in the context of the recommended implementation of a process approach in the public administration system, the use of models and methods of quality management becomes relevant, in this connection, the principles of Edwards Deming, consisting of 14 points of changes in traditional management, need special attention. When viewed in the light of the contemporary challenges of improving public administration and put into practice, it becomes possible to define clearly the strategic orientations and perspective directions of further administrative transformations in the country.

Given the particular relevance of issues of improving the level of regional development and improving the efficiency of public administration, a methodological approach to determine the impact of public administration on ensuring the socio-economic development of the region is proposed.

The peculiarity of this approach is the use of a sufficiently large number of methods of analysis (taxonomic, regression and fuzzy sets), which will allow to further predict the level of social and economic development of the region, taking into account the existing level of quality of public administration, and more correctly justify the priority directions of development of the regions.

Therefore, the process of determining the impact of the quality of public administration on ensuring the socio-economic development of the region takes place in the context of three consecutive stages. The first stage is an integrated assessment of the level of social and economic development of the region, which is proposed through taxonomic analysis³. To accomplish this

¹Kontsepsiya reformuvannya publichnoyi administratsiyi v Ukrayini [Electronic resource]. Available at: http://www.pravo.org.ua/files/stat/Concept_public_administration.pdf.

²Charkina, E. S. (2017): Razvitie proektnogo podhoda v sisteme gosudarstvennogo upravleniya: metodologiya, opyt, problemy [Development of the design approach in the state system management: methodology, experience, problems]. Nauchnyy doklad. Moskva: IE RAN, 54 p.

³Pljuta, V. (1989): Sravnitel'nyj mnogomernyj analiz v jekonomicheskikh issledovanijah [Comparative Multidimensional Analysis in Economic Studies]. Finansy i statistika, Moskva, 175 p.

stage, it is necessary: to determine and select indicators for assessing the socio-economic development of the region; to substantiate the stimulus and the destimulants indicators; to standardize the values of the elements of the observation matrix; to build a point of reference for the level of socio-economic development; to calculate an integral indicator of the level of social and economic development and to rank the regions.

A set of initial indicators was formed in the context of such important components as: cost-effectiveness; investment development and foreign economic cooperation; financial self-sufficiency; development of small and medium-sized enterprises; openness of government and accessibility to administrative services; labor market efficiency; infrastructure development; renewable energy and energy efficiency; accessibility and quality of education services; accessibility and quality of health care services; social protection and security; sustainable use of the environment and quality of the environment. The reason for this choice of indicators is explained by the availability of open statistical information on the website of the State Statistics Service of Ukraine¹, the Ministry of Economic Development, the Ministry of Regional Development, the Ministry of Finance and the Main Directorate of Statistics in the oblasts.

It should be noted that among the whole set of indicators, the destimulants are the following: rate of increase of tax debt on taxpayers' monetary liabilities without taking into account tax debt of taxpayers in bankruptcy proceedings²; the number of population per employee of the administrative services center; ratio of registered unemployed to population³; the amount of payroll arrears; the rate of increase in wage arrears; the rate of increase of public debt on payment for housing and communal services; volumes of fuel and energy resources consumed in the region during the reporting period per capita of the region; the total mortality rate per 1,000 population of the existing population⁴; the number of patients diagnosed with active tuberculosis per 100,000 people for the first time in their lives; the number of families (persons) in difficult life circumstances covered by social services, including the families of participants in the anti-terrorist operation and internally displaced persons⁵; the share of orphans and children deprived of parental care being brought up in family forms of upbringing in the total number of children in this category; the number of criminal offenses committed against the life and health of a person per 10 thousand people; the rate of increase of pollutant emissions by stationary sources of pollution per unit of population; rate of growth of pollutant emissions by mobile sources of pollution per unit of population, percent to the previous year. All other indicators are stimulants.

The second stage involves the sequential implementation of the following actions: choosing an approach to solve the decision-making problem under uncertainty; defining and substantiating the criteria for assessing the quality of public administration; public management quality score calculation.

It should be noted that to solve the problem of decision-making under uncertainty, many approaches are used, among which the most common is the fuzzy set method. The founder of fuzzy set theory is L. Zade⁶. The essence of this theory is the ability to operate with "linguistic" variables, the values of which are expressed in words or sentences of natural or formal language.

¹Ofitsiyni sait Derzhavnoi sluzhby statystyky Ukrainy [Official website of the State Statistics Service of Ukraine], available at: <http://www.ukrstat.gov.ua>

² Vasiliev, O. V.; Fisun, K. A. (2010): Menedzhment rehional'noho rozvytku: monohrafiia [Regional development management]. KhNAMH, Kharkiv, 375 p.

³Korniets'kyj, O.V.; Hats'ko, A.F.; Ostroverkh, O. V. (2016): Rehuliuвання sotsial'no-ekonomichnoho rozvytku rehionu, iak vazhlyvyj chynnyk derzhavnoho upravlinnia [Adjustment of Socio-Economic Development of the Region as an Important Factor in Public Administration]. Visnyk Kharkivs'koho natsional'noho tekhnichnoho universytetu sil's'koho hospodarstva imeni Petra Vasylenka, no. 174, p. 67–73.

⁴Raevnieva, O. V.; Holiiad, N. Yu. (2007): Modeliuвання antykrizovoho upravlinnia rehionom : monohrafiia [Modeling of crisis management in the region: a monograph]. KhNEU, Kharkiv, 300 p.

⁵ Savostenko, T.O.; Propuga, V.I.; Polskaya, I.E. (2009): Zabezpechennia sotsial'no oriientovanoho rozvytku rehioniv Ukrainy [Provision of socially oriented development of the regions of Ukraine]. NADU, Kyiv, 40 p.

⁶Zade, L. A. (1976): Ponjatie lingvisticheskoi peremennoi i ego primenenie k prinjatiju priblizhennykh reshenij [The concept of a linguistic variable and its application to the adoption of approximate solutions]. Izd-vo «Mir», Moskva, 165 p.

Given the purpose of the study and the current conditions of certain subjectivity of information and uncertainty, the method of fuzzy sets was chosen to assess the quality of public administration. Its main advantages are: the ability to take into account many valuation factors; versatility of this technique; the expert's right to the uncertainty that is taken into account. Thus, the theory of fuzzy sets makes it possible to calculate the degree of belonging of an element to a subset (ie, the element may belong to a subset to a greater or lesser extent)¹.

It should be noted that the basic component of fuzzy set theory is the membership functions constructed using the term-set of values and the linguistic term-factors. Thus, term-sets of values of linguistic variables of quality of public management are presented in table 1. As input parameters of the fuzzy inference system, 5 fuzzy linguistic variables are proposed: efficiency, effectiveness, administrative feasibility, justice, political feasibility, which are the criteria for evaluating public administration. The fuzzy linguistic variable "quality" is the initial parameter. Each score in the table should be defined on a consistent ten-point scale, which should be interpreted as "low", "medium", "high".

Table 1. Term-sets of values of linguistic variables of quality of public management

The variable	Linguistic essence of the variable	Term evaluation	Universal set
R	efficiency	low, medium, high	[0-10]
E	effectiveness	low, medium, high	[0-10]
A	administrative feasibility	low, medium, high	[0-10]
C	justice	low, medium, high	[0-10]
P	political feasibility	low, medium, high	[0-10]

The analysis of the criteria of quality of public administration with the use of expert-linguistic information and rules "if- then" allowed obtaining fuzzy logical equations of influence of linguistic variables. Thus, if performance, efficiency, administrative feasibility, justice and political feasibility are identified as high, it is appropriate to recognize the high level of quality of public administration in the region. If, on the contrary, the criteria for assessing the quality of public administration are set as low, then the overall score will also be low.

Considering the fact that the purpose of this article was to determine the influence of the quality of public administration, the level of which in the regions it is proposed to implement using fuzzy sets theory, to ensure the socio-economic development of the region (the integral indicator is obtained as a result of taxonomic analysis), the essence of the third stage is just identifying the relationship between the quality of public administration and the integrated index of socio-economic development of the region. Therefore, it is suggested to use a trend projection method to determine whether there is a correlation between indicators and for forecasting purposes. His choice will allow eliminating a number of disadvantages of other methods, among which: application of the method of exponential smoothing only in relatively stable conditions of development of the system without sharp changes of factors of influence of external and internal environment; simplicity of the moving average method for accurate forecasting and the like.

It should be noted that before constructing the trend models, it is necessary to correctly select the type of equation that will provide the highest accuracy of approximation, which largely determines the quality of the forecast. Thus, the most applicable are²: linear ($y = a + bx$); power ($y = ax^b$); logarithmic ($y = a \ln(x) + b$); exponential ($y = ae^{bx}$). To build a trend model in MS Excel environment based on time series data, it is necessary for each region to draw a point diagram using a set of trend models – linear, power, exponential and logarithmic.

It should be emphasized that the type of trend model with R^2 close to unity provides the highest accuracy of approximation and allows obtaining the most accurate prediction. Therefore, the

¹Savin, G. I. (2000): *Sistemnoe modelirovanie slozhnykh processov* [System modeling of complex processes]. Finansy i statistika, Moskva, 276 p.

²Voloshyn, O. F.; Maschenko, S. O. (2010): *Modeli ta metody pryjniattia rishen'* [Models and methods of decision-making]. Vydavnycho-polihrafichnyj tsentr «Kyivs'kyj universytet», Kyiv, 336 p.

creation of these models will provide a determination of the projected level of ensuring the socio-economic development of the region, taking into account the existing level of quality of public administration.

Thus, a methodological approach is proposed to determine the impact of the quality of public administration on the socio-economic development of the region, which, unlike the existing ones, requires the implementation of the following steps: 1) an integrated assessment of the level of social and economic development of the region through taxonomic analysis; 2) determining the quality of public administration using fuzzy set theory; 3) identifying the relationship between the quality of public administration and the integrated indicator of socio-economic development of the region using the trend projection method. Its application will not only reduce the number of indicators of the socio-economic development of the region to one and give a clear assessment of the current situation in the region. It also determine the level of influence of the quality of the application of appropriate administration tools and facilitate future management decisions in the context of ensuring effective socio-economic development of the region.

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