

The topicality of research. Strengthening the competitive position of the state, improving the socio-economic development of its regions actualizes the need to create conditions for self-development of regions based on their self-sufficiency including by building an efficient fiscal policy. The tax component of the regional self-development promotion is the need for the redistribution of tax revenues between the budgets of different levels, depending on the degree of local authorities influence on them.

Problems of social-economic development of regions appear under the influence of many factors (the regional financial dependence of the center is one of them), which is observed in many countries, both federal and unitary device.

The main causes of the regions' financial dependence are: lack of coordination of interests of the budgets on state, regional and local levels; restriction of the rights of local governments; the lack of adequate funding delegated authority; disparity of social and economic development of their areas of financial support; unsustainable cash flow budget, accompanied by loss of time and money and corruption risks; irrational structure of local budgets; lack of incentives for the regional self-development.

An increased local budget revenue by stimulating local authorities to regional self-development through decentralization of financial resources is a topical task for many countries.

The extent of issue's research and development. Interest in the issues of regional development based on empowerment of local governments and local communities significantly increases along with the need for rational use of budgetary funds.

Significant attention of domestic and foreign scientists and economists (P. Belenky, P. Bubenko, Z. Varnaly, Z. Gerasimchuk, I. Degtyareva M. Dolishniy, L. Kowalska, D. Kuzmin, M. Porter, M. Stepanov, A. Sokolov, D. Stechenko, A. Tatarin, L. Yaremko) is given to issues of regional competitiveness, ensuring sustainable competitive position in the region and the role of state regulation of these processes. Considerable attention is paid to the financial support of socio-economic development of regions in works of domestic and foreign academic economists: I. Vahovich, Z. Gerasimchuk, L. Kalashnikova, V. Kravchenko, A. Melnik. Studies of fiscal relations between the regions and the center described in scientific works of I. Alekseev, T. Bondaruk, V. Vishnevsky, Yu. Ivanov, I. Mayburov, I. Lunina A. Sokolovskaya, L. Tarangul. Works of such classics, as J. Bodin, W. Petty, T. Hobbes, J. Locke, F. Quesnay, J. Sonnenfels, A. Smith, D. Ricardo, A. Marshall, H. Rau, R. Musgrave, J. Stiglitz devoted to research public finances. The process of decentralization and problems of its implementation is dedicated to scientific works of A. Belispaev, N. Bikadorova, A. Bondarenko, N. Kaminskaya, I. Karchevskaya, S. Kolodiya, O. Kraynyk, I. Legkostup, Yu. Ostrischenko etc. However, the practical aspects of deregulation require a scientific basis, including the redistribution of taxes between the budgets of different levels.

The aim of the article is to study the choice of effective decentralization scenarios of financial resources by redistributing tax revenues among the budgets of different levels based on the simulation.

Statement of the basic material. Historical background of centralized governance prevalence in post-soviet countries is responsible for a significant intervention center in regional development. When control is concentrate in the center management decision-making on the further development of the regions is centralized, and the implementation of these decisions lies on the regional and local authorities. At the same time governments at lower levels deprived of many rights in the management of economic growth in the region. An objective assessment of regional needs, the definition of "growth points", problems and their possible solutions should be a priority responsibility of local authorities.

The effectiveness of regional development management should increase with the transfer of powers to local authorities and relevant delegation of responsibility, encourages local authorities to improve the efficiency of the implementation of its mandate.

So, the decentralization is viewed as the transfer of powers and responsibilities for decision-making from the center to other organizations. As part of the public sector the decentralization means that decisions are not made by the central government, and local and regional authorities [1].

Also, decentralization is a reduction of state control, the promotion of partnership between the government and the private sector, a policy that promotes an increase in private capital markets of the country, as well as increased competition [2].

B. Raizberg and L. Lozovsky view decentralization as the transfer of management functions from central government to local authorities, expansion of the powers of the lower controls due to higher [3].

Decentralization of authority, which is a prerequisite for regional development based on self-sufficiency, does not mean the complete exclusion of the state from interfering in the process of regional development. It provides for the expansion and strengthening of the rights of local governments, however, some features that are less effective at the local level leave behind the center.

Decentralisation in the field of regional development contributes to solving these problems [4, p. 46-47]:

- reduction and elimination of the negative impact of state intervention in regional development;

- creating favorable conditions for self-development and self-sufficiency of regions of Ukraine by reducing state regulation in order to increase their competitiveness;

- providing a legal field to increase the independence of local governments to achieve regions' self-development on the basis of maximizing the efficiency of their potential;

- strengthening of institutional and motivational factors of regions' socio-economic development interaction;

creating incentives to improve the financial sustainability of regions by increasing the role of regional authorities in socio-economic development of the regions;

reduction of corruption risks in the redistribution of budget funds etc.

Also we should agree with V. Podgorny, who argues that "the distribution of state and regions authority - a very complicated issue, primarily associated with the harmonization of national and regional interests. From this perspective, the system of state regulation in the management of the regions should be considered within the overall system of state regulation of the economy" [5, p. 8].

It should be noted that the majority of scientists focuses on the need to ensure almost complete independence of the regions in solving many issues related to their functioning. However, the granting of absolute autonomy, including and tax autonomy may, over time, lead to even greater dependence of local budgets from the state. Therefore, an important priority for Ukraine in the implementation of an effective regional policy is a gradual transition from a centralized method of government regulation of these aspects to decentralized. In this case, we should also agree with M. Karasev, who draws an attention to the fact that "we should talk about the need for detailed regulation and a clear division of fiscal powers between the various levels of state authority and local self-government" [6, p. 122]. However, as S. Varnaly indicates "financial equalization should be applied not only to the approximation of standards of social services to the population throughout the country, but also as a tool to stimulate economic development in each region with the need to take into account all the strengths and weaknesses in economic conditions and available infrastructure " [7, p. 346]. Financial support of local budgets should be based on endogenous potential, and, therefore, an intensify of economic and business activities of local authorities in order to increase the share of own sources of income and fixed in the local budgets and reducing the share of transfers, as well as an increase in the overall number of regions that do not require substantial transfers from the state budget (the motivational component of regional development) is needed. The use of regional policy instruments to encourage the revitalization of the economic agents will boost the incomes of enterprises, entrepreneurs, households, which will broaden the tax base and thus increase tax revenues to local budgets.

A. Tatarkin and D. Tatarkin consider the self-development of territorial economic systems as "sustainable capacity of the region (municipalities) in conditions of prevailing in the community macroenvironment to ensure the expanded reproduction of the gross regional product at the expense of its own resource available potential opportunities and revenue sources for the implementation of both macroeconomic objectives and national priorities and intraregional target settings" [8]. Academician A. Tatarkin accounts in the definition of "self-development" an important condition for the state's competitiveness - a combination of regional and national interests, which is important in maintaining the integrity of the state. In the papers [4, 8, 9, 10] substantiated that the creation of conditions for self-financing the costs of the region can be based on the principles of fiscal federalism.

S. Grinevskaja says that "improvement of interbudgetary relations in the development of the priority areas of self-development is an innovative tool for

building effective regional economy due to the financial support of the regional government functions" [11].

Decentralization of authority provides a management system, according to which there is a redistribution of responsibilities between the central government and local authorities in favor of the latter.

The regions should have more opportunities to make decisions at the local level in regard to the health care development, education management, public utilities, and humanitarian sphere of business activity, the structure of local taxes etc. Upholding the responsibility for the implementation of the redistribution of functions will enhance their effectiveness.

Decentralization of authority contributes to reduce the negative impact of state intervention in the development of the regions, it promotes self-development on the basis of a clear definition of the urgent problems field and prospects of using the potential of available resources, creates conditions for improving the financial sustainability of regions by increasing the role of regional authorities in socio-economic development of regions (Figure 1).

It should be taken into account the risks associated with providing greater freedom to local authorities: the arbitrariness of local officials, the spread of corruption schemes, the growing discontent of the population and the authorities, etc. It requires a sequence of this process, taking into account the world experience of authority's decentralization reform and legislative consolidation of a wide circle of officials responsibility.

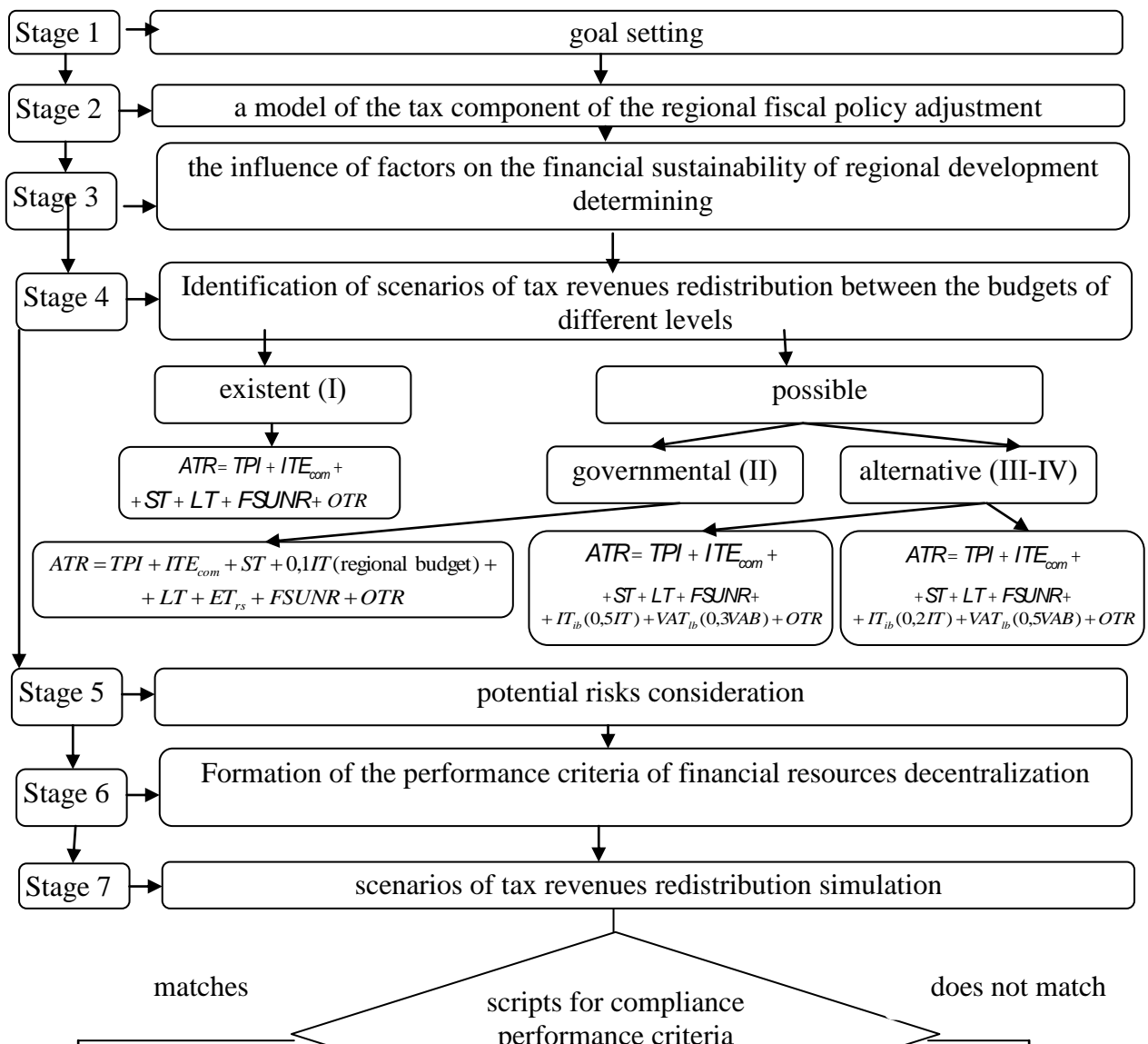


Figure 2. Methodical approach to modeling scenarios of the tax component of the regional fiscal policy adjustment

Note: TPI – tax on personal income, mln UAH; ITEcom – income tax of enterprises of communal ownership, mln UAH; ST – single tax for small businesses, mln UAH; LT – local taxes, mln UAH; ETrs – the excise tax on retail sales of excisable goods, mln UAH; FSUNR – fees for special use of natural resources, mln UAH; VATib, ITlb – value added tax, corporate income tax which is assigned to the local budgets, mln UAH; *OTR* – other tax revenues in the budgets of the regions, mln UAH.

Decentralization does not provide for the removal of the state from interfering in the process of regional development, its focus - to expand and strengthen the rights of local governments, however, some features that are less effective at the local level should be left to the competence of the central authorities.

The need for a rational redistribution of management functions between the higher and lower levels, as well as their financial security on the basis of improving regions' self-funded, determines the feasibility of a gradual transition to the principles of fiscal federalism.

The model of fiscal federalism involves a special form of intergovernmental relations construction on the basis of consolidation of the regional authorities the right to receive income and rational disposal costs. That is supposed autonomy of functioning of budgets at different levels of government, taking into account the interests of all levels of the hierarchy.

The basic idea of fiscal federalism is to create conditions for self-financing the costs of the region. Ensuring of local revenues increase is possible by forming such a list, and such size of local taxes, which is possible due to the maintenance of normal social and economic development of the region.

The rational choice of tool options of financial resources decentralization based on the tax component of the regional fiscal policy adjustment for each scenario requires a scientific study (Figure 2).

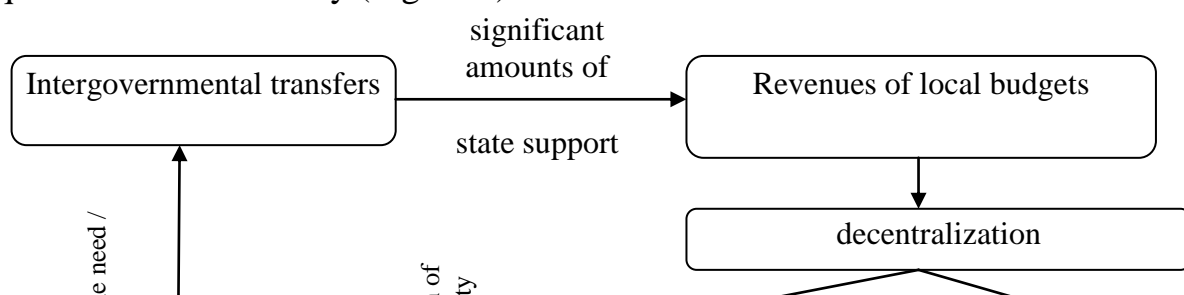


Figure 1. An influence of decentralization on financial self-sufficiency of regions

1). In the first stage of the methodical approach a goal is formulating - substantiation of a choice of effective decentralization scenarios of financial resources among the budgets of different levels.

2). The next step is to build a model of financial resource decentralization. At this stage, indicators and their parameters that will be included in the model are selecting, factors that influence on the change of baseline parameters are determining and logical connections are building.

The indicators in the model of financial resources decentralization can be: the level of regional budgets balance, the amount of own revenues of local budgets, the amount of the total revenues of local budgets, budget's dependence index of regional budgets, total tax revenues and Tax revenues assigned to local budgets and others. The parameters are the taxes rates, the share of local budgets consolidation.

Also it should be taken into account the indicators that influence on parameters of the main indicators: the level of wages in the region, per capita income, industrial production, unemployment rent, losses from the movement of budgetary funds to the center and back, the economically active population, unemployed population, etc.

At the same stage forward and backward linkages between the components of the model are setting.

3). The third step of the methodological approach is a determination of factors influence on the financial sustainability of regional development. These factors include: orientation of regional policy, tax, budget and resource potential of the region, the amount of tax revenues, the relationship between government and business in the region, the economic structure of the region, the presence of their own universities, the level of the enterprises development, a consequence of the subjects of economic policy decisions and actions at the level of the region, etc.

At this stage the direction of the factors influence on the basic parameters of the model determines. Thus, the increase of tax revenues, particularly corporate income tax, will depend on the population of the region, the solvency of the

population, unemployment, inflation, the consumer price index, exchange rate, etc. Accordingly, the increase or decrease of one of them will negatively or positively affect the amount of income tax of enterprises. It must be considered when constructing the model.

4). In the fourth stage the scripts' variants of financial resources decentralization are developing.

The basis of the model is data and conditions according to the characteristics of the transformation processes in Ukraine. But the problems of formation of local budgets' financial self-sufficiency and financial support of the delegated functions remain relevant for many countries, including Russia.

Lack of own source of revenues of local budgets leads to an increase in financial dependence on the center, making it impossible to perform expenditure commitments at their own expense. For example, in Ukraine, the share of transfers in the local budget revenues in 2000 amounted to 28.9%, in 2005 – 47,3 %, in 2011 – 53,7 %, in 2013 – 52,4, January – September 2014 - 55,4 %¹. In most EU countries this proportion is much lower (for example, in Germany - 22%, and in Sweden - 34%), that means a higher level of financial autonomy of local government in Europe. However, share of intergovernmental transfers in the total revenues of local budgets in the Russian Federation for the year 2012 amounted to 61.8% [12]. Government subsidies in the structure of local budgets in the USA make up 1/4 of, in France – 1/3, in Germany, Japan, Denmark – 40 – 45%, in Belgium - more than 50%. Commune in Italy get about 80% of their revenue by transfers from the state budget [13].

To achieve this goal of the article we suggest multicriteria scenarios of financial resources decentralization of local budgets in the form of state taxes redistribution between the budgets of different levels (Table 1).

The first scenario is based on the mechanism of local budgets formation after the change of the Tax and Budget Codes of Ukraine in 2011. In spite of the significant changes and growth in local revenues of local taxes and fees, the dependence of local budgets from the center increases every year, that indicates the need for reform of financial resources decentralization.

As A. Kaspruk notes "a significant proportion of the budget's income takes revenues from state taxes. This indicates an insufficient level of local authorities independence and a reduction of local authorities interest in ensuring the full revenues, especially tax. The system of local budgets formation from the "top" is characterized by the absence of effective incentives for local governments to develop their own tax base, which depends on the region's economic development, its social and industrial infrastructure" [14].

The second scenario reflects the Government's proposals for 2015, that provides fixing of 10% corporate income tax to local budgets and the introduction of a local excise tax that is payable when trading excise goods at retail. Local councils establish local excise rates (5%).

¹ site data of the State Treasury Service of Ukraine [Electronic resource]. – Access mode: <http://treasury.gov.ua/main/uk/index>.

Indeed, the list of taxes, in part assigned to local budgets, should include primarily those taxes, to the tax base of which local authorities can influence. These include the corporate income tax and excise tax on retail. The excise tax to the local budget is paid by business entities retailing of alcohol, tobacco, certain types of fuel.

The use of enabling instruments will actually lead to an increase in sales volume and thus increase the amount of taxes paid, i.e. to the economic effect for the subjects of fiscal relations. However, in the case of alcohol and tobacco, we have two divergent effects: a positive economic impact and negative social effect. Encouraging sales by local authorities will lead to increased consumption of alcohol and tobacco products. In turn, this may lead to an increase in unemployment, the increase in crime in the region, declining birth rates, etc., that is a destructive factor of socio-economic development of the region. Therefore, the type of tax is absent in the scenarios proposed by authors.

Activation of the local governments position in fiscal relations and active involvement of local authorities in the process of tax regulation puts a new emphasis on the question of the taxes and fees list, partially belonging to a local budget.

The most expedient is the inclusion in this taxes and fees list, the amount of which is directly or indirectly linked to the efforts of local authorities in the field of socio-economic development of regions.

Table 1

Variants of scenarios of national taxes distribution between the budgets of different levels

Indicators for the model of of financial resources' decentralization	Scripts (variants of local budgets formation at the expense of tax revenues)			
	Scenario 1 (2011-2014 years)	Scenario 2 (Government's proposal for 2015)	Scenario 3 (author's version)	Scenario 4 (author's version)
1	2	3	4	5
Level of regions budgets balance (L_{bb}), the proportion of units	$L_{bb} = \frac{OR}{C},$ где OR – own revenues of budgets, mln. UAH; C – costs of regions, mln. UAH			
Own revenues of local budgets (OR), mln. UAH	$OR = LT + ATR + NTR + CR + FR,$ где LT – local taxes, mln. UAH; ATR – Tax revenues assigned to the region's budget, mln. UAH; NTR – non-tax revenues in the budgets of regions, mln. UAH; CR – revenues of regional budgets from capital transactions, mln. UAH; FR – revenues of regional budgets trust funds, mln. UAH			
Total revenues of local budgets (TR), mln. UAH	$TR = OR + IGT,$ где IGT – intergovernmental transfers, which are listed in the budgets of the regions from the state budget, mln. UAH			
Budget's dependence index of regional budgets (I_{bd}), the proportion of units	$I_{bd} = \frac{IGT}{TR}$			
Tax revenues assigned to the region's budget (ATR), mln. UAH	$ATR = TPI + ITE_{com} +$ $+ ST + LT + FSUNR +$ $+ OTR$	$ATR = TPI + ITE_{com} +$ $+ ST + 0,1IT(\text{regional budget}) +$ $+ LT + ET_{rs} +$ $+ FSUNR + OTR$	In the case of fixing of the region's budget share (20 %) of corporate income tax, excluding the income tax of enterprises of communal ownership, the proportion of VAT (20 %):	In the case of fixing of the region's budget share (50 %) of corporate income tax, excluding the income tax of enterprises of communal ownership, the proportion of VAT (20 %):

Continued Table 1

1	2	3	4	5
Tax revenues assigned to the region's budget (<i>ATR</i>), mln UAH			$ATR = TPI + ITE_{com} + ST + LT + FSUNR + IT_{ib} + VAT_{lb} + OTR$	$ATR = TPI + ITE_{com} + ST + LT + FSUNR + IT_{ib} + VAT_{lb} + OTR$
Income tax is assigned to the local / subfederal budgets (<i>IT_{lb}</i>), mln UAH	-	$IT_{lb} = IT * S_{lb} = T_r * T_b = 0,18 * T_b * 0,1$	$IT_{lb} = IT * S_{lb} = T_r * T_b = 0,18 * T_b * 0,2$	$IT_{lb} = IT * S_{lb} = T_r * T_b = 0,18 * T_b * 0,5$
	<i>IT</i> – general income tax revenues, mln UAH; <i>T_r</i> – tax rate, share; <i>T_b</i> – tax base, UAH; <i>S_{lb}</i> – share of total tax fixing for the budget of the region, share.			
Value added tax is assigned to the local / subfederal budgets (<i>VAT_{lb}</i>), mln UAH	-	-	$VAT_{lb} = VAT * S_{lb} = T_r * T_b = 0,2 * T_b * 0,5$	$VAT_{lb} = VAT * S_{lb} = T_r * T_b = 0,1 = 2 * T_b * 0,3$
	<i>VAT</i> – general value added tax revenues, mln UAH			
Tax on personal income (<i>TPI</i>), mln UAH	+	60% - cities of regional value and districts 15% - regional budget, 20% - Kyiv	60% - cities of regional value and districts 15% - regional budget, 20% - Kyiv	60% - cities of regional value and districts 15% - regional budget, 20% - Kyiv
The excise tax on excisable goods (products) produced in Ukraine (<i>E_{rs}</i>)	-	the excise tax on retail sales of excisable goods (beer, alcoholic beverages, tobacco products, petroleum, and others. fuel) 5%	-	-

For example, the amount of income tax of enterprises partly depends on how successful the efforts of local authorities in creating the conditions for effective management in the region, development of market infrastructure (promotion of innovative scientific and industrial clusters, implementation of regional target complex programs etc.) are successful. Receipt of the value added tax for each of the regions defined by including the purchasing power of the population and level of the trade network development in the region. Therefore, exemplary state taxes can be attributed to the fixable taxes and fees [9, p. 232-233].

Therefore, scenarios 2 and 3 are aimed at creating conditions for strengthening the financial sustainability of the region through consolidation share of corporate income tax to local budgets.

Expansion of financial resources through the consolidation of national taxes to the regions budgets will increase the indicator of a balanced budget, which is defined as the ratio of own revenues to expenditures of the respective budgets and hence - to increase the financial autonomy of the regions [4, p. 250].

5). The risks that arise in the process of budgetary funds movement and have a direct impact on the parameters of the model, should be taken into account in the simulation scenarios of financial resources decentralization.

Current system of interbudgetary relations is characterized by very significant counter-flow: the amount of state taxes receives from the regions to the center, and in the opposite direction - from the center to the regions - amount of subsidies, subventions and subsidies moves. Such a large-scale movement of financial resources associated with the losses, both objective and subjective.

The first group includes the losses are not directly related to the "human factor". These include: the loss of "transactional nature due to the objective need for movement of financial flows (payment of the State Treasury and the banking system services, compensation of employees involved in the relevant processes and monitors, etc.), and secondly, the loss of time.

Regarding the second one, it should be clarified that the recovery funds in the form of taxes, then redistributed in the same local budget, are withdrawn from circulation for this period. In turn, it "pushes" the time of receipt of the final social result from their use. It is clear that the degree of "bureaucratization" of this process directly affects the value of these temporary losses.

Subjective loss associated with an increased risk of corruption due to the presence of the human factor at each stage of the financial resources movement.

6). The criteria for the effectiveness of the financial resources decentralization are: a decline of budget's dependence index, increase in the budget balance in the region, the increase in tax revenues to local budgets, the increase in the share of local and fixed taxes, positive social impact, the reduce of budget funds losses, the reduce of the corruption risks, etc.

For example the ratio of intergovernmental transfers and own revenues in the total revenues of local budgets in Ukraine is as follows: intergovernmental transfers are an average of 55% and their own income – 45%. But the experience

of European countries shows the feasibility of reducing the share of intergovernmental transfers to 0,2 – 0,4 [12].

7). Choice of a rational scenario is carried out using simulation. Using the simulation is carried out to assess the effects of changes in the tax on land for construction, employment and business activity in the city [15]. It indicates the efficiency of this method for solving such problems.

A simulation model of the dynamics of financial resources in the region on an example of the local budget of Kharkiv is built to simulate scenarios. To build the model, we used data of the Main Department of Statistics in the Kharkov region, The Main Department of the State Treasury of Ukraine in Kharkiv region, Department of Budget and Finance of the Kharkov City Council, Main Department of the Ministry of income and fees in Kharkiv for the years 2011-2014 and in whole Kharkiv region for the years 2006-2011. A simulation model was implemented in the environment Vensim 5.7a².

The diagram of causality simulation model is shown in Figure 3.

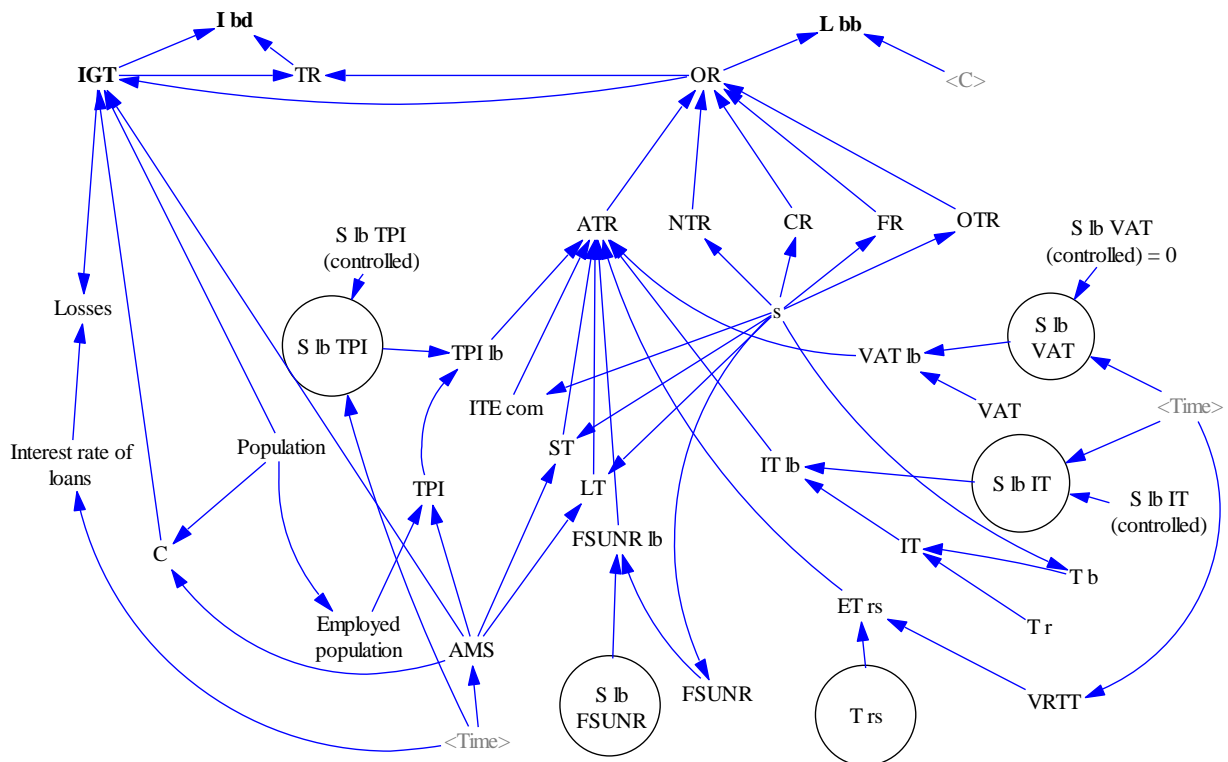


Figure 3. The structure of the simulation model of the tax component of the regional fiscal policy adjustment on the example of Kharkiv.

Note: designations of the variables correspond to the table 1; parameters of scenarios identifies.

S_lb_TPI - share of tax on personal income for the regional budget

S_lb_IT - share of total tax fixing for the regional budget

S_lb_FSUNR - share of FSUNR for the regional budget

S_lb_VAT – share of VAT for the regional budget

“(controlled)” means that the variable is a parameter of simulation

² The Ventana’s modeling environment. Vensim® PLE fow Windows, Version 6.1c. [Electronic resource]. – Access mode : : <http://vensim.com/vensim-software>

Dependences used in the simulation model were evaluated on historical data and are shown in Table 2.

Table 2

Basic relations of the simulation model

Variable	Function	R ²
The average monthly salary (AMS)	$y = 633,3\ln(t)+2041$	0,97
Income tax on individuals	$y = 0,30955 \text{ AMS}^{1,1007} \text{ Employed population}^{0,00228}$	0,95
Local taxes and fees	$y = 1337 \ln(\text{AMS})-10279$	0,98
Single tax	$y = 1303 \ln(\text{AMS})-10032$	0,98
The volume of retail trade turnover	$y = 0,53(563,81 \ln(t)+2252,3$	0,99
Costs of regions	$y = 0,45769 \text{ AMS}^{1,182742} \text{ Population}^{-0,37}$	0,87
Intergovernmental transfers	$y = 0,45793 \text{ AMS}^{1,00286} \text{ Population}^{0,001585}$	0,83
Population	$y = 1444630 + 240t$	

Notes: t – time variable ($t=1$ matches year 2011).

An evaluation of the possible effect of the introduction of excise tax on the retail sale of excisable goods was carried out on the basis of the forecast of enterprises retail turnover in the region, taking into account the proportion of Kharkiv population. The relevant information about the dynamics of indicators for the 1st quarter of 2015 was taken into account in calculations for the perspective period 2015-2017. Variables that are not listed in the Table 2 were modeled as normally distributed random variables with the appropriate parameters.

The amount of intergovernmental transfers is adjusted by the average rate of interest on loans (18% in 2011, 30% in 2015) for the calculation of the losses associated with time-consuming inter-budgetary relations, which are on average from 1 to 3 months of the year.

Considering a short length of the retrospective period and the possible random deviations to obtain an estimate of the resulting values each scenario was simulated several times at different values of the random variables. The results were processed using the tool "Data Analysis» MS Excel 7.0.

The simulation results are shown in Table 3-4.

Table 3

The results of modeling scenarios of financial resources decentralization on the example of Kharkiv

criteria	scenarios	Years								
		2014		2015		2016		2017		
1	2	3	4	5	6	7	8	9	10	
Budget's dependence index, %	Actual value	0,24	\bar{y}	σ_e	\bar{y}	σ_e	\bar{y}	σ_e	\bar{y}	σ_e
	scenario 1		33,95	0,47	34,99	0,62	36,93	0,3		
	scenario 2		40,05	0,49	40,83	0,63	42,61	0,29		
	scenario 3		20,96	0,41	21,62	0,59	23,89	0,76		
	scenario 4		20,15	0,21	20,32	0,36	21,92	0,69		

Continued Table 3

1	2	3	4		5		6	
The level of the budget balance, %	Actual value	0,81						
	scenario 1		66,05	0,47	65,01	0,62	63,07	0,3
	scenario 2		59,95	0,49	59,17	0,63	57,39	0,29
	scenario 3		79,90	0,63	78,69	0,69	76,19	0,81
	scenario 4		82,32	0,63	80,93	0,71	78,33	0,83
losses mln UAH	Actual value	98,76						
	scenario 1		188,96	2,55	209,89	3,51	241,64	2,05
	scenario 2		221,83	2,70	243,21	3,76	278,16	1,87
	scenario 3		117,31	2,09	129,20	3,37	156,11	4,88
	scenario 4		114,98	0,74	122,82	1,69	143,46	4,35

Note: \bar{y} – the average values for the series of simulation experiments;
 σ_e – standard error of mean.

Volumes of securing tax revenues for the budget of Kharkiv depending on four scenarios, and losses incurred in transferring of budgetary funds are presented in Table 4.

Table 4
 Scenario options of tax revenues securing for the budget of Kharkiv
 mln uah

Indicators	2015		2016		2017	
	forecast	forecast error	forecast	forecast error	forecast	forecast error
1	2	3	4	5	6	7
Common for all scenarios						
TR	7189,34	25,869	7638,59	13,506	8050,59	8,285
ITE com	13,35	0,980	14,41	0,570	13,28	1,222
ST	426,79	3,049	470,33	4,502	511,21	3,557
LT	447,68	3,701	497,60	4,266	540,95	5,119
TPI	2927,37	9,412	3049,15	10,125	3152,46	12,876
IT	1578,76	50,967	1658,65	40,807	1716,24	56,287
VAT	2157,14	69,825	2266,59	55,905	2345,49	77,114
ET rs	134,29	0,944	138,66	0,702	142,35	0,511
Scenario 1						
IGT	2415,16	33,364	2663,03	46,936	2976,37	24,054
OR	4697,33	33,364	4946,93	46,936	5065,93	24,054
TPI lb	2195,53	9,412	2286,86	10,125	2364,34	12,876
FSUNR lb	433,96	10,260	419,16	7,963	419,36	9,143
Losses	188,09	2,598	208,44	3,674	241,61	1,953
Scenario 2						
IGT	2848,46	34,697	3107,19	47,949	3426,60	22,988
OR	4264,03	34,697	4502,77	47,949	4615,70	22,988
TPI lb	1756,42	8,124	1829,49	9,257	1891,47	10,653

FSUNR lb	301,59	7,140	293,21	5,842	294,18	6,677
Losses	221,83	2,702	243,21	3,753	278,16	1,866

Continued Table 4

1	2	3	4	5	6	7
Scenario 3						
IGT	1506,28	26,810	1650,60	43,092	1923,12	60,082
OR	5683,06	44,646	5988,00	52,664	6127,47	65,305
TPI lb	1756,42	8,124	1829,49	9,257	1891,47	10,653
FSUNR lb	301,59	7,140	293,21	5,842	294,18	6,677
IT lb	321,34	8,768	336,29	6,948	342,29	11,760
VAT lb	1097,70	30,031	1148,93	23,796	1169,47	40,279
Losses	117,31	2,088	129,20	3,373	156,11	4,877
Scenario 4						
IGT	1476,42	9,528	1569,15	21,614	1767,20	53,679
OR	5855,23	44,621	6158,53	53,978	6299,20	66,450
TPI lb	1756,42	8,124	1829,49	9,257	1891,47	10,653
FSUNR lb	430,84	10,201	418,87	8,346	420,26	9,538
IT lb	803,34	21,921	840,74	17,369	855,73	29,401
VAT lb	658,62	18,019	689,36	14,278	701,68	24,168
Losses	114,98	0,742	122,82	1,692	143,46	4,358

8). An analysis of the simulation results shows that in scenario 2 (government) budget's dependence index and the level of the budget balance deteriorated in comparison with pre-existing conditions in 2014 (Figure 4, 5). Also losses associated with time delays transfers significantly increase. Tax revenues from the profits of enterprises do not compensate budget losses caused by the redistribution of the tax on personal income. The role of the excise tax on retail sales in general are extremely small, its share in its own budget revenues of 2.7-2.8%.

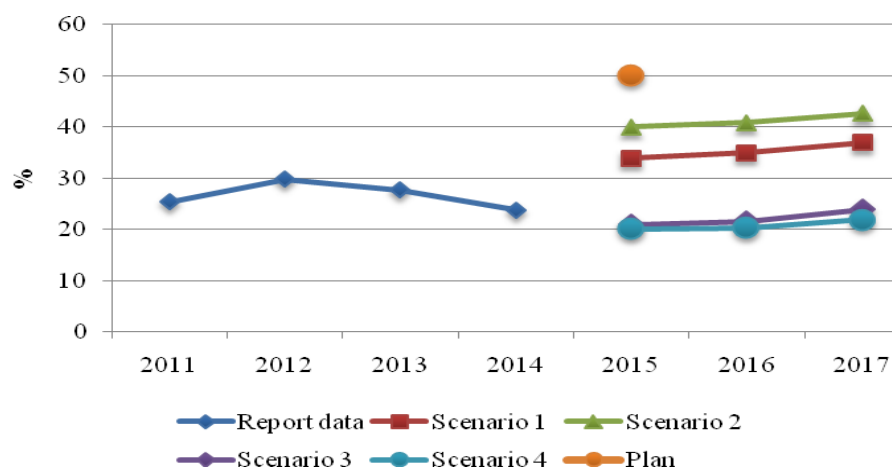


Figure 4. Budget's dependence index dynamics under different scenarios of tax revenues distribution between the budgets of different levels (for example, Kharkiv)

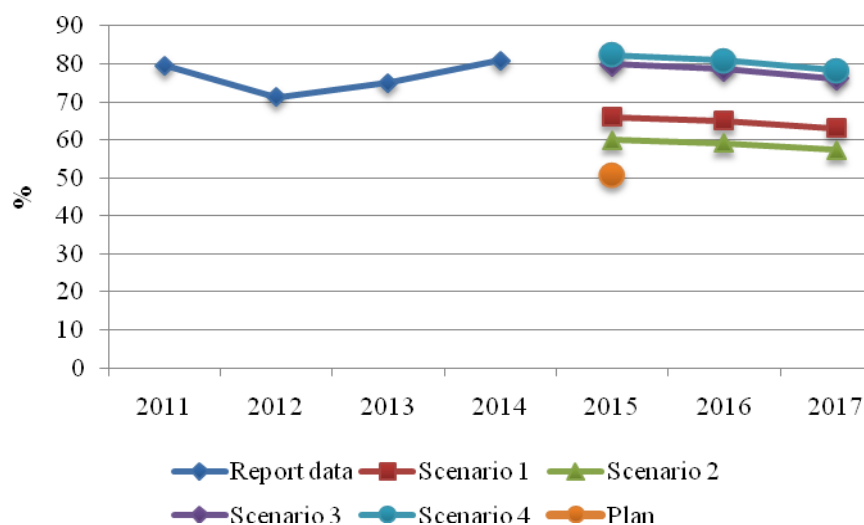


Figure 5. The level of the budget balance dynamics under different scenarios of tax revenues distribution between the budgets of different levels (for example, Kharkiv)

According to Figure 4, 5, Table 3-4 and given keys performance indicators (budget's dependence index and the level of the budget balance) scenario 4 is the most efficient of the options. However, in general, the dynamics of these indicators is negative, due to the growing trend towards deterioration of macroeconomic indicators (reduction of the gross regional product, the decline in industrial production, a significant decline in real wages and purchasing power, and others). Therefore, the implementation of fiscal decentralization only fails without a number of reforms in the sphere of fiscal decentralization, deregulation and enterprise development, regional policy, anti-corruption reforms.

Empowerment of local governments, the transfer of some powers to the field will stimulate the development of small business, industry, whereby it is observed an increase in the share of own and fixed sources of income in the local budgets and reducing the share of transfers.

Partial compensation is possible to achieve an increase in the share of local budgets in the corporate income tax to 20 % while increasing the share of the fee for special use of natural resources (as in the third scenario). The improvement of budget's dependence and budget balance indexes in comparison with the retrospective period is achieved in the fourth scenario.

Conclusions. Thus, as a result of studies the impact of regional fiscal policy in the context of decentralization on financial self-sufficiency of the regions is substantiated.

The methodical approach to modeling scenarios of the tax component of the regional fiscal policy adjustment, which consists of five interrelated sequential steps (setting goals; construction of a model of the tax component of the regional

fiscal policy adjustment; determination of the factors on the financial sustainability of regional development influence; identification of scenarios of tax revenues distribution between the budgets of different levels; consideration of potential risks; forming performance criteria of financial resources decentralization and check them for compliance scenarios; scenario modeling; selection of the most rational scenario in accordance with the economic, social, and organizational effectiveness.

In order to identify the most effective options for the tax component of the regional fiscal policy adjustment considered four possible scenarios: a scenario for 2011-2014 years; government scenario for 2015; 2 scenarios proposed by the authors in terms of securing a share of national taxes to local budgets. For each scenario risks are taken into account and related loss of budgetary funds: time, transaction, risks of corruption.

A simulation model of the dynamics of financial resources in the region on an example of the local budget of Kharkiv was built in the environment Vensimis to simulate scenarios.

Modeling proposed options of scenarios is showed that in scenario 2 the budget's dependence index and the level of the budget balance deteriorated in comparison with pre-existing conditions in 2014. The improvement of budget's dependence and budget balance indexes in comparison with the retrospective period is achieved in the fourth scenario, in which the most active regulator acts is tax component of fiscal policy. The volume and proportion of intergovernmental transfers and the associated losses reduce. Legislative consolidation of the responsibility for the implementation of functions that redistribute will enhance their effectiveness.

Thus, the formation of a rational structure of the revenue part of local budgets requires an increase in the share of tax revenues with a corresponding decrease in the share of transfers. The list of taxes, partly belonging to a local budgets should include primarily those taxes to the tax base of which local authorities can influence.

Further research on this issue lie in the development of the mechanism of formation of regions' financial self-sufficiency on the principles of fiscal federalism.

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