

Pavlika N. V.*Doctor of Economics, Professor**Eastern European National University named after Lesya Ukrainka**Professor of the Department of International Economic Relations and Project Management**Lutsk, Ukraine;**e-mail: pavlixa2@gmail.com; ORCID ID: 0000-0001-5191-242X***Tsybaliuk I. O.***Ph. D. in Economics, Associate Professor**Eastern European National University named after Lesya Ukrainka**Associate Professor of the Department of Finance, Banking and Insurance**Lutsk, Ukraine;**e-mail: tsymbaliuk_i@ukr.net; ORCID ID: 0000-0001-7224-2365***Kovshun N. E.***Ph. D. in Economics, Associate Professor**National University of Water and Environmental Engineering**Professor of the Department of Enterprise Economics**Rivne, Ukraine;**e-mail: Kovshun_N@i.ua; ORCID ID: 0000-0003-0573-2932***Kotsan L. M.***Postgraduate, National University of Water and Environmental Engineering**Rivne, Ukraine;**e-mail: Kotsan_L@i.ua; ORCID ID: 0000-0002-1498-2266*

CONCEPTUAL TRANSFORMATION PRINCIPLES OF THE INCOME REGULATION SYSTEM IN UKRAINE

Abstract. The article outlines the conceptual framework for the transformation of the income management system, which involves changes in two areas: improving the system of social standards and guarantees; optimizing the deductions from the population income. In order to justify the expediency of introducing the conceptual framework for the transformation of the income management system, a modeling of various factors influence on the population income level was carried out using correlation-regression analysis. It was proved that each of the factors (minimum wage, minimum pension, subsistence minimum, tax burden, social insurance contributions) determines not only the resulting indicator – income, but also significantly affects each other. It was revealed that the minimum wage has the greatest influence on incomes among other regulation instruments. Therefore, when establishing its level, it is necessary to take into account that the corresponding changes will influence tax revenues volume, social deductions and subsistence minimum. According to the revealed negative factors and causes of the critical situation of income formation, the main directions for the income regulation system improvement were developed.

Keywords: state regulation of incomes, minimum wage, minimum pension, subsistence minimum, taxation, contributions to social insurance.

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Павліха Н.В.*д. е. н., професор,**Східноєвропейський національний університет імені Лесі Українки**професор кафедри міжнародних економічних відносин та управління проектами**Луцьк, Україна;**e-mail: pavlixa2@gmail.com***Цимбалюк І. О.***к. е. н., доцент,**Східноєвропейський національний університет імені Лесі Українки**доцент кафедри фінансів, банківської справи та страхування*

м. Луцьк, Україна;
e-mail: tsymbaliuk_i@ukr.net

Ковшун Н.Е.

к. е. н., доцент,

Національний університет водного господарства та природокористування
професор кафедри економіки підприємства

м. Рівне, Україна;

e-mail: Kovshun_N@i.ua

Коцан Л.М.

аспірант,

Національний університет водного господарства та природокористування
м. Рівне, Україна;

e-mail: Kotsan_L@i.ua

КОНЦЕПТУАЛЬНІ ЗАСАДИ ТРАНСФОРМАЦІЇ СИСТЕМИ РЕГУЛЮВАННЯ ДОХОДІВ НАСЕЛЕННЯ В УКРАЇНІ

Анотація. У статті розкриті концептуальні засади трансформації системи регулювання доходів населення. Здійснено моделювання впливу різних факторів на рівень доходів населення із застосуванням кореляційно-регресійного аналізу. Доведено, що кожен із факторів (мінімальна заробітна плата, мінімальна пенсія, прожитковий мінімум, податкове навантаження, внески на соціальне страхування) визначає не лише результуючий показник – доходи населення, але в той же час суттєво впливає один на одного. Відповідно до виявлених негативних факторів запропоновані шляхи удосконалення системи регулювання доходів населення.

Ключові слова: державне регулювання доходів, мінімальна заробітна плата, мінімальна пенсія, прожитковий мінімум, оподаткування, внески на соціальне страхування.

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Павлиха Н.В.

д. е. н., професор,

Восточноевропейский национальный университет имени Леси Украинки
професор кафедри міжнародних економічних відносин і управління проектами

Луцьк, Україна;

e-mail: pavlixa2@gmail.com

Цимбалюк И.А.

к. э. н., доцент,

Восточноевропейский национальный университет имени Леси Украинки
доцент кафедри фінансов, банківського дела і страхування

Луцьк, Україна;

e-mail: tsymbaliuk_i@ukr.net

Ковшун Н.Э.

к. э. н., доцент,

Национальный университет водного хозяйства и природопользования
професор кафедри економіки підприємства

Ровно, Україна;

e-mail: Kovshun_N@i.ua

Коцан Л.Н.

аспірант,

Национальный университет водного хозяйства и природопользования
Ровно, Україна;

e-mail: Kotsan_L@i.ua

КОНЦЕПТУАЛЬНЫЕ ОСНОВЫ ТРАНСФОРМАЦИИ СИСТЕМЫ РЕГУЛИРОВАНИЯ ДОХОДОВ НАСЕЛЕНИЯ В УКРАИНЕ

Аннотация. В статье раскрыты концептуальные основы трансформации системы регулирования доходов населения. Осуществлено моделирование влияния различных факторов на уровень доходов населения с применением корреляционно-регрессионного анализа. Доказано, что каждый из факторов (минимальная заработная плата, минимальная пенсия, прожиточный минимум, налоговая нагрузка, взносы на социальное страхование) определяет не только результирующий показатель – доходы населения, но в то же время существенно влияет друг на друга. Согласно выявленных негативных факторов предложены пути совершенствования системы регулирования доходов населения.

Ключевые слова: государственное регулирование доходов, минимальная заработная плата, минимальная пенсия, прожиточный минимум, налогообложения, взносы на социальное страхование

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Introduction. The main task of ensuring an effective state regulation of incomes is to solve and prevent the emergence of acute socio-economic problems. These include the absence of a well-formed middle class; low incomes, poverty prevalence and poor provision; too much differentiation in the labor payment by types of economic activity, and others.

The modern state regulation mechanism of the population incomes in Ukraine needs to be improved in order to ensure a steady increase in real incomes. This aim could be reached through activating all instruments of state influence on the processes of formation and distribution of incomes and, on this basis, ensuring the increase of living standards and the formation of the middle class.

Analysis of research and problem statement. Some problems of transformation of population income regulation system, as well as peculiarities of its formation and distribution were investigated by such scholars as Semenchenko A.V., Kravtsova M., Libanova E.M. [1; 2; 3]. The issues of determining the minimum wage and its impact on economic processes in the country [4; 5; 6], the relationship between the level of income taxation, unemployment and wages [7; 8] were discussed in the writings of foreign economists. However, despite a considerable amount of publications on the subject, the issue of transforming the system of income regulation in both scientific and applied aspects remains inadequately developed. This requires substantiation of theoretical and methodological principles and the development of practical recommendations for the transformation of the income regulation system.

The purpose of the article is to determine the factors of population income formation and substantiate the conceptual transformation principles of the income regulation system in Ukraine.

Research results. The determinants of the population material well-being and the main structural elements of income are wages and social benefits, transfers. It should be noted that under the conditions of Ukrainian realities, a significant share in the structure of incomes belongs to social transfers. This indicates an ineffective redistribution of budget funds, imperfection of the system of population social protection as well as an increase in the number of unemployed and poor people.

Separate components of the population income structure are profit and property income. Their amounts are largely conditioned by the current tax system in the country and deductions to compulsory social insurance funds. Taxes and compulsory social contributions directly affect the size of household incomes while reducing them and decreasing the purchasing power of the population. Due to unfavorable government policy to establish a general tax burden, the imperfection of tax legislation, a large proportion of business profits remain in the shadows. Under such ineffective system of using the accumulated funds, which is typical for our state at the present development stage, the population welfare is also affected negatively.

After examining the structure of the population income and outlining the factors determining their volume, one can conclude that state can regulate incomes of the population in two ways: by influencing the main income components or by determining the volume of households and population expenditures. In public administration, these measures are implemented, respectively, through the implementation of income and cost policies.

Considering the main components of household income, it can be assumed that income policies are implemented through the regulation of social standards and guarantees. Instruments of incomes regulation system transformation are:

- labor payment and the establishment of a minimum wage;
- social transfers, the instrument of which is the regulation of pensions size;
- minimum social standards, subsistence minimum.

In the period of 2010-2012, the minimum wage level in Ukraine was higher than the subsistence minimum in 5.3-5.5 per cent, while in the period from 2013 to 2016, the difference between them decreased to 3.5-3.6 per cent. At the same time, the minimum wage should be 2-2,5 per cent of the subsistence minimum, and the ratio between the size of the minimum and average wages should be 1: 3. Current social standards and guarantees from the state do not correspond to the actual economic realities and financial possibilities of the country. This necessitates the improvement of the whole system of state social standards and guarantees, as well as introduction of qualitatively new approaches to its formation, establishment and application [1, p. 127].

The state income policy has a vital role especially in the conditions of the economic crisis. It should be aimed at preventing a significant reduction of real population incomes, as well as supporting its maximum permissible level for socially vulnerable segments of the population [3, p. 55]. Income inequalities often lead to macroeconomic instability. Significant population stratification often caused poverty and, accordingly, resulted in a large-scale secondary redistribution of income through social transfers. Large social transfers lead to high budget expenditures, and consequently, the budget deficit, the need to cover which provokes inflation [2].

The income regulation in the context of cost policy is carried out through the establishment of the amount of taxes and social deductions and is implemented in:

- the tax policy, the instruments of which are the establishment of the appropriate level of tax burden, which directly affects the final amounts of income received by the population of the country;
- the policy of social deductions, the impact of which is determined by the size and mechanism of contributions payment to compulsory social insurance.

By operating the amount of compulsory payments, the state affects the amount of population income. Consequently, a well-developed taxation system can become an active tool for income regulation policies [10]. At the same time the task of the government is to provide timely and objective response to changing economic situation in the country by adjusting the amount of mandatory payments in order to mitigate the impact of negative factors on the population welfare. However, the study showed that the percentage of income deductions varied, despite the dynamics of income indicators. Thus, in the period when real population incomes declined, the payments continued to grow at an accelerating pace and increased the pressure on the general incomes level. Such process had a negative effect on the population welfare particularly during the crisis years.

Today, there is no well-established mechanism for regulating incomes in Ukraine, moreover the tools of such regulation are not used efficiently or timely. As a consequence, there is lack of positive changes, deterioration in the socio-economic situation in the country, as well as decrease in the population welfare.

While defining the directions of the transformation of population income regulation system in Ukraine it is important to determine the link tightness between incomes and separate factors of their formation, which will allow to predict the effectiveness of improvement measures.

The modern theory of decision-making is based on mathematical methods and models that allow us to analyze possible measures and actions in order to find optimal strategies. These methods include the construction of models that describe the correlation-regression dependences of the resulting variable on independent factors. Such models are used in order to provide selecting measures, justifying further actions to regulate incomes. Based on the results we can predict their possible impact on macroeconomic stability in the state and ensure optimal results of the transformation of the income management system.

Establishment of causal relationships between phenomena that occurs due to the complex of

different determinants is carried out with the help of economic and mathematical methods, namely, correlation-regression analysis. Its use makes it possible to assess the factors of influence on the resultant indicator, as well as quantify the impact of the factor values change in the average value of the resultant.

The main instruments of the state incomes regulation system in course of its transformation include: the establishment of the minimum wage, the minimum pension, subsistence minimum and the regulation of tax burden level and contributions to social insurance. The dynamics of the above factors, as well as the amount of disposable income for the period 2004–2016, are represented in Table 1.

Table 1

Dynamics of income indicators and factors influencing its formation

Years	Disposable income, mln. UAH	Minimum wage, UAH	Minimum pension, UAH	Subsistence minimum, UAH	Current taxes on property income, mln. UAH	Contributions to social insurance, mln. UAH
	Y	x1	x2	x3	x4	x5
2004	212033	205	75	362,23	13553	3647
2005	298275	262	332	423	17774	5064
2006	363586	350	350	453	23396	7134
2007	470953	400	380	492	35598	8326
2008	634493	515	470	592	46926	11987
2009	661915	605	475	626	45368	11796
2010	847949	869	503	825	51112	13073
2011	988983	941	695	894	60683	13827
2012	1149244	1073	750	1017	68716	16004
2013	1215457	1147	822	1108	72943	16273
2014	1151656	1218	894	1176	75446	16608
2015	1330089	1218	949	1176	100830	16383
2016	1526691	1378	1074	1330	140972	35984

Source: compiled by author according to the data [9].

In the course of the study, some models that reflect the magnitude of the impact of each of these factors on the population income level were developed. According to the determination coefficients (R^2), as shown in the table 2, the selected factors have a significant effect on the formation of income, since their values exceed 0.9 (table 2).

Table 2

Modelling the influence of state regulation instruments of population income

Type of state policy	Kind of state policy	Regulatory effect of influence instruments	Mathematical model
Income policy	Wage policy	Impact of minimum wage (x_1) on the income level (Y)	$y = 1160,4x^{0,9913}$ $R^2 = 0,9719$
	Social transfers policy	Impact of minimum pension (x_2) on the income level (Y)	$y = -0,4375x^2 + 1847,1x - 94309$ $R^2 = 0,9407$
	Minimum standards policy	Impact of subsistence minimum (x_3) on the income level (Y)	$y = 1243,3x - 171620$ $R^2 = 0,9799$
Expenditure policy	Tax policy	Impact of taxes (x_4) on the income level (Y)	$y = -8E-05x^2 + 22,66x - 132252$ $R^2 = 0,9725$
	Social deductions policy	Impact of social insurance contributions (x_5) on the income level (Y)	$y = -0,0006x^2 + 63,158x - 212272$ $R^2 = 0,9173$

Source: compiled by the author

The main component of population income is wage. Using the Microsoft Excel, a graphic model that reproduces the impact of changes in the minimum wage on income level was created (fig. 1).

During the entire period of the study, there was a direct correlation between the level of the established minimum wage and the existing population income. The growth of the population income was almost in proportion to the slight deviations in 2010 (point A), when the minimum wage grew slightly faster. Some disproportionate changes also occurred in 2014-2015 (points B and C). As can be seen from the chart, in 2014 the minimum wage remained at a slightly lower level.

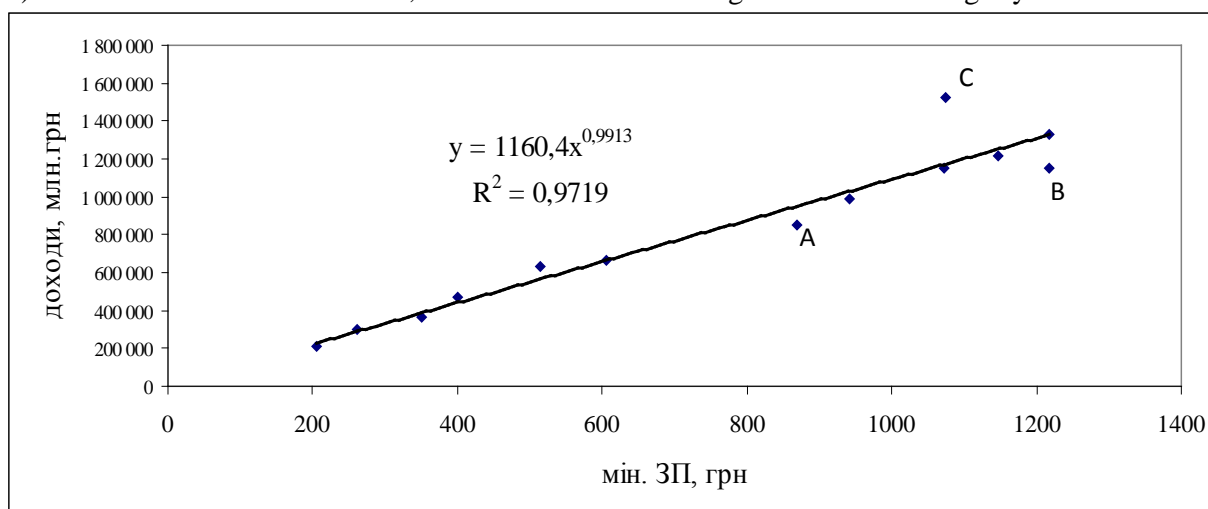


Fig. 1. Impact of the minimum wage on the income level
Source: compiled by the author

Significant growth of inflation in 2015 was one of the factors of nominal income level increase. However, the minimum wage in 2015 did not meet the real needs of the population to ensure a sufficient level of consumption. Statistical indicators in crisis years, as a rule, do not objectively reflect the laws of development and the relationship between variables. So when constructing models certain periods of economic upheaval can be often avoided.

Selected types of income management policies are used in practice simultaneously. Therefore, when investigating the influence of these factors on the formation of incomes, it is important to determine the relationship between different instruments (table 3).

Table 3

Matrix of pair correlation coefficients
to determine the force of influence of state regulation instruments

	Y	x1	x2	x3	x4	x5
Y	1	0,9899	0,9588	0,9602	0,9469	0,7808
x1	0,9899	1	0,9589	0,9628	0,9399	0,8259
x2	0,9588	0,9589	1	0,8701	0,8287	0,8523
x3	0,9602	0,9628	0,8701	1	0,9760	0,7571
x4	0,9469	0,9399	0,8287	0,9760	1	0,7003
x5	0,7808	0,8259	0,8523	0,7571	0,7003	1

Source: compiled by the author

The calculated correlation coefficients are quite significant that means that each of the indicators has an impact not only on the resulting indicator - the income of the population, but at the same time significantly affects each other. This fact must be taken into account in the formation and implementation of income policy, since changing one of the components of household incomes leads to some changes in others. In particular, the calculations show that the minimum wage has the largest impact on the population income, since the correlation coefficient for this variable is the largest ($r = 0.9899$). Therefore, when establishing the level of minimum wages, it is necessary to take into account that the corresponding changes will take place both in the volume of tax revenues and social deductions. At the same time, the subsistence minimum and the minimum wage should

be increased accordingly. Consequently, an artificial increase in wages will inevitably lead to a nominal increase in the components of household incomes, but it will not have a qualitative effect. The growth of minimum wages should be justified by appropriate positive changes in a number of economic indicators.

In accordance with the identified negative factors and causes of the critical situation with the problem of income generation, the main directions of its solution should be identified as follows: the ongoing monitoring of social and labor processes in the country; reforming wages and ensuring the growth of its average level; ensuring optimal correlation between sources of income generation; increase of employment rate by stimulating entrepreneurial initiative; introduction of flexible tax policy; strengthening control over compliance with legislation in the field of pensions; improvement of the mechanism for providing social assistance.

Conclusions. 1. In order to improve the income regulation system, some conceptual transformation principles were envisaged. They include qualitative transformations of state regulation system of population income, which are characterized by changes in two directions: regulation of social standards and guarantees; regulation of population incomes deductions. 2. In order to substantiate the expediency of introducing the conceptual framework for the transformation of the income regulation system, a modelling of the influence of various factors on the population incomes level was carried out using correlation-regression analysis. It was proved that each of the tools (minimum wage, minimum pension, subsistence minimum, tax burden, social insurance contributions) determines not only the resulting indicator - the population income, but at the same time significantly affects each other. 3. It has been determined that the minimum wage has the greatest impact on the population incomes, therefore the determination of the factors influencing its formation and the substantiation of the concept of the minimum wage level establishing are prospective directions of further research.

Література

1. Кривцова М. Система державних соціальних стандартів та гарантій в Україні: вплив на доходи населення та шляхи вдосконалення / М. Кривцова // Науковий вісник Одеського національного економічного університету. – 2016. – № 6. – С. 108–131.
2. Лібанова Е. М. Бідність населення України: методологія, методика та практика аналізу / Е. М. Лібанова. – Київ : КНЕУ, 2008. – С. 143.
3. Семенченко А. В. Удосконалення механізму державного регулювання доходів населення / А. В. Семенченко // Бізнес Інформ. – 2016. – № 5. – С. 51–56.
4. Collins Christopher. Raising the Minimum Wage: An Economic Gain [Electronic resource] / Christopher Collins // The Park Place Economist. – 2017. – Vol. 25. – Available at : <http://digitalcommons.iwu.edu/parkplace/vol25/iss1/20>.
5. Manning Alan. The elusive employment effect of the minimum wage [Electronic resource] / Alan Manning ; Centre for Economic Performance, London School of Economics and Political Science // CEP Discussion Paper. – № 1428. – London, 2016. – Available at : <http://eprints.lse.ac.uk/67646>.
6. Yamaguchi Masao. Stagnation and minimum wage: Optimal minimum wage policy in macroeconomics [Electronic resource] / Masao Yamaguchi// MPRA Paper. – 2017. – 3 August. – Available at : <https://mpra.ub.uni-muenchen.de/80359> (Last accessed: 16.10.2017).
7. Kroft K. Optimal Income Taxation with Unemployment and Wage Responses: A Sufficient Statistics Approach. Technical report [Electronic resource] / Kory Kroft, Kavan Kucko, Etienne Lehmann, Johannes Schmieder // National Bureau of Economic Research. – 2016. – February. – Available at : <http://ftp.iza.org/dp9719.pdf> (Last accessed: 21.10.2017).
8. Ricciuti R. How do political institutions affect fiscal capacity? Explaining taxation in developing economies [Електронний ресурс] / Roberto Ricciuti, Antonio Savoia, Kunal Sen // Explaining taxation in developing economies. – 2016. – 14 July. – P. 1–43. – Режим доступу : https://extranet.sioe.org/uploads/sioe2016/ricciuti-_savoia_sen.pdf (Last accessed: 16.10.2017).
9. Доходи та витрати населення України (2002–2015). Сайт Державної служби статистики України [Електронний ресурс]. – Режим доступу : www.ukrstat.gov.ua/. (дата звернення: 19.06.2017).
10. Цимбалюк І. О. Необхідність та напрями удосконалення податкової системи України // Проблеми розвитку фінансової системи України та шляхи їх вирішення : монографія / М. І. Карлін та кол. авт ; за ред. д-ра екон. наук, проф. М. І. Карліна. – Луцьк: Терен, 2014. – С. 99–115.

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Ковшун Н.Е., Коцан Л.М.*

References

1. Kryvtsova, M. (2016) Systema derzhavnykh sotsialnykh standartiv ta harantii v Ukraini: vplyv na dokhody naselennia ta shliakhy vdoskonalennia [The system of state social standards and guarantees in Ukraine: the impact on income and ways of improvement]. *Naukovyi visnyk Odeskoho natsionalnoho ekonomichnoho universytetu – Scientific Bulletin of the Odessa National Economic University*, 6, 108–131 [in Ukrainian].
2. Libanova, E. M. (2008) *Bidnist naselennia Ukrainy: metodolohiia, metodyka ta praktyka analizu [Poverty of*

Ukraine's Population: Methodology, Methods, and Practice of Analysis. Kyiv: KNEU [in Ukrainian].

3. Semenchenko, A. V. (2016) Udoskonalennia mekhanizmu derzhavnoho rehuliuвання dokhodiv naseleennia [Improvement of the mechanism of state regulation of incomes of the population]. *Biznes Inform – Business-inform*, 5, 51–56 [in Ukrainian].
4. Collins, Christopher (2017). Raising the Minimum Wage: An Economic Gain. *The Park Place Economist*: (Vol. 25.) Retrieved from: <http://digitalcommons.iwu.edu/parkplace/vol25/iss1/20> (Last accessed: 20.10.2017).
5. Manning, Alan (2016). The elusive employment effect of the minimum wage. *CEP Discussion Paper*, 1428. London: Centre for Economic Performance. Retrieved from <http://eprints.lse.ac.uk/67646> (Last accessed: 21.10.2017).
6. Yamaguchi, Masao (2017). Stagnation and minimum wage: Optimal minimum wage policy in macroeconomics. *MPRA Paper*, (3 Aug.). Retrieved from <https://mpra.ub.uni-muenchen.de/80359/> (Last accessed: 16.10.2017).
7. Kroft, Kory, & Kucko, Kavan, & Lehmann, Etienne, & Schmieder, Johannes (2016). Optimal Income Taxation with Unemployment and Wage Responses: A Sufficient Statistics Approach. *IZA Discussion Paper*, (Feb.). Retrieved from <http://ftp.iza.org/dp9719.pdf> (Last accessed: 21.10.2017).
8. Ricciuti R., Savoia A. and Sen K. (2016) How do political institutions affect fiscal capacity? *Explaining taxation in developing economies*, 14 July, 1–43. *extranet.sioe.org*. Retrieved from https://extranet.sioe.org/uploads/sioe2016/ricciuti_savoia_sen.pdf.
9. Dokhody ta vytraty naseleennia Ukrainy (2002–2015). Cait Derzhavnoi sluzhby statyky Ukrainy [Income and expenditure of the population of Ukraine (2002–2015). Website of the State Statistics Service of Ukraine]. www.ukrstat.gov.ua. Retrieved from www.ukrstat.gov.ua.
10. Tsymbaliuk, I. O. (2014). Neobkhdnist ta napriamy udoskonalennia podatkovoi systemy Ukrainy [Necessity and directions of improvement of the tax system of Ukraine]. M. I. Karlin (Eds). *Problemy rozvytku finansovoi systemy Ukrainy ta shliakhy yikh vyreshennia – Problems of development of the financial system of Ukraine and ways of their solution*. (pp. 99–115) Lutsk: Teren [in Ukrainian].

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Kovshun N. E., Kotsan L. M.