ОБСЯГ ПУБЛІЧНИХ ФІНАНСІВ ЯК ПРЕДМЕТ Контролью

Анотація. Запропонований спосіб точного обчислень обсягу публічних фінансів як предмета контролю дає змогу задовольнити суспільно-економічну потребу у визначенні вартісного вираження предмета контролю. В основному фокусі дослідження — визначення удосконаленого аналітичного показника розрахунку вартісного вираження публічних фінансів — PFₖ, який є більш універсальним та удосконаленим показником. Запропоновані удосконалені полюгають в урахуванні елементів, які мають виключно фінансове походження, а саме: Зведеного бюджету та Єдиного внеску країни. Такий склад уточенного показника додає неоднакова формулу, що вже існує, де елементами є інституції, що становлять систему державного соціального страхування та мають неусталений і мінливий характер. Це, у свою чергу, дало змогу розробити низьку формулу, які знайшли підтвердження проведенням розрахунками, зокрема: формули обсягу предмета контролю за відповідний звітний період (за плановим суккупним показником вартісного виразу публічних фінансів країни) (формули (2), (3)); формула обсягу предмета контролю за відповідний звітний період (як суккупний показник вартісного вираження публічних фінансів країни за фактом виконання) (формула (4)); формула абсолютного збитку нанесеного предмета контролю (за відповідний звітний період) (формула (5)); формула формулюванням параметра для дієвого та високооціфровитого інституту контролю країни (формула (6)). Отримані показники PFₖ, TSC⁰, TSCPF⁰, AL-TSCPF⁰ дозволили здійснити аналіз проведення контрольних дій агентами інституту контролю країни та дали змогу сформулювати параметр забезпечення та визначення якості інституту контролю країни. За результатом власної апробації розроблені показники довели, що вони є інструментами наукового пошуку в теоретичній і практичній площині у сфері інституту контролю як одного з елементів інституційної інфраструктури публічних фінансів, що безпосередньо забезпечує їхню стабільність.

Ключові слова: вартісне вираження публічних фінансів, інституційна інфраструктура, інститут контролю, агенти інституту контролю, предмет інституту контролю, публічні фінанси, стабільність публічних фінансів.

Формул: 6; рис.: 0; табл.: 1; бібл.: 12.
(formula (4)); the formula of absolute damage to the subject of control (for the relevant reporting period) (formula (5)); the formula for calculating a parameter for an effective and highly efficient institute of country control (formula (6)). The obtained indicators $PF_R^*$, $TSC_{PF}^* Y^*$, $TSC_{PF}^* Y^*$, $AL_{TSCPF}^* Y^*$ made it possible to analyze supervisory reviews undertaken by the agents of the national institute of control and work out the parameter of quality assurance and quality assessment of the national institute of control. According to these test results, the developed indicators proved to be the tools of theoretical and practical scientific research of the institute of control as one of the elements of the institutional infrastructure of public finances, which directly ensures their stability.

**Keywords:** value terms of public finances, institutional infrastructure, institute of control, agents of the institute of control, the subject of the control institute, public finance, stability of public finances.

**JEL Classification** H61, H83

Formulas: 6; fig. 0; tabl.: 1; bibl.: 12.

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**ОБЪЕМ ПУБЛИЧНЫХ ФИНАНСОВ КАК ПРЕДМЕТ КОНТРОЛЯ**

**Аннотация.** Востребованность исследования заключается в найденном способе точного вычисления объема публичных финансов в статусе предмета контроля или, другими словами, в определении стоимостного выражения предмета контроля. Для этого потребовалось усовершенствовать аналитический показатель расчета стоимостного выражения публичных финансов — $PF_R^*$, что позволило разработать ряд формул, которые нашли свое подтверждение проведенными расчетами. Полученные показатели $PF_R^*$, $TSC_{PF}^* Y^*$, $TSC_{PF}^* Y^*$, $AL_{TSCPF}^* Y^*$ использовались при анализе деятельности агентов института контроля страны и стали основанием в формулировании параметров обеспечения и определения качества института контроля. По результатам апробации показатели доказали, что являются инструментами научного поиска в сфере института контроля как одного из элементов институциональной инфраструктуры публичных финансов.

**Ключевые слова:** стоимостное выражение публичных финансов, институциональная инфраструктура, институт контроля, агенты института контроля, предмет института контроля, публичные финансы, стабильность публичных финансов.

**Формул: 6; рис.: 0; табл.: 1; библ.: 12.**

**Introduction.** Public finances are naturally belong to the purview of the Institute of Control. Accordingly, the ability to calculate accurately the volume of public finances in the status of control subject or, in other words, to determine the value terms of the subject of control, is in the interest of both the control institute and society as a whole.

**Research analysis and problem statement.** This article is a continuation of the research of public finances and their institutional infrastructure aimed at ensuring stability [1; 2]. Therefore, the tasks for this scientific research are defined at the theoretical level and in the practical surface. At the theoretical level, the task requires the improvement of the analytical indicator of the calculation of the value terms of public finances. The tasks of the practical surface are: first, the use of calculated indicators of value terms of public finances to determine the scope of the control subject; second, using the proposed formulas, we will analyze the results of the country’s control institute. On the subject of scientific search, our research coincides with the problems considered by such scientists as: James M. Buchanan [3], Paul M. Gaudemet [4], O. Glushchenko [5], Richard A. Musgrave [3], Oliver M. Richard [6], Amir Seri [7].

**Research results.** In the context of the theoretical task outlined above, let us consider the possibility of improving the analytical indicator of the calculation of value terms of public finances. In previous scientific work we have proposed formulas for calculating the value terms of a country’s public finances: $PF_R$ (planned revenue) and $PF_E$ (planned expenditure) [2]. We remind
that the components of the \( P_{FR} \) formula are the revenue part of the Consolidated Budget (as an aggregate analytical indicator) and the revenue part of the budgets of social funds of Ukraine. Therefore, the formula has some imperfections — it lacks universal character because the used components are related to the unstable and volatile nature of the institutions that make up the state social insurance system of Ukraine, which are from time to time changed, reorganized and eliminated. Such imperfection of the formula prevents the possibility of analysis for different periods. In order to eliminate this gap, it is necessary to rely on a more universal indicator than the revenue part of the budget of indicated institutions. This indicator is the amount of income of the single contribution to the compulsory state social insurance (here in after — the Single contribution) for certain reporting period, because this national contribution is the only denominator that combines the institutions of state social insurance as a source in the formation of almost all parts of their budget revenue. However, there are several factors to consider, including: the budget process has both a planned (that is, a forecast) calculation and a performance indicator (calculation due to actual execution). So we have the opportunity to obtain this data in the official accounts of the Treasury Service of Ukraine; Single contribution payments are accounted by the central executive authority, which forms tax and customs policies (in terms of administration of taxes and duties, customs payments, single contribution) only by actual execution. Therefore, in the proposed formula, we must use the same factual method to obtain a methodologically pure and undistorted result. We propose to calculate the value terms of public finances (for the corresponding reporting period) using the following formula (1):

\[
P_{FR}^* = R_{CB} + E_{SIC}
\]

(1)

where \( P_{FR}^* \) — value terms of the Public Finance of Ukraine (by actual fulfillment of income) is calculated in a specified manner;

\( R_{CB}^* \) — revenue of the Consolidated Budget of Ukraine (upon fulfillment);

\( E_{SIC} \) — Single Contribution (upon revenue).

According to the formula (1), the value terms of public finances of Ukraine for 2018 will be:

\( R_{CB}^* = \text{UAH 1 184,29 billion}; \)

\( E_{SIC} = \text{UAH 228,03 billion}; \)

then \( P_{FR}^* = 1184,29 + 228,03 = \text{UAH 1 412,32 billion}. \)

Source: Calculated by the Author on the basis of officially published information [8; 9].

Definitely, the proposed formula is also not perfect; its imperfection is that the calculation on the budgets of social funds will be more correct because of their own income of a particular fund. Therefore, the prospective user must choose one or another formula to calculate the value terms of public finances, based on his goals. Thus, in the arsenal of the researcher or user-practitioner there are two formulas: the first, previously proposed formula — \( P_{FR} \) [2], which has the disadvantage of lack of some versatility, but which also has some advantage — the formula has as a predictive nature of calculations (planned volumes of income parts of the budgets) and the nature of the ex-post payments; and the second proposed in this article, the \( P_{FR}^* \) formula. Now we have the opportunity to begin the tasks from the practical surface. The first step will be to use the calculated public finance value terms (\( P_{FR}; P_{FR}^*; P_{FE} \)) metrics to determine the scope of the subject of control for the purposes of the control institute. Let us reiterate that it is critically important to determine the purposes of public financial control — to have an exhaustive subject of control (exhaustive — in the list) [1], and we should add that it is equally critical to have an exhaustive subject of control over its scope. It is in this sense and is the applied application of the proposed indicators. However, we need to understand what we need to consider an exhaustive amount of control for the country’s control institute. In previous works [1] we have structured the subject of control into: public finances, public property resources and public management actions. We focus solely on public finances to achieve the goal and fulfill the objectives of this article.

The functioning agents of the Institute of Control in the country: the Accounting Chamber of Ukraine and the State Audit Office of Ukraine have a similar, almost duplicated, subject of control. The similarity is that the two agents of the Institute of Control attributed to the subject of control of state expenditures. The main difference between one agent of the Institute of Control and another is attribution of funds to the State Budget of Ukraine by the Accounting Chamber of Ukraine [10].
This gives the right to assert that the aggregate value terms of the country’s public finances should be the subject of control for the control institute and its agents. This can be represented by the following formulas (2), (3), (4) based on the purpose of their application: the purpose may be a prognostic calculation for the formation of control plans for the next period of activity of the agent of the control institute (i.e., for operation with the subject of control in the future period), or the purpose may be a post-clearance calculation that is required for past-period controls (i.e., for past-period controls). For the forecasting purpose of the Institute of Control and its agents, we will only use components in the calculations that contain the planned indicators of revenue and expenditure part of the reporting. This can be written by the following formula:

$$TSC_{PF}^Y = PF_R + PF_E$$  \hspace{1cm} (2)

where $TSC_{PF}^Y$ — the amount of the subject of control over the relevant reporting period (according to the planned aggregate value terms of the country’s public finances value);

$Y$ — the financial period for the corresponding year;

$PF_R$ — is the value terms of the Public Finance of Ukraine (by planned income);

$PF_E$ — is the value terms of Public Finance of Ukraine (by planned expenditure).

*Source:* Developed by Author.

When applying the formula (2) within the research task, we are faced with the imperfection of publicly disclosing data from the Consolidated Budget of Ukraine. Namely, we do not have officially released information from the expenditures of the Consolidated Budget of Ukraine. Therefore, we are not able to make accurate calculations of the $TSC_{PF}^Y$ indicator (the amount of control over the aggregate value terms of public finances). Therefore, we need to offset the identified negative factor — not to disclose the required financial data, and to propose an alternative formula. In this way, to offset the mentioned negative factor, the actual practice of budget execution in the country can become, namely — knowing that in Ukraine budgets are executed without surplus, respectively, annual revenues to public finances are used in full, so we suggest to calculate the $TSC_{PF}^Y$ indicator by doubling it as in the alternative formula (3):

$$TSC_{PF}^Y = PF_R \times 2$$  \hspace{1cm} (3)

*Source:* Developed by author.

If on the purpose of the control institute and its agents there are calculations under execution, we will use only the components that contain data on the actual execution of the revenue and expenditure part of the reporting. With the help of above specified method of calculating the value terms of public finances ($PF_R^*$) we can write a following formula (4):

$$TSC_{PF}^{Y*} = PF_R^* \times 2$$  \hspace{1cm} (4)

where $TSC_{PF}^{Y*}$ — the volume of control subject for the relevant reporting period (as a cumulative indicator of value terms of the country’s public finances upon execution);

$PF_R^*$ — is the value terms of the Public Finance of Ukraine (by actual revenue execution).

*Source:* Developed by author.

For the practical example of the research we will get a clear expression of the amount of control over the past year. Taking into account the past period, we also use the formula containing the components of the actual execution of the income and expenditure part of the reporting, that is, we calculate the indicator $TSC_{PF}^{Y*}$, which according to the formula (4) is:

$Y$ = the financial period for 2018;

$PF_{R^*} = UAH \; 1 \; 412,32\; billion$;

then $TSC_{PF}^{Y*} = 1 \; 412,32 \times 2 = 2 \; 824,63\; billion\; UAH$.

*Source:* Calculated by the Author on the basis of officially published information [8; 9].

However, despite such an incompletely accurate method of calculating such indicator as $SC_{PF}^{Y*}$, the result obtained is still a clear example of the amount of society’s funds subject that are controlled by the Institute of Control. In addition, taken into account the origin of public finances,
we have to take into account the time factor — it will mean that the above amount by \( TSC_{PF}^Y \) or \( TSC_{PF}^{Y*} \) is the sum of one reporting year, so next year we will get the same one, and maybe a larger sum. This, in turn, means that a quality requirement is used to the agents of the control institute — they must cover the entire scope of the control subject to the \( TSC_{PF}^Y \) or \( TSC_{PF}^{Y*} \) indicators each year. Otherwise, it will be either the added amounts that are not covered by control in the past for the next control period, or the rest of the subject matter will be left aside. Both cases are negative in characterization to characterize the quality of the control institute and its agents.

At this stage, we can proceed to the second task from the practical surface using the proposed formulas to perform a comparative analysis of the results of the country’s control institute and its agents. Let us consider the results of the Institute of Control in terms of the performance of its agents — the Accounting Chamber of Ukraine and the State Audit Service of Ukraine. We should immediately emphasize the negative changes in the state of public promulgation of the control results, namely, the Accounting Chamber of Ukraine has updated the official website in the second half of the current year and now it contains the annual reports only for the last two years 2018 and 2017. Thereby, prior to updating the website, the Accounting Chamber of Ukraine has provided access to all annual reports from 1996. This leads to the fact that we are unable to analyze any tendencies in the control effectiveness, tendencies in the volume of violations, or tendencies in the scope of control coverage, or other tendencies. Therefore, we are forced to conduct our data analysis research only for 2018 (Tabl.).

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Agents of the Control Institute</th>
<th>The share of the results of the control institute in ( TSC_{PF}^{Y*} ) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Results of the measures of state financial control (audit) of the Accounting Chamber of Ukraine (billion UAH)</td>
<td>Work efficiency of the State Audit Service of Ukraine (billion UAH)</td>
</tr>
<tr>
<td>The volume of resources covered by the control</td>
<td>—</td>
<td>392.89</td>
</tr>
<tr>
<td>Legislation violation, including misuse of funds</td>
<td>5.80</td>
<td>2.25</td>
</tr>
<tr>
<td>Inefficient management of funds or misuse of funds</td>
<td>4.41</td>
<td>1.39</td>
</tr>
<tr>
<td>Violation of revenue administration</td>
<td>6.84</td>
<td>—</td>
</tr>
<tr>
<td>Reimbursed and renewed costs incurred in violation of law</td>
<td>—</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Source: Developed by the Author on the basis of officially published information [11; 12].
Note: The name of the Indicators listed in the Table 1 is shown in the version of revision the supervisory authorities.

The analysis of the data in the Table 1 allows us to point out the imperfection of the Accounting Chamber of Ukraine’s reporting on the volume of resources covered by the control and the results of work on compensation and renewal of expenses and proceeds from violation of law. Such situation makes it completely impossible to assess the quality of functioning of this agent of the Control Institute. That is, society — as the customer of control of public resources by the state authority — stays unable to assess the quality of the ordered and paid services (in the form of annually directed public funds for the maintenance of the agents of the control institute). According to the Table 1, we have the opportunity to offer another analytical indicator of the quality of functioning of the Control Institute and its agents — the formula of the absolute loss, which is the subject of control. This should be set by the institute’s agent or other interested user. Absolute loss formula (5) has the following form:

\[ AL_{TSCPF}^{Y*} = D - R \quad (5) \]

where \( AL_{TSCPF}^{Y*} \) — absolute loss caused to the subject of control (for the corresponding reporting period);
D — the performance of the agents of the control institute in detecting violations of law, including: misuse of funds; inefficient management or inefficient use of funds; violation of revenue management (for the corresponding reporting period);
R — the performance of the agents of the Control Institute, for the reimbursement and renewing of costs and revenues incurred in violation of law (for the corresponding reporting period).

Source: Developed by Author.

According to the formul
a (5) the absolute loss to the subject of control for 2018 is:
D = 5,80+4,41+6,84+2,25+1,39 = 20,69 UAH billion;
R = 0,67 billion UAH;
then
\[ \text{AL}_{TSCPF}^{Y^*} = 20,69 - 0,67 = 20,02 \text{ UAH billion.} \]

Source: Developed by the Author based on the Tabl.

Let’s analyze the result obtained by the indicator \( \text{AL}_{TSCPF}^{Y^*} \). The analysis of the results by formula (5) and all its components, clearly shows the imperfection of the country’s control institute, which doesn’t meet the interests of the society, which consists in finding the formation and use of public resources (in this case it is about public finances) under continuous and constant control. This imperfection has cost society only in 2018 year UAH 20,02 billion in absolute losses.

What is meant for society is the component D of formula (5), which equals 5,27% of the total amount of resources covered by control (that is, the CA indicator according to the Table 1 equals UAH 392,89 billion), it means particularly: — the amount of non-compliance detected fiscal payments mean that the rest of society has not fulfilled its financial obligations to co-finance public goods, and so it is less expensive for them to use such benefits, which in institutional theory has the well-known name of the «free-rider phenomenon». Accordingly, this part of society lives at the expense of others, that is, it is financially supported by society.

- the detected amount of misuse or ineffective use of public finance means that: the purposes for which the funds were allocated were not financed in this planned budgetary period; that society was left without benefits, despite the fact that funds were found, allocated and directed to them; this leads to the need for these goals to be re-financed in the future, which in turn leads to the fact that the new goals will remain unfunded or not fully funded; accordingly the provision of public goods and welfare is restrained.

What means for society the component of the R formula (5), which indicates a compensation level of only 3,29% of the detected amount of violation of law (D) in 2018, it means that the society has a question — why to detect the violation, if the amounts are still remained unclaimed.

The analysis of \( \text{AL}_{TSCPF}^{Y^*} \) suggests that with the increase in the share of total Coverage of Controlled Resources (CA) in the subject of control over the corresponding reporting period (\( TSCPF^{Y^*} \)) and keeping the compensation level (R) unchanged, it will increase with the same proportionality and \( \text{AL}_{TSCPF}^{Y^*} \). Let’s validate this statement with the following calculation, which will result the possibility of comparing the amounts of absolute losses in public finances incurred by the public — between the actual amount (i.e \( \text{AL}_{TSCPF}^{Y^*} \)) and the probable amount (calculated under the assumptions of some of available data in the Table 1):

1) Let us start with eliminating the shortcomings of the reporting agents of the Control Institute. That’s why to reduce the error of calculations and increase objectivity, we will prove the CA indicator to 785,78 billion UAH, assuming that the Accounting Chamber of Ukraine has covered not more and not less the subject of control as and the State Audit Office of Ukraine (ie UAH 392,89 billion x 2);

2) in this case, we will update the calculations of the specific gravity of the CA in \( TSCPF^{Y^*} \):
\[ \frac{785,78}{2824,63} \times 100 \approx 27,82\% ; \]

3) the next step is to clarify the relative value of D:
\[ \frac{20,69}{785,78} \times 100 \approx 2,63\% ; \]

4) the next step is based on a firm conviction that the scope of control of the subject of control by the entities (or agents of the control institute) should be equal to 100 percent. In this case,
the CA indicator should be neither 392,89 nor 785,78 and only UAH 2824,63 billion, or, in other words, CA = TSCP<sub>PF</sub><sup>Y</sup>;

5) having obtained the refined relative value of D (2,63%) and considering that CA = TSCP<sub>PF</sub><sup>Y</sup>, we calculate the probable value of D:

2824,63 x 2,63% = 74,29 UAH billion;

6) the next step is to leave the indicator R in the actual relative limit values (ie, unchanged specific gravity 3,92%), with the subsequent calculation of its probable volume:

74,29 x 3,92% = 2,44 UAH billion;

7) the last step in this calculation will be to use formula (5) to find the probable value of AL<sub>TSCP</sub><sup>Y</sup>:

74,29 — 2,44 = 71,85 billion UAH.

Source: Calculated by the Author using formulas (4; 5), the Table 1 and on the basis of officially published information [11; 12].

As a result of the trial, we see that, if control activities were carried out by agents of the country’s control institute in respect of the total amount of control (ie TSCP<sub>PF</sub><sup>Y</sup>), the amount of absolute losses in 2018 (ie AL<sub>TSCP</sub><sup>Y</sup>) would probably be UAH 71,85 billion instead of 20,02 UAH billion. And so, our claim regarding the dependence of AL<sub>TSCP</sub><sup>Y</sup> on CA and R is fully proven.

If a society values its resources and wants to have public finances that are solely for financing the needs of the society and its development, then there must be an effective and highly effective control institute in the country. And its agents, according to the results for the corresponding reporting period, must provide a CA of 100 percent TSCP<sub>PF</sub><sup>Y</sup> and AL<sub>TSCP</sub><sup>Y</sup> of zero.

We assume that the factors for achieving such requirement for each indicator will be different and have different nature of origin. The indicator AL<sub>TSCP</sub><sup>Y</sup>, as we see in formula (5), has two constituent elements (D and R), one of them (D) depends on the factor of committed violations of law with respect to the subject of control by the object of control and the essence of the growth of this element is more dependent on the activity of third-party activities of the object of control than the agents of the control institute, the logic of «the more violations the more it is revealed» or «as if nobody violate then it is nothing to reveal». The second element (R), on the contrary, depends on the factor of activity of the agents of the control institute, resulting in the growth of this element, by the logic of «compensating for all that is discovered». So, element (R) should completely offset the element (D) by logic «it doesn’t matter how many violations there are because violations will be fully repaid». The above mentioned allows us to formulate the parameters, with limit values, of an effective and highly efficient country control institute and write them in the form of the following system, which requires the fulfillment of each condition by the following formula (6):

\[
\begin{align*}
\text{AL}_{TSCP}^Y & \rightarrow 0 \\
R & \rightarrow 100\% \\
\text{CA} & = \text{TSCP}_{PF}^Y
\end{align*}
\]

Source: Developed by Author.

Conclusions. Performing the tasks of the theoretical level, we obtained an improved analytical indicator of the calculation of the value of terms of public finances — PF<sub>R</sub><sup>*</sup>, which is a more universal indicator for the reasons that include elements of purely financial origin in its composition, namely: Consolidated budget and Single contribution of the country. Such a composition of the refined indicator overcomes the imperfection of the previous formula where as elements there are institutions that make up the state social insurance system and which are not established and volatile. The practical value of the conducted research is that the author has developed a number of formulas that have been tested and confirmed by the calculations. This, in turn, made it possible to formulate parameters, with limit values, for an effective and highly effective country control institute. And factors of achievement of these parameters outlined directions of research in the future. Therefore, the results obtained both in the theoretical and the practical surface are the basis for continuing the scientific search in the sphere of the Control Institute as an element of the institutional infrastructure of public finances that ensures their stability.

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