

## RESHAPING HIGHER EDUCATION FUNDING IN UKRAINE: FROM THE SOVIET-ERA FUNDING MODEL TO THE PERFORMANCE-BASED FUNDING

*The article focuses on a specific reform in the Ukrainian higher education sector that has taken place in recent years. The reform is aimed at changing the funding model for higher education institutions. The previous outdated Soviet-era funding model inherited by Ukraine in the 90s has been criticized greatly in the last decades. Hence, the current implementation of performance-based funding in Ukraine is considered a significant move toward better public sector management. This paper starts with an overview of existing funding models in the higher education sector, analyzing their advantages and disadvantages. Then it examines current trends in change of funding mechanisms in the higher education sector. Finally, it discovers a considerable reshaping of the higher education funding in Ukraine that has shifted from the Soviet-era funding mechanism to modern performance-based funding. The reform is a logical consequence of a broader international reform agenda of higher education funding and adherence of Ukraine to the European path. The reform in the Ukrainian higher education system resulted from new liberal economic and political agenda that replaced Soviet-era ideas, combined with the impact of European Union accession conditions. Therefore, the Ukrainian higher education system, as well as the other Ukrainian public sector systems, should be harmonized with European Union's recommendations. Currently, it is difficult to reach a definitive conclusion on whether the PBF is a sufficient mechanism for funding higher education sector or not. To obtain a complete picture, it is crucial to analyze the PBF in different contexts. Despite the debatable nature of performance-based funding, no funding model can fit all contexts and institutional landscapes. Hence, it may always be essential to adjust and keep a funding mechanism up to date by the institutional demands and modern trends and analyze the intended and unintended effects of evolving funding mechanisms, particularly in the post-Soviet landscape because it is recognized as a new call for researchers in examining higher education sector reforms.*

**Keywords:** higher education sector, higher education funding, performance-based funding, reforming higher education funding, Ukraine.

**Introduction.** Bunches of reforms have taken place in the higher education sector in almost all European countries during the last decade [1, 2, 3]. Transformations covered all areas of the higher education system, beginning from governance models and management structures to funding models, diversification of financial sources, and financial autonomy.

Many of such changes were inspired by the introduction of the New Public Management (NPM) concept. NPM has globally become the central issue in the public sector reform agenda [4]. Despite the complexity of the NPM concept, its essential idea remains the same – utilization of the private sector management practices and tools in the public sector [5]. Back in 1991, Hood articulated some major principles, which have prevailed in the modern public reform agenda [6]:

- governance of the public sector by professional managers,
- measure performance for greater efficiency,
- output control mechanisms,
- increase in accountability,
- improvement of transparency.

One of the private sector management practices is the orientation towards performance and efficiency. Undoubtedly, these two concepts are intervened and directly connected with the funding mechanism. That is why there is a trend among many European universities towards the performance-based funding (PBF) models [7]. Statistically, this was confirmed by the fruitful study made by Claeys-Kulik and Estermann [8], where the academics surveyed 28 European higher education systems and identified that 13 of them linked their funding mechanisms to the performance of universities, distributing basic funding using output-based formulas.

European Commission (EC) established this trend back in 2011 when it designed an outline for modernizing the European Union's higher education systems [9]. The

following points regarding higher education funding were articulated:

- control of costs through funding models linked to performance,
- support of the diversification of funding sources,
- investing in professional management,
- increase of universities' autonomy.

In 2017, EC issued the renewed European Union agenda for the higher education sector [10], where it again highlighted the importance of the PBF and performance-based agreements. In addition, EC confirmed a need to review performance indicators and reward structures for universities to optimize them. The reviewing process of performance indicators is essential since measuring performance is a challenging task in the knowledge area [11].

The European trends in reforming the higher education sector have a significant impact on the development of higher education systems in Central Eastern Europe (CEE). Dakowska and Harmsen analyzed Europeanization processes in CEE countries, particularly in Ukraine and Poland [12]. The article examines the adherence of local policies to recommendations of the EC and other international institutions, including OECD, World Bank, UNESCO, and the Council of Europe.

In Ukraine, the Europeanisation trend is also can be confirmed by the signing of the Association Agreement with the European Union. Considering such a signing, many areas of the Ukrainian public sector should be harmonized with the targets of the European Union. One such harmonization process may occur in research and innovation areas, enhancing, for instance, digital education [13]. Therefore, considering both the European Union agenda regarding the importance of the PBF and the adherence of CEE countries to the European path, it is logical to assume that the PBF may gain great attention in post-Soviet countries, especially in Ukraine.

**This paper aims** to discuss existing funding models in the higher education sector, highlighting their advantages

and disadvantage, analyze current trends in higher education funding, and, more importantly, focus on the reforming of funding mechanisms in the Ukrainian higher education sector.

This paper begins a discussion with an overview of existing funding models in the higher education sector, analyzing both benefits and drawbacks of each one. Then it examines recent trends in a change in funding mechanisms in the higher education sector. Finally, it discovers a considerable reshaping of the higher education funding model in Ukraine that has shifted from the Soviet-era funding mechanism to the modern PBF.

**Methodology.** Structural and systematic approaches are used in the construction of the logic of this paper. The paper uses methods of literature analysis (to overview existing funding models in the higher education sector and identify the main trends in implementing higher education funding mechanisms), synthesis (to highlight the main benefits and drawbacks of different higher education funding models), causation (to identify preconditions of the implementation of the PBF in Ukraine), and logical analysis (to identify steps of the evolutionary development in the Ukrainian higher education sector). The sources of data and empirical basis of this paper are official information from

domestic and world databases, and foreign and domestic literature regarding the research topic.

**Results**

**Overview of existing funding models in the higher education sector.** To begin with, it is essential to understand from which sources higher education institutions receive their financial resources. Three core financial sources create a revenue base for universities: public funding (also known as core funding), tuition fees (paid by students), and third-party funding from public and private organizations (given as grants, donations, etc.) [14].

The largest share of universities' revenue is attributed to public funding which is given by governments mainly to support higher education institutions' operations (see Figure 1). On average across OECD countries, public funding accounts for around 70 % of total expenditures on higher education levels, whereas private funding remains at 30 %. If we look at average across 22 European Union countries, public funds account for an even larger share of total expenditures on tertiary education – 80 %. From these figures, it is reasonable to state that it is crucial to have an efficient public allocation mechanism since public funding is the main financial source for universities.

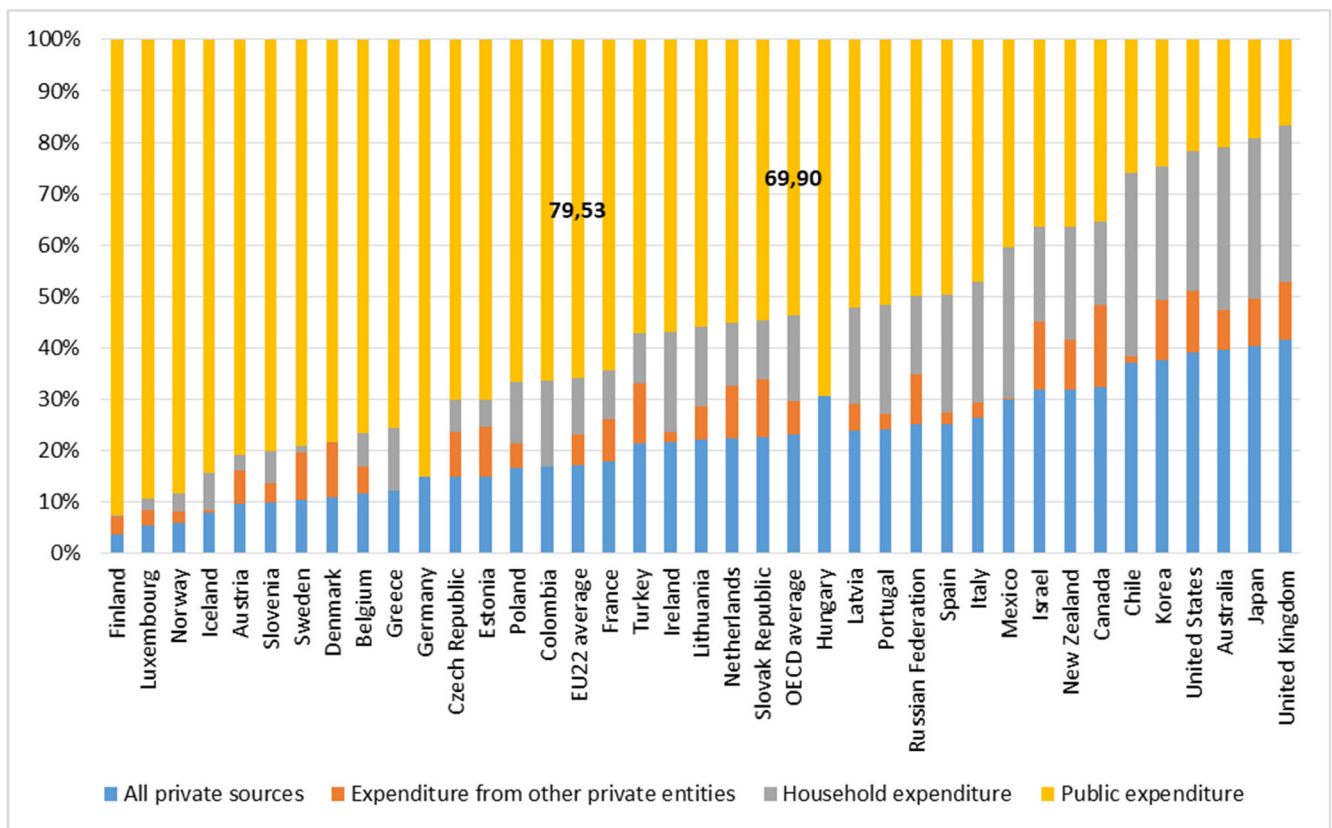


Figure 1. Distribution of public and private expenditure on higher educational institutions in 2018 (in %)

Source: Compiled by the author based on [15].

We now proceed to the reviewing allocation mechanisms (funding models) governments use to ensure the proper functioning of higher education institutions. Funding models of universities can be viewed from two perspectives: 1) the level of output orientation and 2) the level of centralization of decision-making [16].

From the first perspective, there are two opposing directions for funding universities: input-based funding (incremental or negotiation-based funding) and output-based funding (the PBF and performance contracts). For example, if the funding mechanism depends on the number of students enrolled or the number of teaching staff, then such a mechanism is based on input-based indicators. If

funding depends on the number of articles written by professors (research output) or the number of credits completed by students (teaching output), then a system is based on performance-based indicators.

From the second perspective, funding mechanisms for the higher education sector can be divided according to the level of centralization of decision-making. This refers to who will decide whether to accept or reject certain indicators: universities or the government alone. The tendency for universities to make their own decisions points to a more market-oriented model. If a government alone approves the indicators, then we are talking about a centralized approach.

However, it is worth noting that almost all models are hybrid, combining features of different approaches [16].

Based on the two perspectives discussed above, funding models for higher education institutions can be divided into the following groups [17]:

- incremental funding and negotiation-based funding,
- funding formula mechanism, including both input-based and output-based funding (PBF),
- performance contracts,
- project-based funding,
- funding for excellence,
- other direct funding.

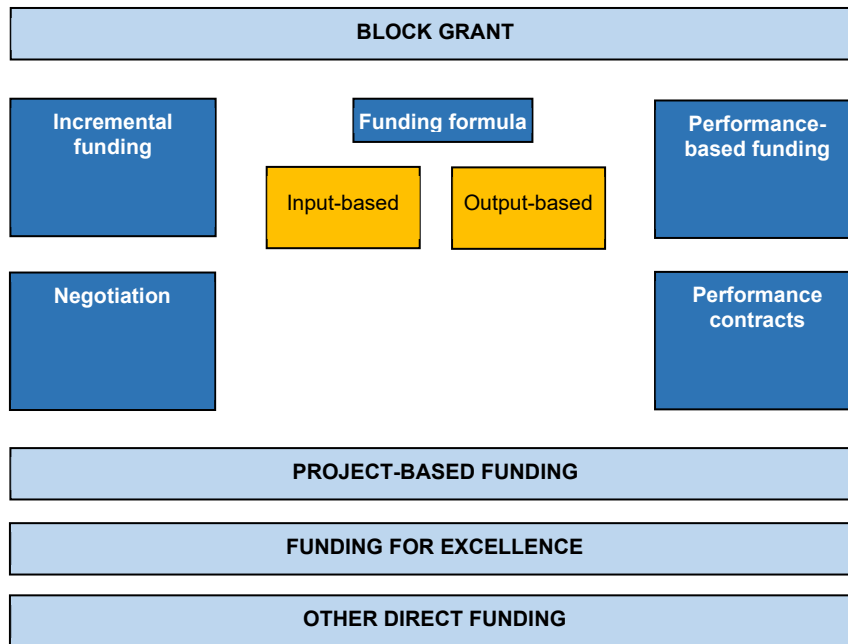


Figure 2. Different groups of funding models

Source: Compiled by the author based on [17].

The first group of funding models includes incremental funding and negotiation-based funding. The main idea behind incremental funding is to use the previous year's funding as a basis for the following year. There is no room for performance measurement here; therefore, this mechanism is not associated with promoting efficiency. A lot of criticism has become evident using incremental funding [18]:

- Incremental funding does not provide helpful information for the decision-making process. It gives a weak understanding of value creation.
- In incremental funding, it is difficult to determine items which cause the most significant changes in an organization. In other words, it is difficult for decision-makers to identify which areas they should focus on.
- It does not support improvements over time, which requires determining the actual efficiency.

A negotiation process between the government and higher education institutions using, in most cases, input indicators and historically determined trends forms a negotiation-based funding mechanism. In this model, everything depends solely on the negotiation process, which ultimately determines the number of financial resources to be allocated to the university.

Negotiation-based funding is usually based on historical trends and is usually allocated to higher education institutions in the form of line-item budgets or block grants [19]. Line-item budgeting is a budgeting mechanism when an organization has to prepare each line item in all financial statements (operation statement, cash-flow statement, balance sheet, etc.) [20]. It simply means identifying how much money is estimated to be received and how much an organization can spend on each cost group. In contrast, a block grant is a single grant allocation to a university, where internal budgeting is under the control of higher education institutions [20]. Line-item funding is a more centralized approach that fully controls how universities spend given funds, whereas block grants give more flexibility and autonomy.

Successful negotiations are associated with a fact that parties reach a mutual consensus that aims to achieve common goals and outcomes. However, this model has been criticized a lot because of its non-transparent nature, the absence of all stakeholders in the negotiation process (e.g., students) and the lack of quality assurance in terms of performance [21]. Moreover, both incremental and negotiation-based funding takes into consideration a short-term context, which consequently may lead to a long-term collapse [22].

Despite a lot of criticism of the mentioned funding models, they obviously have advantages. Both methods are recognized as relatively simple mechanisms which lack ambiguity. Moreover, they provide comprehensible control of expenditures based on a year-over-year comparison [23]. Such models are seen as a protection from administrative misuse and they mostly derive from a practical angle.

The second group of funding models includes formula-based funding, which provides for both input and output criteria. The main idea here is that universities receive their funds based on a mathematical formula. Such funding mechanisms differentiate in terms of the composition of the formula and the number of funds to be allocated. In general, such formulas integrate both input and output indicators linked to specific objectives. If funding is related to the number of students enrolled or teaching staff, it is input-based funding. However, if the allocation mechanism is tied to research output (number of written articles by academics) or credits completed by students, we speak of output-based funding or the PBF.

The PBF is also a formula-based approach to allocating funds to public entities, including higher education institutions. However, this mechanism is mostly tied to output and the results of activities, which are utilized to assess efficiency among universities [24]. Interestingly, the PBF is mainly associated with the healthcare and higher education sectors [25]. However, there are many differences in the PBF models, including a focus on different activities, different performance indicators, different weights of such indicators, and finally different amount of funding that is linked to performance criteria [7].

According to Jongbloed and Vossensteyn, OECD countries in most cases use the following performance indicators in their PBF formulas [7]:

- the number of Bachelor's and Master's degrees (Germany, Netherlands, Austria, etc.),
- the number of credits earned by students (Denmark, Finland, etc.),
- the number of doctoral degrees (Denmark, Germany, Netherlands, etc.),
- research output (Denmark, Finland, etc.),
- external income (Denmark, Finland, Germany, etc.).

Whereas input-based funding focuses on the incremental mechanism, the PBF concentrates mainly on the results [26]. Such a focus can lead to the efficient use of given resources, a better decision-making process, and a better orientation to long-term objectives [27]. Moreover, the PBF is considered an efficient way to enhance public accountability [8]. Performance indicators "manage and control academic work by making visible and subjecting academic activities to external evaluation," and they can be "designed to advance the agenda and implement the policy" [28, p. 280, 289–290].

In times of budget austerity, it is crucial to have a mechanism that can increase national productivity, improve the competitiveness of human capital and create a knowledge economy [29]. This can be done by improving higher education institutions' performance. Many academics confirm that the PBF can increase universities' performance [27]. In addition, such a funding allocation system can eventually boost research output and increase university productivity [30].

Despite all advantages of the PBF, measuring performance in the knowledge area is a difficult task [11]. Considering the multifaceted nature of the higher education

sector, most performance indicators do not manage to capture all sides of universities' output in terms of quality [7]. The ambiguity of performance indicators also creates challenges regarding what indicators to choose.

Many academics pointed out that the PBF does not provide firm evidence of boosting universities' performance [31]. However, this conclusion is based primarily on studies which analyzed the PBF with low weight in total funding given to universities [32, 33]. Hence, it is difficult to reach definitive conclusions on whether the PBF is a sufficient mechanism. It is crucial to analyze the PBF with a higher weight in total funding to have clearer decisions about the PBF influence [34].

In addition, the PBF can cause some unintended impacts. One such unintended impact is the "quantification of quality" [35]. To put it in other words, a funding system that is based on quantitative results provokes an increase in quantity at the expense of quality. For instance, many academics may strive to achieve the desired results based on the number of articles written rather than their quality. This, in turn, undermines the very essence of research and a scientific process. Such a mechanism may not encourage creativity and originality in research [36].

The following unintended effect is linked to the disability of the PBF to sufficiently take into account the differences among universities (research universities and universities of applied science) and different fields (humanities, social science and natural science) [36]. The higher education funding mechanism is usually the same for all types of universities. This raises a concern that it is difficult to find performance indicators that fit all of them. Additionally, regarding different fields, it is not the same to write an article in the natural science field and social science. Accordingly, many academics emphasize the significance of the suitability of performance indicators to the different fields of science [35].

Finally, yet importantly, it is a "free-riding" effect [35]. This corresponds to the situation when some academics focus their attention solely on research output regardless of the teaching process. In such a situation, the PBF may consider one group of academics to perform better. Consequently, this creates a situation where some academics are rewarded at the expense of others [37].

The last group of funding models overviewed in this paper is performance contracts. This model is a relatively new mechanism, which has gained significant attention in the previous few years [7]. The main difference between performance contracts and the PBF is a focus on different perspectives. In the PBF, performance indicators are linked to the recent past, whereas in performance contracts, they are connected to the near future [38].

When talking about performance agreements, we refer to a bilateral agreement set between a government and a higher education institution. Such an agreement clearly defines aims that have to be achieved by a particular university and links these aims to performance indicators to understand progress. Based on the stated goals, the performance agreement also specifies the funding needed to achieve the goals.

In this approach, there is a much greater role for universities in the decision-making process regarding their funding. Performance agreements promote the improvement of strategic dialogue between funding authorities and higher education institutions [38]. More importantly, such a mechanism may address the drawbacks of the PBF, particularly the homogeneity of performance



indicators, instead of promoting different indicators for different types of universities and activities [39]. Finally, such contracts can take into account the diverse nature of the universities' objectives and, at the same time, their commitment to the nationally-set agenda [7].

Despite the debatable nature of the PBF, there is a vivid trend in the higher education sector that more and more universities have been implementing funding mechanisms based on performance criteria. During the last decade, hundreds of universities all around the world have implemented the PBF [40]. For instance, 13 out of 28 European higher education systems linked their funding mechanisms to performance, distributing basic funding using the PBF [8]. Jongbloed and Vossensteyn confirmed this trend, stating that funding models that previously had been linked to incremental mechanisms have been substituted by the PBF [7]. More interestingly, recent trends show that more and more countries (Austria, Denmark, Germany, Netherlands, etc.) seek to diversify the funding mechanism in the higher education sector, and performance agreements are an effective tool for this purpose [38].

**Reshaping of higher education funding model in Ukraine that has shifted from the Soviet-era funding mechanism to the modern PBF.** Back in 2015, the European University Association identified the main problems in the Ukrainian higher education system [42], namely:

- outdated and inefficient methods of financing,
- low financial autonomy,
- unbalanced sources of income for universities.

The first problem highlighted by the European Association of Universities concerns the funding mechanism for the higher education sector in Ukraine. Higher education institutions in Ukraine received state funding according to the historical principle. Any changes in universities' budgets depended solely on input indicators, namely on annual fluctuations in the number of students financed by the state. This incremental budgeting approach, which had its roots back in Soviet-era times, created many challenges, imbalances, and disproportions in the Ukrainian higher education sector [42].

Many researchers have proposed different ways how the Ukrainian higher education funding mechanism should be reformed. A large number of them conclude that the outdated state order approach should be replaced by the modern practices of higher education funding, namely block grants and the PBF [43]. Such mechanisms might influence the financial autonomy of the Ukrainian universities, which they have significantly lacked for a long time. This was also confirmed by Bogolib [44], stating that to increase the competitiveness of the Ukrainian higher education institutions, financial autonomy should be enhanced. One of the possible ways to do this is to introduce a funding mechanism based on performance criteria [44, 45]. Moreover, during budget austerity, the PBF can be seen as a possible way to improve and optimize budget allocations given to Ukrainian higher education institutions [46].

Considering the drawbacks of the incremental state order approach and the international trend to shift to the PBF, a performance funding formula was introduced for the Ukrainian higher education sector in 2019 [47]. The performance funding formula intends to allocate public funding to Ukrainian universities based on their teaching, research and international performance.

Higher education institutions are to receive funding from the consolidated amount of funding provided in the state budget, which consists of the following main components:

- Funding operational activities of higher education institutions.
- Funding is provided depending on the performance of higher education institutions.
- Reserve funding.

The first component refers to the funding of universities' operational activities to ensure their normal functioning. The funding is based on the number of students enrolled under the state order and the ratio of the average monthly salary of the employees. The government still uses an incremental approach to fund the core operational activities of higher education institutions.

The second component, which is considered a fundamental change in a funding mechanism, relates to the performance of the Ukrainian universities. The amount of the PBF is calculated based on such performance indicators [47]:

- indicator of the scale of activity,
- indicator of regional support,
- indicator of research activity,
- indicator of international recognition,
- indicator of graduate employment.

The first two indicators are essentially input-oriented indicators by their nature. The first indicator is set according to the number of enrolled students. The second one is based on the regional location of a particular university. The logic here is that the further the university is located from big cities, the higher funding it should receive.

The third and fourth indicators are the output-based indicators. The indicator of research activity is determined depending on the amount of financial income from the research work on international cooperation projects under agreements with the private sector and the results of research output per researcher on average for the previous three years. Therefore, funds from international research projects, commercial contacts, and scientific expertise are seen as sound indications of sufficient universities' performance. The indicator of international recognition considers universities to be funded for reaching the top 1000 positions in QS World University Rankings, The Times Higher Education World University Rankings, or Academic Ranking of World Universities – World Top 500 Universities.

Finally, yet importantly, the indicator of graduate employment is essentially seen as an output-based indicator, but with a focus on the impact of universities' activities. If graduates are to be employed in positions that require a higher education qualification, their universities are to receive a higher portion of public funding. For this reason, a tracking system of employment of graduates is to be set up. However, such indicators are utilized less frequently because there are doubts about how to effectively track and control them [7].

The last component, reserve funding, is considered an emergency fund to cover unpredictable costs and assist construction projects.

Given that Ukraine had a very outdated system of financing universities, which was based mainly on an incremental approach set in the Soviet era, it is not surprising that the new funding model has been implemented since the beginning of 2020. Many academics have supported this change during the last decades, articulating the drawbacks of the state order system and the possible positive impacts of introducing the PBF in Ukraine.

**Conclusion.** The changes in higher education systems in CEE resulted from new liberal economic and political agenda that has replaced Soviet-era ideas, combined with the impact of European Union accession conditions. Considering the alignment of Ukraine to the European path, many areas of the Ukrainian public sector should be harmonized with the European Union recommendations. For that reason, the Ukrainian higher education system also follows the European agenda.

The transformations of higher education institutions have been shaped by global trends. One such trend is the NPM, which has become the central issue in the public sector reform agenda [4]. To put it simply, the NPM considers the use of private-sector practices in the public sector. One of the private sector practices is the orientation towards performance and efficiency. Despite the debatable nature of the PBF, there is a clear trend in the higher education sector toward implementing funding mechanisms based on performance criteria [23].

In view of the European trend towards using the PBF and the adherence of CEE countries to the European path, it is logical to take into consideration that Ukraine will follow the implementation of the PBF. Hence, the Ukrainian government has implemented the PBF in 2020, changing the outdated Soviet-era funding mechanism. This reform is seen as a considerable step toward better public sector management since many academics have discussed and criticized the outdated Soviet-era funding model that Ukraine inherited in the 90s.

**Discussion.** The introduction of the PBF in the higher education sector is quite a positive step in the Ukrainian context since this reform has been discussed for a long time as a good way to improve higher education sector financing. However, we should not forget that this higher education financing mechanism has drawbacks. Among such disadvantages are worth mentioning: a quantification game, a free-riding problem, the disability of the PBF to sufficiently take into account the differences among universities and academic fields, and finally, difficulties in measuring performance in the knowledge sphere.

It isn't easy to reach a definitive conclusion on whether the PBF is a sufficient mechanism or not. To obtain a complete picture, it is crucial to analyze the PBF in different contexts. For instance, the weight of the PBF in total funding and the length of using this mechanism can be addressed as critical points to have more precise conclusions about the PBF influence [34]. It should be noted that all funding mechanisms have their advantages and disadvantage, and no funding model can fit all contexts and perspectives [7]. Therefore, there will be always a need to adjust the funding mechanism in accordance with the institutional landscape and modern trends.

Funding approaches are constantly evolving since governments seek the most efficient mechanism of funding public institutions, especially higher education institutions. Thus, it may always be important to identify new intended and unintended effects of evolving funding mechanisms. Specifically, this may be of great importance in the post-Soviet landscape since the context of post-Soviet countries is considered a new call for academics to examine higher education sector reforms [48].

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## РЕФОРМУВАННЯ ФІНАНСУВАННЯ ВИЩОЇ ОСВІТИ В УКРАЇНІ: ВІД РАДЯНСЬКОЇ МОДЕЛІ ФІНАНСУВАННЯ ДО ФІНАНСУВАННЯ НА ОСНОВІ РЕЗУЛЬТАТІВ

*Здійснено аналіз процесу реформування системи фінансування вищої освіти в Україні, що відбулося протягом останніх років. Реформу спрямовано на зміну моделі фінансування закладів вищої освіти. Попередня застаріла модель фінансування радянських часів, успадкована Україною в 90-х рр., останнім часом зазнала значної критики. Нинішнє ж запровадження фінансування, орієнтованого на результати, в Україні розглядають як значний крок до ефективнішого управління державним сектором. Реформа української системи вищої освіти стала результатом нового ліберального економічного та політичного порядку денного, що прийшов на зміну ідеям радянського періоду, у поєднанні з впливом умов вступу до ЄС. З огляду на це українська система вищої освіти, як й інші системи державного сектору України, має бути приведена у відповідність до рекомендацій ЄС. Наразі важко зробити остаточний висновок про те, чи є система фінансування на основі результатів ефективним механізмом фінансування сектору вищої освіти, чи ні. Для отримання повної картини дуже важливо проаналізувати систему фінансування на основі результатів у різних контекстах. Незважаючи на дискусійний характер моделі фінансування на основі результатів, слід зауважити: не існує такої моделі фінансування, що підходила б до всіх контекстів й інституційних ландшафтів. Отже, завжди буде існувати потреба в тому, щоб коригувати та підтримувати механізм фінансування в актуальному стані відповідно до інституційних потреб і сучасних тенденцій.*

*Ключові слова: сектор вищої освіти, фінансування вищої освіти, фінансування на основі результатів, реформування фінансування вищої освіти, Україна.*