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The Impact of the Mechanism for Aligning Horizontal Fiscal Imbalances on the Stability of the Financial System

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Abstract: The growth of state transfers to offset disparities in regional development affects the stability of the country's financial system. This article delves into this outcome, empirically analyzing whether the transfer system for horizontal fiscal alignment leads to decreased financial system stability through increased borrowing at municipal and national levels. To test this hypothesis, we employ a quasi-experimental analysis strategy, examining potential scenarios of configuring transfers to Ukrainian municipalities for addressing horizontal fiscal imbalance. Across various transfer calculation scenarios involving changes in the calculation period, the number of budgets in consideration, and the alignment subject, we find that a suboptimal system of horizontal fiscal alignment, transferring funds from financially secure municipalities to insecure ones, leads to a rise in the public finance debt, subsequently decreasing financial system stability. Additionally, we discover that the current mechanism in Ukraine for horizontal fiscal alignment, designed to mitigate inequalities in socio-economic development among communities and regions, paradoxically exacerbates these disparities, artificially inflates indicators of decentralization reform success, and undermines public finance stability.

Keywords: horizontal fiscal alignment; reverse grant; base grant; grant donor; grant recipient

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1. Introduction

1.1. Stability of the Financial System and Public Sector Debt

The ability of the financial system to function effectively and continuously, supporting economic productivity, can be considered financial stability (Schinasi 2005). A resilient financial system is capable of efficiently allocating resources and absorbing shocks, avoiding the impact of destabilizing factors on the real economy and other financial systems (Crockett 1997). It should have mechanisms to prevent the emergence of systemic financial problems that pose a threat to the economic system, which is the supersystem of the financial system. The economic system is the interaction of its own production, financial system, management system, social, and economic sphere. Indicators of stability in the national economic system can be divided into two groups: economic (GDP, trade and payment balances, unemployment rate, and others) and financial (inflation rate, national currency exchange rate, money supply, budget deficit, size of the public sector debt). Financial stability in the banking sector and stability in the public finance sector, determined by debt and fiscal policy, influence financial parameters of economic system stability. Coordinated action of macroprudential and fiscal policies significantly reduces the likelihood of crisis episodes (Dumičić 2017). The state of public finances, financial stability, and the results and prospects of real sector development are interdependent. Research on macroeconomic stability through the analysis of key components such as budget deficit, annual inflation rate, official exchange rate, real interest rate, and unemployment rate (Chowdhury et al. 2023) shows a negative impact of government debt on macroeconomic

stability. A high level of debt and non-targeted use of debt can also create macroeconomic vulnerability and amplify economic shocks. The crisis of government debt is often a crucial component of broader financial disruptions (Sasongko et al. 2019; Masood et al. 2019; Strýčková 2017). Rising debt poses significant risks to the stability of the financial system, making it more vulnerable (Kaufman 1986). A higher level of government debt limits the ability of the state to implement effective countercyclical macroeconomic and financial policies (Clark and Large 2011; Das et al. 2010).

The public finance sphere is one of the defining components ensuring the stability of the financial system. Issues with budgetary balance can have a significant destabilizing impact on the financial system as a whole, as its resources will be directed towards addressing budgetary imbalances.

1.2. Equalizing Vertical Fiscal Disbalances

Many countries implement a policy of income equalization for local budgets to foster the development of economically disadvantaged regions, territories, and communities. The transfer system is the primary mechanism of this state policy. Fiscal transfers between jurisdictions are substantial in many countries, particularly in developed ones.

The currently accepted conclusion that equalizing fiscal capacity is necessary, as it prevents inefficient migration to communities with high-income levels, was formulated by researchers (Buchanan 1950; Musgrave 1961) as early as the 1950s of the past century. The absence of state transfers leads to regional migration from poor regions to wealthy ones, resulting in a reduction in average labor productivity and production in poorer regions, and an overload in wealthier regions.

However, the impact of state transfers on economic development is ambiguous. The advantages and disadvantages of equalization systems have been discussed by many economists. Many empirical studies have found statistically insignificant effects of state transfers on economic growth, while others have identified significant impacts, both positive and negative. Targeted government transfers, through either the neoclassical wealth effect or the Keynesian aggregate demand effect, can lead to an increase in production levels in the national economy (Giambattista and Pennings 2017; Oh and Reis 2012). Based on the example of the United States, this shows that irrational spatial allocation of productive forces, resulting from uneven income growth across regions, contributes to the overall economic growth reduction in the country (Hsieh and Moretti 2019).

The transfer system actually leads to smaller disparities between regions but at the cost of reducing the growth rate of the overall volume of national production (Henkel et al. 2018). A meta-analysis confirms the widely held view in the economic literature that increasing levels of government transfers result in a slowdown in economic growth (Churchill and Yew 2017). This is more pronounced in developed countries than in developing ones.

The goal of the policy of financial support for underdeveloped regions is to provide a boost to their economic development, which, in the long run, should be sustained by the region on its own. The experience of Germany, where, after the fall of the Iron Curtain and the reunification of West Germany and East Germany, the government stimulated the development of certain regions through substantial state transfers from 1971 to 1990, shows that, in the long term, the system of state transfers is inefficient as it insignificantly reduces the shift of economic activity to more developed regions (Ehrlich and Seidel 2018). Transfers to regions with low real incomes may improve residents' welfare in the short term, but they distort long-term incentives for labor migration to regions with the highest demand for labor (Albouy 2012). As a result, grants can worsen income disparities that they seek to eliminate through grants. Transfers stimulate the development of industrial agglomerations, which, unlike agricultural regions, continue after the cessation of transfers (Kline and Moretti 2014).

All territorial units of local government at different levels must have their own income, which, according to the legislation, is added to their budget. The revenues received by a certain level of authority should allow it to finance the societal needs entrusted to it.

In many countries, the authority to collect revenues largely belongs to the central government, while the responsibility for subnational spending is disproportionately placed on local authorities. Due to this asymmetry, known as vertical fiscal imbalance (VFI), the revenues of local authorities often do not proportionately match the expenditures, and the gap is filled by intergovernmental transfers from the central government. Although some degree of mismatch between own revenues and expenditures at the subnational level is inevitable, significant gaps pose a threat to financial stability, as local budget deficits lead to local borrowing, and borrowing leads to an increase in debt. The growth of vertical fiscal imbalances in a country worsens overall fiscal indicators, particularly accelerating the accumulation of national debt (Eyraud and Lusinyan 2013), exacerbates the issue of soft budget constraints for local authorities, and leads to an increase in the debt of local authorities (Boadway and Shah 2007). Municipalities with a higher dependency on transfers have higher net borrowing per capita (Köppl-Turyna and Pitlik 2018). It has been established that, on average, the budget balance of the general government improves by 1 percent of GDP for every 10 percentage points of reduction in vertical fiscal imbalances (Eyraud and Lusinyan 2013). Fiscal decentralization widens vertical fiscal imbalances, making local authorities more dependent on transfers, and debt increases both at the local and central levels (Guo et al. 2022). The central government reallocates transfers to reduce the future borrowing needs of local authorities, resulting in a significant increase in both local and central debts.

However, it is challenging to separate the impact of the fiscal equalization system on financial stability from the impact of the tax distribution system between budgets. The delineation between tax distribution and intergovernmental transfers, which are two main financing mechanisms, is conditional (Blöchliger et al. 2007). In addition, the problem is complicated by the lack of methods for adapting general scientific provisions to the conditions of specific economic situations (Shkvarchuk 2009).

1.3. Horizontal Fiscal Imbalance and Public Sector Debt

Horizontal fiscal imbalance arises between local authorities of the same level and is associated with equalization problems. The mechanism of transfers often redistributes tax revenues from financially capable community budgets to poorer ones, allowing recipient municipalities to provide more public goods. Research on the impact of various types of EU transfers on the productivity, income, and transportation expenses of regions (Blouri and Ehrlich 2020) shows that, in general, the EU transfer system improves overall welfare. Significant improvement in overall welfare can be achieved through the redistribution of funds between regions, i.e., through the application of horizontal equalization.

In this context, the experience of Germany, whose fiscal federalism is based on interregional solidarity, is particularly interesting. The system of horizontal fiscal equalization of imbalances among the 16 federal states (Länderfinanzausgleich, LFA) contributes to the stability of Germany's financial system (Werner 2008). This study also shows that a significant level of equalization creates certain negative consequences, such as donor states losing incentives to increase tax revenues due to excessive resource extraction in favor of recipient states, while recipient states also lose incentives for development due to receiving resources without effort on their part.

Since the formation of the state, Ukraine has witnessed asymmetric socio-economic development of its territories. From 1991 to 1999, the dominant practice in Ukraine's financial resource redistribution among budgets was the equalization of income through the application of regionally and locally differentiated standards for deductions of general taxes to the state budget. This contributed to minimizing the use of transfers from the state budget to balance local budgets but did not incentivize local budgets to grow their own revenue base and favored lobbying for the interests of specific regions. Different portions of taxes remained in local budgets, and revenue dynamics were difficult to predict.

From 1999 to 2001, the equalization system was changed to using uniform standards for tax deductions to the state budget and withdrawing funds from the budgets of regions

with a surplus. This led to a significant increase in the number of subsidizing regions and municipalities and considerable inequality in citizens' access to public services in different locations (Lopushniak et al. 2016).

From 2001 to 2015, equalization transfers were determined by formulas as the difference between basic financial needs and basic financial revenues of a municipality or region, similar to the model of intergovernmental relations organization characteristic of unitary states (Japan, Sweden, Denmark). The system involved the use of non-targeted equalization transfers and targeted grants and had a three-level structure consisting of the upper level (state budget), intermediate level (regions), and lower level (municipalities, districts). Each region allocated transfers to municipalities and districts located on its territory to equalize the marginal benefits of providing local public goods. The central government redistributed funds from the state budget among regions to equalize the marginal communal services from providing regional public goods. However, decentralization of responsibility for policy implementation undermines budget discipline (Breuillé and Vigneault 2010), as it happened in Ukraine.

With the fiscal decentralization reform (initiated in 2015 and ongoing), which involves delegating subnational expenditures to the local level to enhance the efficiency of public administration at the lower level, Ukraine has introduced a new equalization model similar to the German model of budget federalism. The costs of the equalization process are jointly funded by the central government, regions, and municipalities. Similar to Germany, separate mechanisms for equalizing vertical and horizontal imbalances are applied. Equalization of subnational budget deficits arising from vertical fiscal imbalances is carried out by dividing tax revenues and allocating targeted transfers from the state budget. Equalization of fiscal potential occurs through non-targeted horizontal transfers from regions and municipalities with high budgetary capacity to regions and municipalities with low budgetary capacity through the state budget. In Australia and Canada, both vertical and horizontal imbalances are equalized through a unified system of equalization transfers and special grants. In the United States, only vertical imbalances are equalized (Mikesell 1999).

The equalization model in Ukraine is based on a clear delineation of budgetary responsibility and expenditure among three levels of authority (central, regional, municipal). Each level of authority has designated sources of revenue sufficient to fulfill these expenditures. A transfer mechanism is applied to smooth vertical and horizontal imbalances in lower budgets to ensure a certain standard of public services throughout the country. Like in the German model, the revenues of administrative-territorial units are formed from three components: revenues from general taxes (a specific tax share within a unified tax rate), revenues from local taxes, and fiscal transfers calculated by formulas.

Horizontal equalization of local budget tax capacity depends on the level of tax revenue per capita. The size of transfers is determined by the fiscal position of the administrative-territorial unit. The fiscal position depends on the relationship between fiscal capacity (in Ukraine, this is the fiscal capacity index) and the average productivity across administrative-territorial units. The transfer has a positive effect if productivity is lower (basic grant) and a negative effect if productivity increases (reverse grant). Funds from the reverse grant are a source for the basic grant; the state budget should not be a direct provider of funds. However, if funds from the reverse grant are insufficient to cover the basic grant, the difference between the gross reverse grant and the gross basic grant is paid by the state budget.

If, in Germany, direct financial assistance from higher levels of budgets is relatively small, in Ukraine, it is substantial. In this article, we demonstrate that the actual level of this assistance is much higher than the official level, effectively generating distortions towards reducing the budget deficit and the debt of the public sector, thereby distorting financial stability in favor of decreasing the financial stability of public finances as a component of the financial system. Overall, there are two revenue equalization schemes for municipalities using transfers: a gross equalization scheme where actual transfers to regions are funded from the state budget and a net equalization scheme where funding for poorer regions

occurs at the expense of wealthier regions. The application of the net equalization scheme leads to a reduction in the sum of current state expenditures compared to optimal ones (Breuillé et al. 2010) and, therefore, is unlikely to contribute to an increase in the budget deficit and, as a consequence, government debt. In this article, we practically demonstrate in Ukraine that an inefficient horizontal fiscal equalization system using the net equalization scheme can lead to decreased financial stability of public finances.

Also, the difference in the Ukrainian system from the German one lies in the fact that while in Germany the system of horizontal equalization incentivizes states to increase their own tax rates (Buettner and Krause 2021), such an incentive is absent in Ukraine. Unlike countries characterized by significant autonomy and broad taxing powers of regional and local authorities (USA, Canada, Australia, Great Britain, Japan), municipalities in Ukraine have limited taxing powers in terms of regulating local tax rates and tax privileges. Local tax rates in Ukraine are set by local self-government authorities within the limits prescribed by the Tax Code; local self-government authorities cannot reduce individual or sectoral tax privileges granted by central authorities. Balancing fiscal imbalances can be achieved through transfers from the state budget or through decentralizing taxing powers to regional governments (Boadway and Shah 2007). However, in Ukraine, reducing fiscal imbalances can only be carried out through interbudgetary transfers. Significant tax restrictions on local self-government authorities, combined with the borrowing rights granted to them since 2015, generate additional risks of increasing local debt. Unlike the German model, where transfers to lower levels pass through intermediate levels (Breuillé and Vigneault 2010), in Ukraine, the upper level directly allocates transfers to the intermediate and lower levels. This allows us not to consider the intermediate level (24 regional budgets), taking into account only the basic level (1469 municipal budgets) when assessing the impact of horizontal fiscal equalization on financial stability.

The practical definition of the impact of state transfers on the stability of the financial system, in our opinion, involves addressing the question of whether this system moves towards the range of optimal (or close to optimal) financial indicators (metrics) with the growth of horizontal fiscal equalization or deviates from them. Therefore, the impact of the mechanism of horizontal fiscal equalization on the stability of the financial system will be considered positive if the overall increase in the revenue capacity of local budgets participating in equalization is achieved without the systematic accumulation of national and/or local debt.

2. Materials and Methods

To assess the impact of the mechanism of horizontal fiscal equalization on the resilience of the public finance system, we employ a quasi-experimental strategy for analyzing potential scenarios. For this purpose, we calculate regional transfers for horizontal equalization of the revenue capacity of the budgets of 1439 municipalities (in total, there are 1469 municipalities in Ukraine, with 30 located in temporarily occupied territories, so information for calculations on them is unavailable) using the current official calculation methodology (Budget Code of Ukraine 2010). This is based on manually collected data on tax revenues to local budgets from a public official source of information (Open Budget 2023) and manually collected data on the population of communities from public official sources of information (Ministry of Finance of Ukraine 2023; State Statistics Service of Ukraine 2022).

We calculate the basic or reverse grants for each municipality for the budget year, as well as the total need for basic grants in the country (gross basic grant), the total amount of reverse grants in the country (gross reverse grant), and the difference between gross basic and gross reverse grants. The difference between gross basic and gross grants increases the deficit and, subsequently, the debt of the state budget. This serves as the basis for comparing the results of the calculation across all other scenarios. Next, we conduct counterfactual experiments, where we alter the calculation period (Scenario 1), the number of budgets in the calculation (Scenario 2), the calculation period and the number of budgets in the calculation (Scenario 3), the calculation period and the subject of calculation (Scenario

4), the calculation period, the subject of calculation, and the number of budgets in the calculation (Scenario 5). Under different calculation scenarios, we determine how the equalization mechanism affects the resilience of the public finance system based on the criterion of not increasing budgetary debt.

In the baseline calculation, we compute reverse and basic grants for municipalities, as well as gross reverse and gross basic grants for the year 2022. Scenario 1 assumes that the calculation of grants for 2022 is based on data on tax revenues to municipal budgets in 2021, instead of 2020 as stipulated by the current official methodology (Budget Code of Ukraine 2010). Data on tax revenues to municipal budgets in 2021 are also manually collected from an official source of information (Open Budget 2023). Scenario 2 involves including the budget of Kyiv in the horizontal equalization system; Scenario 3 includes the budget of Kyiv in the equalization system, with calculations based on 2021 data. Scenario 4 involves equalizing revenue capacity based on the receipts of two taxes—(1) personal income tax (PIT) and (2) the unified tax—using 2021 data (Open Budget 2023). Scenario 5 entails equalizing revenue capacity based on the receipts of two taxes—(1) PIT and (2) the unified tax—while including the budget of Kyiv in the equalization system, with calculations based on 2021 data.

The formula for horizontal equalization of the fiscal capacity of local budgets in Ukraine involves the calculation of the fiscal capacity index of the local budget Itc_i, which depends on the level of per capita tax revenue. The calculation takes into account the population and the number of registered internally displaced persons. Local budgets with a fiscal capacity index below 0.9 of the average indicator for Ukraine (excluding the indicators of the budgets of the city of Kyiv and local budgets in temporarily occupied territories) receive a basic grant to increase their budgetary provision. Local budgets with a fiscal capacity index above 1.1 transfer a portion of their budgetary resources to support less capable municipalities. In this case, horizontal equalization for the budgets of municipalities is carried out only in terms of PIT (Budget Code of Ukraine 2010).

The basis for determining the impact of the mechanism for equalizing horizontal fiscal imbalances is the equalization model:

$$Itc_i = \frac{Pc_i / ITc_i}{\sum_{i=1}^{n} Pc / \sum_{i=1}^{n} ITc}, \quad (1)$$

where Itc_i—the fiscal capacity index of the i-th municipality;

PC_i—tax revenue to the budget of the i-th municipality in the reporting year;

ITc_i—the population of the i-th community (municipality), including internally displaced persons, at the beginning of the year for which the grant is calculated;

i—municipality;

n—the number of municipalities.

If $0.9 < Itc_i < 1.1$—no equalization is performed according to articles 98 and 99 of the Budget Code of Ukraine (Budget Code of Ukraine 2010).

If $Itc_i > 1.1$—the budget of the i-th municipality provides a reverse grant.

If $Itc_i < 0.9$—the budget of the i-th municipality receives a basic grant.

The reverse grant (Gr_i) of the i-th municipality per year is calculated by the formula:

$$Gr_i = \left(\frac{Pc_i}{ITc_i} - \frac{\sum_{i=1}^{n} Pc}{\sum_{i=1}^{n} ITc} * 1.1 \right) * 0.5 * Pc_i \quad (2)$$

Gross reverse grant $\sum_{i=1}^{n} Gr_i$.

The basic grant (Gb_i) for the i-th municipality per year is calculated by the formula:

$$Gb_i = \left(\frac{\sum_{i=1}^{n} Pc}{\sum_{i=1}^{n} ITc} * 0.9 - \frac{Pc_i}{ITc_i} \right) * 0.8 * Pc_i \quad (3)$$

Gross base grant $\sum_{i=1}^{n} Gb_i$.

In scenarios 4 and 5, horizontal equalization for municipal budgets is conducted separately for PIT and the unified tax. In this case, the amount of received basic grant or paid reverse grant is determined as follows:

If $Gr_{1i} + Gr_{2i} > Gb_{1i} + Gb_{2i}$, then

$$Gr_i = Gr_{1i} + Gr_{2i} - Gb_{1i} - Gb_{2i} \quad (4)$$

If $Gb_{1i} + Gb_{2i} > Gr_{1i} + Gr_{2i}$, then

$$Gb_i = Gb_{1i} + Gb_{2i} - Gr_{1i} - Gr_{2i} \quad (5)$$

All calculations have been conducted in the national currency of Ukraine—the hryvnia (UAH). Comparing the calculation results across scenarios with actual data allows us to provide quantitative answers to questions about improving the equalization mechanism to enhance the stability of public finances. The goal is to promote preventive and timely corrective policies to avoid financial instability.

3. Results

Until 2015, the main transfer to local budgets in Ukraine from the state budget was an equalization grant, which was allocated to support the financial capacity of local budgets to exercise subnational government spending, mainly in the social sphere, and was provided without specifying the directions of its use. The equalization grant served as a form of state regulation for equalization "by expenditure," and its relative weight in the structure of transfers was nearly 50%. At the same time, 95% of local budgets received the equalization grant. The level of gross transfers from the state budget to local budgets increased annually and reached 8.8% of GDP (Figure 1). Such a significant level of gross transfers became burdensome for the state budget, increasing the level of national debt, negatively impacting the stability of the public finance system. Moreover, the equalization system "by expenditure" for many years led to the accumulation of funds at the level of large cities–regional centers and reduced the availability of public goods for residents of small towns and settlements, making it unjust and inefficient, stimulating urbanization and migration processes.

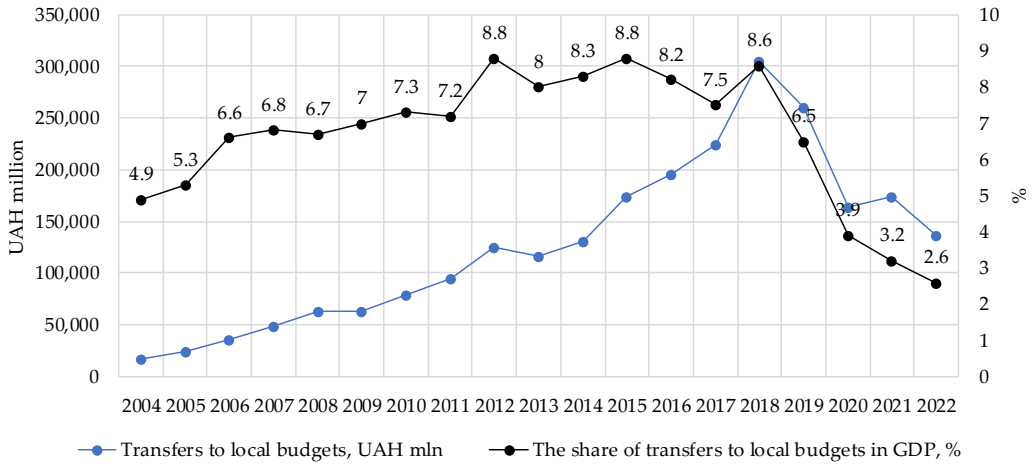

Figure 1. Transfers from the state budget to local budgets in Ukraine.

The decentralization reform of 2015–2020 envisages the creation of conditions for regional development by forming 1469 municipalities through the consolidation (amalgamation) of budgets of over 11,000 small settlements, assigning a larger percentage of state taxes to them, and delegating a larger volume of expenditure responsibilities to them to address the majority of issues locally. The system of state transfers was also reformed: the equalization of vertical fiscal imbalances (arising from the mismatch of financial re-

sources of the local budget with the volume of subnational expenditures for the provision of social services) is carried out by providing target transfers from the state budget to local budgets; equalization of horizontal fiscal imbalances (arising from differences in the tax potential of administrative-territorial units due to objective economic, historical, natural, geographic, and other development features) is carried out by providing local budgets with non-targeted transfers—grants. To strengthen the financial base of local budgets, the regulation system for horizontal fiscal imbalances was changed from equalization by expenditure to equalization by revenue, resulting in a significant decrease in the share of non-targeted grants (Figure 2) and an increase in target transfers, accordingly.

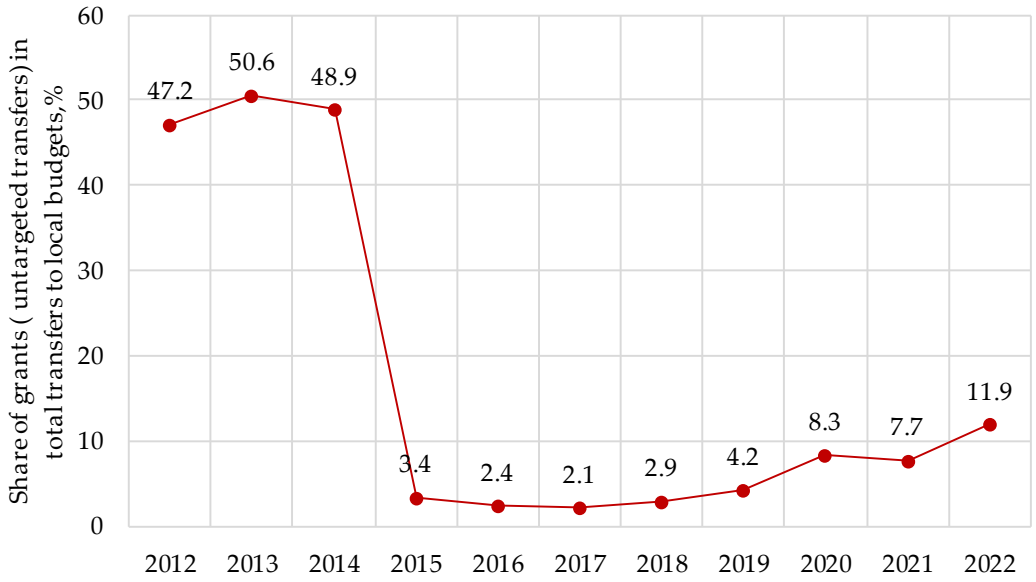

Figure 2. Share of grants (untargeted transfers) in total transfers to local budgets in Ukraine during 2012–2022.

The decentralization reform also foresees a transition from 2015 to equalizing horizontal fiscal imbalances exclusively through solidarity grants: the amount withdrawn from "rich" local budgets in the form of reverse grants should correspond to the amount of grants to "poor" communities by providing them with a basic grant. In this case, the state budget, from which the reverse grant is withdrawn and to which the basic grant is transferred, should only act as an intermediary. The gross volume of transfers has been constantly decreasing since 2018 (Figure 1) due to a reduction in the volume of target transfers. Instead, the volume of grants is growing (Figure 2), both in absolute and relative terms. The number of recipient municipalities of the grant is significant; in 2022, 1071 municipalities received the basic grant, which constitutes 75% of their total number.

Before the start of the decentralization reform, the reverse grant covered only 3% of the financial support needs of financially incapable municipalities, and in 2022, it covered 66%, which is interpreted as a positive result of the decentralization reform and a shift in the fiscal imbalance equalization system towards improving the stability of public finances. In other words, the improvement of public finance stability occurs because the redistribution of funds increasingly takes place at the municipality level, and the need is less satisfied with the funds of the state budget.

However, according to the current methodology for calculating the equalization grant, the calculation of the average level of PIT receipts per capita is based on data on the actual PIT receipts to the budget not for the reporting year but for the year preceding the reporting year. In other words, the calculation of the grant is based on indicators with a time lag of 2 years, which are somewhat outdated and do not reflect the real trend since the annual growth rate of PIT receipts in municipalities ranges from 14 to 45% (Figure 3).

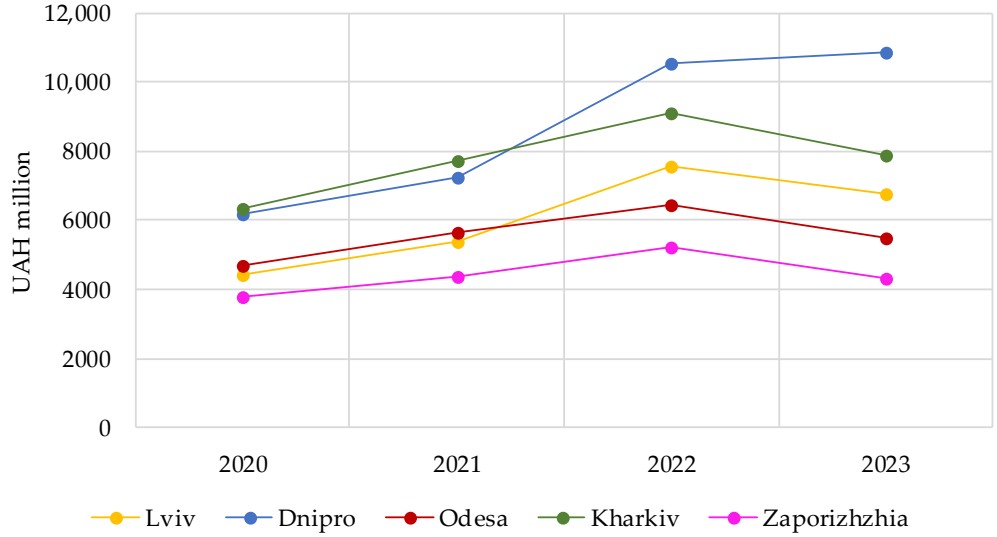

Figure 3. PIT revenues to the budgets of the 5 largest grant donors, million UAH.

The calculation of reverse and basic grants for 2022 based on actual data on PIT receipts in 2021 (Scenario 1), rather than in 2020, as calculated by the Ministry of Finance, shows that the gap between gross reverse and basic grants will significantly increase. In particular, the amount of reverse grant will increase by 17%, while the basic grant will increase by 243% (Table 1), resulting in the basic grant covering only 22.5% with the reverse grant. Accordingly, the amount of shortfall of over 77% would have to be covered from the state budget, increasing the burden on the state budget and demonstrating the real and much lower stability of public finances.

Table 1. Gross reverse and basic grants and indicators of their dynamics.

Calculation System	Gross Reverse Grant, Million UAH	Gross Basic Grant, Million UAH	Rate of Change of the Reverse Grant to the Base of the Respective Calculation Year, %	Rate of Change of the Basic Grant to the Base of the Respective Calculation Year, %	Coverage of the Gross Reverse Grant by the Need for the Gross Basic, %
The current official system for calculating	9576.7	14,541.8	-	-	65.9
Scenario 1	11,241.7	49,909.8	17.4	243.2	22.5
Scenario 2	12,592.1	20,084.1	31.5	38.1	62.7
Scenario 3	18,105.01	63,874.6	61.1	28	28.3
Scenario 4	14,327.7	55,115.4	27.5	10.4	26
Scenario 5	23,060.7	71,888.9	105.1	44	32.1

Such significant changes in the growth rates of reverse and basic grants arise due to substantial differences in the growth rates of PIT revenues to the budgets of municipalities. The reasons for significant variations in the annual growth rates of PIT revenues to municipal budgets (Figure 3), as well as the causes of substantial deviations in PIT revenues for specific municipalities, including major grant donors like Kharkiv and Odesa (Figure 4), from the overall trend of PIT revenues in Ukraine, require a separate investigation.

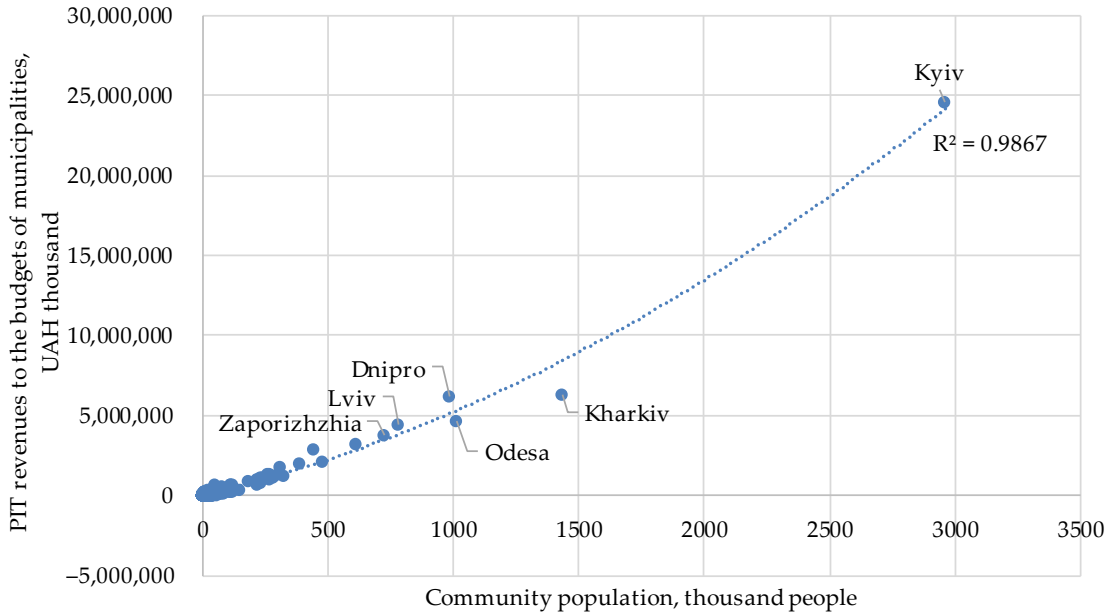

Figure 4. Graphical interpretation of the function of dependence of PIT revenues to the municipal budget on the population of the territorial community in 2021.

Differences in the growth rates of PIT receipts to the budgets of municipalities contribute to changes in the ranking of donor municipalities based on their contribution to the structure of gross reverse grants (Table 2).

Table 2. Structure of the gross reverse grant by donor.

Municipality	Actual Gross Reverse Grant in 2022 According to the Current Official Accounting System	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
			Million UAH			
Kyiv	0	0	5800.2	10,215.5	0	13,088.5
Dnipro	1184.3	1367.5	975.1	1115.8	1664.7	1413
Lviv	789.5	938.3	627.3	743.2	1382	1186.9
Zaporizhzhya	492.9	542.5	339.3	357.7	559.3	374.5
Kryvyi Rih	461.5	449.5	333.3	295.2	288.9	134.8
Odesa	388.3	495.2	173.03	236.4	619.9	361.1
Kharkiv	352.8	522.7	41.6	148.5	1016.3	642
Poltava	288.6	329.6	223.5	251.3	356.3	278
Vinnytsia	258.9	313.7	177.7	216	375.7	278
Other 1430 municipalities	5359.8	6282.8	3901.02	4525.3	8064.7	5303.7
All municipalities	9576.7	11,241.7	12,592.1	18,105	14,327.7	23,060.7

Table 2. *Cont.*

Municipality	Actual Gross Reverse Grant in 2022 According to the Current Official Accounting System	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
	Share, % (Donor's place in the rating)					
Kyiv	0	0	46.1 (1)	56.4 (1)	0	56.8 (1)
Dnipro	12.4 (1)	12.2 (1)	7.7 (2)	6.2 (2)	11.6 (1)	6.1 (2)
Lviv	8.2 (2)	8.3 (2)	5 (3)	4.1 (3)	9.6 (2)	5.1 (3)
Zaporizhzhya	5.1 (3)	4.8 (3)	2.7 (4)	2 (4)	3.9 (4)	1.6 (6)
Kryvyi Rih	4.8 (4)	4 (6)	2.6 (5)	1.6 (5)	2 (8)	0.6 (9)
Odesa	4.1 (5)	4.4 (5)	1.4 (7)	1.3 (7)	4.3 (5)	1.6 (5)
Kharkiv	3.7 (6)	4.6 (4)	0.3 (9)	0.8 (9)	7.1 (3)	2.8 (4)
Poltava	3 (7)	2.9 (7)	1.8 (6)	1.4 (6)	2.5 (7)	1.2 (7)
Vinnytsia	2.7 (8)	2.8 (8)	1.4 (8)	1.2 (8)	2.6 (6)	1.2 (8)
Other 1430 municipalities	44	56	31	25	56.4	23
All municipalities	100	100	100	100	100	100

Due to the presence of a corresponding resource base—industrial potential, highly qualified personnel, developed institutions, and a comparatively better demographic situation—the largest financial resources traditionally accumulate in the budgets of regional centers, which, after the local elections of 2020, became urban territorial communities and currently are the largest donors of reverse grants. In 2022, reverse grants were transferred to the state budget by 207 municipalities, which constitutes 15% of their total number (Figure 5). Moreover, 45% of all paid reverse grants are attributed to the top 10 "donor" cities: Dnipro (12.4%), Lviv (8.2%), Zaporizhzhia (5.1%), Kryvyi Rih (4.8%), Odesa (4.1%), Kharkiv (3.7%), Poltava (3%), Vinnytsia (2.7%), as well as Mariupol and Energodar (Table 2; Figure 5), imposing significant burdens on them and serving as a disincentive.

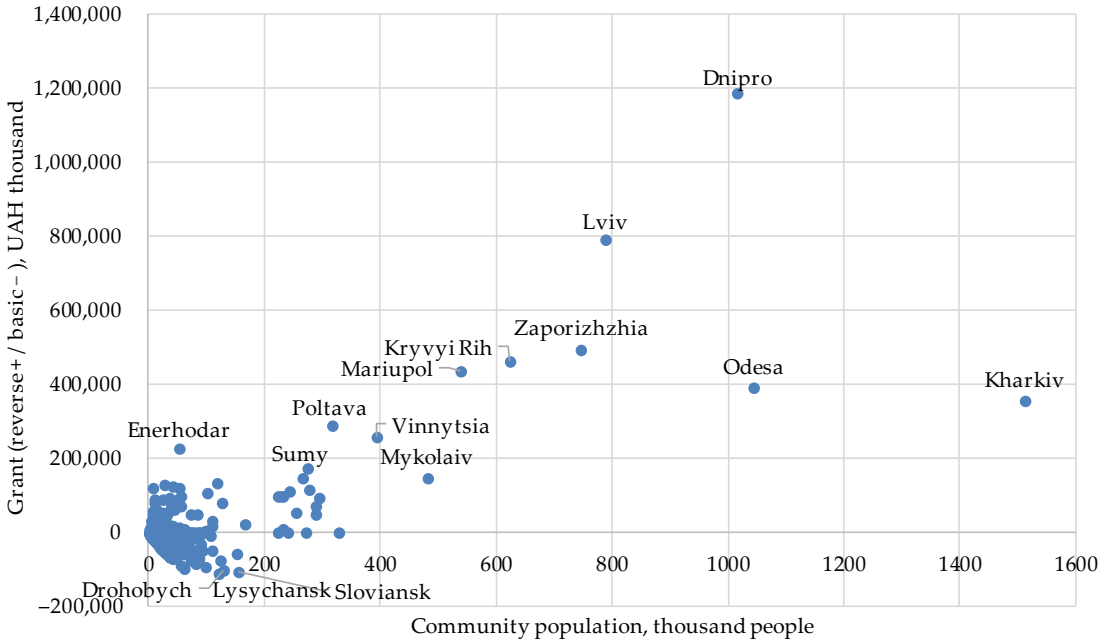

Figure 5. Grant level for donors and recipients in 2022.

Moreover, the municipality with the highest fiscal capacity—the city of Kyiv, the capital of Ukraine—is excluded from the system of horizontal equalization. The exclusion of Kyiv from the equalization formula leads to an increase in the burden on donors of reverse grants and on the state budget. It should be noted that before the decentralization reform in 2015, the budget of Kyiv was involved in the equalization system along with all other local budgets.

The inflow of PIT into the budget of Kyiv significantly exceeds the PIT revenues of other municipalities (by 4 times or more). This is due to both (1) the significant number of taxpayers–legal entities registered in Kyiv (over 20% of the total number of taxpayers—legal entities) and (2) the inclusion of PIT from the labor income of employees of large enterprises (Naftogaz Ukraine, Ukrposhta, Ukrzaliznytsia, etc.) in the budget of Kyiv. In Ukraine, contrary to Article 9 of the European Charter of Local Self-Government, the PIT paid by a tax agent–legal entity (its branch, division, other separate unit) or a representative office of a non-resident legal entity is credited to the respective budget based on the location of the tax agent, rather than the place of residence (registration) of the individual taxpayer (Budget Code of Ukraine 2010). As a result, the PIT from the income of residents of all communities—employees of large enterprises working throughout the country but registered in Kyiv—is credited to the budget of Kyiv. Meanwhile, social services for citizens who are employees of large state enterprises registered in Kyiv are provided at the expense of the budget of the municipality where they reside, not at the expense of the Kyiv budget. Such a distribution system exacerbates the already significant development disparities between the capital and the regions, violates the principles of unity and fairness of Ukraine's budgetary system stipulated in Article 7 of the Budget Code (Budget Code of Ukraine 2010), and leads to a reduction in the stability of public finances. Since the revenues of the Kyiv budget are offered only to those who live within Kyiv, they also create inefficient incentives. The amount of transfers to local budgets, calculated without taking into account all grant donors, is significantly lower and insufficient. The chronic deficiency of local budgets is covered by local borrowings, leading to an increase in local debt and a general decrease in the stability of public finances.

The inclusion of the largest donor—the budget of the city of Kyiv—into the equalization formula will allow to reduce the burden on other donors of reverse grant, as demonstrated in Table 1, where the calculation of grant amounts is carried out both according to the government scheme (Scenario 2) and with updated data on tax revenues for 2021 (Scenario 3). In this case, if reverse and basic grants for 2022 are calculated according to Scenario 2, the need for a basic grant will be covered by a reverse grant at 62.7%. That is, the burden on the state budget will not significantly increase (Figure 6), and the system of equalizing fiscal imbalances will correspond to the criteria of fairness and completeness, in accordance with the principles of budgetary system construction, as outlined in the Budget Code of Ukraine (Budget Code of Ukraine 2010). At the same time, the growth rate of the gross basic grant (38%) will exceed the growth rate of the reverse grant (32%), indicating a movement of the equalization system towards further reducing the stability of the public finance system.

The calculation of reverse and basic grants for 2022, taking into account the largest donor and based on data on PIT receipts in 2021 (Scenario 3), shows that the need for basic grants will be covered by reverse grants at 28.3%, which is a slightly better result (2.3%) than the implementation of Scenario 1. In this case, the gross reverse grant will increase by 61%, while the gross basic grant will increase by 28%. Thus, the implementation of Scenario 3 will reduce the asymmetry of the equalization, significantly increase the resources of incapable municipalities (by more than 8 times), and reduce the burden on donor municipalities (Table 2).

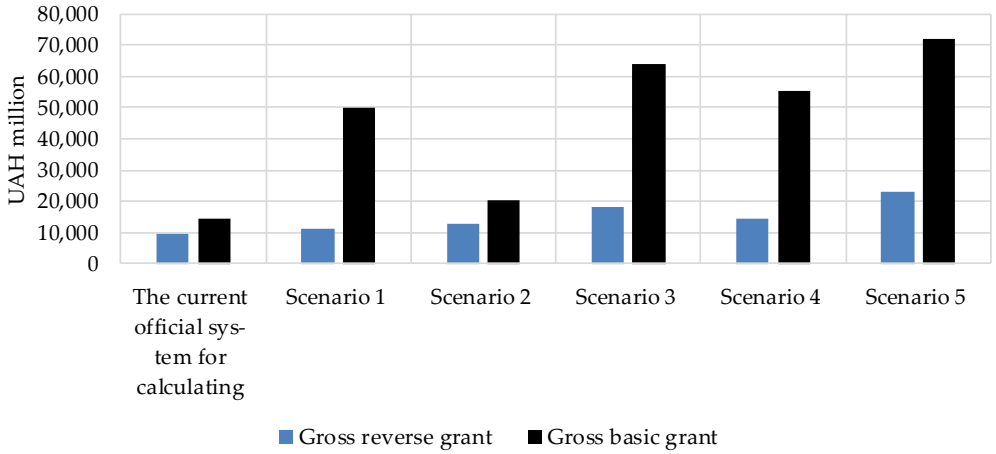

Figure 6. Gross reverse and basic grants.

In scientific literature, it is considered that the prospects for the financial and economic development of large territorial communities are greater than those of small ones. In particular, a significant portion of Ukraine's territorial communities (60%) with a basic grant exceeding 20% of their own revenues have a population of less than 7000 people. However, the analysis results show that the largest amounts of the basic grant are received by municipalities with a population of over 100,000 people—Lysychansk, Drohobych, Slovyansk (Figure 5), which formally, based on PIT receipts alone, are considered "poor". Moreover, the average indicator of own revenue per person in the budgets of these municipalities is slightly lower than the average similar indicator for all of Ukraine. This raises doubts about the correctness of defining the recipients of the grant. Among the own revenues of local budgets in Ukraine, the second largest, after PIT (over 50%), in terms of receipts, is the unified tax (over 11%). The unified tax is the main entrepreneurial tax for small business entities, whose development the state stimulates by introducing a simplified system of accounting, reporting, and taxation for them. In Ukraine, the unified tax is classified as a local tax, and its receipts are credited to local budgets. The taxation with the unified tax involves dividing taxpayers into four groups, each with different tax rates and bases. The unified tax replaces the payment of PIT and profit income tax and essentially is not a local tax since local self-government authorities do not set the tax rate for taxpayers in the third group, who constitute over 50% of all taxpayers of this tax. Therefore, they have no influence on the receipts of over 83% of the unified tax amount (State Tax Service of Ukraine 2023). The rapid increase in the receipts of the unified tax to local budgets largely arises from the artificial fragmentation of large and medium-sized business entities for the purpose of tax optimization (Yaroshevych et al. 2019). Therefore, the unified tax, which is a significant source of receipts to local budgets, can also be considered the basis for equalizing the fiscal capacity of municipalities.

As a result of calculating reverse and basic grants based on the equalization of horizontal fiscal imbalances separately for PIT and separately for the unified tax, using data on the receipts of these taxes in 2021 (Scenario 4), the need for a basic grant will be covered by a reverse grant at 26%. However, in this case, the gross volume of reverse grants will increase by 27.5%, while the basic grant will increase by 10%. In the case of involving the largest donor in the system of horizontal equalization of fiscal capacity based on two taxes (Scenario 5), the gross volume of reverse grants will increase by 105%, while the basic grant will increase by 44%. In this case, the need for a basic grant will be covered by a reverse grant at 32.1%, and thus, 67.9% of the gross need for basic grants will be covered by funds from the state budget. In the case of applying Scenario 4 and Scenario 5, there will be a significant increase in the amounts of funds distributed among recipient budgets (by 8.2 and 9.8 times, respectively); the burden on donor municipalities will decrease, and 56.8% of the gross volume of reverse grants will be covered by the largest donor—the budget of Kyiv (Table 2).

4. Discussion

The calculation of reverse and basic grants based on outdated data on PIT receipts to municipal budgets understates the volume of the gross basic grant for recipient municipalities. It also understates the amounts of compensatory payments from the state budget to cover the difference between the gross reverse grant and the need for the gross basic grant, artificially inflating the indicators of the success of the fiscal equalization reform and distorting the overall picture of public finance stability.

The excess of the growth rates of the gross basic grant over the growth rates of the gross reverse grant (Scenario 1), with a significant gap between the gross reverse and basic grants (34% under the current calculation system and 77.5% in our calculations), indicates that the existing equalization system is moving towards further imbalance, increase of the gap, and reduction in the financial stability of the public finance system.

The exclusion of the community with the highest tax potential from the equalization system artificially increases the fiscal capacity of all other communities, thereby reducing the volumes of the basic grant for grant recipients. This, in turn, diminishes their ability to provide public services guaranteed by the state without resorting to debt financing. The increase in the volume of debt financing for grant recipient municipalities leads to a decrease in the stability of public finances due to the growth of local debt. Calculations of gross reverse and basic grants under Scenario 3 and Scenario 5, which involve the inclusion of the largest donor in the equalization system, show that despite the low current coverage level of the gross reverse grant for the needs of the gross basic grant (28.3% and 32.1%, respectively), the growth rates of the gross reverse grant will exceed the growth rates of the gross basic grant. This gives grounds to assert that the equalization of horizontal fiscal imbalances will move towards establishing equality between the gross reverse and basic grants, thereby ensuring the stability of the public finance system in the state's financial system.

Exceeding the growth rates of the gross reverse grant over the gross basic grant is proposed to be considered an indicator of the equalization system's movement towards improving the stability of the financial system. Changing the subject of calculating the fiscal capacity of municipalities, i.e., considering other fiscal revenues of municipalities (Scenario 4 and Scenario 5), will positively influence the movement of the equalization system towards strengthening the stability of the financial system, as evidenced by the excess growth rates of the reverse grant over the growth rates of the basic grant.

5. Conclusions

The increase in state transfers to offset regional development disparities undermines the stability of the state's financial system. The suboptimal system of horizontal fiscal equalization through transfers from prosperous to less prosperous regions leads to an increase in the debt of the public finance sector, thereby causing a reduction in the financial system's stability. In the equalization system for horizontal fiscal imbalances through transfers from donor municipalities to recipient municipalities, the critical factors are not only the volumes but also the growth rates of the gross basic grant and gross reverse grant.

The current mechanism of horizontal fiscal equalization in Ukraine, designed to mitigate the inequality in socio-economic development among communities, actually amplifies it. It inflates the fiscal capacity of communities, reduces the amount of the gross basic grant for recipient communities, thus encouraging local borrowing. The understatement of compensatory payments from the state budget for the difference between the gross reverse grant and the need for the gross basic grant artificially inflates the indicators of the success of decentralization reform and the stability of public finances. Therefore, the mechanism for calculating the fiscal capacity of communities, underlying horizontal fiscal equalization, requires an improved approach to defining both the subject of equalization (the number of taxes considered in determining the fiscal capacity of a municipality) and the amounts of equalization (the number of municipalities), necessitating further reform.

According to the criteria of budgetary system integrity and fairness in the distribution of budget resources, the equalization policy in Ukraine appears rather ineffective and socially unjust. The existing equalization system exacerbates the unevenness of socio-economic development across Ukrainian regions, leading to varying opportunities for funding local budgets and undermining the financial stability of public finances.

6. Implications

Following the conclusions of this study, several consequences emerge for utilizing the full potential impact of the mechanism and system of equalizing horizontal fiscal imbalances on the stability of the financial system.

The empirical data from this study complement the existing knowledge regarding the impact of a pure system of equalizing horizontal fiscal imbalances on the stability of the financial system through the debt of the public finance sector. The results of this study can be valuable for Ukraine's political establishment. Policymakers need to ensure adherence to the principles of budgetary system integrity and fairness in the distribution of budget resources, as well as refine the system for equalizing horizontal fiscal imbalances. The mechanism for calculating the fiscal capacity of communities, which underlies horizontal fiscal equalization, requires an improved approach to defining the subject of calculation: (1) considering all communities, including the inclusion of Kyiv; (2) taking into account other tax revenues of local budgets besides personal income tax; (3) conducting calculations based on more timely data on tax revenues for the current year when planning grants in budgets for the next year.

Huge disparities in the parameters of formed communities, including population size (from 7000 in one community to 1.5 million in another), require an investigation into the possibilities of smoothing out the unevenness of municipality potential by further aggregating some of them. Therefore, Ukraine's horizontal equalization system requires further reform. It would also be advisable to implement EU legal norms into Ukrainian legislation, in accordance with the ratified Charter of Local Self-Government by Ukraine, and credit PIT to the local budget based on the place of residence of the taxpayer. In this case, the structure of PIT receipts, as well as the structure of donors and grant recipients, may change significantly.

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References

Albouy, David. 2012. Evaluating the efficiency and equity of federal fiscal equalization. *Journal of Public Economics* 96: 824–39. [CrossRef]

Blöchliger, Hansjörg, Olaf Merk, Claire Charbit, and Lee Mizell. 2007. *Fiscal Equalisation in OECD Countries*. Working Paper 4. Paris: OECD Publishing.

Blouri, Yashar, and Maximilian V. Ehrlich. 2020. On the optimal design of place-based policies: A structural evaluation of EU regional transfers. *Journal of International Economics* 125: 103319. [CrossRef]

Boadway, Boadway, and Anwar Shah. 2007. *Intergovernmental Fiscal Transfers: Principles and Practice*. Washington, DC: The World Bank, pp. 133–71. Available online: http://www.untag-smd.ac.id/files/Perpustakaan_Digital_1/FISCAL%20POLICY%20Intergovernmental%20fiscal%20transfer%20principles%20and%20practice.pdf (accessed on 27 January 2024).

Breuillé, Marie-Laure, and Marianne Vigneault. 2010. Overlapping Soft Budget Constraints. *Journal of Urban Economics* 67: 259–69. [CrossRef]

Breuillé, Marie-Laure, Thierry Madiès, and Emmanuelle Taugourdeau. 2010. Gross versus net equalization scheme in a federation with decentralized leadership. *Journal of Urban Economics* 68: 205–14. [CrossRef]
Buchanan, James M. 1950. Federalism and Fiscal Equity. *American Economic Review* 40: 583–99.
Budget Code of Ukraine. 2010. Available online: https://zakon.rada.gov.ua/laws/show/2456-17#Text (accessed on 10 December 2023).
Buettner, Thiess, and Manuela Krause. 2021. Fiscal equalization as a driver of tax increases: Empirical evidence from Germany. *International Tax and Public Finance* 28: 90–112. [CrossRef]
Chowdhury, Mohammad Ashraful Ferdous, Ehsanur Rauf Prince, Mohammad Shoyeb, and Mohammad Abdullah. 2023. The threshold effect of institutional quality on sovereign debt and economic stability. *Journal of Policy Modeling*. Published electronically December 8. [CrossRef]
Churchill, S. Awaworyi, and Siew Ling Yew. 2017. Are government transfers harmful to economic growth? A meta-analysis. *Economic Modelling* 64: 270–87. [CrossRef]
Clark, Alastair, and Andrew Large. 2011. *Macroprudential Policy: Addressing the Things We Don't Know*. Occasional Paper No. 83. Washington, DC: Group of Thirty. Available online: https://www.bankofengland.co.uk/-/media/boe/files/speech/2011/macroprudential-policy-addressing-the-things-we-dont-know-paper-by-alastair-clark-and-andrew-large.pdf (accessed on 27 January 2024).
Crockett, Andrew. 1997. *The Theory and Practice of Financial Stability*. Essays in International Finance. No 6. Princeton: Princeton University, International Finance Section. Available online: https://ies.princeton.edu/pdf/E203.pdf (accessed on 28 January 2024).
Das, Udaibir S., Michael Papapioannou, Guilherme Pedras, Faisal Ahmed, and Jay Surti. 2010. *Managing Public Debt and Its Financial Stability Implications*. IMF Working Paper No. 10/280. Washington, DC: International Monetary Fund. Available online: https://www.imf.org/external/pubs/ft/wp/2010/wp10280.pdf (accessed on 30 January 2024).
Dumičić, Mirna. 2017. A Brief Introduction to the World of Macroprudential Policy. *Journal of Central Banking Theory and Practice* 6: 87–109. [CrossRef]
Ehrlich, Maximilian V., and Tobias Seidel. 2018. The persistence effects of place-based policies. Evidence from the West-German Zonenrandgebiet. *American Economic Journal: Economic Policy* 10: 344–74. [CrossRef]
Eyraud, Luc, and Lusine Lusinyan. 2013. Vertical Fiscal Imbalances and Fiscal Performance in Advanced Economies. *Journal of Monetary Economics* 60: 571–87. [CrossRef]
Giambattista, Eric, and Steven Pennings. 2017. When is the Government Transfer Multiplier Large? *European Economic Review* 100: 525–43. [CrossRef]
Guo, Si, Yun Pei, and Zoe Xie. 2022. A dynamic model of fiscal decentralization and public debt accumulation. *Journal of Public Economics* 212: 104692. [CrossRef]
Henkel, Marcel, Tobias Seidel, and Jens Suedekum. 2018. *Fiscal Transfers in the Spatial Economy*. Discussion Paper No 322. Edited by Hans-Theo Normann. Düsseldorf: Düsseldorf Institute for Competition Economics. Available online: https://d-nb.info/1204591490/34 (accessed on 15 December 2023).
Hsieh, Chang-Tai, and Enrico Moretti. 2019. Housing constraints and spatial misallocation. *American Economic Journal: Macroeconomics* 11: 1–39. [CrossRef]
Kaufman, Henry. 1986. Debt: The threat to economic and financial stability. *Economic Review* 71: 3–11. Available online: https://www.kansascityfed.org/Jackson%20Hole/documents/6890/Kaufman_Debt_JH86.pdf (accessed on 28 January 2024).
Kline, Patrick, and Enrico Moretti. 2014. Local economic development, agglomeration economies and the big push: 100 years of evidence from the Tennessee Valley Authority. *Quarterly Journal of Economics* 129: 275–331. [CrossRef]
Köppl-Turyna, Monika, and Hans Pitlik. 2018. Do equalization payments affect subnational borrowing? Evidence from regression discontinuity. *European Journal of Political Economy* 53: 84–108. [CrossRef]
Lopushniak, Galyna, Zoryana Lobodina, and Martha Lyvdar. 2016. Fiscal decentralisation in Ukraine: Declaration and practical implementation. *Economic Annals-XXI* 161: 79–84. [CrossRef]
Masood, Omar, Manuela Tvaronavičienė, and Kiran Javaria. 2019. Impact of oil prices on stock return: Evidence from G7 countries. *Insights into Regional Development* 1: 129–37. [CrossRef]
Mikesell, John L. 1999. *Fiskal Administration: Analysis and Applications for the Public Sector*. San Diego: Harcourt Brace College Publishers, pp. 180–82.
Ministry of Finance of Ukraine. 2023. Population by Cities of Ukraine as of 1 January 2022. Available online: https://index.minfin.com.ua/ua/reference/people/town/ (accessed on 15 December 2023).
Musgrave, Richard A. 1961. *Approaches to a Fiscal Theory of Political Federalism*. New York: National Bureau of Economic Research, pp. 97–134.
Oh, Hyunseung, and Ricardo Reis. 2012. Targeted transfers and the fiscal response to the great recession. *Journal of Monetary Economics* 59: S50–S64. [CrossRef]
Open Budget. 2023. Vebsait—State Budget Web Portal of the Ministry of Finance of Ukraine for Citizens. Available online: https://openbudget.gov.ua/local-budget?id=26000000000 (accessed on 22 December 2023).
Sasongko, Gatot, Andrian Dolfriandra Huruta, and Anita Wardani. 2019. Does the Wagner's Law exist in a strategic national area? An evidence from Kedungsepur—Indonesia. *Insights into Regional Development* 1: 99–117. [CrossRef] [PubMed]
Schinasi, Garry J. 2005. *Safeguarding Financial Stability: Theory and Practice*. Washington, DC: International Monetary Fund, pp. 98–103. Available online: https://www.imf.org/External/Pubs/NFT/2005/SFS/eng/sfs.pdf (accessed on 15 December 2023).

Shkvarchuk, Lyudmyla. 2009. Futures contracts within system of enterprise cash flow management. *Actual Problems of Economics* 11: 221–28.

State Statistics Service of Ukraine. 2022. Number of Present Population of Ukraine, as of January 1. Edited by Mariia Timonina. Available online: http://db.ukrcensus.gov.ua/PXWEB2007/ukr/publ_new1/2022/zb_%D0%A1huselnist.pdf (accessed on 26 January 2024).

State Tax Service of Ukraine. 2023. Since the Beginning of 2023, Entrepreneurs Have Paid UAH 15.2 Billion in Unified Tax to the Budget. Available online: https://tax.gov.ua/media-tsentr/novini/685975.html (accessed on 12 December 2023).

Strýčková, Lenka. 2017. The practice of capital structure choice in the Czech Republic: A comparative study based on the global data. *Journal of International Studies* 10: 185–203. [CrossRef]

Werner, Jan. 2008. *Fiscal Equalisation among the States in Germany*. Working Papers 02-2008. Langen: Institute of Local Public Finance. Available online: https://www.researchgate.net/publication/5164384 (accessed on 22 December 2023).

Yaroshevych, Nataliia B., Svitlana V. Cherkasova, and Tetyana V. Kalaitan. 2019. Inconsistencies of small business fiscal stimulation in Ukraine. *Journal of Tax Reform* 5: 204–19. [CrossRef]