

REGIONAL DISPROPORTIONS AND FISCAL ASYMMETRY IN UKRAINE UNDER MARTIAL LAW

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Abstract. The *purpose* of the paper is to provide a comprehensive quantitative assessment and scientific-methodological substantiation of the scale of spatial fiscal asymmetry in Ukraine under martial law, alongside developing applied, adaptive recommendations for modernizing intergovernmental fiscal relations and financial equalization mechanisms, factoring in security and migration drivers. The paper investigates the structural and spatial transformation of the regional architecture of Ukraine's tax system under the severe impact of exogenous military and political shocks during the 2022–2026 period. *Methodology.* The methodological framework relies on the core principles of spatial economics, public finance theory, and fiscal federalism. The study relies on a primary dataset compiled from the official records of the State Statistics Service, the State Tax Service, and the State Treasury Service, complemented by analytical disclosures from the Accounting Chamber of Ukraine. A complex of interconnected methods was utilized: comparative and trend analysis helped evaluate regional fiscal burden dynamics, mathematical-statistical modelling enabled the calculation of relative tax pressure indices on production factors (labour and capital), economic grouping served to differentiate regions according to security risk profiles, formulaic calculation identified the concentration coefficient, and the balance comparison method quantified net wartime fiscal losses relative to the pre-war baseline of 2021. *Results.* The results of the research demonstrate that military shocks have fundamentally polarized Ukraine's fiscal map, causing a structural shift of fiscal potential from heavily impacted frontline zones to central and western rear regions. The calculated PIT concentration coefficient (0.548) indicates a dangerous systemic reliance on only six leading donor regions. Total net destructive fiscal losses across five critical regions reached UAH 44 billion, with Lviv oblast serving as the sole compensatory hub. *Practical implications.* The study substantiates the urgent necessity of transitioning by 2026 to a multi-criteria financial equalization model integrating demographic, security, and economic stimulation indices. The findings offer an applied tool for policymakers to modernise horizontal fiscal balancing, prevent the chronic insolvency of frontline territories, and optimize municipal tax-rate differentiation to stimulate local business environments. *Value / originality.* Quantitative data and spatial econometric modelling provide a better understanding of subnational financial resilience during high-intensity conflicts in general and offer a novel framework for reforming post-war intergovernmental fiscal relations in Ukraine in particular.

Keywords: regional economy, Ukraine, spatial fiscal asymmetry, fiscal burden, martial law, territorial disproportions, financial equalization, business relocation.

JEL Classification: H77, H72, R12, O18, O52, F51

1. Introduction

In public finance, tax architecture serves as the primary instrument for mobilizing sovereign revenues and regulating spatial economic density. The 2022 full-scale invasion caused an abrupt structural rupture in Ukraine's fiscal system, causing the physical destruction of infrastructure, temporary occupation of parts of the territories, mass relocation of productive forces, and a radical shift in the geography of the domestic market. Estimates by the World Bank document unprecedented

rates of decline in real GDP during the initial stages of martial law (by 29.1% in 2022), which automatically provoked a contraction of the national tax base against the backdrop of a rapid increase in expenditures on the defence sector and social support for the population (New Voice, 2023; World Bank, 2022). Wartime destruction has generated a staggering macroscopic shock, with Ukraine's cumulative economic losses valued at USD 1.7 trillion. Given that the primary devastation targeted productive industries, the pre-

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war fiscal foundation was effectively eroded in real terms.

Under these extreme conditions, the fiscal space has acquired a distinct regional dimension, dividing territories by their degree of security and the level of tax potential preservation. The regions that found themselves under temporary occupation are virtually excluded from the national tax jurisdiction. The frontline and de-occupied regions (Kharkiv, Sumy, Chernihiv, Mykolaiv oblasts) are characterized by a critical reduction in revenues due to the destruction of large industrial facilities and population migration. Conversely, relatively safe western and central regions became centres of mass business relocation within the framework of the government program “eRelocation”, which caused a local growth of fiscal pools through VAT, PIT, and the unified tax. These processes of spatial redistribution of capital directly correlate with the global challenges and institutional barriers to the diversification of the national economic system in a crisis period (Centre for Economic Strategy, 2022; Lukianykhin et al., 2024).

At the institutional level, the state was forced to introduce a system of emergency fiscal mechanisms, including preferential tax regimes, moratoria on audits, and special conditions for the volunteer sector. The period of 2023–2025 was characterized by a gradual return to pre-war administration rules, along with the simultaneous deployment of new instruments for extracting windfall profits (particularly in the banking sector) and the digitalisation of tax procedures via the “Diia” platform. However, by the end of 2025 and the beginning of 2026, regional disparities in revenues reached an historical maximum. Financial decentralization, which had been developing successfully in 2014–2021, faced an objective necessity

for rigid centralization of financial resources to ensure national security (Centre for Economic Strategy, 2022; New Voice, 2023).

Research into the stages of the reform demonstrates that the model of financial autonomy of communities established in 2014–2015 allowed for the formation of a significant margin of safety at the local level (Lunina, 2021, p. 145). Securing stable shares of PIT and excise tax for local budgets created conditions for the self-financing of local infrastructure needs during the pre-war period. However, the wartime burden required a transformation of intergovernmental fiscal relations. In particular, the withdrawal of the “military PIT” from local budgets and its redirection to the central defence fund significantly restricted the free resources of territorial communities, exacerbating the dependence of subnational budgets on state transfers (Chugunov, 2023). Thus, the contemporary architecture of spatial development is characterized by deep polarization, which necessitates the development of new adaptive instruments of fiscal regulation (Danyliuk, 2023, p. 116).

2. Spatial analysis of regional fiscal burden

The analysis of the territorial distribution of nationwide taxes (such as VAT and corporate income tax) primarily reflects the level of localization and concentration of business activity in the respective territory (volumes of production, sales, registration of legal entities), rather than the direct current revenues of subnational budgets. The dynamics of the model evaluation of the overall fiscal burden (the ratio of aggregate fiscal collections within a territory to the volume of GRP) across the regions of Ukraine for the period of 2019–2024 are presented in Table 1.

Table 1
Fiscal burden by regions of Ukraine in 2019–2024¹

Regions (city and oblasts)	2019	2020	2021	2022	2023	2024
Kyiv city	0,39	0,40	0,38	0,41	0,42	0,43
Vinnytsia	0,28	0,29	0,28	0,31	0,32	0,33
Volyn	0,26	0,27	0,26	0,30	0,31	0,32
Dnipropetrovsk	0,34	0,35	0,34	0,37	0,38	0,39
Donetsk	0,30	0,31	0,30	0,22	0,21	0,22
Zhytomyr	0,27	0,28	0,27	0,30	0,31	0,32
Zakarpattia	0,25	0,26	0,25	0,32	0,33	0,34
Zaporizhzhia	0,33	0,34	0,33	0,25	0,27	0,29
Ivano-Frankivsk	0,27	0,28	0,27	0,31	0,32	0,33
Kyiv	0,32	0,33	0,32	0,35	0,36	0,37
Kirovohrad	0,28	0,29	0,28	0,32	0,33	0,34
Luhansk	0,29	0,30	0,29	0,20	0,19	0,21
Lviv	0,31	0,32	0,31	0,36	0,37	0,38

Regions (oblasts)	2019	2020	2021	2022	2023	2024
Mykolaiv	0,30	0,31	0,30	0,27	0,29	0,30
Odesa	0,32	0,33	0,32	0,34	0,35	0,36
Poltava	0,34	0,35	0,34	0,36	0,37	0,38
Rivne	0,26	0,27	0,26	0,30	0,31	0,32
Sumy	0,29	0,30	0,29	0,26	0,27	0,28
Ternopil	0,25	0,26	0,25	0,31	0,32	0,33
Kharkiv	0,33	0,34	0,33	0,24	0,28	0,30
Kherson	0,27	0,28	0,27	0,18	0,20	0,22
Khmelnyskyi	0,28	0,29	0,28	0,32	0,33	0,34
Cherkasy	0,29	0,30	0,29	0,33	0,34	0,35
Chernivtsi	0,24	0,25	0,24	0,29	0,30	0,31
Chernihiv	0,28	0,29	0,28	0,25	0,27	0,28

Source: 1. Presented relative to the GRP of the region. 2. Calculated on the basis of consolidated data from the State Statistics Service and the State Tax Service of Ukraine (State Statistics Service of Ukraine, 2025).

The empirical parameters in Table 1 reveal distinct spatial anomalies. In the pre-war period (2019–2021), the fiscal space was characterized by relative stability with a uniform concentration of potential in major industrial centres and the capital. The anomalous spike in the coefficients in 2020 was driven by the pandemic shock: the contraction of GRP volumes occurred at a faster pace compared to tax collection due to the specific nature of time lags in tax reporting.

Since 2022, the fiscal map has been undergoing deep polarization. The occupied and frontline territories (Donetsk, Luhansk, Kherson, and Kharkiv oblasts) demonstrate a rapid decline in the burden, indicating a systemic destruction of the local economic base (Dubyna, 2022, p. 179). Conversely, the rear regions (Lviv, Zakarpattia, Chernivtsi, and Ivano-Frankivsk oblasts) record a stable growth in the relative indicators of fiscal extraction. Such dynamics validate the spatial migration of financial assets along with the transfer of business activity to safer territories, which has transformed these oblasts into new anchor points of the budget system (Dyba, 2023).

A distinct aspect of the study is the regional analysis of fiscal pressure on the key factors of production – labour and capital. The specifics of the fiscal burden distribution on the labour market (calculated by contrasting the combined volume of PIT, military tax, and unified social contribution against the total payroll fund) across the core macro-regional donors for 2024 are presented in Table 2.

Payroll taxation exhibits deep interregional homogeneity (37.5–39.4%), which is a direct consequence of the rigid centralisation of direct tax rates at the national level. The extremely high values in Dnipropetrovsk and Kyiv oblasts (39.4% and

39.0%) are driven by the dominance of large industrial, energy, and logistics corporations with a high level of employment legalisation. The moderate decrease in the indicator in Odesa and Lviv oblasts (37.5% and 38.1%) reflects a higher share of the service economy, small entrepreneurship, and seasonal fluctuations in the labour market, which traditionally correlates with a higher level of utilisation of simplified tax regimes (Nikitina, 2021, p. 211).

Fiscal pressure on the corporate sector (the ratio of aggregate tax payments of enterprises to the volume of net profit before tax) demonstrates a significantly higher level of interregional differentiation (Table 3).

The maximum level of corporate burden was recorded in Poltava (35.3%) and Dnipropetrovsk (32.0%) oblasts. This trend is explained by the commodity orientation and specialisation of these regions in heavy industry: subsurface resource royalties coupled with targeted environmental levies significantly increase the total fiscal pressure on a limited circle of large economic entities (Melnyk, 2022, p. 156). Conversely, Lviv and Odesa oblasts (27.4% and 27.6%) possess a diversified economic structure dominated by the service sector, trade, and logistics, where small businesses actively utilise tax optimisation instruments within the framework of current legislation, ensuring a lower level of integral fiscal pressure on capital (Bortnik, 2023, p. 117).

3. Quantitative Estimation of Concentration and Losses

The acute spatial divergence triggered by the war has led to a critical concentration of the state's financial resources in a limited number of macro-regional centres.

Table 2

Fiscal burden on the labour market by key regions in 2024

Regions (oblasts)	Payroll fund, UAH billion	Labour taxes and contributions, UAH billion	Fiscal burden level, %
Dnipropetrovsk	355	140	39,4
Kyiv	310	121	39,0
Poltava	185	72	38,9
Lviv	215	82	38,1
Odesa	240	90	37,5

Source: Calculated on the basis of reporting data from financial authorities

Table 3

Tax burden on the corporate sector by regions in 2024

Regions (oblasts)	Corporate profit before tax, UAH billion	Tax revenues from business, UAH billion	Business burden level, %
Poltava	170	60	35,3
Dnipropetrovsk	300	96	32,0
Kyiv	260	78	30,0
Odesa	210	58	27,6
Lviv	190	52	27,4

Source: Formed on the basis of statistical samples

To quantitatively assess the level of spatial asymmetry, the regional concentration coefficient ($k_{\text{concentration}}$) was used, calculated on the basis of the territorial distribution of personal income tax (PIT) revenues as the main indicator of local human capital engagement. To generate the model estimates, five core economically vital regions of Ukraine and the capital were evaluated using reporting data for 2025 (Table 4).

A comparison of the total pool of the presented sample (UAH 307.6 billion) with the nationwide volume of PIT revenues for the analysed period (UAH 561.8 billion) allows for the determination of the integral concentration coefficient:

$$k_{\text{concentration}} = \frac{\text{Sample Pool PIT}}{\text{Nationwide Volume PIT}} = \frac{307,6}{561,8} = 0,548$$

The resulting coefficient of 0.548 proves (or 54.8%) that more than half of the entire fiscal potential of Ukraine's labour market is generated in only six of the specified regions. The key determinant of this asymmetry is Kyiv city (42.6% in the structure of the sample), which confirms its status as the absolute financial and communication core of the state, where the head offices of taxpayers, public administration bodies, and large entities of the service sector are concentrated (Centre for Economic Strategy, 2022). The significant contribution of Dnipropetrovsk and Lviv oblasts reflects the processes of diversified wartime adaptation: the preservation of the industrial base in the east and the active deployment of a service and relocation hub in the west (Lukianykhin et al., 2024).

Our econometric estimates regarding the dangerous polarization of Ukraine's fiscal map closely align with the empirical findings compiled by the Polaris program (Onyshchuk, 2025). Independent monitoring highlights that the statutory centralisation of the military personnel PIT in late 2023 induced a secondary structural shock for municipal finances. While the national budget successfully accumulated an additional fiscal cushion exceeding UAH 500 billion in 2024, local sub-systems faced aggregate stagnation, recording a marginal nominal revenue growth of just 2.1%. This systemic mismatch is further exacerbated by acute spatial divergence: inflation-adjusted data reveals that real municipal revenues dropped by an average of 14% nationwide between 2021 and 2024.

Concurrently, high geographic concentration mirrors deep fiscal degradation across frontline jurisdictions and territories exposed to severe military shocks or demographic outflows. Table 5 quantifies the dynamics of these fiscal losses, measured as the variance between the 2021 pre-war baseline and the martial law period of 2024.

The calculations demonstrate that the aggregate net destructive losses across only five economically significant entities (with the sole exception of Lviv oblast's growth trajectory) reached UAH 44 billion. In the structure of these losses, the largest share is attributed to the capital region (43.2%), which is associated with the high sensitivity of large business to security risks and the optimisation of personnel costs. The only region with a pronounced positive fiscal compensation in this sample was Lviv oblast, generating

Table 4
Spatial concentration of PIT revenues by key regions in 2025

Regions (city and oblasts)	PIT revenues, UAH billion	Share in the total sample volume, %
Kyiv city	130,9	42,6
Dnipropetrovsk	55,8	18,1
Lviv	37,7	12,3
Kyiv	33,7	11,0
Odesa	29,5	9,6
Poltava	20,0	6,5
Total for the sample	307,6	100,0

Source: Calculated and formed by the author based on the data of the State Tax Service of Ukraine

Table 5
Assessment of fiscal losses and revenue growth by regions

Regions (city and oblasts)	2021, UAH billion	2024, UAH billion	Absolute deviation, UAH billion	Dynamics index
Kyiv city	150	131	-19	0,87
Dnipropetrovsk oblast	62	56	-6	0,90
Kyiv oblast	41	34	-7	0,83
Odesa oblast	36	30	-6	0,83
Poltava oblast	26	20	-6	0,77
Lviv oblast	29	38	+9	1,31

Source: Calculated by the author on the basis of the reports of the Accounting Chamber and the State Treasury Service of Ukraine (Accounting Chamber of Ukraine, 2025)

a revenue surplus of UAH 9 billion (dynamics intensity of 1.31). This phenomenon is a direct consequence of the spatial redistribution of small business and capital into safe zones, which partially offset the general decline in the revenues of the budget system (Danyliuk, 2023).

The presence of such deep fiscal polarisation accentuates the problem of modernising intergovernmental fiscal relations and financial equalization mechanisms. The current system of horizontal equalization, which is based purely on the fiscal capacity index (PIT volumes per capita), loses its effectiveness under wartime conditions. It penalises depressed and frontline communities due to the drop in revenues and does not allow rear recipient communities to effectively finance the excessive burden on the local social infrastructure, which has increased due to the influx of internally displaced persons (IDPs) (Chugunov, 2023).

The empirical evidence articulated in the Polaris institutional disclosures (Onyshchuk, 2025) strongly supports this argument, revealing that the conflict-driven contraction of local revenue pools exhibits a steep geographic gradient. Adjusted for inflation, the real financial capacity of frontline and occupied municipal structures experienced near-total liquidation, collapsing by 92.0% in Luhansk oblast, 77.4% in Kherson oblast, and 72.9% in Donetsk oblast. Furthermore, independent monitoring proves that small rural and township communities are trapped in an institutional efficiency crisis, where administrative maintenance costs consume an alarming 28% of their own tax revenues. This excessive 'cost of governance' leaves minor territorial units with no capital investment potential, shifting their operational framework from local development to basic survival.

To ensure the sustainable financial development of communities and the smoothing of regional disparities by 2026, the study provides a comprehensive justification for a composite, multi-layered financial capacity alignment index. In addition to the basic fiscal capacity indicator, this index should integrate:

1. *Demographic and migration criterion*: taking into account the actual number of registered IDPs and the dynamics of the burden on social sector institutions (Dyba, 2023).

2. *Security coefficient*: complete exemption of frontline territories from the reverse deduction (the clawback of local revenues into the central budget) with the simultaneous expansion of targeted subventions for them to restore the property base (Lukianykhin et al., 2024).

3. *Economic incentive*: the right of local councils to flexibly differentiate property and land tax rates for relocated business in order to increase the investment attractiveness of communities (Bortnik, 2023).

A distinct vector should be the digitalisation of local tax administration through the integration of the STS databases with the State Register of Property Rights

to Real Estate (specifically through "Diia" services), thereby establishing a highly transparent tax base and increasing the volume of communities' own financial resources (Vidomenko et al., 2023).

4. Conclusions

The conducted research allows for the formulation of comprehensive theoretical and applied conclusions regarding the current state and development vectors of the spatial fiscal system of Ukraine:

1. It has been established that the military and political shocks of the 2022–2026 period have fundamentally transformed the spatial geography of Ukraine's tax system. Wartime dynamics induced a profound structural drift of fiscal resources away from traditional eastern and southern industrial centres toward central and western rear regions, which have effectively turned into anchor zones of the state's financial stability. This transformation is not merely temporary but represents a structural re-alignment of tax-generating capacities driven by the physical relocation of productive forces and large-scale demographic shifts.

2. The existence of a critically high and dangerous level of territorial concentration of tax resources has been empirically proven. The calculated PIT concentration coefficient of 0.548 records that more than half of subnational revenues are provided by only six leading donor regions, consisting of five oblasts and Kyiv city. This forms a rigid and vulnerable dependence of national public finance stability on a limited cluster of macro-regions. This asymmetry was further aggravated by the statutory centralisation of military personnel PIT in late 2023, which triggered a secondary institutional shock, causing widespread nominal stagnation across minor municipal budgets while artificially inflating the central budget's cushion.

3. It has been determined that the aggregate net destructive fiscal losses across the five largest leading oblasts, excluding the growth of Lviv region, reached UAH 44 billion relative to the pre-war baseline, with almost half of this volume concentrated within the capital region due to corporate optimization and high security exposure. Conversely, the counter-cyclical positive performance of Lviv oblast, which generated a revenue surplus of UAH 9 billion, confirms the powerful multiplicative effect of the spatial relocation of small business and corporate capital into safe zones, serving as a vital compensatory hub for the national budget system.

4. The study substantiates the urgent necessity of transitioning by 2026 from the traditional single-criterion financial equalization model based strictly on per capita PIT to a comprehensive multi-criteria framework. The empirical reality demonstrates that frontline and depressed territories have experienced near-total revenue liquidation, while small rural

communities are trapped in an efficiency crisis, spending up to 28% of their own revenues purely on administrative maintenance. To mitigate these horizontal imbalances, the modernized intergovernmental architecture must directly integrate demographic displacement indices, security risk profiles, and economic stimulation coefficients, accompanied by expanding municipal rights to differentiate local tax rates and digitalising property registries via "Diia" services to establish a transparent, non-eroded tax base.

Prospects for Further Research. Future scientific developments in this direction should focus on the econometric modeling of the long-term impact of refugee return waves on the stabilization of local tax pools. Additionally, further research is required to design optimal legislative algorithms for shifting the PIT collection principle from the employer's legal registration address to the employee's actual place of residence, ensuring a fair distribution of fiscal resources in the post-war reconstruction period.

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