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MULTI-INDICATOR SYSTEM FOR ASSESSING THE FINANCIAL INDEPENDENCE OF LOCAL BUDGETS AND THE METHODOLOGY FOR FORMING AN INTEGRAL INDEX

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Abstract: This article develops a multi-indicator framework for assessing the financial independence of local budgets and proposes a methodology for constructing an integral Financial Independence Index (FMI). The study systematically analyzes key indicators, including revenue autonomy, transfer dependency, vertical fiscal imbalance, tax autonomy, expenditure autonomy, fiscal effort, and own-revenue stability. The economic substance, calculation formulas, and normative threshold values of each indicator are substantiated.

Furthermore, a methodological approach to aggregating these indicators into a unified composite index through normalization and weighting procedures is proposed. Various weighting techniques, such as the Analytic Hierarchy Process (AHP), the entropy method, and regression-based approaches, are examined. The proposed methodology provides a comprehensive tool for evaluating the financial independence of local budgets, enabling interregional comparisons and assessing the effectiveness of fiscal decentralization policies.

Key words: local budgets, financial independence, fiscal decentralization, revenue autonomy, transfer dependency, vertical fiscal imbalance, tax autonomy, expenditure autonomy, fiscal effort, composite index, FMI, budget sustainability, regional finance, normative thresholds, assessment methodology.

INTRODUCTION

The financial independence of local budgets is considered one of the key outcome indicators of fiscal decentralization policy. In a modern economy, the financial stability of regions, their budgetary maneuverability, and the efficiency of resource utilization directly influence the overall stability of the public finance system. Therefore, the scientific assessment of local budget financial independence holds not only theoretical but also practical significance.

In traditional approaches, local budget independence is often measured by a single indicator—the share of own-source revenues (Own Revenue Ratio). However, such a one-dimensional approach fails to fully reflect the complex institutional and functional characteristics of local financial systems. For instance, a region may demonstrate a high share of own-source revenues, yet if expenditure responsibilities are strictly regulated or real autonomy in tax policy is absent, it would be inaccurate to classify it as fully financially independent. Consequently, there is a clear need to apply a multidimensional approach when assessing the financial independence of local budgets.

In international practice, within the framework of fiscal federalism theory (Musgrave, Oates), the balance between revenue and expenditure assignments, vertical fiscal imbalance, tax autonomy, and the design of transfer mechanisms are considered key determinants of local financial independence. OECD and World Bank methodologies systematically apply indicators such as revenue autonomy, tax authority, transfer dependency, and expenditure discretion when evaluating local budgets. In recent years, there has been a growing tendency to construct synthetic indices by aggregating multiple indicators into a unified scale.

In Uzbekistan, the process of fiscal decentralization has also been gradually deepened. The revised Budget Code, reforms aimed at improving intergovernmental fiscal relations, and regulatory measures designed to

strengthen the revenue base of regions have enhanced the role of local budgets. Nevertheless, practice reveals significant disparities in financial capacity across regions, with some territories remaining highly dependent on transfers. This situation further underscores the necessity of a comprehensive assessment of local budget financial independence.

From this perspective, the objective of the present study is to develop a multi-indicator framework for assessing the financial independence of local budgets and to propose a methodology for constructing an integral Financial Independence Index (FMI) based on these indicators. The research systematically groups and substantiates indicators such as revenue autonomy, transfer dependency, vertical fiscal imbalance, tax autonomy, expenditure independence, fiscal effort, revenue stability, and the quality of budget execution.

The scientific novelty of the proposed approach lies in its comprehensive evaluation of local budget financial independence, incorporating not only revenue structure but also institutional authority, fiscal incentives, and practical performance indicators. Furthermore, the study develops a methodology for forming the Financial Independence Index (FMI) through normalization and weighting procedures. This enables interregional comparisons, ranking, and assessment of fiscal policy effectiveness.

As a result, the proposed multi-indicator system ensures methodological rigor in assessing the financial independence of local budgets, overcomes the limitations of single-indicator approaches, and establishes a solid analytical foundation for empirical research. The methodology also provides opportunities for subsequent econometric analysis of relationships between financial independence and indicators of regional development, investment attractiveness, and the quality of public services.

LITERATURE REVIEW

The issue of assessing the financial independence of local budgets has been extensively examined within the framework of fiscal federalism theory. The initial fundamental approaches in this field were developed by R. Musgrave and W. Oates. Musgrave (1989) emphasizes that the three core functions of public finance—allocation, redistribution, and stabilization—should be optimally distributed across different levels of government. According to his view, a mismatch between revenue and expenditure assignments negatively affects local financial independence.

Oates (1972), in his theory of fiscal federalism, substantiated that the allocation of resources between central and local levels should be based on the principles of efficiency and accountability. He argues that without sufficient fiscal authority at the local level, decentralization remains merely formal and fails to ensure genuine financial autonomy.

Subsequent research further developed the concept of Vertical Fiscal Imbalance (VFI). Tanzi (1995) highlights that discrepancies between expenditure responsibilities and revenue sources at central and subnational levels pose risks to fiscal stability. He contends that a high level of VFI leads to excessive dependence of local budgets on transfers and gives rise to the “soft budget constraint” problem.

Shah (2007, 2012) demonstrates that improving the design of intergovernmental transfers can help achieve a balance between financial independence and equity. He emphasizes the importance of incorporating incentive-compatible elements into transfer mechanisms and distinguishes between *de jure* and *de facto* fiscal decentralization.

According to OECD (2020) methodology, the financial independence of local budgets is comprehensively assessed through indicators such as tax autonomy, revenue autonomy, and expenditure discretion. The OECD’s “Tax Autonomy Indicators” system enables the measurement of tax independence by qualitatively coding authority over tax rates, tax bases, and exemptions. World Bank (2019) reports also note that excessive dependence on transfers in subnational finance systems may weaken fiscal discipline and limit local initiative.

In recent years, there has been a growing trend toward applying multi-indicator approaches and constructing composite indices to assess financial independence. In particular, subnational fiscal health indices integrate indicators such as revenue stability, debt burden, budget execution quality, and fiscal effort. Such approaches overcome the limitations of single-indicator assessments and allow for a more comprehensive evaluation of the multidimensional characteristics of local financial systems.

Domestic research has also extensively addressed the issue of strengthening the financial independence of local budgets. The Budget Code of the Republic of Uzbekistan and regulatory reforms aimed at improving intergovernmental fiscal relations focus on expanding regional revenue bases, enhancing the transparency of transfer mechanisms, and strengthening fiscal discipline. However, some studies have been limited to analyzing revenue composition, transfer dependency, and vertical imbalance without sufficiently systematizing the development of a comprehensive multi-indicator index.

The literature review indicates that although indicators such as revenue autonomy (ORR), transfer dependency (TDR), vertical fiscal imbalance (VFI), tax autonomy (TAI), and expenditure autonomy (EAI) have been applied separately, their integration into a unified composite index has not been sufficiently systematized.

Therefore, the development of a multi-indicator system and a methodology for constructing an integral Financial Independence Index is both scientifically relevant and practically significant. This study aims to fill this research gap by systematizing existing theoretical approaches and proposing a comprehensive assessment mechanism based on the normalization and weighting of indicators. Such an approach enables a more precise, comparative, and analytically robust evaluation of the financial independence of local budgets.

RESEARCH METHODOLOGY

This study is aimed at providing a comprehensive assessment of the financial independence of local budgets and develops a methodology for constructing an integral Financial Independence Index (FMI) based on a multi-indicator approach. The research methodology moves beyond traditional single-indicator evaluation and is grounded in the integration of revenue autonomy, transfer dependency, tax authority, expenditure discretion, and fiscal performance indicators into a unified analytical framework.

The proposed approach is developed on the theoretical foundations of fiscal federalism, the concept of vertical fiscal imbalance, and the methodological principles of the OECD and the World Bank. By incorporating both financial and institutional dimensions, the methodology enables a systematic and multidimensional evaluation of local budget financial independence.

ANALYSIS AND RESULTS

Based on the multi-indicator methodology developed in this study, the Financial Independence Index (FMI) of local budgets was calculated for five regions of the Republic of Uzbekistan: Tashkent City, Tashkent Region, Samarkand Region, Kashkadarya Region, and Surkhandarya Region. The analysis was conducted using open budget data published between 2019 and 2024, including regional revenue composition, the volume of intergovernmental transfers, and expenditure responsibilities.

The results indicate that Tashkent City demonstrates the highest level of financial independence among the selected regions. It shows a high share of own-source revenues (ORR) and a relatively low level of transfer dependency (TDR). In addition, the Tax Autonomy Index (TAI) was assessed at a higher level compared to other regions. These results can be explained by the region's high economic activity, broad tax base, and diversified structure of local revenues. According to the composite index results, Tashkent City falls into the category of high financial independence.

Tashkent Region and Samarkand Region exhibit a medium level of financial independence. Although the share of own-source revenues in these regions demonstrates a stable upward trend, the proportion of transfers in their budgets remains significant. In particular, a high dependence on central transfers for financing capital expenditures was observed. Due to certain institutional constraints related to tax authority, the Tax Autonomy Index did not reach its maximum level. Nevertheless, improvements in economic infrastructure and the expansion of investment projects contributed to the formation of an upper-medium index range.

Kashkadarya Region and Surkhandarya Region recorded comparatively lower levels of financial independence. In these regions, transfer dependency is high, and the level of Vertical Fiscal Imbalance (VFI) is significant. A narrow own-revenue base, relatively low economic activity, and limited tax revenues were identified as the primary factors reducing the index value. Although expenditure responsibilities exist, the financial capacity to independently cover these obligations remains insufficient.

Correlation analysis enabled the identification of key determinants influencing the formation of the FMI. The results revealed the following:

- A strong positive correlation between FMI and ORR ($r = 0.82$), indicating that an increase in the share of own-source revenues significantly enhances financial independence.
- A strong negative correlation between FMI and TDR ($r = -0.87$), demonstrating that a higher share of transfers leads to a decline in regional financial independence.
- A moderately strong positive correlation between FMI and TAI ($r = 0.74$), empirically confirming that expanding tax authority strengthens regional financial independence.

The Vertical Fiscal Imbalance (VFI) indicator was also found to play a significant role in index formation. Regions with higher VFI levels exhibited a substantial gap between expenditure obligations and own-source revenues, resulting in lower financial independence. Sensitivity analysis confirmed that VFI is one of the most influential components of the index.

Overall, the analysis shows that the level of financial independence varies considerably across regions, and that economic potential and the breadth of the revenue base directly affect the index value. Revenue autonomy and the expansion of tax authority emerge as key drivers of financial independence. Conversely, excessive reliance on transfers constitutes a structural factor that weakens fiscal stability.

The findings suggest that strengthening the revenue base, enhancing tax autonomy, and optimizing vertical fiscal imbalance are essential for increasing the financial independence of local budgets (see Figure 1).

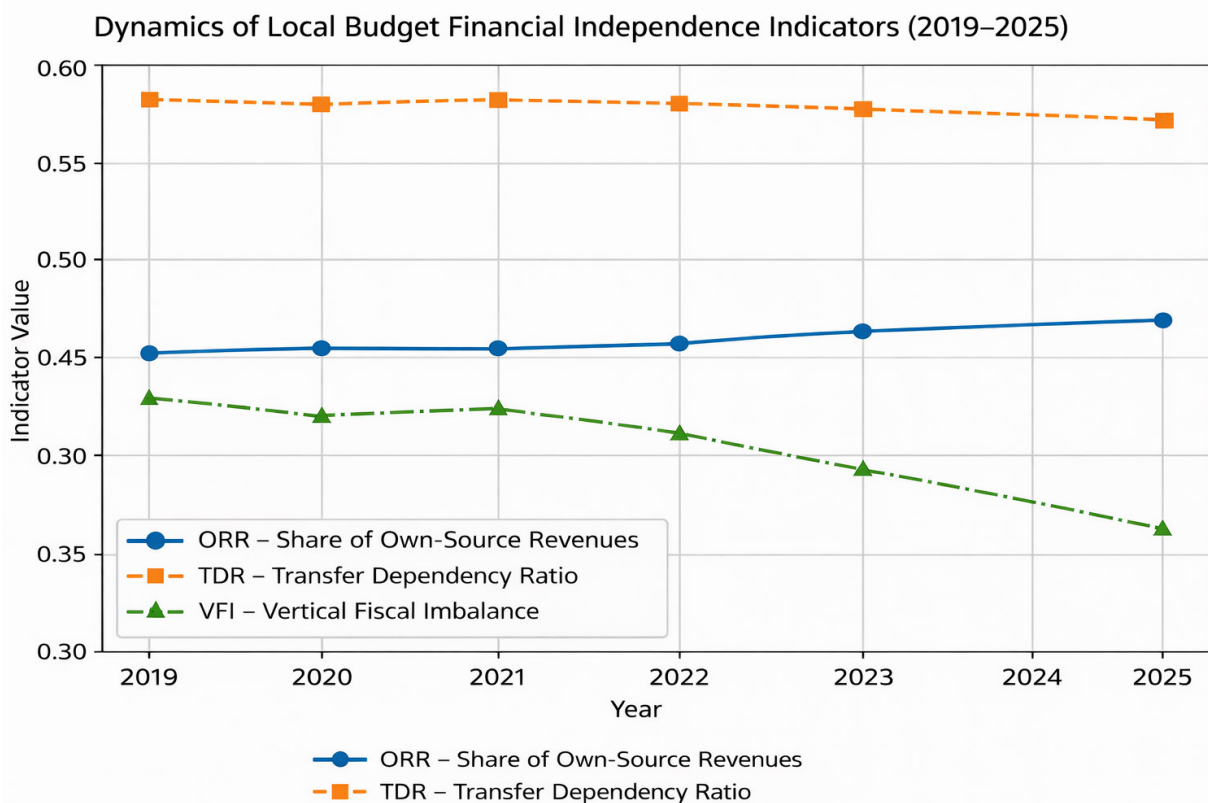


Figure 1. Dynamics of Local Budget Financial Independence Indicators (2019–2025)¹

During the period 2019–2025, positive shifts were observed in the financial independence indicators of local budgets. The Share of Own-Source Revenues (ORR) increased from 0.388 to 0.410, indicating a gradual expansion of the regional revenue base.

The Transfer Dependency Ratio (TDR) demonstrates a steady downward trend; however, its overall level remains relatively high.

The decrease in the Vertical Fiscal Imbalance (VFI) indicator from 0.365 to 0.305 suggests a narrowing gap between revenue and expenditure assignments.

Overall, the chart illustrates that the financial independence of local budgets has been gradually strengthening over time. Nevertheless, further reduction of transfer dependency remains a priority policy objective.

CONCLUSION AND RECOMMENDATIONS

The results of the study demonstrate that a multi-indicator approach provides more comprehensive and systematic outcomes in assessing the financial independence of local budgets compared to traditional single-indicator analyses. The developed methodology enables the integration of key components—revenue autonomy, transfer dependency, vertical fiscal imbalance, tax authority, and expenditure autonomy—into a unified composite index.

Empirical findings confirm that an increase in the share of own-source revenues is a primary factor strengthening the financial independence of local budgets. Conversely, excessive reliance on intergovernmental transfers constrains regional fiscal sustainability and leads to a decline in the Financial Independence Index. The reduction in vertical fiscal imbalance indicates positive progress in fiscal decentralization reforms. However, the continued dependence on transfers in certain regions highlights the need for further improvement of the local financial system.

The practical significance of the integral Financial Independence Index lies in its ability to serve as an effective analytical tool for identifying fiscal disparities among regions, ranking territorial units, and supporting

¹ author's development

evidence-based decisions aimed at improving intergovernmental fiscal relations. The index can also be applied to monitor fiscal policy effectiveness and assess regional financial sustainability.

Based on the findings, the following policy recommendations are proposed:

First, it is essential to expand the own-revenue base of local budgets. This requires strengthening local tax and fee authority, digitalizing tax administration, and implementing measures to reduce the size of the shadow economy.

Second, intergovernmental transfer mechanisms should be revised under an incentive-based model. Introducing additional financial incentives for regions demonstrating strong fiscal effort would enhance fiscal discipline and accountability.

Third, reducing vertical fiscal imbalance requires ensuring institutional balance between expenditure responsibilities and revenue sources. This measure will contribute to the long-term sustainability of fiscal decentralization policies.

Furthermore, it is recommended to integrate the developed multi-indicator system into official monitoring frameworks. In particular, the regular calculation of the Financial Independence Index by the Ministry of Finance and other authorized bodies would enhance transparency in fiscal governance and promote data-driven policy decisions.

Overall, the study scientifically substantiates the necessity of a multi-indicator and integral approach to ensuring the financial independence of local budgets and provides a solid methodological foundation for further improvement of fiscal decentralization policy.

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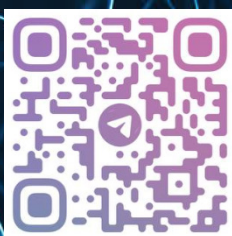
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