



Exploring the assessment system of municipal finance management: Ensuring sustainability and resilience in Latvian communities

Karlis Ketners*

Doctor of Philosophy

Vytautas Magnus University Agriculture Academy

LT-53361, 11 Studentu Str., Kaunas, Latvia

<https://orcid.org/0000-0001-7891-2745>

Mara Petersone

Doctor of Philosophy

Riga Technical University

LV-1048, 6A Kipsalas Str., Riga, Latvia

<https://orcid.org/0000-0001-7720-1482>

Abstract. The conducted research proposes a system of financial ratios as part of a composite index to assess the sustainability and adaptability of municipalities, which includes analysing the structure and dynamics of budgetary indicators. The purpose of the study was to develop a methodology aimed at identifying factors affecting financial sustainability and providing practical recommendations for improving the sustainability of municipalities in a volatile economic environment. The methodology of the study included an analysis of the state of municipal finances, an assessment of budgetary resources, the identification of risks and the development of measures to minimise them based on financial statements, interviews, and expert assessment of key indicators. The study identified key indicators of the financial stability of Latvian municipalities, including the level of independence from inter-budget transfers and the ratio of own expenses to income. Based on the results obtained, it was determined that municipalities with a high share of their own income demonstrate a better ability to adapt to economic shocks. In turn, the regional analysis highlighted significant differences in the structure of income and expenditure, where municipalities that were more dependent on transfers faced budgetary planning constraints. In addition, the use of the coefficient system helped to assess financial stability, both in static and dynamic terms, identifying the risks associated with a high debt burden and low liquidity. Due to the fact that the research methodology was based on the analysis of financial statements and expert assessments, it provided the development of a composite index for risk forecasting. Thus, the results highlighted the need to increase the financial autonomy of municipalities and optimise debt policy. The proposed recommendations of the study were aimed at reducing regional disparities and strengthening the financial stability of local budgets. The importance of the findings lies in providing tools that allow developing sound recommendations for improving budget management and adapting to economic challenges

Keywords: financial stability; organisational stability; composite coefficient; economic challenges; regional imbalances; economic adaptability

INTRODUCTIONS

Sustainability in public administration is determined by the ability to adapt and maintain efficiency in the face of various shocks. In municipal government, this sustainability

ensures the continuous provision of public services, which is especially important in the context of increasing attention to sustainability issues in local government

Suggested Citation:

Ketners, O., & Petersone, M. (2024). Exploring the assessment system of municipal finance management: Ensuring sustainability and resilience in Latvian communities. *University Economic Bulletin*, 19(2), 56-68. doi: 10.69587/ueb/2.2024.56.

*Corresponding author



Copyright © The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

policy. It is important to note that this requires preparedness for possible budget shocks and the ability to detect financial risks early. However, budget planning decisions should be based on the principles of sustainability, including adaptation to new data, alignment of budget priorities with common goals, and flexibility in the face of changing external factors. In this context, municipalities are required to develop financial models that support the existing infrastructure, respond to changes affecting its condition, and maintain the ability to provide services. Economic sustainability and sustainable financing ensure balanced regional development and contribute to reducing socio-economic inequality.

Sustainability as a concept has taken a central place in the framework of urban governance, becoming a response to the challenges facing researchers, policy makers, and practitioners. It is a universal approach that focuses on the need for foresight and readiness to manage urban systems in the face of various shocks. For example, T. Ahrens & L. Ferry (2020) analysed the financial stability of local governments in England in the context of the COVID-19 pandemic and found that the crisis had exacerbated existing financial imbalances, but individual municipalities had demonstrated the ability to adapt through strategic resource management. R. Levine *et al.* (2020) investigated the relationship between local financial structures and the economic stability of territories, and the results of their study showed that decentralised systems contribute to greater flexibility in times of crisis. According to the general opinion of these researchers, decentralisation and flexibility are becoming especially important to ensure the sustainability of resource flows and critical infrastructures necessary for the smooth functioning of households and businesses.

In the scientific literature, sustainability is often analysed in the context of policies and practical frameworks aimed at overcoming the consequences of natural disasters, conflicts, and terrorism. An example of such research is the study by S. Woodruff *et al.* (2021), devoted to the analysis of urban sustainability through the study of policies implemented in US cities and demonstrating that the integration of sustainable strategies into urban planning contributes to more effective adaptation to environmental changes and socio-economic challenges. However, there is also criticism of such initiatives. S. Fastenrath *et al.* (2019) have insisted that such initiatives often prioritise the interests of the private sector by redistributing the tasks of public administration and reducing the level of democratic participation. As an example of a transformational innovation policy aimed at strengthening urban sustainability, the authors examined the “Resilient Melbourne” strategy and at the same time critically analysed it, pointing to a shift in priorities towards the interests of the private sector, which is accompanied by a redistribution of public administration tasks and a decrease in the level of democratic participation.

Despite the growing interest in sustainability as a key element of urban governance, issues of infrastructure and resource allocation are being studied primarily. In

particular, S.A. Argyroudis *et al.* (2020) developed a framework for assessing the sustainability of critical infrastructure in a multi-risk environment, including transport facilities, and emphasised the importance of a comprehensive risk assessment to improve the reliability and security of infrastructure. T.J. Nipa & S. Kermanshachi (2022) concluded that standardised approaches to sustainability assessment are necessary. Both studies were primarily focused on financing new infrastructure and improving operational efficiency, ignoring the need to integrate the day-to-day financial operations of cities into the framework of sustainability. The ability of municipalities to effectively attract, allocate, and use financial resources has significant weight in their sustainability and adaptability. In this context, ensuring the sustainability of municipalities through the management of financial flows and resources becomes the main task of systemic management and part of sustainability strategies, since only with financial autonomy is it possible to successfully counter external shocks and ensure the sustainable development of territories (Chohan, 2022). However, the financial sustainability of local governments remains poorly understood.

It is important to consider that understanding the differences between municipalities in the levels of economic sustainability and sustainable financing is necessary to develop effective regional development policies. Economic sustainability is characterised by the ability of municipalities to adapt to unforeseen economic shocks, whereas sustainable financing is associated with responsible management of financial resources for long-term development and environmental protection. One of the main conditions for sustainability is economic diversification, reducing vulnerability to shocks and fluctuations. Financial sustainability, in turn, describes the ability of municipalities to anticipate, absorb, and respond to shocks affecting their budgets and service delivery.

Based on the above, the purpose of this study was to develop an integrated approach to assessing the financial sustainability of municipalities, including ensuring their adaptability and sustainability in the face of economic and social challenges. To achieve the purpose of the study, the following tasks were set: to determine the main elements of the composite coefficient of financial stability of municipalities; to develop and test a system of coefficients for assessing financial stability; to propose approaches to reforming the system of equalisation of local budgets aimed at strengthening financial stability and ensuring socio-economic stability of municipalities.

MATERIALS AND METHODS

The study was based on a combination of theoretical and empirical methods, including the analysis of secondary data, interviews with representatives of municipalities and the Ministry of Finance of the Republic of Latvia (2024), and the use of statistical and comparative analysis methods. The selected methods allowed investigating dynamic and static indicators, including income, expenses, debt

obligations, and volumes of inter-budget transfers, and the use of official accounting data (Analysis of financial indicators of local self-government bodies (2020), On borrowings and guarantee obligations of local self-government bodies, Official statistics on the State Budget of the Republic of Latvia for 2020-2024) provided a high level of accuracy, helped in identifying key factors affecting the financial sustainability of municipalities.

To assess financial stability, a system of composite coefficients was developed, including indicators of cost coverage with own income, the degree of dependence on inter-budget transfers, debt burden, and budget sustainability. The composite coefficient helped to comprehensively assess the adaptability of municipalities to economic shocks and their ability to support sustainable development. And the use of time series (January-March 2024) provided an opportunity to assess the adaptability of municipalities to economic shocks. The main objective of the study was to identify and evaluate dynamic and static indicators characterising the financial situation and sustainability of local governments, with an emphasis on the stability of income, expenses and providing liquidity to support operational activities. For the analysis, a set of coefficients was proposed to determine financial stability and financial management in three categories according to their nature and content (coefficients of budget balance, coefficients of independence and sustainability, and coefficients of management efficiency and expenses), in accordance with the studies by R. Cabaleiro *et al.* (2012), B. McDonald (2017), and E. Padovani *et al.* (2010). Based on the available data, five groups of coefficients were recommended:

1. Coefficients of the balance of the local budget, reflecting the degree of revenue coverage of expenditures, including deficit coverage and uniformity of expenditures.
2. Coefficients of financial independence from the resources of the central government.
3. Expense policy orientation coefficients, with a focus on current expenditures, investment activities, administrative expenses, and expenditures on public goods.
4. Financial stability coefficients describing the ratio of income and expense components.
5. Debt dependency ratios that determine debt levels, solvency, and debt management costs.

The chosen system helped to integrate various aspects of financial stability and conduct a comprehensive analysis. This approach identified risk factors and developed recommendations for strengthening the resilience of municipalities (Sebestova *et al.*, 2018). In addition, an analysis of the dynamics of financial indicators based on the processing of reports was applied. This method helped to identify changes in the structure of income and expenditure of municipalities in the context of changing economic circumstances. Comparative analysis methods were used to analyse the collected data, which helped to assess the differences between municipalities in key financial indicators. This approach has helped to identify patterns and factors affecting the sustainability of budgets.

In addition, in the period from January to March 2024, interviews were conducted with representatives of 25 municipalities and 4 representatives of the Ministry of Finance of Latvia. The respondents included mayors, finance directors, and heads of departments of the Ministry of Finance, which provided a variety of points of view and depth of analysis. The main interview questions were aimed at studying budget management practices, the level of dependence on inter-budget transfers, debt burden and strategies for increasing financial independence. The interviews were conducted in compliance with the standards of confidentiality and voluntary participation, which complies with the Code of professional ethics of the International Sociological Association (ISA, 2024). The ethical aspects of the study included the mandatory receipt of informed consent from all respondents and depersonalisation of data (anonymity), which guaranteed confidentiality. This approach fully complied with international standards (Ethics and data protection, 2021) and ensured the integrity of the results. Additionally, expert assessments provided by representatives of the Ministry of Finance of the Republic of Latvia complemented the analysis and contributed to the clarification of key coefficients and their thresholds, which ensured the verification of the results and increased their practical significance. This methodology demonstrates a consistent approach to data collection, analysis, and interpretation, providing optimal conditions for achieving research goals.

RESULTS

The municipal finance management assessment system is a set of tools aimed at analysing and diagnosing the financial stability of local budgets (Łukomska-Szarek *et al.*, 2024). It is based on the principles of transparency, responsibility and sustainability, which allows not only assessing the current state of municipal finances, but also to predicting their changes under the influence of external and internal factors. In conditions of increasing economic instability, the role of such systems is increasing, as they allow timely identification of risks and take preventive measures.

One of the key objectives of the assessment system is to ensure balanced development of municipalities, which is achieved through an analysis of the structure of income and expenses, debt burden, and the level of dependence on external transfers (Białek-Jaworska, 2021). Such approaches help to identify the strengths and weaknesses of financial management, identify priorities, and develop strategies to achieve long-term sustainability. In addition, an important aspect is also the assessment of the effectiveness of budget spending, which includes the study of areas that are most important for the socio-economic development of the regions. By itself, the assessment system is not an isolated accounting and forecasting tool, it relies on the use of financial coefficients, which are quantitative indicators that characterise various aspects of budget management. Among them are the coefficients of the balance of the local budget, financial independence, the orientation of spending policy, sustainability, and debt dependence.

The study identified key groups of coefficients (Table 1), which are the basis for assessing the financial stability of municipalities in Latvia. Each group of coefficients reflects

individual aspects of budget sustainability and financial independence of municipalities, which provides a holistic approach to their analysis.

Table 1. Analysis of groups of coefficients of financial stability of local budgets

Group	Key coefficients	Main assessment factors	Reference values
Coefficients of local budget balance	Total budget coverage ratio	Covering total expenses and deficits with income excluding borrowings	≈1
	Coefficient of budget deficit coverage		≤10%
Coefficient of financial independence	Coefficient of financial autonomy	Share of income dependent on the efforts of municipalities	High value
	Coefficient of tax independence of the budget	Share of tax revenues in the total revenue structure	40-60%
	Coefficient of direct financial dependence	Share of transfers and subventions in own income	≤30%
Expense policy coefficients	Current expense ratio	For current expenses in total expenses	50-70%
	Administrative expense ratio	Cost of maintaining the administration in the amount of socially significant expenses	5-15%
	Coefficient of social orientation of the budget	Share of expenses for social functions in the total expense structure	≥20%
Coefficients of budget sustainability	Coefficient of overall financial stability	Covering current expenses at the expense of own tax and non-tax income	≥50%
Coefficients of debt dependency	Coefficients of debt dependency	Ability to cover debt obligations with own income	≤20%
	Debt burden	Share of debt management expenses in current expenses	≤20%

Source: developed by the authors

The first group of coefficients is the coefficients of the local budget balance. The value of this coefficient, close to unity, minimises the risk of financial instability. The reference value of the budget deficit coverage ratio for individual municipalities should not exceed 10%. The second group includes the coefficients of financial independence of local authorities and the coefficient of financial independence. These indicators measure the degree of dependence of municipalities on centralised resources, and also demonstrate the share of income generated by the efforts of local authorities, including income from taxes and property. A special case is the tax independence coefficient, which estimates the share of tax revenues in the total income structure. The coefficient of direct financial dependence illustrates the share of transfers, subventions, and other forms of co-financing in the budget's own revenues. The third group of coefficients is represented by coefficients characterising the budget policy in the field of expenditures. A high value of the current expense ratio may indicate a lack of resources allocated to investment projects. The administrative expense ratio determines the share of administrative expenses in the total expenditure on public goods. The social orientation coefficient of the budget is also used, reflecting the share of expenditures on education, culture, health, sports, social policy, and environmental protection. The fourth

group of coefficients is budget sustainability coefficients, which analyse the ratio between income and expenditure, assessing the financial stability of municipalities. The coefficient of overall financial stability shows the extent to which current budget expenditures are covered by their own tax and non-tax revenues. However, in the case of Latvia, the significance of this ratio is close to zero. The fifth group covers the debt dependency ratios of local authorities. The reference value of this indicator should not exceed 20%, which makes it possible to ensure budget stability even in the face of economic shocks.

The proposed system of coefficients can be used for a static assessment of the financial condition of local governments. The static measurement of the financial position based on classical methods of financial reporting analysis helps to assess the budgetary situation and the system of public service provision as a whole. Using comparative analysis methods, it is possible to assess the budget status relative to reference values and determine resilience to potential risks. In particular, according to official statistical information (Analysis of financial indicators of..., 2020), it was chosen to demonstrate the overall financial condition of municipal budgets using the example of a common value (throughout the Republic of Latvia) and 4 sample municipalities – Riga, Daugavpils, Jurmala, and Ventspils (Table 2).

Table 2. Key indicators of some municipal budgets of Latvia for 2022-2023, millions EUR

Year	Municipality	Planned income	Actual income	Planned expenses	Actual expenses	Surplus/ Deficit	Changing the balance of funds	Change in balances (%)
2022	Riga	1.038	1.162	1.182	1.112	-144.4	-37.6	24%
	Daugavpils	119.1	125.6	132.2	123.1	-13.2	-1.6	12%
	Jurmala	101.5	103	128	105.1	-26.5	2.1	-11%
	Ventspils	63.6	66.8	77.8	64.2	-14.2	3.1	17%
	General value	3.251	3.442	3.795	3.379	-544.7	62.9	26%
2023	Riga	1.237	1.285	1.433	1.317	-195.6	35.5	-19%
	Daugavpils	131.4	132.2	141.1	131.7	-9.7	5	-32%
	Jurmala	104.2	103	140.3	106.5	-36.1	0.7	-4%
	Ventspils	67.6	62.6	88.6	75.6	-20.97	-8.85	-41%
	General value	3.641	3.685	4.322	3.841	-680.8	-156.2	-21%

Source: developed by the authors based on OECD (2024)

The choice of municipalities for the analysis in Table 2 was determined by their significant role in reflecting the financial characteristics of Latvia. Riga was included as the capital and largest city of the country, which makes it a key example in terms of budget structure, financial capabilities, and management practices. Daugavpils is the second largest city, characterised by a greater degree of dependence on transfers and a different economic base. Jurmala was chosen due to its unique role as a tourist centre, which makes it possible to analyse the impact of seasonality and investment attractiveness on the local budget. Ventspils, which is a significant port city, illustrates the specifics of budget planning in conditions of active use of infrastructure potential. Thus, these municipalities provide a comprehensive analysis of financial sustainability, considering diverse regional contexts.

In 2022, the total planned revenues of all municipalities amounted to EUR 3.251 billion, and the actual revenues exceeded the plan by 5.9%, reaching EUR 3.442 billion. This indicates a high level of budget revenue execution. However, despite the increase in revenues, municipal expenditures in 2022 amounted to EUR 3.379 billion against the planned

EUR 3.795 billion, which also indicates a slight under-fulfilment of the expenditure side of the budget. This resulted in a deficit of EUR 544.7 million, which is a significant figure for most municipalities. Nevertheless, at the end of the year, the total balance of funds still showed an increase of 26% from the remaining funds at the beginning of the year, which indicates a slight improvement in liquidity and financial stability. In 2023, the situation changed. The total municipal revenue amounted to EUR 3.685 billion, which is 6.5% higher than in the previous year. However, expenses increased to EUR 3.841 billion, which also led to a budget deficit of EUR 680.8 million. Thus, despite the growth in the revenue side of the budget, expenditures turned out to be higher, which indicates an increase in the deficit and a higher burden on local budgets. The change in fund balances in 2023 was negative and amounted to EUR 156.2 million, which represents a 21% decrease in municipal liquidity, which may indicate financial difficulties that urgently need to be addressed to ensure the sustainability of budgets for future periods. In addition, for greater clarity, an analysis of regional disparities is presented in Table 3.

Table 3. Analysis of regional imbalances in Latvia's municipal budgets

Municipality	Income change (2023-2022), %	Expense change (2023-2022), %	Deficit 2022, million EUR	Deficit 2023, million EUR	Main conclusions
Riga	10.6	18.4	50	-32	High revenue growth and a significant increase in expenses led to a deficit in 2023.
Jurmala	0	1.3	-2.1	-3.5	Lack of income growth and a small deficit, requiring improved income diversification.
Daugavpils	5.3	7	2.5	0.5	Stable financial management with a moderate increase in income and expenses.
Ventspils	-6.3	17.8	2.6	-13	Declining revenues and rising expenses have increased the budget deficit.

Source: developed by the authors

The analysis of regional imbalances in the budgets of municipalities in Latvia points to key challenges in ensuring financial stability. The main factors are differences in the growth rates of income and expenses, and in the ability to adapt to changing conditions. Regions with more diversified economic bases

demonstrate greater resilience to financial challenges, while dependence on external financing increases budgetary risks. These data confirm the need for targeted reforms, including stimulating own incomes, optimising the cost structure and equalising financial support for the most vulnerable municipalities.

In addition, for a deeper understanding of the financial condition of municipalities in Latvia, it is necessary to compare their indicators with reference coefficients (Table 1). Thus, the budget coverage ratio (total budget coverage ratio), according to calculations, exceeded the planned revenues, which led to a deficit. The deficit was EUR 544.7 million in 2022 and EUR 680.8 million in 2023. According to the reference value, the budget coverage ratio should be close to 1, which means that expenses should be covered by income without borrowing. However, in this case, the municipalities did not comply with this requirement, which indicates financial instability. The budget deficit of EUR 680.8 million in 2023, despite the increase in income, exceeded the acceptable level, indicating the high financial dependence of municipalities on external financing. The reference value of this coefficient should not exceed 10%. Despite the revenue growth in 2023, the dependence of local budgets on transfers and external financing remained high.

At the end of 2023, the total amount of borrowings by government agencies of the Republic of Latvia amounted to more than EUR 930 million (Main aggregates of general..., 2023), which confirms the significant dependence of the authorities on external sources, but does not exceed 20%. These indicators do not deviate from the reference values of financial independence coefficients, which assume a high level of self-financing of municipalities, but, however, they are not in the minimum values and require attention. Debt dependency ratio and debt burden have demonstrated a significant debt burden, which is almost 6%. The high debt burden on Latvian municipalities indicates a potential threat to their financial stability and requires attention to debt financing policies. The analysis

of expenditures in 2019-2023 emphasised that these indicators fall within the established reference values, however, they tend to deteriorate. In 2019, the debt burden was about 0.4% (EUR 45 million), while in 2021 this figure reached 18.4% (EUR 2.331 million), which indicates an insufficiently efficient allocation of funds. In addition, these indicators highlighted the limitations of opportunities for long-term economic growth and development.

Based on the analysis of the financial indicators of the municipalities of Latvia for 2022 and 2023, it can be concluded that the financial situation of the municipalities remained tense. Despite the increase in revenues in 2023, municipalities continued to face budget deficits and an increased debt burden, which indicates the need to take comprehensive measures to improve financial management, optimise costs and reduce dependence on external sources of financing. To ensure long-term financial stability, municipalities should focus on increasing tax independence, rationalising spending, and reducing debt burden. For countries with a decentralised management system, such as Latvia, the introduction of effective systems for assessing municipal finances is becoming especially important. This is primarily conditioned by the need to ensure the even development of the regions and reduce socio-economic inequality. The assessment system can serve as a basis for developing financial equalisation policies that enhance the resilience of the most vulnerable municipalities. In addition, the analysis revealed that the regions of Latvia show significant differences in the level of dependence on transfers from the central budget and their own ability to budget self-government. Figure 1 presents the official statistics for 2023 and the projected values up to 2026.

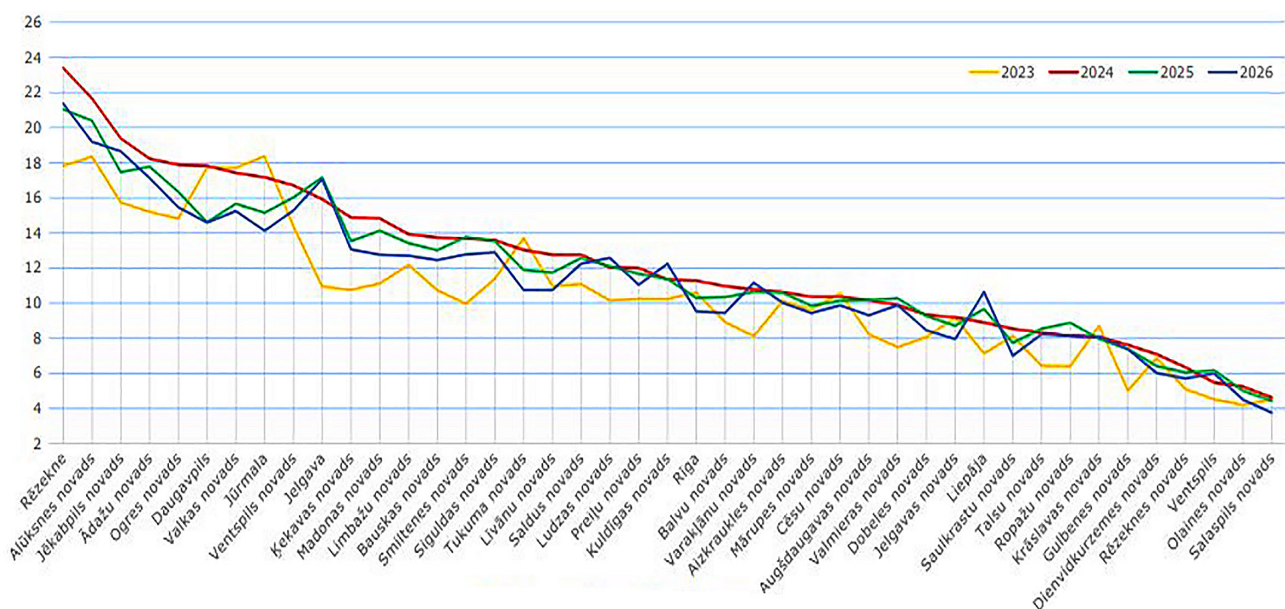


Figure 1. Amounts of obligations assumed by local governments (%), 2023

Notes: Number of annual payments on loans, guarantees, and other long-term obligations as a percentage of the planned revenues of the 2023 core budget (excluding PFIF contributions and targeted transfers from the state budget). Rezekne Municipality has overdue payments in the amount of EUR 4.3 million as of 11/30/2023, and the total amount of obligations for 2023, including overdue payments, is 29.9%
Source: developed by the authors based on the On local government borrowing and guarantee obligations (2024)

This graph shows a decrease in the dependence of Latvian municipalities on debt obligations, which indicates an increase in their financial stability. Despite the general trend towards reducing the debt burden, the situation varies by city. Some municipalities have been able to significantly reduce their debt (Rezekne, Daugavpils, Jurmala, Siguldas Novads, Salaspils Novads), while others are showing less significant results (Riga, Valmiera District and Kuldiga

District). This difference is explained by both economic factors and the effectiveness of financial management. A lower debt burden allows cities to allocate more funds to infrastructure development and increases their resilience to external crises. In general, to determine the prospects for improving the financial stability of municipalities in the Republic of Latvia, it is worth analysing the distribution of the state budget by sector for 2020-2023 (Figs. 2-3).

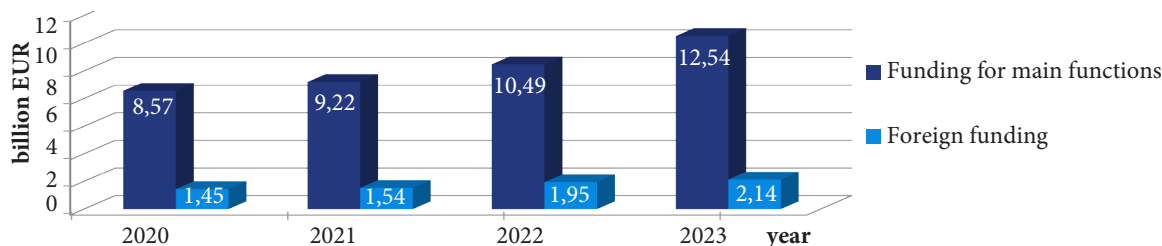


Figure 2. General state budget, 2020-2023

Source: developed by the authors based on data of Ministry of Finance of the Republic of Latvia (2020, 2021, 2022, 2023)

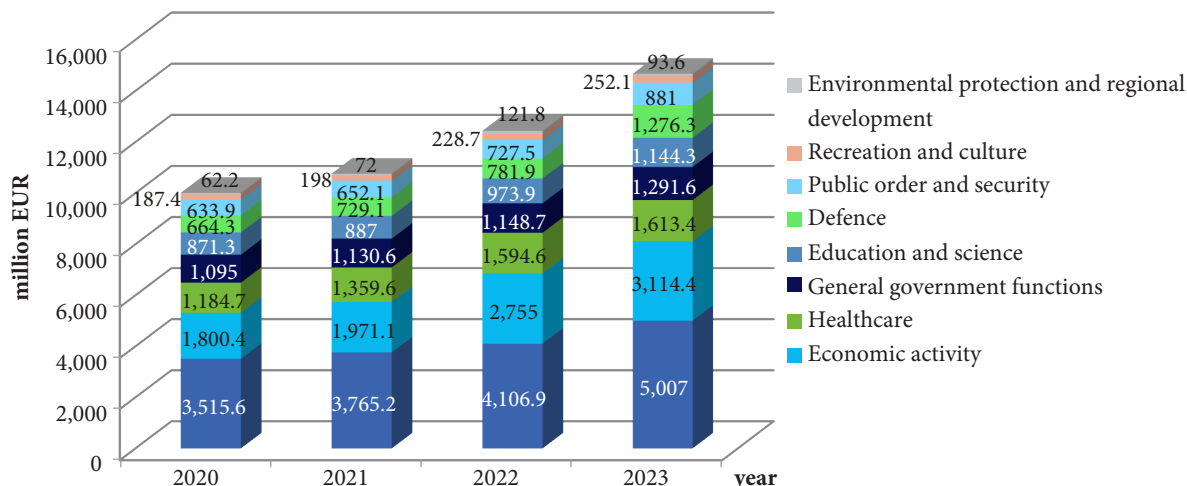


Figure 3. Distribution of the state budget by sector, 2020-2023

Source: developed by the authors based on Ministry of Finance of the Republic of Latvia (2020, 2021, 2022, 2023)

An analysis of the distribution of Latvia's state budget funds in 2020-2023 shows a steady increase in total expenditures, which indicates an increase in government funding in various areas. The bulk of the funds are allocated to key government functions such as education, healthcare, and social protection. There is also an increase in the share of foreign financing, which indicates the attraction of external resources for the implementation of projects. However, the growth of various budget items is uneven, which requires separate assessment and attention.

An analysis of Latvia's budget expenditures during the period under review shows a steady increase in total government spending, which indicates an expansion in the scope of government influence and an increase in social obligations. The main priorities are aimed at social protection, healthcare, and education, which emphasises attention to improving the lives of citizens and developing human

potential. There has also been an increase in spending on environmental protection and safety, reflecting the growing importance of environmental and social issues. An integrated financial position indicator can be used to simplify financial analysis. This indicator includes the ratio of income to expenses (risks of spending and deficit obligations), the ratio of transfers and subventions in income (dependence on income), the share of tax revenues (income stability), and the ratio of debt obligations to total expenses (dependence on debt). Given the importance of unforeseen circumstances for some municipalities, such as, for example, COVID-19, it is possible to add a proportion of unforeseen expenses to total expenses (risks of expenses for unforeseen events). Additional studies can be supplemented with various coefficient weights using expert methods, establishing a linear objective minimisation function for this integrated indicator and evaluating the projected outcomes and policy interventions.

The data obtained as a result of the analysis can be used for an integrated assessment of local budgets and the structure of the rating of local authorities according to the criterion of budgetary sustainability. The methodology requires setting thresholds to assign municipalities to a specific financial type, depending on the level of the budgetary situation. To assess the balance, financial independence and sustainability of the budget, the orientation of the budget policy of local government

and the policy of debt sustainability, a system of the above-mentioned coefficients was proposed. The proposed approach analyses the financial situation of local authorities in terms of the sustainability and resilience of the budget situation. As can be seen from Figure 4, the static analysis used revealed significant differences in the incomes of municipalities, but did not allow them to be grouped into clear groups. Some municipalities have shown extreme results.

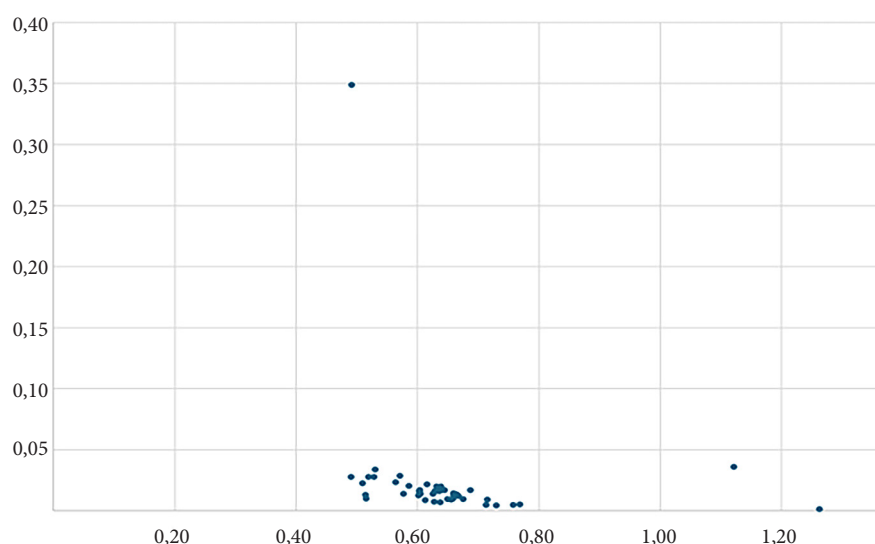


Figure 4. Initial results of the integrated coefficient weighted by the share of total revenues of local authorities

Notes: X-axis – share of municipal income in total income; Y-axis – integrated coefficient

Source: developed by the authors based on Ministry of Finance of the Republic of Latvia (2024)

The problems identified in the analysis of financial indicators of local government systems are related to the level of financial autonomy, which directly depends on the level of own revenues of local budgets, a high proportion of current expenses and dependence on various investment projects with foreign financing and borrowed funds. The example of Latvia demonstrates the main sustainability factors, such as the structure of expenditures, the impact of transfers and the equalisation fund, and the structure of own and target budget revenues. In the context of the medium-term impact, the consequences of the COVID-19 pandemic are still present (Arhipova *et al.*, 2022), and the existing debt problems should also be mentioned. Thus, the main shocks and risks are associated with a reduction in tax revenues due to changes in legislation (for example, such as an increase in the minimum amount of fixed capital for limited liability companies (SIA) or changes in the Law on Budget and Financial management of Latvia aimed at unifying and establishing differentiated standards for contributions to local budgets), and the economic situation, changes in the functional and economic structure of expenditures, and other major problems of financial sustainability of local authorities, such as, for example, pandemics and the cost of unforeseen events.

Based on this, it can be concluded that the key elements of the indicator of financial stability of municipalities in Latvia are, but are not limited to, independence from intergovernmental transfers (assessment of the municipality's dependence on transfers from higher levels of government: a higher degree of financial independence indicates greater stability), and covering the own expenses of local budgets (assessment of the ratio of the municipality's own income to its expenses – this indicator reflects the municipality's ability to support its activities with its own financial resources). And the municipal financial management assessment system is a multifunctional tool that can significantly improve the quality of decision-making at the local level. It serves not only to diagnose the current state, but also for strategic planning, which is especially important in conditions of increasing economic uncertainty. For an objective assessment of the financial situation of local budgets in a dynamic aspect, it is proposed to use three main indicators: the deficit (primary balance) in relation to total expenditures, the ratio of current account balances to total expenditures, and the total amount of borrowings (debt to expenditure ratio). These indicators can be analysed based on monthly and quarterly reports with a clear assessment of trends. Unlike a static assessment, a graphical approach can be used to analyse changes in these indicators (Fig. 5).

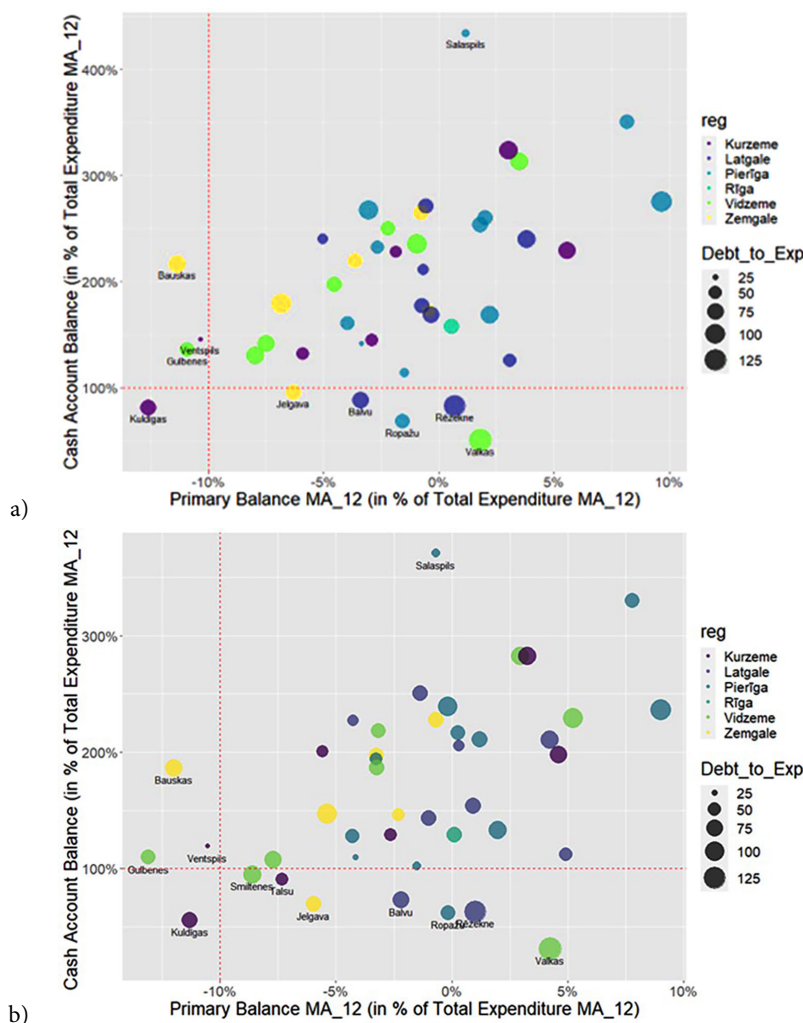


Figure 5. Initial dynamic measurement results for local authorities

Notes: a) January 2024, b) March 2024

Source: developed by the authors based on Ministry of Finance of the Republic of Latvia (2024)

The presentation of the state of the municipal budget through the volume of debt obligations and the balance of funds gives an idea of its resilience to possible changes and the risk of insolvency. The 100% and 50% cash ratio thresholds are used to evaluate the effectiveness of cash management and identify potential liquidity problems. The availability of short-term loans for budget management also signals liquidity problems. When experts compare estimates of the financial condition of municipalities with estimates based on a dynamic approach, their conclusions often coincide. However, the accuracy of these estimates may be affected by several factors, including reserve funds for investment projects and targeted financing, long-term debt balances from previous years, and their repayment dates. However, it is important to understand that static analysis alone does not provide a complete and transparent picture of the financial situation of local authorities, so both static and dynamic approaches must be considered. The interpretation of both coefficient measurements is necessary for an effective understanding of the sustainability of municipal budgets. In addition, when assessing liquidity and cash

balances, it is necessary to consider the specific activities of local authorities. Although static coefficients can exceed standards found in the literature, dynamic measurement often reveals hidden financial vulnerabilities. This dual approach provides a more complete and accurate assessment of the financial condition of municipalities.

Based on the results of the study, some recommendations aimed at improving the financial stability of municipalities in Latvia can be offered. The most important priority is to reduce the dependence of municipal budgets on inter-budget transfers by increasing the share of own revenues. To this end, it is recommended to strengthen measures that stimulate economic development at the local level, such as supporting small and medium-sized businesses, improving tax collection efficiency, and introducing tools to attract investment. This will ensure a more stable income base, reduce vulnerability to external economic shocks and increase the independence of municipalities in decision-making. Additionally, it is recommended to optimise the debt policy of municipalities. The identified risks associated with a high debt burden require a review

of approaches to borrowing management. It is proposed to introduce strict limits on the volume of borrowings and strengthen control over the use of borrowed funds, directing them primarily to investment projects that ensure long-term economic effects. An important step is also to improve budget planning through the use of the developed coefficient system, which will allow municipalities to identify weaknesses in financial management in a timely manner, adapt to changing economic conditions and make informed decisions to ensure sustainable development.

DISCUSSION

The relationship between financial management and municipal performance has been the focus of many researchers. In particular, the consequences of financial inefficiency and non-compliance with governance standards for the sustainability of municipalities were studied by S. Mishi *et al.* (2022). The findings highlighted the importance of transparency in the use of budgetary funds, and the need for systematic monitoring to identify cases of financial abuse and mismanagement. The researchers also concluded that insufficient financial discipline and weak control lead to the accumulation of debts and deterioration of the quality of municipal services provided. These results show some overlap with current scientific research. Both studies highlighted the importance of developing assessment systems to diagnose the current state of municipal finances. The current study focused on creating a system of coefficients that assessed sustainability through levels of financial independence and debt burden. Similarly, the study by S. Mishi *et al.* (2022) emphasised that financial stability is impossible without strict control over debt management and budget funds. However, the essential difference lies in the focus: the current research focused on the adaptation of municipalities to economic shocks through an increase in the share of their own income, whereas the study by S. Mishi *et al.* focused on assessing the consequences of corruption and lack of discipline. Corruption and inefficiency in Latvia, although recognised as important, were considered in the context of their impact on long-term fiscal sustainability, rather than as a primary concern.

In parallel with this, M. Frintrup & D. Hilgers (2023) investigated the driving forces and risk factors determining the financial stability of municipalities, also focusing on debt burden and liquidity. Their study proposed measures to ensure long-term budget balance, including restrictions on the use of borrowed funds. During the analysis, the researchers found that factors such as debt burden and limited liquidity significantly affect the ability of municipalities to maintain stability in the face of external economic shocks. In addition, the study emphasised that sustainability is achieved through strict control over borrowing and maintaining a high level of income generated at the local level. The authors focused on the need to control adjusted income as one of the main tools for assessing sustainability, while the methodology developed in the current study has become more comprehensive, including the development of a

composite index and a systematic approach to assessing all key indicators, including social and administrative costs. The study by M. Frintrup & D. Hilgers was based on strategic revenue planning, while in the context of current study, the focus was on estimating through a set of composite coefficients. Thus, this study appears to be more multifaceted in the context of analysing the financial stability of municipalities. It should also be noted that the study focused on minimising dependence on external transfers, while German researchers sought to optimise the use of available resources through increased transparency and long-term planning.

In addition, it is important to consider the broader context of sustainability, particularly in the context of the implementation of the sustainable development goals (SDGs). This is quite accurately reflected by H. Masuda *et al.* (2022). The researchers examined the role of local authorities in achieving the sustainable development goals, including an assessment of the intermediary role of municipalities in stimulating partnerships between various stakeholders. The focus was on the ability of municipalities to act as intermediaries forming partnerships between the public, private and civil sectors. It has been revealed that local governments can effectively integrate various resources and efforts to achieve sustainable development, but the success of such initiatives largely depends on institutional readiness, management flexibility, and the ability to adapt to social and economic challenges. Among the key conclusions of the study, it was noted that cooperation and the involvement of all stakeholders contribute to improving the effectiveness of SDG implementation, especially in conditions of limited resources. Comparing the study with the analysis of the sustainability of municipalities in Latvia, the similarity in the emphasis on adaptability and sustainable resource management can be noted. Both approaches emphasised the importance of strategic planning and the need to consider external challenges. However, the current study, despite the proximity of the goals, had a narrower focus, focusing on the financial aspects of sustainability. However, the developed methodology was favourably distinguished by its detail and the development of a coefficient system, which helped to more accurately assess the financial condition of municipalities and develop recommendations. Thus, the main difference between the studies was the approach to key sustainability tools. Meanwhile, H. Masuda *et al.* focused on coordinating efforts between different actors, and the study suggested an autonomous path for municipalities through increasing financial independence and optimising budget processes. This creates a meaningful basis for comparison, where the current study stands out for its applied nature and the development of methods that can be integrated into budget management.

A logical continuation of the analysis of the sustainability of municipalities from an international perspective was the study of financial resilience through the European model. The study by C. Barbera *et al.* (2023) examined the financial sustainability of municipalities, including crisis analysis. The researchers emphasised that the key factors

of financial resilience are the ability to adapt, ensure budget balance and long-term planning. Particular attention was paid to the interaction between the financial autonomy of municipalities and their dependence on central transfers. The results showed that the flexibility of budget management and timely adaptation to changing conditions can significantly reduce the negative impact of crises. Comparing the studies, it can be noted that the researchers paid great attention to financial autonomy and sustainability and came to similar conclusions that reducing dependence on external financing is a key condition for increasing the sustainability of municipal budgets. In the framework of the study by A. Vysochyna *et al.* (2022) revealed that successful economic development directly depends on financial autonomy and the ability to effectively manage local budgets. The results of this study coincide with the conclusions of current study, especially in the aspects of decentralisation and the need to increase financial independence, which emphasises the importance of own income as the basis for sustainable budget management. In addition, both approaches focused on debt policy and prevention of risks associated with excessive debt burden. However, the conducted research stands out for its emphasis on the development of a system of composite coefficients that allow not only assessing current sustainability, but also predicting possible risks. This difference highlights the uniqueness of the approach in which municipal finance management is considered as a systemic tool for ensuring sustainability.

The study by K.A. Wójtowicz & S. Hodźić (2022) confirmed that the main differences in the sustainability of cities are conditioned by their internal financial capabilities, rather than external shocks. The researchers also suggest that the most important element of sustainability is the ability of municipalities to diversify their sources of income and manage expenses in a way that minimises their debt burden. Their study also revealed that cities with a higher level of financial independence coped better with crises, and insufficient liquidity became a critical constraint for less stable municipalities. Conclusions of K.A. Wójtowicz & S. Hodźić confirms the results obtained, however, the study has a more structured approach, presenting a system of composite coefficients that assess stability in a static and dynamic perspective. The difference also lay in the fact that the current study paid considerable attention to regional disparities, analysing the impact of economic and social factors on the financial condition of municipalities.

The approach based on the composite coefficient system used in the current study helped to create a comprehensive tool for assessing both the current state and forecasting possible risks to the financial stability of municipalities using the example of Latvia. The scientific originality of the study lies in the integration of theoretical approaches with applied methods of analysis. Unlike other studies focused on specific aspects of sustainability, this study offered a holistic view of municipal financial resource management, focusing on independence from inter-budget transfers,

cost structure, and debt burden. In addition, the proposed composite index is a tool that can be adapted and applied to municipalities in other countries, considering their specifics, which expands the scientific and practical significance of research. The study also offered some recommendations for reforming Latvia's local budget equalisation and debt management system. The developed methodology can be used to improve financial management not only in the Republic of Latvia, but also in other countries with a decentralised management system.

CONCLUSIONS

The conducted research has confirmed that the financial stability of municipalities in the Republic of Latvia depends on a set of factors, among which independence from inter-budgetary transfers, and balanced income and expenses are of fundamental importance. In the course of the study, it was revealed that municipalities with a high share of their own income are more adaptable to economic shocks, which contributes to their sustainable development. The developed system of composite coefficients helped to comprehensively assess the current state of municipal budgets, identify the main risks, and suggest ways to minimise them. Additionally, the analysis of regional differences highlighted the disparity in the level of financial independence of municipalities, which is explained by the different structure of income and expenses. Less well-off regions tend to show high dependence on transfers and limited budget planning capabilities. The application of the proposed methodology allowed not only to record these differences, but also to develop recommendations for reducing budget inequality by stimulating the growth of municipalities' own incomes.

One of the key conclusions of the study is the need to strengthen the tax independence of municipalities through the diversification of income sources, which can be achieved by stimulating economic activity at the local level, supporting entrepreneurship and optimising tax policy. The results obtained emphasise the importance of implementing the proposed assessment system for making informed decisions in the field of budget planning. The coefficient system can be adapted for use in other countries, considering their economic and institutional characteristics, which expands the scientific and practical significance of the conducted research.

Future research areas may focus on a deeper analysis of the interrelationships between the financial stability of municipalities and their socio-economic development, including an assessment of the impact of innovative management tools, such as, for example, the digitalisation of budgetary processes, both in Latvia and abroad.

ACKNOWLEDGEMENTS

None.

CONFLICT OF INTEREST

None.

REFERENCES

- [1] Ahrens, T., & Ferry, L. (2020). Financial resilience of English local government in the aftermath of COVID-19. *Journal of Public Budgeting Accounting & Financial Management*, 32(5), 813-823. doi: 10.1108/jpbafm-07-2020-0098.
- [2] Analysis of financial indicators of local governments. (2020). Retrieved from <https://www.fm.gov.lv/lv/pasvaldibu-finansu-raditaju-analize>.
- [3] Argyroudis, S.A., Mitoulis, S.A., Hofer, L., Zanini, M.A., Tubaldi, E., & Frangopol, D.M. (2020). Resilience assessment framework for critical infrastructure in a multi-hazard environment: Case study on transport assets. *Science of the Total Environment*, 714, article number 136854. doi: 10.1016/j.scitotenv.2020.136854.
- [4] Arhipova, I., Berzins, G., Erglis, A., Ansonska, E., & Binde, J. (2022). Socio-economic situation in Latvia's municipalities in the context of administrative-territorial division and unexpected impact of COVID-19. *Journal of Global Information Management*, 30(10), 1-27. doi: 10.4018/jgim.298002.
- [5] Barbera, C., Dom, B.K., Du Boys, C., Korac, S., Saliterer, I., & Steccolini, I. (2023). Government financial resilience – a European perspective. In *Research handbook on city and municipal finance* (pp. 408-432). Cheltenham: Edward Elgar Publishing. doi: 10.4337/9781800372962.00031.
- [6] Białek-Jaworska, A. (2021). Revenue diversification and municipally owned companies' role in shaping the debt of municipalities. *Annals of Public and Cooperative Economy*, 93(4), 931-975. doi: 10.1111/apce.12358.
- [7] Cabaleiro, R., Buch, E., & Vaamonde, A. (2012). Developing a method to assessing the municipal financial health. *American Review of Public Administration*, 43(6), 729-751. doi: 10.1177/0275074012451523.
- [8] Chohan, U.W. (2022). Public value and bureaucratic rhetoric. In A. Farazmand (Ed.), *Global encyclopedia of public administration, public policy, and governance* (pp. 11079-11083). Cham: Springer. doi: 10.1007/978-3-030-66252-3_3408.
- [9] Ethics and data protection. (2021, July). Retrieved from https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ethics-and-data-protection_he_en.pdf.
- [10] Fastenrath, S., Coenen, L., & Davidson, K. (2019). Urban resilience in action: The resilient melbourne strategy as transformative urban innovation policy? *Sustainability*, 11(3), article number 693. doi: 10.3390/su11030693.
- [11] Frintrup, M., & Hilgers, D. (2023). Drivers and risk factors of German local financial sustainability focusing on adjusted income. *International Review of Administrative Sciences*, 90(1), 29-47. doi: 10.1177/00208523221143289.
- [12] ISA. (2024). *Statutes of the International Sociological Association*. Retrieved from <https://www.isa-sociology.org/en/about-isa/statutes>.
- [13] Levine, R., Lin, C., & Xie, W. (2020). Local financial structure and economic resilience. SSRN. doi: 10.2139/ssrn.3755560.
- [14] Łukomska-Szarek, J., Wójcik-Mazur, A., & Martynko, A. (2024). Evaluation of the budget management of local government units in Poland based on methods of multi-criteria analysis in 2019-2021. *Journal of Local Self-Government*, 22(2), 243-276. doi: 10.52152/22.2.243-276(2024).
- [15] Main aggregates of general government (million euro) 1995-2023. (2023). Retrieved from https://data.stat.gov.lv/pxweb/en/OSP_PUB/START_VEK_VF_VFV/VFV010/table/tableViewLayout1/.
- [16] Masuda, H., Kawakubo, S., Okitasari, M., & Morita, K. (2022). Exploring the role of local governments as intermediaries to facilitate partnerships for the Sustainable Development Goals. *Sustainable Cities and Society*, 82, article number 103883. doi: 10.1016/j.scs.2022.103883.
- [17] McDonald, B. (2017). *Measuring the fiscal health of municipalities*. Retrieved from https://www.lincolnst.edu/app/uploads/legacy-files/pubfiles/mcdonald_wp17bm1.pdf.
- [18] Ministry of Finance of the Republic of Latvia. (2020). *Interactive: Budget2020*. Retrieved from <https://www.fm.gov.lv/lv/interaktivais-budzets2020>.
- [19] Ministry of Finance of the Republic of Latvia. (2021). *Interactive: Budget2021*. Retrieved from <https://www.fm.gov.lv/lv/interaktivais-budzets2021>.
- [20] Ministry of Finance of the Republic of Latvia. (2022). *Interactive: Budget2022*. Retrieved from <https://www.fm.gov.lv/lv/interaktivais-budzets2022>.
- [21] Ministry of Finance of the Republic of Latvia. (2023). *Interactive: Budget2023*. Retrieved from <https://www.fm.gov.lv/lv/interaktivais-budzets2023>.
- [22] Ministry of Finance of the Republic of Latvia. (2024). Retrieved from <https://www.fm.gov.lv/en>.
- [23] Mishi, S., Mbaleki, N. & Mushonga, F.B. (2022). Financial mismanagement and efficiency trade-off in local municipalities: Lessons from Eastern Cape, South Africa. *Journal of Local Government Research and Innovation*, 3(0), article number a68. doi: 10.4102/jolgr.v3i0.68.
- [24] Nipa, T.J., & Kermanshachi, S. (2022). Resilience measurement in highway and roadway infrastructures: Experts' perspectives. *Progress in Disaster Science*, 14, article number 100230. doi: 10.1016/j.pdisas.2022.100230.
- [25] On local government borrowing and guarantee obligations. (2024). Retrieved from <https://www.fm.gov.lv/lv/media/16581/download?attachment>.

- [26] Padovani, E., Manes Rossi, F., & Orelli, R.L. (2010). The use of financial indicators to determine financial health of Italian municipalities. *SSRN*. doi: [10.2139/ssrn.1679128](https://doi.org/10.2139/ssrn.1679128).
- [27] Sebestova, J., Majerova, I., & Szarowska, I. (2018). Indicators for assessing the financial condition and municipality management. *Administratie si Management Public*, 31, 97-110. doi: [10.24818/amp/2018.31-07](https://doi.org/10.24818/amp/2018.31-07).
- [28] Vysochyna, A., Molotok, I., Babenko, V., Merezhko, V., Holynska, O., & Rud, I. (2022). Impact of municipal financial resilience on sustainable economic development: Case of Ukraine. *Review of Economics and Finance*, 20(1), 662-668. doi: [10.55365/1923.x2022.20.77](https://doi.org/10.55365/1923.x2022.20.77).
- [29] Woodruff, S., Bowman, A.O., Hannibal, B., Sansom, G., & Portney, K. (2021). Urban resilience: Analysing the policies of U.S. cities. *Cities*, 115, article number 103239. doi: [10.1016/j.cities.2021.103239](https://doi.org/10.1016/j.cities.2021.103239).
- [30] Wójtowicz, K.A., & Hodźić, S. (2022). Financial resilience in the face of turbulent times: evidence from Poland and Croatian cities. *Sustainability*, 14(17), article number 10632. doi: [10.3390/su141710632](https://doi.org/10.3390/su141710632).
- [31] OECD. (2024). *Government at a Glance 2023: Latvia*. Retrieved from https://www.oecd.org/en/publications/government-at-a-glance-2023_c4200b14-en/latvia_f288a5d5-en.html.

Дослідження системи оцінки управління муніципальними фінансами: забезпечення сталості та стійкості в латвійських громадах

Карліс Кетнерс

Доктор філософії

Сільськогосподарська академія Університету Вітаутаса Магнуса

LT-53361, вул. Студенту, 11, м. Каунас, Латвія

<https://orcid.org/0000-0001-7891-2745>

Мара Петерсоне

Доктор філософії

Ризький технічний університет

LV-1048, вул. Кіпсалас, 6А, м. Рига, Латвія

<https://orcid.org/0000-0001-7720-1482>

Анотація. Проведене дослідження пропонує систему фінансових коефіцієнтів у складі комплексного індексу для оцінки стійкості та адаптивності муніципалітетів, що включає аналіз структури та динаміки бюджетних показників. Метою дослідження була розробка методики, спрямованої на виявлення факторів, що впливають на фінансову стійкість, та надання практичних рекомендацій щодо підвищення стійкості муніципалітетів в умовах нестабільного економічного середовища. Методологія дослідження включала аналіз стану муніципальних фінансів, оцінку бюджетних ресурсів, виявлення ризиків та розробку заходів щодо їх мінімізації на основі фінансової звітності, інтерв'ю та експертної оцінки ключових показників. Під час дослідження були визначені ключові індикатори фінансової стійкості латвійських муніципалітетів, серед яких рівень незалежності від міжбюджетних трансфертів та співвідношення власних витрат до доходів. На основі отриманих результатів було визначено, що муніципалітети з високою часткою власних доходів демонструють кращу здатність адаптуватися до економічних шоків. У свою чергу, регіональний аналіз виявив значні відмінності у структурі доходів і видатків, де муніципалітети, які більше залежать від трансфертів, стикаються з обмеженнями при бюджетному плануванні. Крім того, використання системи коефіцієнтів дозволило оцінити фінансову стійкість як у статичній, так і в динамічній перспективі, виявивши ризики, пов'язані з високим борговим навантаженням та низькою ліквідністю. Завдяки тому, що методологія дослідження базувалася на аналізі фінансової звітності та експертних оцінках, вона забезпечила розробку комплексного індексу для прогнозування ризиків. Таким чином, отримані результати підкреслили необхідність підвищення фінансової автономії муніципалітетів та оптимізації боргової політики. Запропоновані рекомендації дослідження спрямовані на зменшення регіональних диспропорцій та зміцнення фінансової стійкості місцевих бюджетів. Важливість отриманих результатів полягає у наданні інструментарію, який дає змогу розробити обґрунтовані рекомендації щодо вдосконалення бюджетного менеджменту та адаптації до економічних викликів.

Ключові слова: фінансова стійкість; організаційна стійкість; композитний коефіцієнт; економічні виклики; регіональні диспропорції; економічна адаптивність