

## The Efficiency of Public Expenditure Management and Its Effects on Quality of Life in Romania

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### Abstract

*This paper examines the impact of government expenditure by function on the Quality of Life Index (QLI) in Romania during 2012–2023.*

*The methodology is based on multiple linear regression analysis using annual data, with QLI as the dependent variable and government expenditure categories as independent variables. Two models were developed: one comprehensive, including all expenditure categories, and one restricted to the most significant ones.*

*Results show a strong relationship between public expenditure structure and QLI ( $R^2 = 0.9158$ ). Social protection spending has a statistically significant positive effect, while economic affairs spending shows a significant negative correlation. Other categories, such as health and education, did not have significant impacts.*

*The findings highlight the importance of efficient resource allocation and suggest that increasing public spending alone does not guarantee improved quality of life.*

**Key words:** efficiency of public expenditure, public expenditure management, public management, quality of life

**J.E.L. classification:** H11, H50, I30

### 1. Introduction

The efficient management of public expenditure constitutes a fundamental component of modern economic and administrative governance, directly influencing the state's ability to provide essential public goods and services, stimulate economic development, and improve citizens' quality of life. In a context marked by budgetary constraints, social challenges, and increasing pressure on public systems, the efficiency of public resource use gains heightened relevance for sustainable public policies and for strengthening trust in state institutions.

In Romania, the issue of public expenditure efficiency is becoming increasingly important amid persistent structural imbalances, the need for investment in key sectors (such as education, healthcare, infrastructure, and social protection), as well as commitments undertaken within the European Union regarding good governance and the sustainability of public finances. Although the level of government expenditure has increased in recent years, it remains necessary to analyze the extent to which these expenditures translate into the effective improvement of living conditions. Therefore, the relationship between the volume and structure of public spending and the quality of life becomes a highly topical and practically useful subject of research.

This paper aims to investigate this relationship through a quantitative approach, using regression analysis in which quality of life is the dependent variable, while general government expenditure acts as the independent variable. Through this methodology, the objective is to identify and quantify the effect of public spending on quality of life. The analysis will allow for an assessment of the impact of government expenditure in terms of efficiency and social relevance, offering an integrated perspective on how budgetary decisions influence citizens' everyday lives.

The study will focus on Romania, using available statistical data for a relevant time period, in order to observe trends over time and identify any significant correlations or patterns.

The aim of this research is to contribute to a better understanding of how budgetary policies can be calibrated to support the improvement of quality of life in Romania through more efficient and results-oriented use of public resources. The findings of this research may serve as a foundation for formulating public policy recommendations and for strengthening the evidence base of decision-making processes in the field of public finance.

The choice of this topic was motivated by the conviction that the efficiency of public expenditure should not be assessed solely in accounting or economic terms, but primarily in relation to its real effects on society. In a period marked by intense debate around structural reforms, digitalization of public administration, and increased institutional resilience, it is essential that the analysis of public spending be aligned with the fundamental goal of governance: improving citizens' quality of life. This research seeks to contribute to this objective through a rigorous, relevant, and context-aware approach grounded in the socio-economic realities of contemporary Romania.

## **2. Literature review**

Public expenditure is allocated across several functional categories, depending on the areas in which the state intervenes to ensure the well-being of citizens and the proper functioning of institutions. Among the most important categories are: education, which covers funding for both pre-university and higher education; healthcare, which includes spending on hospitals, medical services, and public health programs; social protection, which finances pensions, social assistance, allowances, and other transfer payments; national defense and public order, which support internal and external security; general public services, including central and local government administration; as well as housing, environment, and infrastructure, which support urban development and environmental protection. The allocation of these expenditures reflects the political and social priorities of each government.

The efficiency of public expenditure refers to the state's ability to use available financial resources in a way that generates the best possible outcomes for society. This involves the proper allocation of funds and their transformation into high-quality public goods and services that address the real needs of the population. In the specialized literature, within the context of public expenditure efficiency, there is strong theoretical and empirical support indicating that the integration of democratic, participatory, and transparent governance principles is essential for the effective direction of public spending toward economic and social development (Mendoza Reyna, Vela Meléndez and Dávila Cisneros, 2024).

For example, in the context of the efficiency of public expenditure in education, a study conducted in Lithuania concluded that when efficiency was evaluated based on the overall exam pass rates, it was high, ranging between 86% and 90%. However, when evaluated based on the pass rates of exams with the highest scores, efficiency did not even reach 40%. Two types of public expenditures were identified as the most important influencing factors: public expenditure on education, which had a negative effect, and the municipalities' own financing, which had a positive impact (Legenzova et al., 2023).

In the field of health, a study conducted in Santa Catarina, Brazil, concluded that although a certain region invests a higher share of its revenue in health compared to the average for the state of Santa Catarina, it does not experience the same reduction in overall mortality as the state as a whole (Mazon, Mascarenhas and Dallabrida, 2015).

Thus, the efficient management of public expenditures becomes essential for the responsible use of financial resources, ensuring optimal allocation and cost control. Through effective management, waste and inefficiencies can be reduced, maximizing the impact of public investments on social and economic development (Pereira and Da Costa, 2023).

In the specialized literature on public expenditure management, it is strongly asserted that setting realistic, monitorable, and assessable output targets could represent a major shift in approach (Lalvani, 2010). Consequently, the allocation of public funds could be directed toward specific objectives aimed at improving quality of life.

To enhance the quality of life, policies must prioritize increasing purchasing power and ensuring a safe social environment, as well as effectively addressing challenges related to pollution and rising living costs (Lobonț et al., 2024). In practice, these variables can be influenced by multiple factors encompassed within the various categories of public expenditures.

### 3. Research methodology

To investigate the relationship between public expenditure and quality of life, the research adopts a quantitative approach, using multiple linear regression analysis. In this approach, quality of life is considered the dependent variable, while general government expenditures are the independent variables. By applying this method, the study aims to identify and quantify the direct effects of public spending on the quality of life in Romania.

The analysis will be conducted using EViews and will be based on official statistical data available for Romania, covering the period from 2012 to 2023. This temporal approach allows for a dynamic perspective on how budgetary decisions influence both the efficiency of expenditures and their social impact.

The study integrates an evaluation of public spending from a quantitative viewpoint but also through the lens of its social relevance, thus providing a comprehensive view of how resources allocated by public administration can contribute to improving quality of life within Romania's current socio-economic context. It also emphasizes the importance of public expenditure management in enhancing spending efficiency.

Thus, the regression equation formula is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \varepsilon \quad (1)$$

Where:

- Y represents the dependent variable (quality of life),
- $X_1, X_2, \dots, X_{10}$  are the independent variables (general categories of public expenditures),
- $\beta_0$  is the intercept, which represents the estimated value of the dependent variable when all the independent variables are equal to zero,
- $\beta_1, \beta_2, \dots, \beta_{10}$  are the regression coefficients indicating the impact of each independent variable on quality of life,
- $\varepsilon$  is the error term, which reflects the influences on the dependent variable that are not captured by the independent variables included in the model.

### 4. Findings

Regarding the data used for the analysis, the following table presents the evolution of the quality of life index in Romania during the period 2012–2023.

*Table no.1. The evolution of the Quality of Life Index in Romania during the period 2012–2023*

Quality of Life Index (QLI)	
2012	25.5
2013	57.8
2014	63.3
2015	83.6
2016	146.1
2017	143.0
2018	144.0
2019	140.3
2020	132.4
2021	131.7
2022	133.4
2023	132.9

*Source: Numbeo, Quality of Life Index by Country [Accessed 5 June 2025]*

The evolution of the Quality of Life Index (QLI) in Romania between 2012 and 2023 highlights a trajectory marked by significant transitions, including periods of rapid growth, followed by stabilization and slight decline, all reflecting the country's economic and social transformations.

In 2012, the QLI recorded a modest value of 25.5, while in 2013 it doubled, reaching 57.8, signaling a rapid improvement in the perception of living conditions. Growth continued moderately in 2014, with a value of 63.3, and in 2015 there was a significant jump to 83.6. This period (2012–2015) can be interpreted as a phase of socio-economic recovery and progress, possibly supported by income growth measures and the strengthening of public services.

The year 2016 marked a turning point, with a sharp increase in the QLI to 146.1, nearly double the previous year's value. This extremely high figure indicates a notable improvement in the overall perception of quality of life, potentially resulting from economic reforms, wage increases, or investments in infrastructure and public services. In the following years, the index remained relatively stable at a high level: 143.0 in 2017, 144.0 in 2018, and a slight decline to 140.3 in 2019.

In 2020, under the impact of the COVID-19 pandemic and its associated economic and social effects, the index dropped to 132.4, marking the beginning of a period of relative stagnation. The values from 2021 (131.7), 2022 (133.4), and 2023 (132.9) suggest stabilization around the same threshold, but also a difficulty in returning to the peak levels recorded between 2016 and 2018.

Thus, the analysis of the QLI evolution over the 12-year period reveals a clearly ascending trajectory in the early years, followed by a phase of consolidation, then a setback caused by external shocks (such as the pandemic), and finally a sustained high level, albeit without renewed rapid growth.

Regarding General Government Expenditure by Function in Romania during the period 2012–2023, these are divided into eight categories, as follows:

*Table no.2. The evolution of the General Government Expenditure by Function in Romania during the period 2012–2023 (million euro)*

	<b>General Public Services (GPS)</b>	<b>Defence (DEF)</b>	<b>Public Order and Safety (POS)</b>	<b>Economic Affairs (EAF)</b>	<b>Environmental Protection (ENP)</b>
2012	7,130.7	957.1	2,883.8	9,561.4	1,099.8
2013	7,396.6	1,002.8	3,163.3	8,943.1	1,154.9
2014	7,021.4	1,106.0	3,171.1	9,685.4	1,225.4
2015	7,461.2	1,389.1	3,631.6	9,500.5	1,536.9
2016	7,439.9	2,848.6	4,469.1	8,099.9	964.6
2017	7,506.9	3,347.2	3,740.2	8,190.0	933.2
2018	9,108.0	3,414.9	4,408.9	8,652.0	1,478.3
2019	9,484.7	3,722.8	4,942.3	10,955.5	1,638.4
2020	10,622.0	5,168.9	5,296.9	14,060.6	1,508.9
2021	11,937.4	4,648.0	5,296.0	14,564.7	1,716.5
2022	14,222.7	5,129.8	5,973.8	20,684.3	1,812.1
2023	17,335.3	5,509.7	8,598.6	22,223.8	2,314.2
	<b>Housing and Community Amenities (HCA)</b>	<b>Health (HEA)</b>	<b>Recreation, Culture and Religion (RCR)</b>	<b>Education (EDU)</b>	<b>Social Protection (SOP)</b>
2012	1,490.7	5,125.5	1,573.4	3,971.1	16,464.0
2013	1,678.8	5,789.0	1,448.2	4,028.1	16,567.5
2014	1,915.0	6,031.0	1,648.1	4,522.0	17,142.6
2015	2,381.7	6,736.2	1,681.8	4,911.1	18,351.5
2016	2,008.7	6,847.8	1,495.5	5,528.0	19,584.2
2017	1,621.3	8,121.4	1,881.4	5,343.1	21,869.2
2018	1,864.8	9,511.0	2,066.6	6,448.3	23,837.4
2019	2,465.2	11,171.0	2,283.7	7,956.1	26,436.1
2020	2,531.5	12,064.4	2,257.4	8,002.3	30,165.0
2021	2,763.1	13,232.4	2,217.9	7,722.4	32,220.3
2022	3,382.3	13,920.9	2,710.5	9,177.1	37,654.4
2023	4,728.0	15,282.9	3,331.8	11,096.5	41,375.1

*Source: Eurostat, General government expenditure by function [Accessed 5 June 2025]*

The data presented in Table 2 provides a comprehensive overview of the evolution of general government expenditure by function in Romania during the period 2012–2023, highlighting both growth trends and the public policy priorities adopted by the Romanian state over the twelve years analyzed.

Overall, all the expenditure categories examined show a significant increase during the specified period, reflecting both the budgetary expansion of the public sector and its gradual adaptation to the demands of economic, social, and institutional development.

Expenditure on General Public Services (GPS) increased from €7,130.7 million in 2012 to €17,335.3 million in 2023, indicating a continuous strengthening of the administrative apparatus and a possible rise in costs related to personnel and the operation of central and local institutions.

The Defence sector (DEF) experienced accelerated growth, especially after 2015, reflecting Romania's commitments within NATO. Defence spending rose from €957.1 million in 2012 to €5,509.7 million in 2023, more than five times higher.

Public Order and Safety (POS) saw steady increases, reaching €8,598.6 million in 2023 compared to €2,883.8 million in 2012. This evolution highlights a growing focus on internal security and law enforcement.

Economic Affairs (EAF) represent one of the largest budgetary components, with substantial growth from €9,561.4 million in 2012 to €22,223.8 million in 2023. This trend likely reflects public investments in infrastructure, support for strategic economic sectors, and economic recovery measures.

Environmental Protection (ENP) shows a relatively modest evolution compared to other functions, increasing from €1,099.8 million in 2012 to €2,314.2 million in 2023. Although the value nearly doubled, its share of total expenditure remains limited.

Expenditure on Housing and Community Amenities (HCA) evolved slowly in the first part of the period but saw a noticeable increase after 2020, reaching €4,728.0 million in 2023—more than three times higher than in 2012. This growth may be associated with urban development programs and investments in local infrastructure.

The Health sector (HEA) benefited from a substantial increase in budget allocations, especially after 2017, rising from €5,125.5 million in 2012 to €15,282.9 million in 2023. The COVID-19 pandemic accelerated the need for investments in the medical system, healthcare infrastructure, and human resources.

Recreation, Culture, and Religion (RCR) remain a relatively modest component despite steady growth. Expenditure in this category increased from €1,573.4 million in 2012 to €3,331.8 million in 2023, indicating a growing interest in promoting cultural identity and supporting recreational activities.

Education (EDU) reflects an increasing concern for human capital development, with allocations rising from €3,971.1 million in 2012 to €11,096.5 million in 2023. However, in the European context, these values may still be considered modest relative to the needs of the Romanian education system.

Social Protection (SOP) consistently represents the largest category of public expenditure, with growth from €16,464.0 million in 2012 to €41,375.1 million in 2023. This increase underscores the crucial role of the state in ensuring minimum income, pensions, and other forms of assistance for vulnerable groups.

Thus, the analysis of general government expenditure by function for the period 2012–2023 reveals an upward trajectory in budget allocations across all domains, alongside a pronounced emphasis on priorities such as defense, social protection, health, and economic infrastructure. These budgetary directions reflect both international commitments and internal needs related to sustainable development, social cohesion, and institutional resilience.

In what follows, two multiple linear regression analyses will be conducted. In the first analysis, all the mentioned expenditures will be included, while in the second analysis, only the expenditure categories with the highest values will be considered.

Figure no. 1 The Impact of Government Expenditures on the Quality of Life in Romania

Dependent Variable: QLI

Method: Least Squares

Date: 08/01/25 Time: 13:47

Sample: 2012 2023

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	276.3061	140.4429	1.967392	0.2994
GPS	0.142321	0.081044	1.756102	0.3295
DEF	0.114414	0.066535	1.719611	0.3353
POS	-0.276634	0.132923	-2.081156	0.2852
EAF	-0.049056	0.013658	-3.591808	0.1729
ENP	-0.219889	0.113913	-1.930319	0.3043
HCA	0.296716	0.130221	2.278557	0.2633
HEA	-0.028830	0.017393	-1.657525	0.3456
RCR	-0.066533	0.038883	-1.711111	0.3367
EDU	0.116589	0.049334	2.363254	0.2548
SOP	-0.031355	0.035031	-0.895074	0.5352
R-squared	0.993137	Mean dependent var		111.1667
Adjusted R-squared	0.924506	S.D. dependent var		41.81945
S.E. of regression	11.49039	Akaike info criterion		7.069326
Sum squared resid	132.0291	Schwarz criterion		7.513824
Log likelihood	-31.41596	Hannan-Quinn criter.		6.904757
F-statistic	14.47067	Durbin-Watson stat		2.900926
Prob(F-statistic)	0.202019			

Source: Authors' own processing in EViews

The results indicate a very high coefficient of determination ( $R^2 = 0.9931$ ), suggesting that approximately 99.31% of the variation in the Quality of Life Index (QLI) is explained by variations in public expenditure by function. Although this result may imply an excellent model fit, the adjusted  $R^2$  value (0.9245) cautions against a possible overfitting effect, especially given the relatively small number of observations (only 12 years) and the high number of explanatory variables (10). Furthermore, the F-statistic value (14.47) is high, but its associated significance level (Prob(F-statistic) = 0.202) indicates that the model, as a whole, is not statistically significant at a conventional confidence level (e.g., 5%).

An individual analysis of the coefficients reveals that only a few explanatory variables have a notable economic impact, though none are statistically significant, with p-values well above the 0.05 threshold. Among these, expenditures on Housing and Community Amenities (HCA) and Education (EDU) show more pronounced positive coefficients (0.2967 and 0.1166, respectively), suggesting a possible positive correlation between these expenditure categories and improvements in quality of life. Conversely, expenditures on Public Order and Safety (POS), Economic Affairs (EAF), and Environmental Protection (ENP) exhibit negative coefficients, suggesting a potential inverse relationship with the QLI, although these too are statistically insignificant.

The intercept value ( $C = 276.3061$ ) indicates the estimated level of the QLI in the absence of all explanatory variables; however, from a practical standpoint, this interpretation is limited in the context of a model with many correlated variables. The Durbin-Watson statistic (2.90) suggests the absence of residual autocorrelation, which is a positive aspect regarding the model's validity.

In conclusion, although the obtained model indicates an apparently strong correlation between the structure of public expenditures and the level of quality of life in Romania, the low statistical significance of the independent variables and the small sample size limit the validity of the inferences. Therefore, interpretations should be made cautiously, and expanding the dataset (for example, by using quarterly data) could improve the robustness and relevance of the conclusions drawn.

Figure no. 2 The Impact of the Most Significant Government Expenditures on the Quality of Life in Romania

Dependent Variable: QLI

Method: Least Squares

Date: 08/01/25 Time: 13:56

Sample: 2012 2023

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.921325	20.20359	0.095098	0.9273
GPS	-0.014201	0.009996	-1.420735	0.2052
EAF	-0.016698	0.004668	-3.577187	0.0117
HEA	-0.022618	0.012136	-1.863784	0.1116
EDU	0.015863	0.011367	1.395492	0.2123
SOP	0.022267	0.007544	2.951400	0.0256
R-squared	0.915773	Mean dependent var		111.1667
Adjusted R-squared	0.845584	S.D. dependent var		41.81945
S.E. of regression	16.43330	Akaike info criterion		8.743349
Sum squared resid	1620.320	Schwarz criterion		8.985803
Log likelihood	-46.46010	Hannan-Quinn criter.		8.653585
F-statistic	13.04720	Durbin-Watson stat		1.395233
Prob(F-statistic)	0.003556			

Source: Authors' own processing in EViews

This analysis presents the results of a multiple linear regression model where the dependent variable is the Quality of Life Index (QLI), and the selected independent variables are government expenditures by function considered the most significant: General Public Services (GPS), Economic Affairs (EAF), Health (HEA), Education (EDU), and Social Protection (SOP).

The overall performance of the model is good, with a coefficient of determination  $R^2$  of 0.9158, indicating that approximately 91.58% of the variation in the quality of life index can be explained by variations in these five categories of government expenditures. The adjusted  $R^2$  (0.8456) confirms a good fit of the model, considering the number of variables and the sample size.

The F-statistic test (value 13.047,  $p=0.0036$ ) shows that the model is statistically significant overall, meaning that at least one of the explanatory variables has a significant impact on quality of life.

Social Protection (SOP) is the only variable with a statistically significant positive coefficient (coefficient = 0.0223,  $p=0.0256$ ). This suggests that an increase in social protection expenditures is positively correlated with an improvement in the quality of life index in Romania.

Economic Affairs (EAF) has a significant negative coefficient (coefficient = -0.0167,  $p=0.0117$ ), indicating an inverse relationship between economic affairs expenditures and quality of life in this context. This could reflect inefficient allocations or reallocations that do not directly contribute to population well-being.

Health expenditures (HEA) have a negative coefficient (-0.0226) but are not statistically significant ( $p=0.1116$ ), suggesting a possible negative association, although insufficiently confirmed.

Expenditures for General Public Services (GPS) and Education (EDU) have statistically insignificant coefficients, with values close to zero, indicating that in this model, they do not significantly influence QLI over the analyzed period.

The model intercept ( $C = 1.9213$ ,  $p=0.9273$ ) is not significant, indicating that without the influence of the mentioned government expenditures, the QLI value cannot be reliably estimated from this model.

The Durbin-Watson statistic (1.395) indicates a possible moderate positive autocorrelation of residuals, which may suggest some temporal dependence of the model errors, an aspect that might require further adjustments (e.g., using regression models that correct for autocorrelation).

Thus, the model highlights that among the analyzed public expenditures, social protection has the clearest and most positive impact on the quality of life in Romania, while expenditures on economic affairs appear to have an inverse effect, possibly due to how these funds are allocated. Other

important categories such as health, education, and general public services do not show a significant impact within this model and sample. The results suggest the need for additional analyses to better understand the complex relationships between public expenditures and quality of life, possibly by expanding the dataset or including other explanatory factors.

## 5. Conclusions and recommendations

The analysis of the evolution of the Quality of Life Index (QLI) in Romania between 2012 and 2023 reveals a general upward trend, characterized by rapid growth in the first part of the period and subsequent stabilization at a relatively high level, despite external shocks such as the COVID-19 pandemic. These results reflect significant economic and social transformations that Romania has undergone, as well as the direct impact of public policies on the population's well-being.

Simultaneously, the analysis of general public expenditures by function shows a consistent and substantial increase in budgets allocated, especially social protection, health, economic affairs, and general public services.

The multiple regression model highlights a strong relationship between the structure of public expenditures and quality of life ( $R^2=0.9158$  in the restricted model), confirming the relevance of public expenditure management as a key determinant of overall well-being. However, only expenditures on social protection have a positive and statistically significant impact on quality of life, while expenditures on economic affairs appear to have a negative association, suggesting potential inefficiencies in the allocation or use of these resources.

Regarding the efficiency of public expenditure management, the results suggest that increased funding volumes do not automatically guarantee a proportional improvement in quality of life. Therefore, strategic allocation and efficient use of resources become essential to maximize the positive impact of public investments. Investments in areas such as social protection demonstrate clear social returns, whereas other sectors with large allocations, such as economic affairs, require a review of management practices to avoid waste or counterproductive outcomes.

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