THE EVOLUTION OF THE ROMANIAN LOCAL ADMINISTRATION BUDGET BETWEEN 2014 – 2023 FOR ENVIRONMENTAL PROTECTION

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Abstract

This study analyzes the Romanian local administration budget for environmental protection from 2014 to 2023. Positioned as the second-most significant budget within Romania's consolidated financial structure, the local administration budget has faced increasing demands to meet environmental objectives. With international pressures, particularly from the European Union, environmental budgeting is essential to align with sustainability goals and counter environmental degradation. This paper explores the evolution of budget allocations at the national, regional, and local levels, focusing on disparities among development regions, including a detailed case study of the Centee Region. Using descriptive statistics and comparative analysis, the study assesses environmental spending by administrative units, distinguishing between communes, cities, and municipalities. Furthermore, the research employs ANOVA and Tukey tests to identify significant differences in budget allocations across regions and within the Center Region, emphasizing variances between urban and rural funding levels. Findings reveal fluctuations in funding consistency, regional disparities, and trends in per capita allocations that underscore the differences in budgetary emphasis on environmental protection. This analysis highlights the critical role of localized environmental protection spending in supporting Romania's environmental and public health outcomes and contributes to broader discussions on sustainable public finance strategies.

Introduction

Environmental protection has become one of the central pillars of sustainable development policies globally, and Romania is no exception. With increasing pressures from international organizations such as the European Union (EU) and the United Nations (UN), national and local governments have been forced to address the growing concerns regarding environmental degradation. At the same time, economic pressures demand efficient public spending, making it necessary to evaluate how government budgets are allocated to critical sectors like environmental protection. In Romania, the local administration budget plays a pivotal role in determining the success of environmental initiatives, given that much of the responsibility for implementing such projects falls to regional authorities.

This paper seeks to investigate the evolution of Romania's local administration budget over a ten-year period (2014–2023), specifically focusing on the allocations for environmental protection. The local administration budget, which ranks as the second most important within Romania's general consolidated budget, reflects the financial commitment of regional and local governments to environmental protection.

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Environmental degradation and climate change are no longer abstract threats; they pose real risks to Romania's ecosystems, biodiversity, and public health. These factors necessitate greater public investment and, critically, more transparent tracking of budget allocations.

The purpose of this paper is to provide a comprehensive analysis of how Romania's local administration budget has evolved regarding its allocations to environmental protection, including variations across different regions, cities, and municipalities. The research focuses not only on total budgetary allocations but also on the dynamics between different types of administrative units, such as communes and municipalities, and their respective levels of funding. Such analysis is crucial in understanding whether financial resources are being directed effectively to the regions and areas most in need of environmental intervention.

Moreover, this study is motivated by the necessity to understand whether Romania is meeting its national and international obligations related to environmental sustainability. The EU, through its Cohesion Fund and other financial mechanisms, provides member states, including Romania, with resources earmarked for environmental protection. The effectiveness of these funds is contingent upon local governments utilizing them appropriately and allocating sufficient budgetary resources to complement international funding. Thus, this paper aims to explore the interaction between domestic budget allocations and European funds, providing insights into the adequacy of local financial commitments.

Literature review

The literature on environmental budgeting within local administrations emphasizes the complex interplay between public expenditure, sustainability goals, and regional economic contexts. In the case of Romania, local administration budgets for environmental protection have increasingly become a focal point, particularly since the country joined the European Union in 2007, gaining access to EU structural funds targeted at environmental protection.

The integration of environmental protection into public budgeting is relatively recent in many countries, gaining momentum with the global push for sustainable development. According to Sterner and Coria (2012), government spending on environmental protection is vital for mitigating pollution and managing natural resources sustainably.

Zhang et al. (2019) mention, that the a adequate fiscal funds increase environmental funds and ensure that local governments have more energy and financial freedom to govern environmental protection. Also, fiscal decentralization gives local governments fiscal autonomy to allocate financial funds and this has become the modus operandi in many countries.

Hillman (2009) says regarding the enviromental protection, we may regard the environment as a gift of nature that is not the possession of any generation to do with as it wishes and take the view that future generations should be treated equally with us in placing a value on environmental benefits and costs. We would then choose a discount rate of zero to apply to the preservation of the environment, even though the market interest rate is positive.

However, financial constraints and competing priorities often limit the extent to which local governments can allocate sufficient funds to environmental objectives, especially in emerging economies where immediate economic development needs frequently overshadow long-term sustainability goals.

The First American National Park - Yellowstone: Yellowstone National Park, established in 1872, holds the distinction of being the world's first national park. Located primarily in Wyoming, with extensions into Montana and Idaho, it encompasses a unique range of geothermal features, diverse ecosystems, and scenic landscapes. Yellowstone's establishment marked a significant turning point in conservation history, representing a shift toward the protection of natural spaces for the public good. This government-led initiative underscored the U.S. government's emerging role in environmental preservation, setting a precedent for the integration of conservation efforts into public policy and inspiring subsequent global movements in national park creation and natural resource protection (Runte, 2010).

The First Romanian National Park – Retezat: Romania's first national park, Retezat, was founded in 1935 (firstly established with a surface of 100 km²), at the initiative of Professor Alexandru Borza, the founder of the Cluj-Napoca Botanical Garden, and the world-renowned scientist Emil Racoviță, covering a part of the Retezat Mountains and encompassing rich biodiversity, ancient forests, and pristine glacial lakes. The park's establishment marked an early commitment by Romania to preserve its unique ecosystems, providing protection for a range of species and fostering ecological research and public

appreciation for natural heritage. This natural park aligned with global conservation trends and underscored Romania's recognition of the importance of maintaining natural spaces, similar to early efforts in the United States and other European countries.

Context of the Study

The importance of environmental protection has gradually increased on Romania's political agenda, reflecting the country's commitment to global and regional frameworks for sustainability. In the last two decades, Romania has experienced rapid industrial growth and urbanization, contributing to significant environmental challenges such as deforestation, water pollution, and air quality deterioration. These developments have spurred growing public awareness and political support for stronger environmental regulations and policies.

One key mechanism for implementing these policies is through the local administration budget. Romania's local government units (LGUs), consisting of communes, towns, and cities, are responsible for implementing environmental protection projects, which range from waste management and water purification to the preservation of natural reserves. However, the financial capacity of LGUs to undertake such projects depends heavily on the budgets allocated to them by the central government and their own capacity to raise revenues.

Since joining the EU in 2007, Romania has benefited from access to EU structural and investment funds, a portion of which is dedicated to environmental protection. These funds have supported the country's environmental objectives, from improving air and water quality to managing protected natural areas. However, questions remain about the efficiency of budget allocations and whether the funds are being adequately distributed across Romania's diverse regions.

This study, therefore, aims to offer a nuanced understanding of Romania's environmental protection budget within the local administration framework. By analyzing budget allocations over the past decade, the paper highlights trends in funding and seeks to explain any variations across regions and administrative units. Special attention is paid to the Center Region, which serves as a case study due to its unique geographical and socio-economic characteristics.

In doing so, this research not only contributes to the academic literature on public budgeting and environmental policy but also provides practical insights for policymakers at both local and national levels. The results of this study will be instrumental in evaluating the effectiveness of local government spending on environmental protection and in shaping future budgetary priorities to ensure the sustainable development of Romania's regions.

Methodology

The objective of the empirical research undertaken is to analyze the evolution of the romanian local administration budget between 2014 – 2023 for environmental protection. For this empirical study, we used data published by the Ministry of Development, Public Works and Administration, in the section Evolution of local budgets entitled: Situation of Revenues and Expenditures of Administrative-Territorial Units (http://www.dpfbl.mdrap.ro/sit_ven_si_chelt_uat.html). As part of this empirical research, for the first time we generated the database with the following information: total revenues / county, total own revenues / county, total expenses / county, total expenses for enviromental protection / county, also we have included in the analytical database the information from each county regarding the communes, cities, municipalities and county councils respectively. In the empirical research, we performed the descriptive analysis of local administration budget for environmental protection. At the same time, in the framework of the empirical research undertaken, we used Anova: Single Factor, the one factorial analysis of variance tests whether there is a difference between the means of more than 2 groups. We compare the Center Region Counties data, of enviromental expenses, Commune and City and Municipality enviromental expenses, the relations between Regions, the comparasion base was the Center Region.

Hypotheses

The basis of comparison in this empirical study is Covasna County, respectively the Center Region, because I live in Covasna County, and in several empirical studies we conduct research/studies related to the Center Region compared to other regions of the country, respectively studies comparing Covasna County with the five counties that form the Center Region.

We formulated three hypotheses that we will validate or we will reject, based on the research results:

H_1: There is no difference between the enviromental expenses within the Romanian macro regions (basis of comparison Center Region).

H_2: There is no difference between the enviromental expenses within the Center Region counties (basis of comparison Covasna County).

H_3: There is no difference between the enviromental expenses within the Commune and City and Municipalities in the Center Region.

Data, results and discussions

At the beginning of the analysis, we will present the enviromental protection expenses per total revenues of the local administration, and the enviromental protection expenses per total expenses of the local administration, in the 2014 – 2023 period. It should be noted that the values in this empirical study will be specified in euros, transformed with the help of the average annual exchange rate of euros and lei.
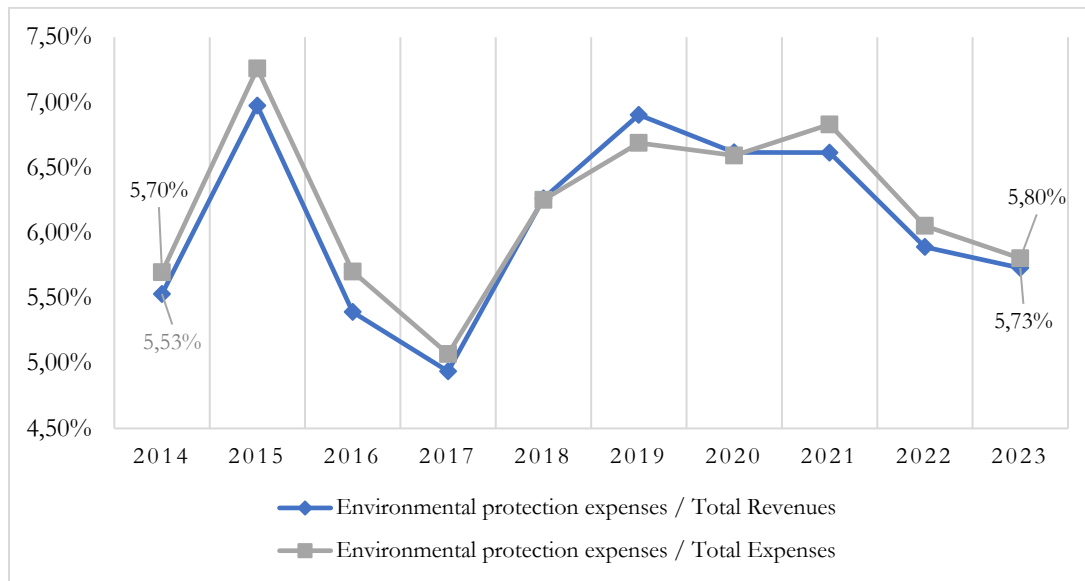

Figure 1 The Ratio of Enviromental protection expenses 2014 - 2023
Source: author own calculations based on published data

It can be seen that in the period 2014 – 2023 the ratio of environmental protection expenses followed the same trend compared to the revenues and total expenses of the local administrations in Romania. In 2015, it is the highest value spent on environmental protection, reaching around 7% of total revenues, respectively of total expenses incurred. The opposite of 2015 from this point of view is 2017 when the least amount of money was allocated for environmental protection from the budget of local administrations.

In the following chart we present the evolution of the total enviromental protection expenses allocated from the local administration budget for the 2014 – 2023 period.
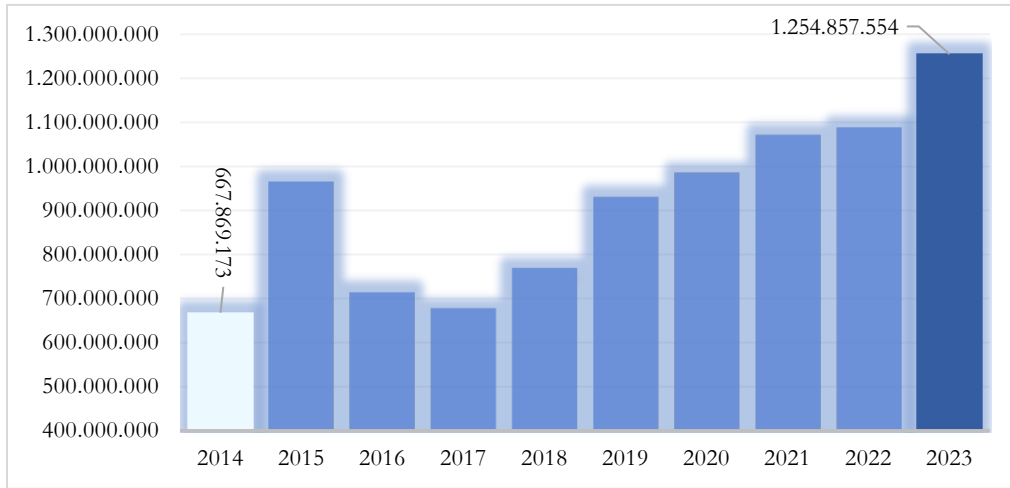
Figure 2 The evolution of the enviromental protection expenses (euro)
Source: author own calculations based on published data

In the figure above, the important information represents the evolution of environmental protection expenses in 2023 they increased by 87.89%, compared to 2014.

In the following figure, we present the relative distribution of environmental protection expenses among the eight macro-regions of the country.
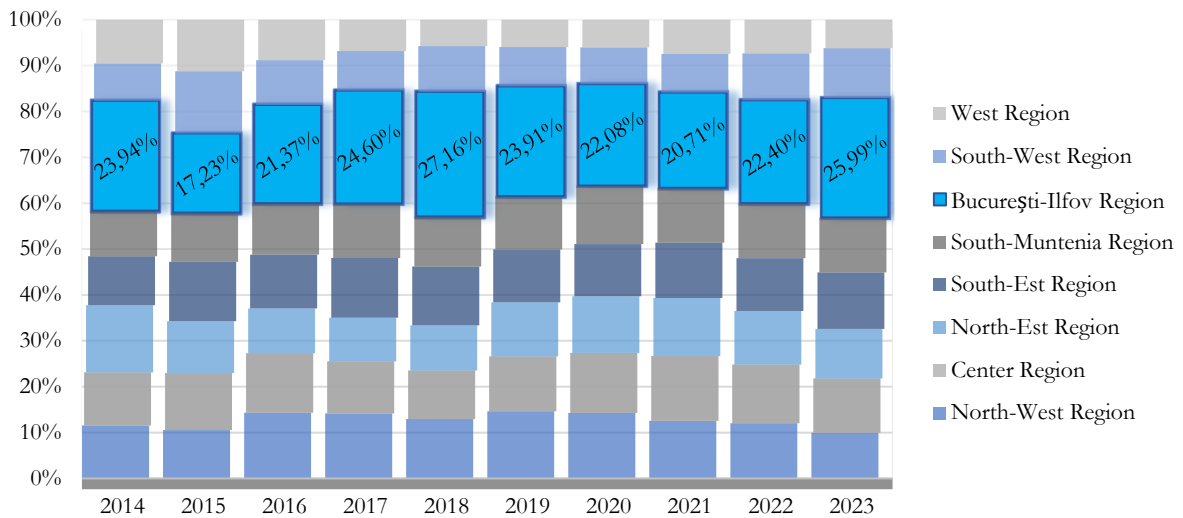

Figure 3 The relative distribution of the enviromental protection expenses by region
Source: author own calculations based on published data

Based on the absolute information by region, which we have transformed into relative proportions, it emerges that the Bucharest-Ilfov Region has a significant part in the total environmental protection expenses, so in order not to distort the results of future analyses, we will exclude the Bucharest-Ilfov Region from the analysis.

In the following chart we present the evolution of the evolution of the enviromental budget allocated by the seven Regions in the period 2014-2023.
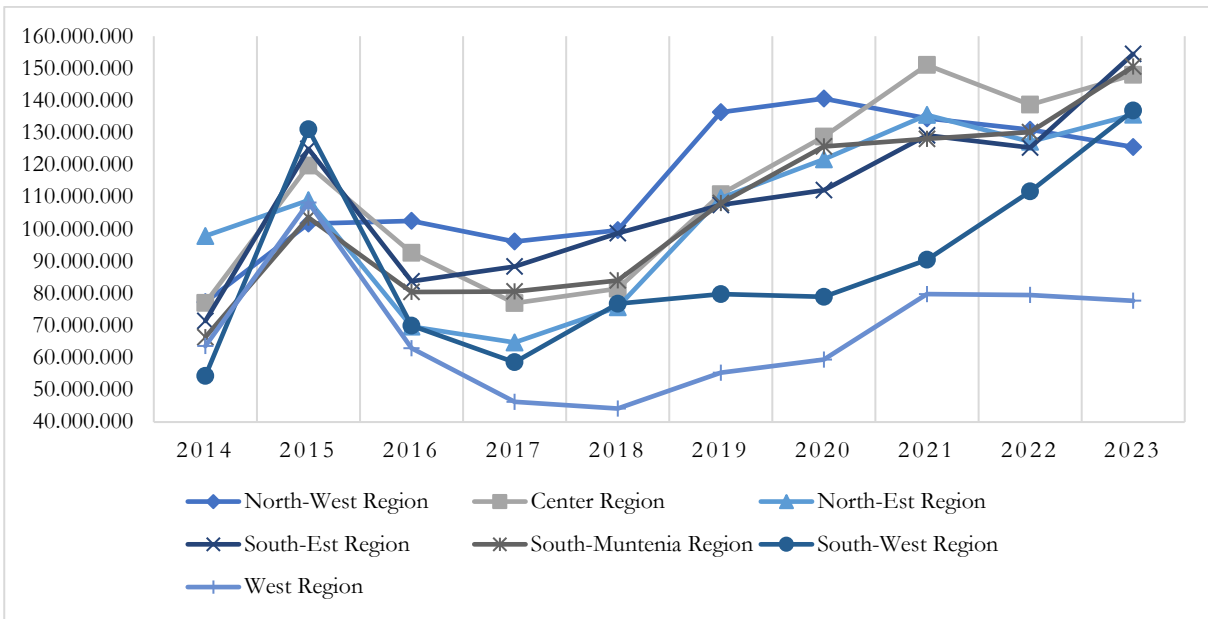
Figure 4 The evolution of the enviromental protection by the seven Regions (euro)
Source: author own calculations based on published data

It is easy to see that the seven regions allocate similar amounts from the local budget for environmental protection, for a while the South West Region was further behind, but it returned in 2023. The last place in this ranking, especially since 2016, is held by the West Region.

As we specified in the hypotheses section, after presenting / analyzing the data from the seven Regions of the country, we will conduct an analysis of the Center Region, followed by a comparative analysis in which the Center Region is the basis of comparison, being the basis of the empirical research undertaken. So we move on to analyze the Center Region, so the following figure shows the evolution of environmental protection expenses in the Center Region between 2014 – 2023.
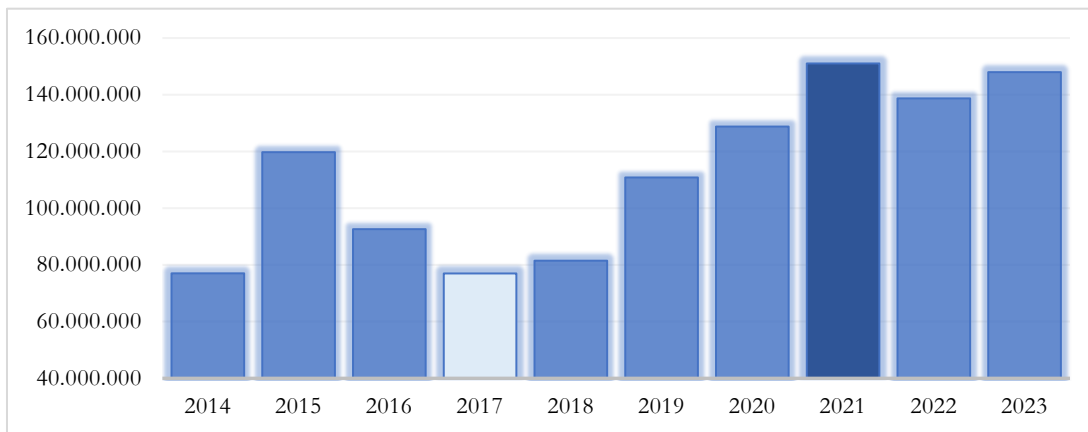

Figure 5 The evolution of the enviromental protection expenses in the Center Region (euro)
Source: author own calculations based on published data

In the analyzed period, compared to 2014, these expenses registered an increase of 92.06% in 2023 (147,973,344/77,043,441). It should be noted that the lowest value allocated in this period is 76,972,493 euros allocated in 2017, and the largest expenditure allocated is in 2021 in the amount of 151,036,084 euros. The budget allocated for environmental protection in 2021 is 96.22% higher than the amount allocated in 2017 for the same expenses.

As specified in Figure 2, the evolution of these expenses at the national level was 87.89%, in the central region this change is 92.06%, so the trend in the Center Region was more positive than at the national level.

Following is the analysis of the evolution of environmental protection expenses in the period 2014 – 2023 of each county in the Center Region.

With the help of Anova: Single Factor we will test if there is a statistically significant difference between the expenses allocated for environmental protection in the Center Region compared to the other six Regions. At the same time, with the help of the Tukey test, we will test whether there is a statistically significant difference between the expenses allocated in the Center Region and the expenses allocated in the other six Regions.

Table 1 Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
North-West Region	10	1.145.172.375	114.517.237	466.259.461.874.023,00
Center Region	10	1.125.202.632	112.520.263	847.398.089.677.602,00
North-Est Region	10	1.046.571.803	104.657.180	716.762.870.810.814,00
South-Est Region	10	1.095.896.323	109.589.632	620.625.431.486.651,00
South-Muntenia Region	10	1.057.643.510	105.764.351	755.655.870.477.868,00
South-West Region	10	888.497.042	88.849.704	822.184.535.851.184,00
West Region	10	677.113.642	67.711.364	366.751.277.553.212,00

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	16.794.089.388.150.900	6	2,79901E+15	4,26341375	0,00114970	2,24640798
Within Groups	41.360.737.839.582.100	63	6,5652E+14			
Total	58.154.827.227.733.000	69				

Source: author own calculations based on published data

We can observ that the F value is 4.2634, and the p-value is less than 0.05 (p-value: 0.00114970), which means that there is a significant difference between the Regions regarding the average value allocated for environmental protection.

Table 2 Tukey test

Comparasion	Difference	Critical Value	Significat?
Center Region / North-West Region	-1.996.974,28	34.897.855	no
Center Region / North-Est Region	7.863.082,94	34.897.855	no
Center Region / South-Est Region	2.930.630,90	34.897.855	no
Center Region / South-Muntenia Region	6.755.912,23	34.897.855	no
Center Region / South-West Region	23.670.559,00	34.897.855	no
Center Region / West Region	44.808.899,02	34.897.855	*yes*

Source: author own calculations based on published data

Based on the Tukey test, we came to the result that between the average values in the analyzed period, a statistically significant difference was found between Center Region and the West Region, in the Center Region, larger amounts are allocated compared to the Western Region.

Next, we tested whether there are significant differences between the regions of the country if we calculate environmental protection expenses per residents (per capita). First, we downloaded the number of

inhabitants from the statistici.insse.ro database, section population by residence on January 1 by age and age groups, sexes, areas of residence, macro-regions, development regions and counties.

We found that the F value is 3.45, and the p-value is less than 0.05 (p-value: 0.00519), which means that there is a significant difference between the Regions regarding the average value allocated for environmental protection per capita.

Table 3 Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
North-West Region	10	404,6395741	40,46395741	59,34092986
Center Region	10	428,5051191	42,85051191	126,5507606
North-Est Region	10	263,4619487	26,34619487	43,21646582
South-Est Region	10	387,9277974	38,79277974	87,93233529
South-Muntenia Region	10	332,696561	33,2696561	88,65765275
South-West Region	10	411,5919656	41,15919656	190,2252548
West Region	10	338,3957182	33,83957182	91,75358147

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2034,063895	6	339,0106492	3,450856451	0,005197601	2,246407983
Within Groups	6189,092825	63	98,23956865			
Total	8223,15672	69				

Source: author own calculations based on published data

The Tukey test related to this analysis provided the following information:

Table 4 Tukey test

Comparasion	Difference	Critical Value	Significat?
Center Region / North-West Region	2,3865545	13,49951281	no
Center Region / North-Est Region	16,5043170	13,49951281	*yes*
Center Region / South-Est Region	4,0577322	13,49951281	no
Center Region / South-Muntenia Region	9,5808558	13,49951281	no
Center Region / South-West Region	1,6913153	13,49951281	no
Center Region / West Region	9,0109401	13,49951281	no

Source: author own calculations based on published data

We came to the result that between the average values in the analyzed period, a statistically significant difference was found between Center Region and the North-Est Region, in favor of the Center Region (Average Center Region 42,85 euro/per capita, Average North-Est Region 26,34 euro/per capita).

Following is the analysis of the evolution of environmental protection expenses in the period 2014 – 2023 of each county in the Center Region.
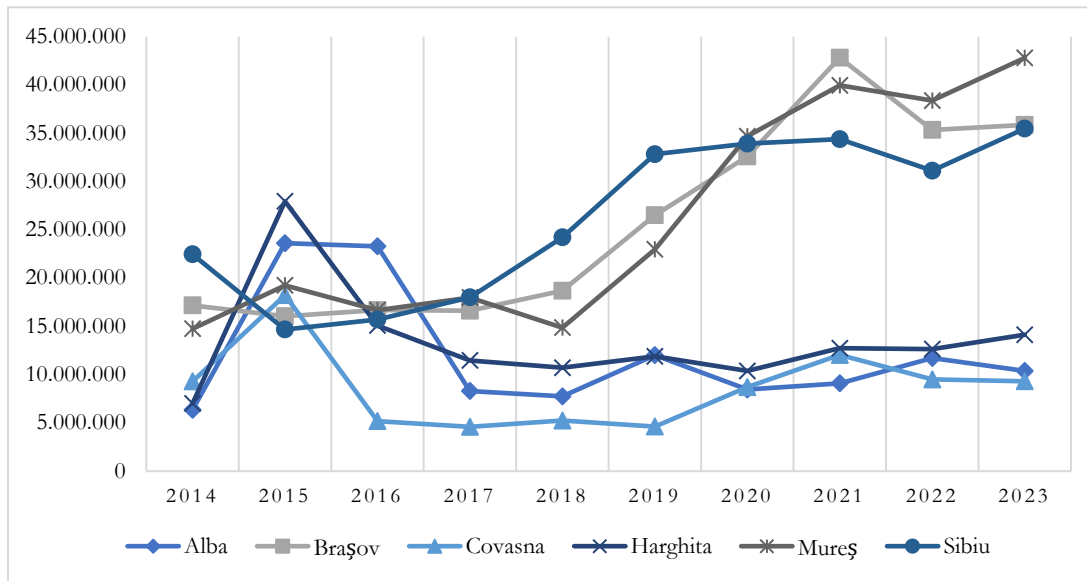
Figure 6 Enviromental protection expenses in the six counties of the Center Region (euro)
Source: author own calculations based on published data

We note the fact that in the Center Region, two teams were formed regarding the allocation of expenses for environmental protection. Braşov, Mureş and Sibiu counties allocate a larger budget compared to Alba, Covasna and Harghita counties for environmental protection.

With the help of Anova: Single Factor we will test if there is a statistically significant difference between the expenses allocated for environmental protection in the counties of the Center Region. At the same time, with the help of the Tukey test, we will test whether there is a statistically significant difference between the expenses allocated in Covasna county and the expenses allocated in the other five counties.

Table 5 Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Alba	10	120981868,9	12098186,89	3,88374E+13
Braşov	10	258336598,6	25833659,86	1,01797E+14
Covasna	10	86748592,81	8674859,281	1,78946E+13
Harghita	10	134022886,9	13402288,69	3,10018E+13
Mureş	10	262317853,4	26231785,34	1,29082E+14
Sibiu	10	262317853,4	26231785,34	1,29082E+14

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3,36485E+15	5	6,72971E+14	9,019153491	0,00000281	2,386069862
Within Groups	4,02925E+15	54	7,46157E+13			
Total	7,3941E+15	59				

Source: author own calculations based on published data

We can see that the F value is 9.01, and the p-value is less than 0.05 (p-value: 0.00000281), which means that there is a significant difference between the counties regarding the average value allocated for environmental protection.

As we mentioned above, the Center Region and Covasna County are the bases of comparison, given that we wanted to research environmental protection expenditures in comparison with these, to find out their level compared to other regions of the country, respectively with other counties in the Center Region.

Table 6 Tukey test

Comparasion	Difference	Critical Value	Significat?
Covasna County / Alba County	-3.423.327,61	11.412.575,83	no
Covasna County / Braşov County	-17.158.800,58	11.412.575,83	*yes*
Covasna County / Harghita County	-4.727.429,41	11.412.575,83	no
Covasna County / Mureş County	-17.556.926,06	11.412.575,83	*yes*
Covasna County / Sibiu County	-17.556.926,06	11.412.575,83	*yes*

Source: author own calculations based on published data

Based on the Tukey test, we came to the result that between the average values in the analyzed period, a statistically significant difference was found between Covasna county and the counties that allocated a larger amount from the local budget for environmental protection: Braşov, Mureş and Sibiu.

In order to analyze in more detail the evolution of environmental protection expenses in the Center Region, we calculated for the period 2014-2023 the expenses related to environmental protection allocated per capita, per residents. We downloaded the number of inhabitants from the statistici.insse.ro database, section population by residence on January 1 by age and age groups, sexes, areas of residence, macro-regions, development regions and counties.

We present in Figure 7 the data on environmental protection expenses for the counties in the Center Region, per capita.
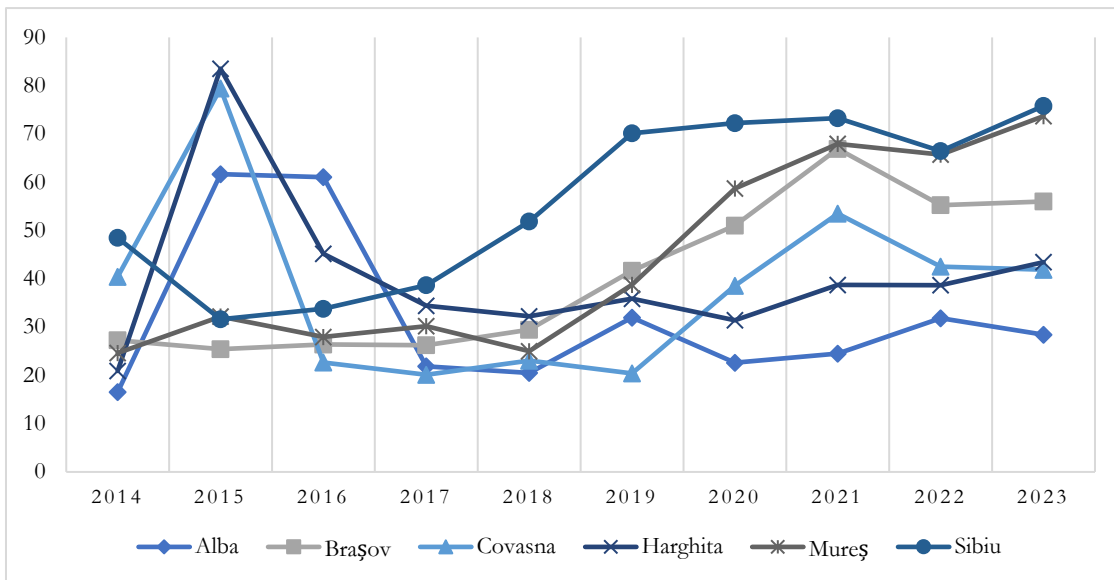

Figure 7 Enviromental protection expenses per capita in the Center Region (euro)
Source: author own calculations based on published data

With the help of Anova: Single Factor we will test if there is a statistically significant difference between the expenses allocated for environmental protection in the counties of the Center Region per capita.

In the anova table the information was provided that, the F value is 2.1511, and the p-value is bigger than 0.05 (p-value: 0.073166), which means that there is no statistically significant difference between the expenditures allocated per capita in the Center Region.

Table 7 Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Alba	10	320,9901697	32,09901697	261,8389177
Braşov	10	405,6950049	40,56950049	243,8647075
Covasna	10	382,6098201	38,26098201	342,9000691
Harghita	10	404,440767	40,4440767	275,5015563
Mureş	10	444,8225706	44,48225706	388,1030935
Sibiu	10	562,3837987	56,23837987	302,8226483

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3253,685287	5	650,7370575	2,151160152	0,073166	2,386069862
Within Groups	16335,27893	54	302,5051654			
Total	19588,96422	59				

Source: author own calculations based on published data

In the following we will present how the amount of environmental protection expenses is divided between communes, cities, municipalities and county councils.
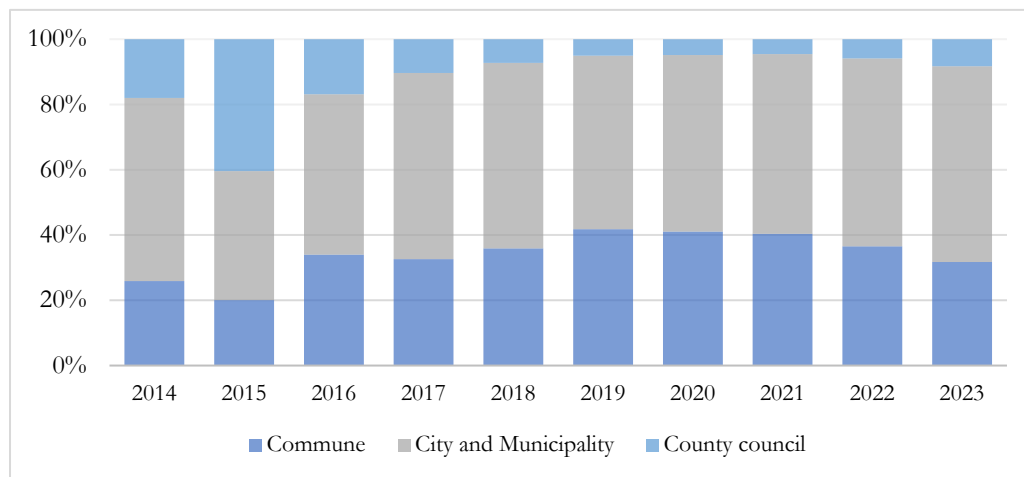

Figure 8 Enviromental protection expenses: Commune, City, Municipality and County
Source: author own calculations based on published data

We can note that since 2016 the role of county councils has decreased, regarding the allocation of environmental protection expenses.

We will analyze with the help of the following figure the evolution per capita of the expenses analyzed in this paper in the country, on the two subgroups (three subgroups).
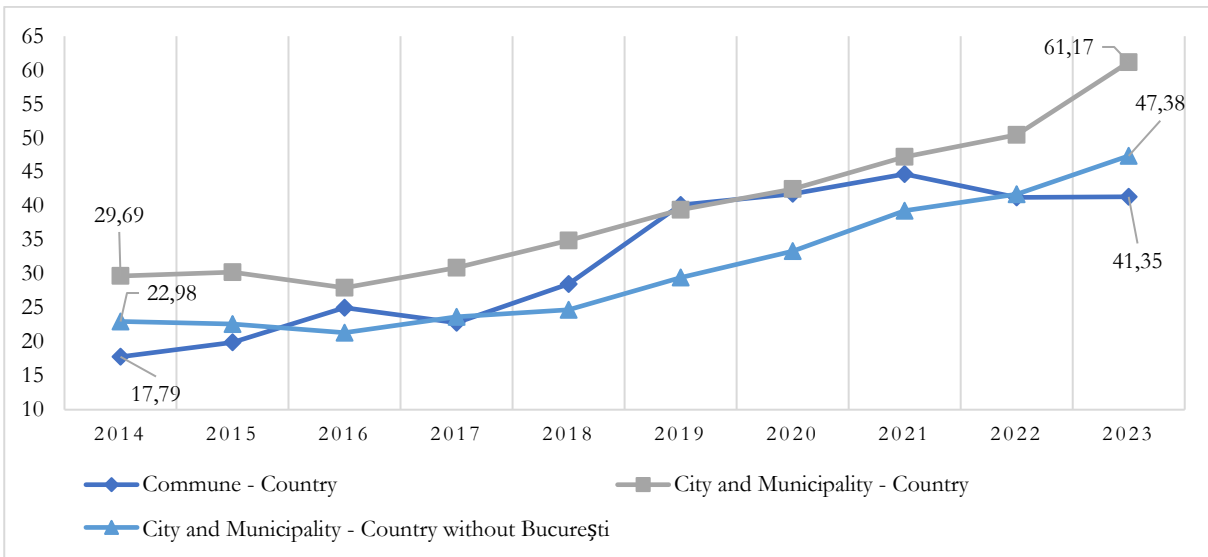
Figure 9 Enviromental protection expenses evolution: urban versus rural (euro)
Source: author own calculations based on published data

The positive change continues during the analyzed period, it can be seen that if we remove the capital Bucharest from the analysis data, then the difference between the urban and rural areas is quite small, in 2023, being only 6.03 euros per capita.

The distribution of total environmental protection expenses in the Center Region follows the trend in the country, the role of local councils being diminished from 2016 and especially from 2017 as can seen in the Figure 10.
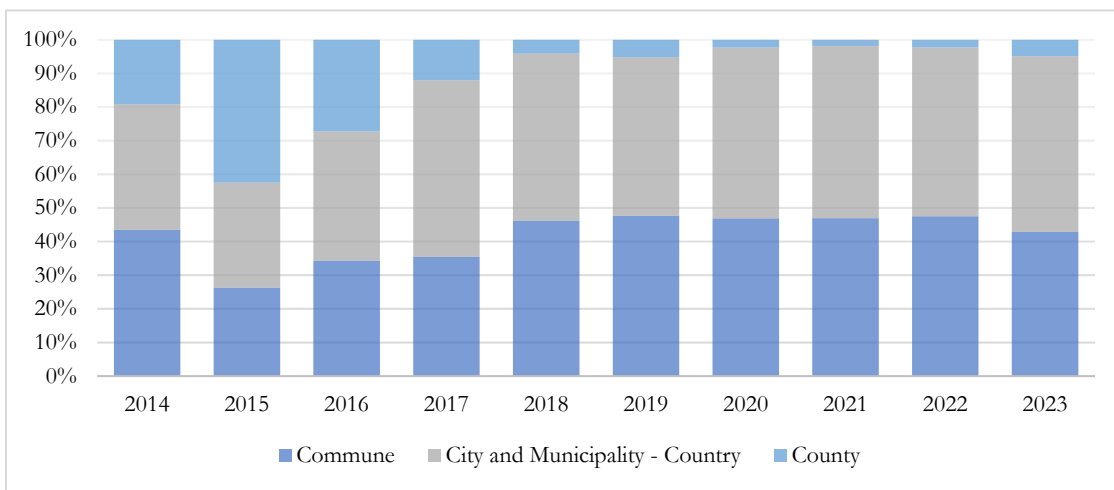

Figure 10 Enviromental protection expenses: Center Region
Source: author own calculations based on published data

Finally, we compared the per capita expenditures in the rural area in the Center Region with the country data and the data recorded in the urban area in the Center Region and the data recorded in the total country.
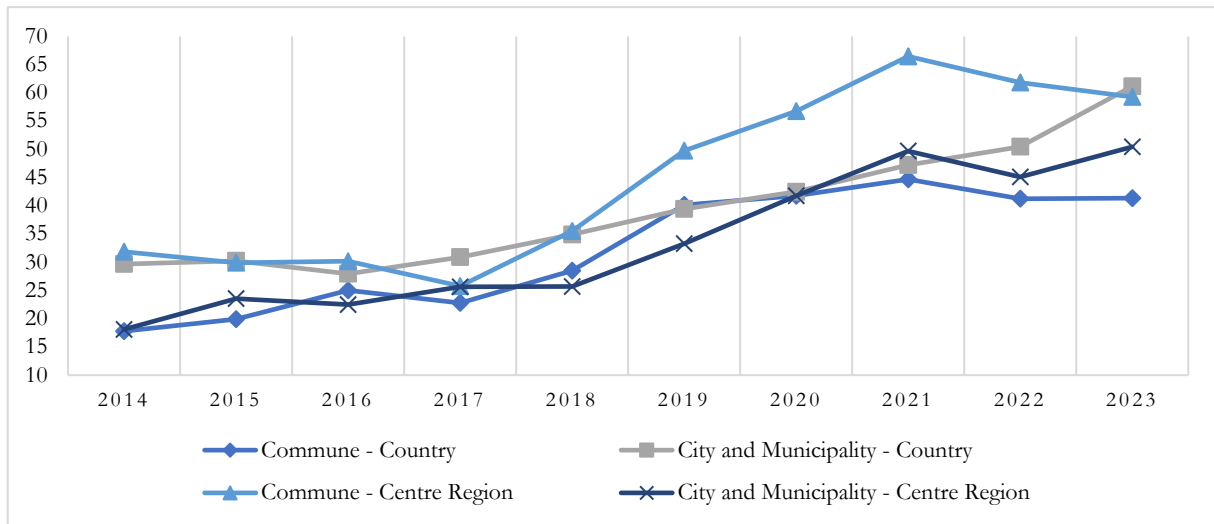
Figure 11 Enviromental protection expenses: Center Region versus Country
Source: author own calculations based on published data

It is worth noting that at the urban level, the evolution of expenses in the Center Region is very similar compared to the national data, in relation to the evolution of the data from the Center Region regarding the rural area, we can note that in the period 2019-2022 it achieved a sharper evolution compared to the national trend.

At the same time, we observed the fact that compared to 2014 in the rural area in the Central Administration, per capita expenses increased by 86.02%, respectively in the urban area by 178.65%.

At the end of this paper, we test with Anova: Single Factor if there are statistically significant differences between the expenses allocated to environmental protection on the rural level in the Center Region and the expenses allocated to environmental protection urban level.

In the anova table we found the following data, the F value is 3.1837, and the p-value is bigger than 0.05 (p-value: 0.0912382), which means that there is no statistically significant difference between the expenditures allocated per capita in the Center Region in urban area versus rural area.

Table 8 Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Commune - Centre Region	10	447,4154845	44,74154845	243,0600299
City and Municipality - Centre Region	10	335,8234809	33,58234809	148,0708667

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	622,6387635	1	622,6387635	3,183787161	0,0912382	4,413873419
Within Groups	3520,178069	18	195,5654483			
Total	4142,816833	19				

Source: author own calculations based on published data

Conclusions

Based on the hypotheses tested and the results obtained, this paper provides a nuanced analysis of environmental protection expenditures within Romanian local administrations, particularly highlighting disparities across different regions, counties, and urban versus rural areas. Here's an in-depth review and interpretation of the findings:

Hypothesis H$_1$: Regional Disparities in Environmental Expenditures

The analysis reveals statistically significant differences in environmental protection expenses between Romania's Center and West Region, respectively between Romania's Center and North-Est Region. Both the absolute values and per capita expenditures indicate a consistent gap, underscoring the presence of spatial disparities in budget allocations for environmental sustainability. These findings suggest that regional economic, demographic, and administrative factors likely contribute to varying fiscal priorities and capacities. For instance, the Center Region's relatively higher environmental expenditure may be influenced by economic factors, like a more diverse revenue base or greater access to EU funds. The implications of this disparity are significant, as they may reflect unequal capacities to address environmental challenges, ultimately impacting regional sustainability and resilience. Addressing these disparities requires policy adjustments that consider both regional financial capacities and environmental needs, promoting more balanced environmental protection efforts across regions.

Hypothesis H$_2$: County-Level Differences Within the Center Region

In analyzing county-level data within the Center Region, the study finds significant differences in environmental spending between Covasna and the more affluent counties of Braşov, Mureş, and Sibiu. This discrepancy is visible in absolute terms, pointing to pronounced budgetary prioritization for environmental protection in the wealthier counties, likely driven by economic capacity, local government revenue, and urbanization levels. However, when standardized on a per capita basis, these differences are less pronounced, suggesting that population density and distribution may mediate disparities at the individual level. This indicates that while wealthier counties allocate more in absolute terms, per capita spending is more balanced. The results underscore the need for targeted interventions in lower-budget counties like Covasna to help mitigate environmental risks and achieve equitable environmental outcomes across counties with varying economic bases.

Hypothesis H$_3$: Urban vs. Rural Environmental Protection Expenditures

Finally, the study confirms Hypothesis H$_3$, finding no statistically significant difference in environmental protection expenditures between urban and rural areas within the Center Region. This uniformity may indicate effective regional budget policies that equally prioritize environmental protection regardless of urbanization level. However, it's essential to consider that rural areas may have different environmental needs, such as managing natural resources and addressing pollution, compared to urban regions where infrastructure and pollution control may demand greater funding. This result suggests that while spending levels are quite high, the allocation may benefit from a more tailored approach that addresses the distinct environmental challenges faced by urban and rural communities.

Policy Implications and Recommendations

These findings collectively point to the importance of fiscal policies that accommodate regional, county, and area-specific environmental needs. For regional disparities, particularly between the Center and West Regions, a reevaluation of national and EU funding allocation criteria could ensure more equitable distribution of resources. At the county level, interventions supporting fiscal autonomy and capacity-building in less affluent areas like Covasna could help bridge budgetary gaps in environmental spending. Finally, while rural and urban areas demonstrate consistent spending, further research could refine expenditure allocations to better address the unique environmental issues each faces. By tailoring environmental protection budgets to these variations, Romania could foster a more balanced, responsive, and sustainable environmental policy framework across its regions.

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