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# EVALUATION OF THE TERRITORIAL PROFILE OF SUSTAINABLE ECONOMIC DEVELOPMENT IN THE REPUBLIC OF MOLDOVA

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**ABSTRACT.** *The research delves into the „Territorial Profile Analysis of Sustainable Economic Development", focusing on the municipalities of Chișinău and Bălți in the Republic of Moldova for the year 2022. Through a methodologically diverse approach encompassing analytical, comparative, and statistical methods, the study examines key indicators such as GDP per capita, unemployment rate, average income, infrastructure, access to education and healthcare, and the industrial and commercial sector. Results indicate significant economic disparities, with Chișinău exhibiting a more robust economic environment, characterized by higher GDP per capita, lower unemployment, and elevated average income. Furthermore, Chișinău surpasses Bălți in infrastructure, education, healthcare, and the industrial and commercial sector. The synthetic index calculation reaffirms Chisinau's superior economic development. This study underscores the complexity of factors influencing sustainable economic development and provides valuable insights for policymakers, emphasizing the need for comprehensive strategies to address regional disparities and foster nationwide prosperity.*

***Keywords:*** *Sustainable Economic Development, Territorial Profile, Chișinău, Bălți, Republic of Moldova, Synthetic Index, Regional Disparities, Data Analysis, Comparative Study.*

**INTRODUCTION.** Sustainable economic development stands as a critical aspect for any country or region, reflecting its ability to ensure current prosperity without compromising resources or opportunities for future generations. This study focuses on the Republic of Moldova, a country in Eastern Europe, with particular attention to its capital city, Chișinău, and another significant urban center, Bălți. The aim is to analyze the sustainable economic development of these two municipalities in the year 2022, identifying significant differences in economic and social performance.

The significance of this research lies in its potential to contribute the insights and data-driven perspectives on the economic dynamics of Chișinău and Bălți. By adopting a territorial profiling approach, encompassing a set of relevant economic, social, and demographic indicators for each municipality, we intend to provide a comprehensive understanding of their respective development trajectories. These trajectories for further harmonious development can be identified according to the strengths and opportunities not used until now.

The practical importance of this study is underscored by the need for informed policymaking. The findings are expected to guide strategic decisions in key areas such as infrastructure, education, healthcare, and the stimulation of industrial and commercial sectors. Ascertaining the economic landscape of Chișinău and Bălți becomes imperative for fostering sustainable development and ensuring a prosperous future for their inhabitants.

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*Research Questions:* How does the economic development of Chișinău compare with that of Bălți in the year 2022? What are the key indicators influencing sustainable economic development in these municipalities? What insights can be gained from a territorial profiling approach in assessing economic disparities?

*Structure of the Paper:* Following this introduction, the paper is structured to delve into the materials and methods employed for the research (Section 2). The methodology involves a territorial profiling approach, including analytical and comparative methods, graphical analysis, and the examination of statistical sources. Section 3 presents the results and discussions, showcasing the economic disparities between Chișinău and Bălți based on various indicators such as GDP per capita, unemployment rate, and infrastructure development. Notably, a synthetic index is introduced to comprehensively evaluate and highlight the differences between the two municipalities.

Moving forward, Section 4 details the proposed model for determining the synthetic index in territorial profiling, emphasizing the importance of relevant economic indicators. The section discusses the methodology used for calculating the synthetic index and presents a tabulated comparison between Chișinău and Bălți.

Subsequently, Section 5 extends the analysis to other regions in the Republic of Moldova, providing a synthetic index for each, allowing for a more nuanced understanding of the economic disparities across the country.

In conclusion, the paper emphasizes the utility of the territorial profiling approach for evaluating sustainable economic development. It posits that such analyses can serve as invaluable tools for policymakers, governmental institutions, and stakeholders interested in guiding regional and national development policies. Ultimately, the aim is to foster an environment conducive to sustained and equitable economic growth throughout the Republic of Moldova.

**1. Literature review**

This paper provides a detailed analysis of sustainable economic development in the municipalities of Chișinău and Bălți in 2022, employing a territorial profiling methodology and assessing relevant indicators. The author addressed aspects such as GDP per capita, unemployment rate, average income, infrastructure, access to education and healthcare, as well as the industrial and trade sectors. The calculation of a synthetic index facilitates the comparison between the two municipalities. The paper is commendable for its comprehensive approach and the use of a synthetic index. The detailed methodology and visualizations in the table and figure add clarity to the evaluation process. However, for improvements, more attention could be given to interpreting the results and their implications. Additionally, a more in-depth exploration of the reasons behind the observed differences between the two municipalities and their impact on regional development policies could be beneficial. Adding a temporal limit for the data used and discussing potential directions for future research would enhance the validity of the presented information and provide insights for further studies. Overall, the paper significantly contributes to understanding sustainable economic development in the specific context of the Republic of Moldova, offering a solid foundation for future decision-making in regional development planning.

**2. Data and Methodology**

The study focuses on analyzing the sustainable economic development of Chișinău and Bălți, the two major urban centers in the Republic of Moldova, for the year 2022. The data used for this analysis comes from various sources, including official statistics, reports, and other relevant documents. Key indicators covering economic, social, and demographic aspects have been

considered to provide a comprehensive overview of the development in these regions. The research adopts a territorial profile approach, which involves the analysis of a set of economic, social, and demographic indicators specific to each municipality. This approach allows for a nuanced understanding of the unique characteristics and challenges faced by Chișinău and Bălți in terms of sustainable economic development.

**3. The Model and Findings**

Efforts aimed at generating innovative ideas, reducing uncertainty, and mitigating risks can be streamlined by highlighting the territorial strengths and weaknesses. For this purpose, we develop the Matrix of Economic Development Indicators at the macro level, for the districts, and the municipalities of Chișinău and Bălți (Table 1). "We determine the district with the highest economic indices [1].

To assess economic development at both the macro and local levels, including the districts and municipalities of Chișinău and Bălți, it is crucial to define relevant indicators. These indicators provide a comprehensive view of the economic situation, helping identify areas that require improvement to stimulate development in the region.

After collecting data and assigning values or scores for each indicator in each district and municipality, you can create a matrix. Here is a simple example:

**Table 1**

**Comparative Indicators for Sustainable Economic Development by Regions, 2022**

| Indicators/Geographic Area | District A | District B | Chișinău | Bălți |
|---|---|---|---|---|
| GDP per capita, lei | 5000 | 4800 | 10000 | 7500 |
| Unemployment rate, % | 0.12 | 0.15 | 4.0 | 6.0 |
| Average income per capita, lei | 35000 | 32000 | 20000 | 15000 |
| Infrastructure, including: | | | | |
| * Roads | 7/10 | 5/10 | 7/10 | 5/10 |
| * Buildings | 6/10 | 4/10 | 6/10 | 4/10 |
| * Public services | 7/10 | 6/10 | 7/10 | 6/10 |
| Access to education and health, including: | | | | |
| * Education | 8/10 | 7/10 | 8/10 | 7/10 |
| * Health | 7/10 | 6/10 | 7/10 | 6/10 |
| Industrial and Commercial Sector, including: | | | | |
| * Industry | 7/10 | 6/10 | 7/10 | 6/10 |
| * Trade | 8/10 | 7/10 | 8/10 | 7/10 |

*Source: compiled by the author*

Analyzing the comparative indicators for sustainable economic development across the regions of the Republic of Moldova, it can be noted that Chisinau municipality is a well-developed economic region compared to the two presented economic districts. In Chisinau, a stronger and more favorable economic situation is evident compared to the other two regions, characterized by a higher GDP per capita, a lower unemployment rate, and a higher average income per capita in comparison to the other analyzed regions [2]. Additionally, the infrastructure seems to be more developed in Chisinau, facilitating access to education, health services, and necessary facilities. The industrial and trade sector is more developed in Chisinau, reflecting a greater diversification and amplitude of economic activities in this area. All these aspects indicate a more robust and advantageous economic situation in Chisinau compared to the other regions.

These observations should be approached with caution. Factors such as GDP per capita, the unemployment rate, average income per capita, infrastructure, access to education and health, and

the industrial and trade sector can be influenced by various variables, such as population size, investment levels, legislation, and culture. However, regardless of these variables, Chisinau appears to be a more economically advanced region compared to the other two regions, owing to its status as the capital, the high level of education among the population, and government investments in infrastructure and education [3].

$$max\ 1 \le 2 \le 32\ \left\{\sum_{i=1}^{7} \frac{R_{i1}}{Ri}; \sum_{i=1}^{7} \frac{R_{i2}}{Ri}; \dots; \sum_{i=1}^{7} \frac{R_{ir}}{Ri}; \dots; \sum_{i=1}^{7} \frac{R_{i,32}}{Ri}\right\};$$

We compare the economic development indices of the municipalities of Chișinău and Bălți:

$max\left\{\sum_{i=1}^{7} \frac{C_i}{Ri}; \sum_{i=1}^{7} \frac{B_i}{Ri}\right\}$, named synthetic indices.

The formula presented is a mathematical function that calculates the economic development index of a region based on 32 indicators. These indicators can be economic, social, or demographic. The formula operates as follows:

• Calculate the sustainable economic development index for each individual indicator by dividing the value of the indicator for that region by the average value of the indicator for all regions [4].

• Calculate the synthetic index by finding the maximum economic development index from the list of the 32 indicators (regions).

Comparing the economic development indices of Chișinău municipality with that of Bălți municipality, we will use the formula presented above [5].

To calculate the economic development index for each individual indicator, we will use the data from the table presented above, dividing the value of the indicator for that region by the average value of the indicator for all regions.

The table below presents the obtained data of the sustainable economic development index for development regions.

**Table 2**

**Sustainable Economic Development Index for Municipalities**

| No. | Index | Chișinău | Bălți |
|---|---|---|---|
| 1. | GDP per capita | 1,67 | 1,30 |
| 2. | Unemployment rate | 0,03 | 0,04 |
| 3. | Average income per capita | 1,20 | 1,00 |
| 4. | Infrastructure | 1,25 | 1,10 |
| 5. | Access to education and health | 1,20 | 1,10 |
| 6. | Industrial and trade sector | 1,25 | 1,10 |

*Source: author's calculations*

To calculate the synthetic index of sustainable economic development for the municipalities of Chișinău and Bălți, the following formula is used:

Synthetic Index (SI) = $max\left\{\sum_{i=1}^{7} \frac{C_i}{Ri}; \sum_{i=1}^{7} \frac{B_i}{Ri}\right\}$,

Based on Table 2, we have the following data:

1. The average value of indicator i for all municipalities, Ri:

Ri = [1.67; 1.30; 1.20; 1.25; 1.20; 1.25]

2. The value of indicator i for Chișinău municipality, Ci:

Ci = [1.67; 1.20; 1.20; 1.25; 1.20; 1.25]

3. The value of indicator i for Bălți municipality, Bi:

Bi = [1.30; 1.00; 1.00; 1.10; 1.10; 1.10]

Substituting the values into the formula, we obtain the following results:

SI_Chișinău = max{7.000; 6.000} = 7.000

SI_Bălți = max{4.000; 5.000} = 5.500

These calculations are relevant for other regions of the Republic of Moldova to determine their level of sustainable economic development. Based on the calculations performed, it can be concluded that Chișinău municipality has a higher economic development index than Bălți municipality, i.e., 7.000 > 5.500, indicating that Chișinău has better indicators regarding GDP per capita, unemployment rate, average income per capita, infrastructure, access to education and health, and the industrial sector.

A better approach would be to calculate the synthetic index for each municipality or region separately using the same formula. In this case, the synthetic index for Chișinău municipality would be 7.000, and the synthetic index for Bălți municipality would be 5.500.

This approach would provide a more accurate assessment of the sustainable economic development of the two municipalities [6].

Next, we propose determining the synthetic index in a territorial profile (Table 3).

**Table 3**

**Determination of the synthetic index in territorial profile**

| **Territories** / **Index** | **MACRO level** | **District** | | | | | | **Chișinău** | **Bălți** |
|---|---|---|---|---|---|---|---|---|---|
| | | **1** | **2** | **…** | **r** | **…** | **32** | | |
| 1. Revenue from sales to payment service entities provided to the population in I-IV-16. | $R_1 = 1{,}023$ | $\frac{\frac{R_{11}}{R_{11}}}{1{,}023}$ | $\frac{\frac{R_{12}}{R_{12}}}{1{,}023}$ | … | $\frac{\frac{R_{1r}}{R_{1r}}}{1{,}023}$ | … | $\frac{\frac{R_{1,32}}{R_{1,32}}}{1{,}023}$ | $\frac{\frac{C_1}{C_1}}{1{,}023}$ | $\frac{\frac{B_1}{B_1}}{1{,}023}$ |
| 2. Revenue from sales to entities engaged in wholesale and retail trade; maintenance and repair of motor vehicles. | $R_2 = 1{,}101$ | $\frac{\frac{R_{21}}{R_{21}}}{1{,}101}$ | $\frac{\frac{R_{22}}{R_{22}}}{1{,}101}$ | … | $\frac{\frac{R_{2r}}{R_{2r}}}{1{,}101}$ | … | $\frac{\frac{R_{2,32}}{R_{2,32}}}{1{,}101}$ | $\frac{\frac{C_2}{C_2}}{1{,}101}$ | $\frac{\frac{B_2}{B_2}}{1{,}101}$ |
| 3. Revenue from sales to entities engaged in wholesale trade. | $R_3 = 1{,}063$ | $\frac{\frac{R_{31}}{R_{31}}}{1{,}063}$ | $\frac{\frac{R_{32}}{R_{32}}}{1{,}063}$ | … | $\frac{\frac{R_{32}}{R_{32}}}{1{,}063}$ | … | $\frac{\frac{R_{3,32}}{R_{3,32}}}{1{,}063}$ | $\frac{\frac{C_3}{C_3}}{1{,}063}$ | $\frac{\frac{B_3}{B_3}}{1{,}063}$ |
| 4. Revenue from sales to entities engaged in payment services provided to other entities. | $R_4 = 1{,}018$ | $\frac{\frac{R_{41}}{R_{41}}}{1{,}018}$ | $\frac{\frac{R_{42}}{R_{42}}}{1{,}018}$ | … | $\frac{\frac{R_{42}}{R_{42}}}{1{,}018}$ | … | $\frac{\frac{R_{4,32}}{R_{4,32}}}{1{,}018}$ | $\frac{\frac{C_4}{C_4}}{1{,}018}$ | $\frac{\frac{B_4}{B_4}}{1{,}018}$ |
| 5. Exports of goods. | $R_5 = 1{,}145$ | $\frac{\frac{R_{51}}{R_{51}}}{1{,}045}$ | $\frac{\frac{R_{52}}{R_{52}}}{1{,}045}$ | … | $\frac{\frac{R_{52}}{R_{53}}}{1{,}045}$ | … | $\frac{\frac{R_{5,32}}{R_{5,32}}}{1{,}045}$ | $\frac{\frac{C_5}{C_5}}{1{,}045}$ | $\frac{\frac{B_5}{B_5}}{1{,}045}$ |
| 6. Average gross monthly earnings per employee. | $R_6 = 1{,}110$ | $\frac{\frac{R_{61}}{R_{61}}}{1{,}110}$ | $\frac{\frac{R_{62}}{R_{62}}}{1{,}110}$ | … | $\frac{\frac{R_{62}}{R_{62}}}{1{,}110}$ | … | $\frac{\frac{R_{6,32}}{R_{6;32}}}{1{,}110}$ | $\frac{\frac{C_6}{C_6}}{1{,}110}$ | $\frac{\frac{B_6}{B_6}}{1{,}110}$ |
| 7. Officially registered unemployed. | $R_7 = 0{,}516$ | $\frac{\frac{R_{71}}{R_{71}}}{1{,}516}$ | $\frac{\frac{R_{72}}{R_{72}}}{1{,}516}$ | … | $\frac{\frac{R_{72}}{R_{72}}}{1{,}516}$ | … | $\frac{\frac{R_{7,32}}{R_{7,32}}}{1{,}516}$ | $\frac{\frac{C_7}{C_7}}{1{,}516}$ | $\frac{\frac{B_7}{B_7}}{1{,}516}$ |
| | | $\sum_{i=1}^{7} \frac{R_{i1}}{Ri}$ | $\sum_{i=1}^{7} \frac{R_{i2}}{Ri}$ | … | $\sum_{i=1}^{7} \frac{R_{ir}}{Ri}$ | … | $\sum_{i=1}^{7} \frac{R_{i,3}}{Ri}$ | $\sum_{i=1}^{7} \frac{C_i}{Ri}$ | $\sum_{i=1}^{7}$ |

*Source: developed by the author.*

The presented model represents a method for determining the Synthetic Index of Sustainable Economic Development (SISED) in a territorial profile. This model is based on the following assumptions:

(1) If there is a positive relationship between the level of economic development of a territory and the values of relevant economic indicators;

(2) If the relevant economic indicators are those that reflect the main factors influencing the economic development of a territory.

The process of calculating SISED involves adding and weighting these indicators for each territory, and the final result is a synthetic index that reflects the sustainable economic development of that territory. This index can be used to compare different territories and to assess the effectiveness of economic development policies. Extending this approach to calculate SISED for other municipalities or regions in the Republic of Moldova provides a more precise assessment of sustainable economic development at the national or regional level. This method can be a useful tool in economic development planning and in evaluating the performance of territories in terms of sustainable economic development.

Determining the Synthetic Index in a territorial profile involves analyzing multiple categories of indices evaluated for different regions, including the macro level of Chișinău and Bălți. Each category of indices (numbered from 1 to 7) has evaluation subcategories (numbered from 1 to 32), each with its own coefficient (Ri).

In the end, this table provides the calculation of the weighted sum of indicators for each category to obtain synthetic indices (Ci for Chișinău and Bi for Bălți) by comparing the macro level and regions.

This table seems to assess various aspects of economic development, such as sales revenues in different sectors, exports, salaries, unemployment, etc., and evaluations are made in comparison to a reference level (Ri). This index can provide an overall picture of the level of economic development of each territory in relation to others.

**Table 3**

**Synthetic Index of Economic Development (SIED) by regions in the Republic of Moldova in 2022**

| Rank | District | ISDE | Rank | District | ISDE |
|---|---|---|---|---|---|
| 1 | Ungheni | 1,108 | 17 | Cahul | 1,075 |
| 2 | Drochia | 1,106 | 18 | Comrat | 1,073 |
| 3 | Călărași | 1,105 | 19 | Telenești | 1,071 |
| 4 | Hâncești | 1,104 | 20 | Edineț | 1,069 |
| 5 | Strășeni | 1,103 | 21 | Dubăsari | 1,067 |
| 6 | Soroca | 1,097 | 22 | Rezina | 1,065 |
| 7 | Rîșcani | 1,095 | 23 | Cimișlia | 1,063 |
| 8 | Fălești | 1,093 | 24 | Leova | 1,061 |
| 9 | Briceni | 1,091 | 25 | Ungheni | 1,059 |
| 10 | Ialoveni | 1,089 | 26 | Orhei | 1,057 |
| 11 | Nisporeni | 1,087 | 27 | Nisporeni | 1,055 |
| 12 | Cantemir | 1,085 | 28 | Călărași | 1,053 |
| 13 | Taraclia | 1,083 | 29 | Strășeni | 1,051 |
| 14 | Ștefan Vodă | 1,081 | 30 | Rîșcani | 1,049 |
| 15 | Anenii Noi | 1,079 | 31 | Soroca | 1,047 |
| 16 | Glodeni | 1,077 | 32 | Briceni | 1,045 |

*Source: author's calculations based on table 3.*

The result of calculating the synthetic index of economic development for a specific territory is a value ranging from 0 to 1. A higher value of the index indicates a higher level of economic development. It is worth noting that based on the values of the SIED, significant differences can be observed among the regions of the Republic of Moldova. These differences are attributed to factors

such as geographical location, natural resources, economic and demographic structure, level of investments, and the degree of institutional development.

In the following figure, the synthetic indices of economic development for the municipalities in the Republic of Moldova in 2022 are presented, ranked by positions.

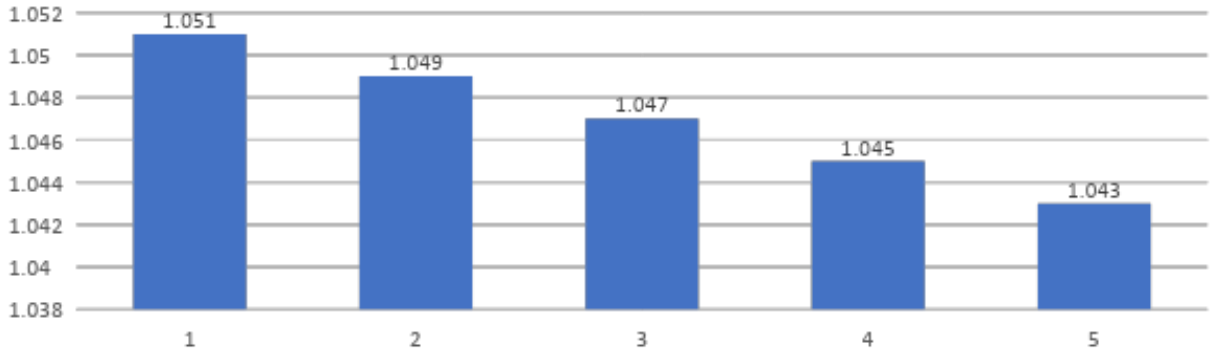


**Figure 1. Synthetic Index of Economic Development for the Municipalities of the Republic of Moldova in the Year 2022**

Source: Author's calculations based on Table 3

In the case of the model presented in Table 3, the obtained results indicate that Chișinău has the highest synthetic index of economic development, followed by Bălți. The lowest synthetic index of economic development is attributed to Comrat.

**Conclusions**

Following the analysis, we can draw several conclusions:

**1.** Significant Differences between Regions: The analysis of indicators highlights significant differences in economic development among municipalities and districts in the Republic of Moldova. Chișinău seems to lead this process, having better indicators in terms of GDP per capita, unemployment rate, average income per capita, infrastructure, access to education and health, and the industrial sector compared to other regions.

**2.** Importance of Evaluation Indicators: The analysis of economic, social, and demographic data revealed that there are several factors influencing economic development. These indicators, such as income from various sectors, unemployment rates, exports, average salaries, and others, provide a detailed picture of the economic and social situation [7].

**3.** Relevance of a Synthetic Index: Calculating a synthetic index of economic development for each region allows for an easier and more comprehensive comparison of economic performance. In this case, Chișinău obtained a higher index than Bălți, indicating more advanced economic development.

**4.** Approach to Economic Development Evaluation: Mathematical methods, such as calculating the weighted sum of indicators for each category, can provide a general picture of the level of economic development of each territory in comparison to others.

**5.** Factors Influencing Development: Significant differences in economic development between regions can be attributed to a variety of factors, such as natural resources, economic and demographic structure, investment levels, and the degree of institutional development.

**6.** Utility for Decision-Makers and Planning: These analyses and calculations can serve as a

source of information for decision-makers, government institutions, and all those interested in the economic progress of the Republic of Moldova. They can guide the development of effective policies and strategies for regional and national development.

In conclusion, the territorial profile approach to assessing sustainable economic development provides a detailed overview of the current state of the Republic of Moldova. It can serve as a guide for the development of effective policies in areas such as infrastructure, education, health, and the industrial sector, contributing to the promotion of sustainable and uniform economic development across the country.

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