THE EVOLUTION OF WAGE LEVELS AND INCOME INEQUALITIES IN ROMANIA AND THE EUROPEAN UNION OVER THE LAST TEN YEARS (2014-2023)

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Abstract:
The increase in average and median wages is a clear indicator of economic progress, having a direct impact on reducing income inequalities. This study aims to analyze how economic growth has influenced the minimum, average, and median wages in Romania, highlighting the contribution of these changes to reducing income inequalities compared to other European Union member states. The official data used for the analysis were statistically processed in SPSS v28.0, applying linear regression with wage indicators as independent variables and the Gini coefficient as the dependent variable. According to the analysis, these wage increases have contributed to the reduction of the Gini coefficient as a result of a more equitable distribution of income among the population. This trend is supported by recent developments, including 2024 data, which confirm the continued growth of wage levels and the narrowing of the gap compared to the European Union average. The study's findings highlight that the increase in average and median wages reflects economic development and contributes to improving Romania's position in the European welfare rankings. As the economy has developed, the rise in median and average incomes has become an indispensable tool for reducing disparities and improving the quality of life. Thus, the analysis concludes that economic development continues to play a central role in enhancing living standards and reducing social inequalities.

1. INTRODUCTION

Over the last ten years, major changes have occurred in the economic structure of Romania and the European Union, reflected in wage levels as well as income distribution. Although significant progress has been made, there are still discrepancies among various regions, sectors, and social categories. In the EU, differences persist between western and eastern countries, but convergence and social inclusion policies contribute to narrowing these gaps.

The evolution of wage levels and income inequalities in Romania and the European Union reflects both progress and challenges. In Romania, although wages have increased, inequality remains a significant issue. These discrepancies highlight that, despite the general rise in incomes, their distribution remains uneven, heavily influenced by geographic and economic factors that favor certain regions and social categories.

This inequality is also supported by the high values of the Gini coefficient, which measures income distribution; it has remained elevated, indicating significant differences between the lowest and highest incomes. Inequalities are more pronounced between rural and urban areas as well as between more developed regions.

The increase in the minimum wage and the reduction of taxes for certain income categories have had a positive impact on average incomes but have contributed less to reducing inequalities. For example, the increase in the minimum wage was applied uniformly nationwide, without considering the economic differences between regions. Consequently, in less developed areas, this measure was insufficient to reduce the disparities compared to more developed regions. Moreover, the rise in the minimum wage led to increased costs for employers, forcing them to reduce the number of jobs, opt for part-time contracts, or avoid officially reporting incomes.

At the European level, inequality has remained relatively constant, with slight improvements in Eastern European countries due to EU investments and economic growth. However, southern and

eastern countries still exhibit higher levels of inequality compared to northern countries. Wage disparities between western and eastern states remain significant but have gradually decreased due to economic convergence and increased investments in Eastern Europe.

Promoting sustainable economic growth and equal opportunities remains essential for the future.

2. LITERATURE REVIEW

Both Romania and the European Union have undergone significant changes over the past ten years in terms of wage levels and income distribution, highlighting both progress and challenges. Wage disparities and the exploration of the implications generated by income inequalities represent a frequently addressed area of investigation by specialists (Antonelli and Scellato, 2019; Santero-Sánchez and Núñez, 2022), as they can hinder long-term economic development by reducing productivity and overall innovation (Arestis and Gonzalez-Martinez, 2016).

An excessively unequal income distribution can negatively affect sustainable economic growth, while economic growth alone does not guarantee a reduction in inequalities (Acemoglu and Robinson, 2002; Ferreira and Ravallion, 2008), even though economic growth contributes to improving human development by raising living standards. This relationship between income inequality and economic growth underscores the importance of emerging sectors, such as IT, which not only stimulate the economy but also influence income distribution by offering higher-than-average salaries.

Specialists have pointed out that the IT sector has become a driver of economic growth, offering significantly higher wages compared to the national average. Relevant studies demonstrate how employee preferences influence IT investments and skills development, while also explaining the profitability of investments in this field (Tambe et al., 2020).

A microsimulation approach to the impact of the minimum wage on wage and income distribution in Romania (Militaru et al., 2019) revealed that the minimum wage reduces wage inequalities, especially for women, who are more represented among low-income employees. Furthermore, household income becomes more equitable, as most minimum wage earners come from poor families with many children. Although many studies assert that women may have lower incomes, obtaining a "different" education (in diverse fields of study) or a "more advanced" education (through higher degrees) can reduce wage gaps that contribute most to contemporary trends of gender wage inequality (Quadlin et al., 2023; Dalvit et al., 2021).

Specialized literature highlights the positive impact of gender quotas on firms' social and environmental performance, gender equality within organizations, individual perceptions, and income distribution (Fernández-Méndez and Pathan, 2023; Kavalieraki-Foka et al., 2024). For example, EU legislation on gender quotas in corporate boards is perceived by investors as beneficial, particularly for companies with significant gender imbalances, contributing to reducing wage inequalities and increasing diversity at the decision-making level (Gharbi and Othmani, 2023).

Gender diversity in leadership positions reduces gender pay gaps, especially for salaries below the national average, by eliminating barriers related to discrimination (Bennedsen et al., 2022). In the context of wage inequalities, the application of gender quotas could reduce income differences between men and women, thus contributing to diminishing overall wage gaps.

3. METODOLOGY

This study consists of a secondary analysis of statistical data obtained from official and public sources. The data used were sourced from the following databases: Tempo Online, the platform of the National Institute of Statistics (http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table), and Eurostat, the statistical office of the European Union (https://ec.europa.eu/eurostat/web/main/data/database).

For the analysis of the data obtained from official documents, the SPSS v28.0 application was used, applying the linear regression procedure. In the analysis, salary indicators were used as independent variables, while the Gini coefficient represented the dependent variable.

4. RESULTS

Background: The last ten years (2014-2023) have been the most dynamic period in Romania's recent economic history, marked by an increase in GDP from 200 billion USD to 350 billion USD (+75%) and an almost doubling of GDP per capita, from 10,000 USD to 18,400 USD (+84%). Placed in a post-December 1989 context, this period was preceded by an initial phase of economic growth, 2001-2008, followed by fluctuations (caused by the global crisis of 2008-2010) over a span of 7 years, between 2009-2015, as shown in the Figure no. 1.
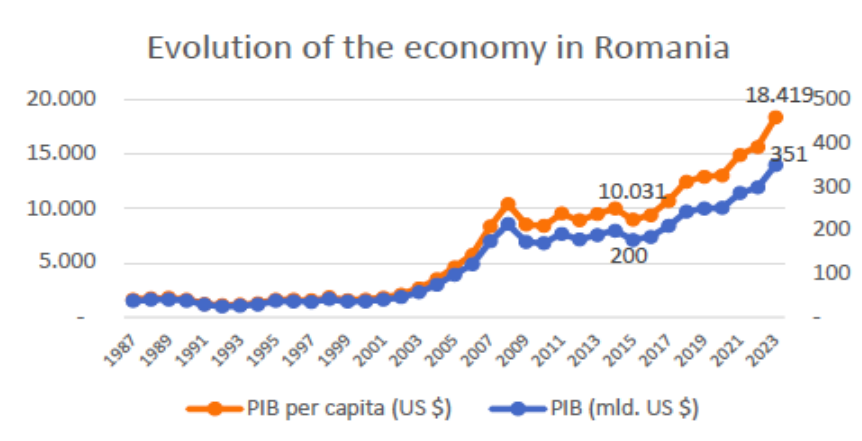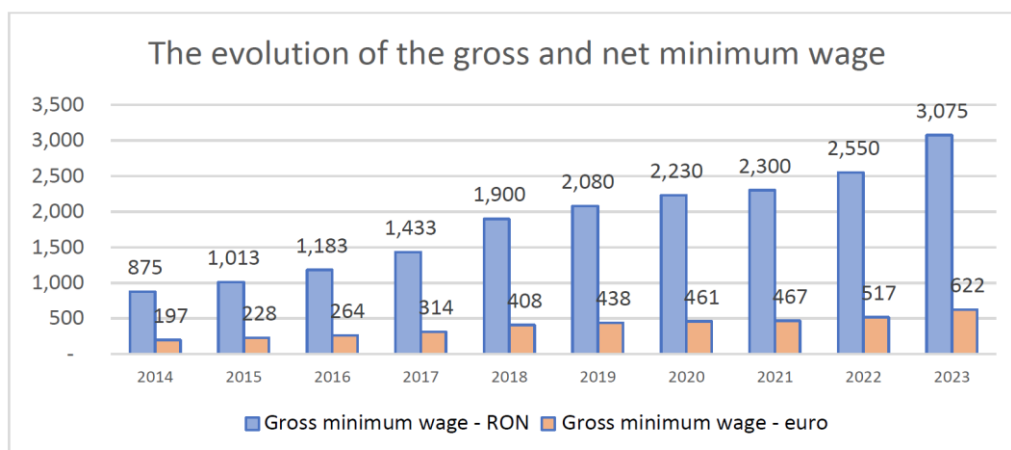

Figure no. 1. The Evolution of the economy in Romania
Source: Own elaboration based on Eurostat data

Of course, these general figures have had an impact at the sectoral and, later, individual levels, through wage increases. What we aim to analyze in this article is the impact of economic growth on the minimum, average, and median wages and how these have contributed to reducing income inequalities in Romania, compared to other European Union states.
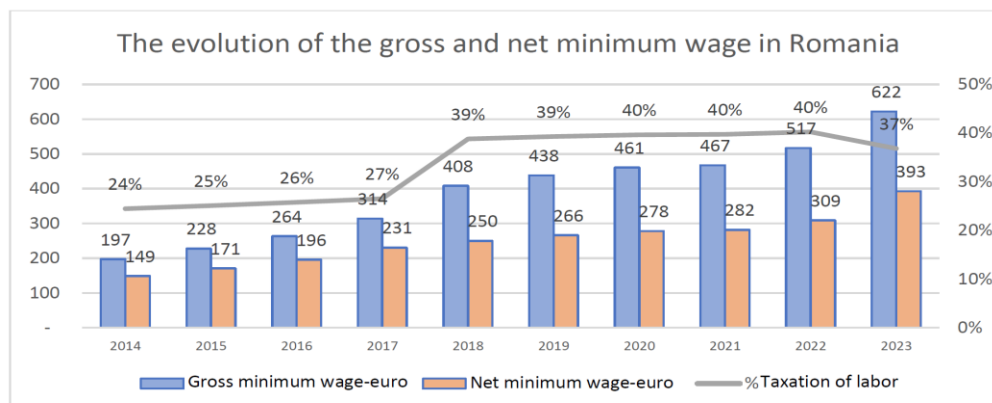
The evolution of gross and net minimum wage in Romania: as can be observed from Figure no. 2, the gross minimum wage has increased consistently over the past ten years, exceeding 3,000 RON. In exact figures, the gross minimum wage has increased by 3.51 times in local currency and by 3.16 times in euros. In this case, we can also identify two distinct periods: pre- and post-pandemic. The first period was marked by a sharp increase, reaching 30% in 2018, followed by a slowdown during 2020-2021, when growth was only 3%. In recent years, annual growth rates have returned to over 10%.

Figure no. 2. The evolution of the gross and net minimum wage in Romania

However, the growth of the net minimum wage has not followed the same upward trajectory, being strongly affected by the change in the tax regime in 2018 regarding labor taxation. Specifically, the tax and contribution rates increased from 24%-27% to 39%-40%, which reduced the growth rate of the net minimum wage, as highlighted in Figure no. 3.

Figure no. 3. The tax regime and the evolution of the gross and net minimum wage in Romania
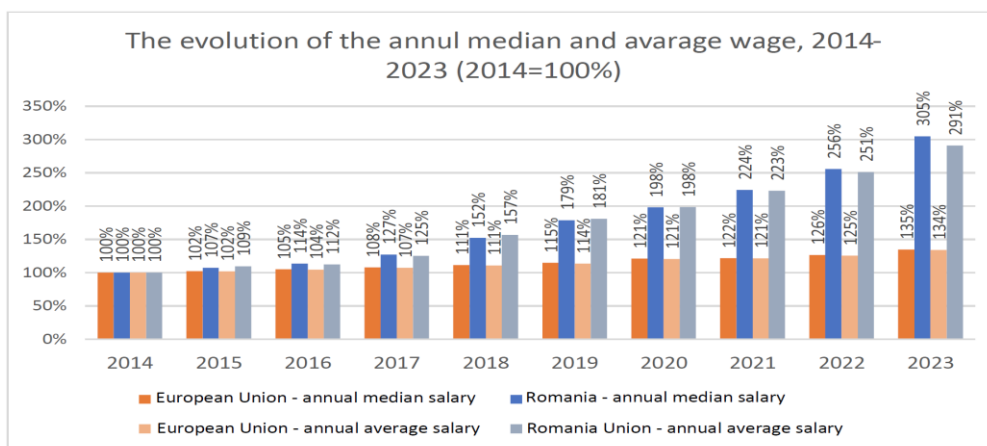Source: Own elaboration based on Eurostat data

Thus, while the gross minimum wage in euros increased by 3.16 times, the net minimum wage only increased by 2.65 times.

What was the evolution of the minimum wage at the European level during the same period? Among the 21 EU member states that implemented or reported a minimum wage level, Romania ranked 18th in 2023, being, alongside Hungary and Latvia, in the second-to-last category of states offering a gross monthly minimum income of €600-700. Unsurprisingly, former communist states occupy the last positions, with a maximum in Lithuania (€840) and a minimum in Bulgaria (€399).

However, over the last five years (2019-2023), Romania had the fourth-highest growth rate in the gross minimum wage, increasing 1.42 times, surpassed only by Lithuania (1.51 times), Poland (1.48 times), and Latvia (1.44 times). Thus, the multiplication of the minimum wage exceeds that of the economy, as it is subject to strong political constraints at the European Union level.

Analyzing the minimum wage provides an image of the income level for the lower segment of the working population. To gain information about the central salary trend for the same population, it is necessary to analyze the median wage, which represents the income level of individuals at the middle of the wage hierarchy.

Eurostat data for the period 2014-2023 indicate a more than threefold increase (3.05 times) in the annual median wage in Romania, from €2,155 in 2014 to €6,568 in 2023, compared to a 1.34 times increase across the European Union as a whole, from €15,101 in 2014 to €20,350 in 2023. Essentially, Romania is the clear leader in median wage growth within the European Union, followed at a considerable distance by Lithuania, with an annual median wage increase of 2.34 times, and Latvia (2.16 times) over the past ten years.

Thus, if ten years ago, a Romanian at the middle of the income hierarchy earned about 7-8 times less than their European counterpart, in 2023, Figure no. 4 illustrates the same individual earning three times less than the median individual in the European Union.

Figure no. 4. The evolution of the annual median and average wage
Source: Own elaboration based on Eurostat data

If we refer to the evolution of the annual average salary, an indicator that better captures the impact of higher income segments, we observe a similar trend both at the national level, where the annual average salary has increased 2.91 times over the last ten years, from €2,443 to €7,108, and at the European Union level, where the increase was 1.34 times, from €17,218 to €23,067. In this case as well, the ratio between the European value and the national value decreased from 7.5 to approximately 3.

Thus, in Romania, over the last ten years, there has been a general upward trend in all wage indicators (minimum, median, and average) of approximately threefold (expressed in euros), slightly more pronounced in the case of the minimum wage (3.16 times increase), followed by the median wage increase of 3.05 times, and the average wage increase of 2.91 times. All these shifts lead us to anticipate a reduction in the gaps between lower-income and higher-income segments, and implicitly, a reduction in wage inequalities.

To test this hypothesis, we turn to the analysis of the Gini coefficient as a measure of the statistical dispersion of the population's income distribution, the disproportionality in their distribution, and an index of inequality. The Gini coefficient takes values between 0 and 1 and is represented as a percentage. The lower it is, the smaller the differences in distribution, and implicitly, the inequalities. Globally, among the countries where it has been evaluated, Gini values range from 0.216 (21.6%) in Slovakia (Eurostat, 2023) to 0.707 (70.7%) in Namibia.
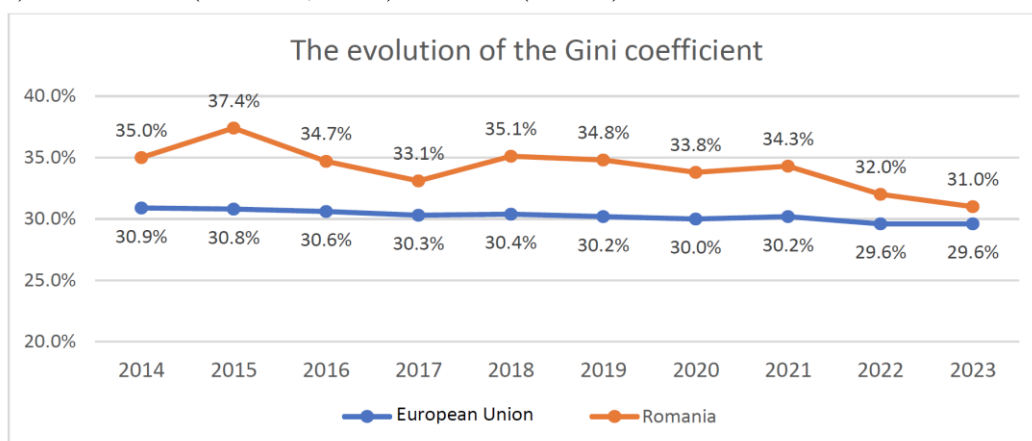
Figure no. 5. The evolution of the Gini coefficient
Source: Own elaboration based on Eurostat data

Moreover, Figure no. 5 illustrates the evolution of the Gini coefficient at the European Union level is linear, with a decrease of approximately 1.3% over the last decade. The evolution of the same indicator in Romania is somewhat more fluctuating, but compared to 2014, the decrease is 4%. If,

during the 2014-2016 period, the difference between the national Gini coefficient and the European one was around 4%-5%, in the last two years of analysis (2022-2023), it has reduced to 1.5%-2%.

Thus, we can consider that the previously formulated hypothesis regarding the impact of wage developments on inequalities is confirmed by the evolution of the Gini coefficient, which shows a clear trend of aligning income distribution with that of other European states.

The developments in wage indicators support the reduction of inequalities, but we want to determine which of these indicators has a greater impact on reducing the Gini coefficient value. To do this, we analyze the data in the table using regression analysis (with the caveat that we are using a small dataset, which itself is correlated). For this analysis, we used the SPSS v28.0 application, employing the Linear Regression procedure, where the wage indicators constituted the independent variables and the Gini coefficient was the dependent variable, as shown in the Table no. 1:

Table no. 1. Gini coefficient

Year	Minimum wage (€)	Median wage(€)	Average wage (€)	Gini coefficient(%)
2014	875	2,155	2,443	35.0
2015	1,013	2,315	2,674	37.4
2016	1,183	2,448	2,746	34.7
2017	1,433	2,742	3,059	33.1
2018	1,900	3,284	3,825	35.1
2019	2,080	3,851	4,419	34.8
2020	2,230	4,267	4,846	33.8
2021	2,300	4,830	5,449	34.3
2022	2,550	5,512	6,130	32.0
2023	3,075	6,568	7,108	31.0

Source: Own elaboration using data from SPPS anlysis

As we can observe in the Table no. 2, the model summary indicates an adjusted Pearson R-squared value of 0.723, which suggests a high level of model fit.

Table no. 2. Summary model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.815	.723	.94036

a.   Predictors: (Constant), Average salary, Minimum salary, Median salary
Source: Own elaboration using data from SPPS anlysis

The F-value of the ANOVA coefficient is 8.817, significantly different from 0, which is detailed in Table no. 3, indicating that the regression equation explains most of the variation in the dependent variable.

Table no. 3. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.390	3	7.797	8.817	.013b
	Residual	5.306	6	.884		
	Total	28.696	9			

a. Dependent Variable: coeficientul Gini
Source: Own elaboration using data from SPPS anlysis

The resulting coefficients, as shown in Table no. 4, are significantly different from 0 (sig. < 0.05) for median and average salaries. In contrast, the coefficient of the minimum wage variable does not meet this criterion.

Table no. 4. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	35.621	1.170		30.441	<.001
	Salariu minim	-.004	.002	-1.417	-1.425	.204
	Salariu median	-.012	.004	-10.273	-2.763	.033
	Salariu mediu	.012	.005	10.887	2.565	.043

Source: Own elaboration using data from SPPS anlysis

Thus, we can observe that both the median salary and the average salary have a significant impact on the variation of the Gini coefficient, but they act in different ways. Specifically, an increase in the median salary leads to a decrease in the Gini coefficient, contributing to a reduction in wage inequalities. On the other hand, an increase in the average salary results in an increase in the Gini coefficient, reflecting a widening of wage inequalities.

5. CONCLUSION

The last ten years have likely been the most prosperous period in Romania's recent economic history. As such, the consequences of this period have resonated among the working population, whose incomes have increased significantly. The process of European Union integration has pressured policymakers to adopt social policies to protect employees, and the minimum income legislation has positioned Romania among the most ambitious countries in raising the minimum wage threshold.

However, the growth of the median and average salaries is a direct consequence of economic development. As the analysis shows, despite the limitations of a perfectible model, the impact of these wage indicators has been significant, contributing to the reduction of the Gini coefficient of income distribution inequality.

Without being included in the analysis, the 2024 figures support the continued growth of the median and average income levels and the narrowing gap compared to the European Union average. Romania is developing economically and is gradually leaving its second-to-last position in the European well-being rankings, both in general terms, measured by GDP per capita, and in terms of median and average salaries.

Study limitations and future research directions: an important dimension that we believe should be taken into account is the influence of inflation on wage growth, elements that impose certain limitations on the present research. The positive impact of nominal wage increases and the reduction of employees' real purchasing power directly influence their perception of economic well-being. Although wage increases may appear beneficial at the nominal level, inflation rates can offset or even reverse these benefits, necessitating a detailed analysis. Issues related to the impact of inflation could be explored in future research.

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