

ANALYSIS OF HUMAN RESOURCES IN RURAL ROMANIA: TRENDS AND SOCIO-ECONOMIC IMPLICATIONS

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Abstract

The paper analyzes the dynamics of human resources in rural Romania from 2021 to 2023, highlighting major trends and associated socio-economic implications. Key aspects examined include the evolution of the resident population, household structures, labor force, access to the internet, and adult participation in education, focusing on differences between urban and rural areas. The findings indicate a general decline in the total population; however, the rural population experienced a modest increase, suggesting internal migration from urban areas is likely due to the COVID-19 pandemic. The structure of rural households remained relatively stable, with a slight increase in the average number of members in certain social categories. Research results showed that employment rates and active participation in the labor market in rural areas have decreased. In contrast, the unemployment rate remained relatively high, amidst economic challenges and a lack of job opportunities for the population. Access to the internet has significantly increased in rural areas, partially narrowing the gap compared to urban areas. Participation in non-formal and informal education was higher in urban areas than in rural ones, reflecting the unequal access of the population to educational opportunities. From a socio-economic perspective, the study suggests the need for public policies that address regional disparities, support job creation, and facilitate access to education and digital infrastructure in rural areas. Implementing concrete measures is essential to reduce the gaps between rural and urban areas and to stimulate sustainable development in rural Romania.

Key words: human resources, rural areas, Romania.

INTRODUCTION

The transformations that have shaped the European rural landscape in recent decades—driven by demographic shifts, technological advancements, and socio-economic restructuring—have brought to the forefront the strategic importance of human resources in fostering sustainable development in these areas. In Romania, rural communities face persistent structural challenges, such as population ageing, limited access to essential services, and weak integration into the labor market. In the context of the COVID-19 pandemic, specific dynamics, such as reverse migration from urban to rural areas, have intensified, highlighting the need for an in-depth analysis of human resources in these regions [8]. Demographic changes in rural Romania, characterized by ageing populations and depopulation, significantly impact the economic viability of households and the ability of communities to sustain long-term development [1].

An essential element in assessing the sustainability of rural areas lies in the population's capacity to engage in economic activities actively, adapt to digital transformation processes, and access lifelong learning and training opportunities. Although recent years have seen improvements in infrastructure and policy frameworks, rural populations remain vulnerable to poverty, educational inequalities, and underemployment. Recent studies show that rural regions in Central and Eastern Europe, including Romania, continue to exhibit significant disparities compared to urban areas in terms of income and participation in lifelong learning or access to digital tools [3]. These realities highlight the importance of conducting a rigorous analysis of the current trends in rural human resources, focusing on population dynamics, household structures, labor market participation, and digital inclusion. A data-driven understanding of these processes is crucial for designing effective public policies to narrow the gap

between rural and urban areas. Promoting sustainable development in Romanian villages requires an awareness of existing inequalities and the implementation of concrete measures to strengthen human capital in disadvantaged regions [16]. The progress achieved in the field of rural public policies highlights that the sustainable development of Romanian villages fundamentally depends on investments in human capital and social infrastructure. Such interventions are essential for reducing economic and social disparities between urban and rural areas, ensuring equitable access to education, healthcare services, and labor market opportunities. Without strategic and coherent support, rural communities risk remaining in a state of stagnation or decline, unable to capitalize on local resources and existing human potential [13]. Although progress has been made in attracting European funding, the effectiveness of implementation has often been undermined by the lack of coordination between material investments and the development of rural population skills. Stimulating employment in rural areas requires an integrated development vision, in which financial resources are complemented by educational and social interventions [12]. The unequal access to digital resources and essential services between urban and rural regions directly influences the ability of communities to respond to economic and social shocks, such as those generated by the pandemic or broader financial instability. Rural areas with underdeveloped infrastructure are more exposed to social and economic exclusion risks. At the same time, the lack of digital skills significantly limits people's capacity to engage in online education, remote work, or modern entrepreneurial initiatives. In this context, digitalization becomes not merely a technological tool, but a catalyst for social cohesion and territorial inclusion [4].

The digitalization process has become a strategic component in revitalizing rural areas in Romania, offering increased opportunities for the population's economic and social integration. Recent studies emphasize that adopting digital technologies in Romanian villages is essential for reducing the rural-urban gap, particularly in the context of

sustainable development. Digitalization streamlines agricultural and administrative activities and strengthens human capital by facilitating access to education and vocational training [2].

The transition towards a green economy entails technological changes and a profound reconfiguration of the labor market, with significant implications for rural regions where employment is already fragile and heavily reliant on traditional sectors [9].

The decline in the active population and the outmigration of young people from rural areas directly affect the ability of agricultural regions to maintain a balance between production and workforce renewal, highlighting the urgent need for revitalizing local human resources [10].

The adaptability of Romanian agriculture to climate change depends directly on the level of preparedness and engagement of the rural labor force.

Limited access to education and vocational training in rural areas represents a significant barrier to sustainable development, undermining the capacity of communities to meet the demands of a modern and competitive economy [4].

Promoting non-agricultural entrepreneurship in rural environments is a key instrument for enhancing the ability of local communities to create employment, innovate in the use of regional resources, and alleviate pressure on the traditional agricultural sector. The establishment of diversified rural businesses not only stimulates local economic development but also contributes to the social transformation of these areas by attracting young people, reducing migration, and revitalizing local human capital [14].

Rural communities' resilience is closely linked to their capacity to adopt sustainable practices, modern technologies, and climate risk management strategies. In the current context of ecological transition, strengthening the pool of skilled human resources in rural areas is a fundamental prerequisite for safeguarding food security and maintaining socio-economic balance [11].

Recent demographic developments, combined with persistently high unemployment rates and

accelerated technological transformations, reflect a complex reality in which Romania's rural areas are increasingly vulnerable to socio-economic exclusion—unless they are supported by coherent public policies and targeted investments in human capital and digital infrastructure [15].

In this context, the paper aimed to study the dynamics of human resources in rural areas of Romania from 2021 to 2023, for identifying the major tendencies and associated socio-economic implications regarding: resident population, household structures, labor force, access to the internet, and adult participation in education, emphasizing differences between urban and rural areas.

MATERIALS AND METHODS

This study is based on official statistical data from the National Institute of Statistics (NIS) in Romania for period 2021–2023. The analysis is focused on key indicators reflecting the dynamics of human resources in rural areas, such as the evolution of the resident population, household structures, labor force, internet access, and adult participation in education. The theoretical documentation was conducted by reviewing open-access scientific articles from internationally recognized databases, including Research Gate, Clarivate Analytics, SCOPUS, and Google Scholar. The collected data were statistically processed and analyzed, and the results were graphically represented to highlight trends and differences between rural and urban areas. Conclusions were validated by comparing the findings with specialized literature, ensuring the scientific consistency of the analytical approach.

RESULTS AND DISCUSSIONS

The analysis of Romania's resident population evolution during the 2021–2023 period reveals a series of significant demographic transformations, with direct implications for the country's social and economic structures. Available data indicate contrasting trends between urban and rural areas, outlining a complex picture of population redistribution. At the same time, notable regional differences

emerge, suggesting that demographic processes are influenced by specific local factors such as economic attractiveness, infrastructure, and internal migration.

According to the National Institute of Statistics (NIS, 2024a) [5], between 2021 and 2023, Romania's total population experienced a slight yet demographically significant decline, decreasing from approximately 19.23 million people in 2021 to 19.05 million in 2023. This reduction of around 180,000 inhabitants reflects the general trends of demographic decline observed in many European countries, where birth rates are falling, and external migration remains high. Although the numerical decrease may appear moderate at first glance, it carries important structural implications for labor market sustainability, the balance of social systems, and national economic dynamism.

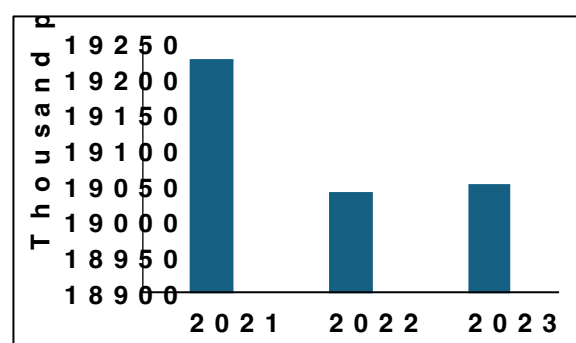


Fig. 1. Demographics of Romania's Resident Population,
Source: Authors, by using NIS (2024a) [5].

As illustrated in Figure 2, a particularly relevant demographic trend during the analyzed period is the divergent population dynamics by area of residence.

The urban population experienced a significant decline, decreasing by approximately 375,000 people, from 10.32 million in 2021 to 9.94 million in 2023. In contrast, the rural population increased from 8.91 million to 9.11 million over the same period, amounting to a gain of roughly 200,000 individuals. This territorial demographic redistribution can be interpreted as a complex response to the health, social, and economic context generated by the COVID-19 pandemic. Restrictions imposed in urban areas, combined with the expansion of remote work and a growing desire for a

lifestyle closer to nature, prompted a portion of the population to relocate to rural or peri-urban zones. Additionally, the perception of rural quality of life has improved, particularly as access to internet connectivity and basic infrastructure has significantly advanced in recent years.

From a socio-economic perspective, this shift may signal the beginning of a functional relocation of the active population, combining the benefits of rural living with the opportunities offered by remote work and personal development outside urban agglomerations. This reversal of trends between urban and rural areas can be interpreted through several structural and contextual factors. First, internal migration appears to have played a key role.

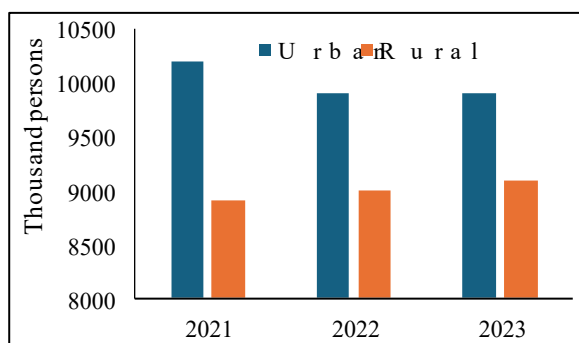


Fig. 2. Urban vs. Rural Population – Romania (million people)

Source: Authors, by using NIS 2024a [5].

Demographic data, correlated with post-pandemic behavioral changes, indicate a growing preference among the population for less crowded areas, perceived as safer, quieter, and more financially accessible. This phenomenon has also been supported by increased labor flexibility, particularly through the expansion of remote work, which has enabled professional relocation without the constraint of physical presence in urban environments.

A second major contributing factor is the development of rural infrastructure. Increased investment in transportation networks, public utilities, and digital connectivity has improved the quality of life in rural areas, thereby narrowing the historical gap between the two types of residence. In this context, rural

localities near major cities or metropolitan areas are increasingly attractive to the active population. Demographic factors also contribute to explaining this trend. Despite ongoing socio-economic challenges in rural areas, birth rates remain relatively higher than in urban zones. This aspect may partially support the observed increase in the resident rural population. These combined factors point to a gradual reconfiguration of population geography in Romania, with potential implications for regional development policies and medium- to long-term territorial planning. As Table 1 shows, the regional analysis highlights significant variations in urban-rural dynamics across Romania's development regions between 2021 and 2023.

Table 1. Resident Population in Romania by Region, 2021-2023

Region	2021	2022	2023
North-West	2,538,826	2,523,601	2,531,913
Centre	2,304,136	2,273,401	2,280,856
North-East	3,172,915	3,221,997	3,224,213
South-East	2,356,667	2,361,692	2,353,162
South-Muntenia	2,871,136	2,854,893	2,841,139
South-West Oltenia	1,892,961	1,869,602	1,861,680

Source: Authors, by using NIS 2024a [5].

In the North-West region, a decline in the urban population from 1.32 million to 1.27 million is observed, alongside an increase in the rural population from 1.22 million to 1.26 million, suggesting a clear relocation trend toward rural areas. This shift is likely influenced by the growing economic attractiveness of rural zones or by the pressures associated with urban living. In the Centre region, while the urban population decreased slightly (from 1.31 to 1.27 million), the rural population increased marginally (from 0.99 to 1.01 million), indicating a relatively stable demographic profile. The North-East region displays a distinct dynamic, with the rural population rising from 1.84 million to 1.92 million. In contrast, the urban population registered only a minor decrease, maintaining a more favorable demographic balance compared to other regions. In the South-East, the urban population declined from 1.25 to 1.21 million, accompanied by a growth in the

rural population from 1.11 to 1.14 million. This trend may result from internal migration to peripheral or semi-rural localities near urban centers. In the South-Muntenia region, urban and rural populations recorded slight declines—urban from 1.13 to 1.10 million and rural from 1.74 to 1.74 million—indicating a general stagnation in demographic structure. The South-West Oltenia region is the only one where both residential areas experienced simultaneous population decline, with the urban population dropping from 0.86 to 0.85 million and the rural population from 1.03 to 1.02 million. This evolution may reflect deeper structural issues such as economic stagnation, external migration, or pronounced population ageing.

According to data from the National Institute of Statistics (INS, 2024b) [6], the average number of members per household in rural areas remained relatively stable from 2021 to 2023, fluctuating slightly from 2.705 to 2.714, as shown in Table 2. This slight increase may reflect processes such as the temporary return of family members from the diaspora, internal migration from urban to rural areas, and the persistence of extended family structures in rural communities.

In households with salaried members, the average household size is more significant in rural areas (3.136 in 2023) compared to urban areas (2.674), suggesting a more frequent cohabitation of multiple generations under the same roof. The average household size for self-employed individuals engaged in non-agricultural activities is among the highest, 3.52 members per household in rural areas versus 3.32 in urban areas. This may be associated with local economic resilience, where independent activities such as crafts or small family-run businesses help sustain extended household structures.

Farmer households recorded a slight decrease in average size, from 3.168 in 2020 to 3.138 in 2023. This trend may reflect the modernization of agriculture, a reduced reliance on family labor, or the migration of younger generations toward other economic sectors or urban areas. Nevertheless, these households remain among the largest in terms of membership, underscoring the role of agriculture in

supporting extended rural families. In households where unemployment predominates, the average size is significantly higher in rural areas (3.628 in 2023) compared to urban ones (3.076), indicating an adaptive strategy of extended cohabitation under economic uncertainty and limited employment opportunities.

In the case of pensioners, a gradual decline in the average number of household members is observed in rural areas, from 2.104 in 2020 to 2.072 in 2023, against the backdrop of an aging population and the outmigration of younger residents. Nevertheless, rural pensioner households remain larger than their urban counterparts, reflecting the continued prevalence of traditional family living models where multiple age groups share the same household.

Table 2. Average Persons/Household by Social Category and Area of Residence, 2021–2023

Social Category	Area of Residence	2021	2022	2023
Total	Total	2.533	2.510	2.499
	Urban	2.425	2.392	2.328
	Rural	2.671	2.664	2.714
Employees	Total	2.834	2.842	2.840
	Urban	2.706	2.712	2.674
	Rural	3.095	3.101	3.136
Self-employed in non-Agri activities	Total	3.203	3.235	3.451
	Urban	3.170	3.118	3.320
	Rural	3.219	3.298	3.520
Farmers	Total	3.213	3.159	3.138
	Urban	3.423	2.917	3.203
	Rural	3.195	3.177	3.133
Unemployed	Total	3.174	3.372	3.345
	Urban	3.075	3.273	3.076
	Rural	3.270	3.486	3.628
Pensioners	Total	1.996	1.937	1.916
	Urban	1.922	1.860	1.787
	Rural	2.080	2.026	2.072

Source: Authors, by using NIS 2024b [6].

According to data provided by the National Institute of Statistics (NIS, 2024b) and analyzed for 2021–2023, the structure of Romania's resident population reflects a slight but consistent decline in both the male and female segments. The male population decreased from approximately 9.40 million in 2021 to 9.25 million in 2023, indicating a reduction in the economically active demographic. At the same time, the female population declined from 9.83 million to 9.81

million, a more moderate but demographically relevant decrease. Although subtle, these changes reflect a downward demographic trend that equally affects both sexes and signals potential future pressures on the labor market, intergenerational balance, and the functioning of social protection systems.

The analysis of household connectivity, as shown in Table 3, highlights a clear upward trend in home internet access in Romania between 2020 and 2023, both in urban and rural areas. Nationally, the share of connected households increased from 78.2% in 2020 to 85.7% in 2023, marking a significant milestone in the digitalization process of Romanian society. This development was accelerated, at least in part, by the pandemic context, which pushed many essential activities, such as education, employment, and commercial services, into the online environment.

Table 3. Share of Households with Internet Access at Home, by Area of Residence, 2021-2023

Area of Residence	2021 (%)	2022 (%)	2023 (%)
Total	80.8	82.1	85.7
Urban	86.9	88.6	89.8
Rural	73.1	73.7	80.3

Source: Authors, by using NIS 2024c [7].

Nonetheless, disparities between urban and rural areas remain significant. In urban areas, the household internet connection rate reached 89.8% in 2023, compared to 84.8% in 2020, reflecting an almost complete penetration of internet services in the urban environment. This high level of access is supported by advanced telecommunications infrastructure, a dense network of service providers, and increased demand driven by the digitalization of urban life. In rural areas, internet connectivity has improved significantly but still lags the urban level. In 2023, 80.3% of rural households had internet access, compared to only 69.7% in 2020. This notable increase suggests the impact of policies aimed at expanding digital infrastructure and a growing awareness of the importance of connectivity for access to education, administrative services, and economic opportunities. However, the rural-urban gap persists, underlining the need for sustained

interventions to reduce digital inequalities, particularly in disadvantaged regions.

CONCLUSIONS

The analysis of human resource dynamics in rural Romania for the 2021–2023 reveals a complex set of demographic and socio-economic processes that shape a nuanced picture of the profound transformations occurring within contemporary Romanian society. Overall, the total population registered a declining trend, reflecting a broader demographic downturn marked by low birth rates and persistent external migration. This phenomenon has significant implications for the labor market, the sustainability of social systems, and the country's economic development potential.

A distinctive feature of this period is the divergent dynamics between urban and rural areas. While cities experienced a notable decrease in population, rural regions saw a moderate increase, suggesting a trend of internal relocation and a revaluation of rural living, considering new lifestyle models, particularly in the post-pandemic context. This reversal of trends between urban and rural settings reflects residential motivations and a broader reshaping of living infrastructure, community values, and access to resources.

At the regional level, population distribution followed different trajectories, reflecting each area's economic, social, and geographical specificities. Some regions, such as the Northeast and Northwest, recorded increased rural populations, while others, like South-West Oltenia, experienced a uniform demographic decline. These differences underline the importance of territorially customized approaches in the design of public policies.

The gender structure shows a slight but steady decline in both male and female population categories, indicating a generalized reduction in the active demographic base and requiring increased attention to intergenerational balance.

At the same time, the analysis by social category highlights significant disparities between rural and urban areas. Rural

households are generally larger than their urban counterparts, and in particular social groups, such as the unemployed, farmers, or self-employed workers, household size reflects either economic adaptations or traditional cultural and family patterns. These findings reveal social resilience and specific cohabitation models in rural settings, directly impacting social, fiscal, or housing support policies.

Another essential aspect is internet access. Although connectivity has steadily increased in both environments, the digital divide between rural and urban areas persists. This gap affects access to education, employment, public services, and development opportunities, reinforcing existing inequalities. Technological progress must be accompanied by targeted investments in rural digital infrastructure and the development of digital skills among the population.

In conclusion, human resources in Romania's rural areas are undergoing a complex transformation, shaped by the interaction of demographic, economic, and technological factors. The sustainable development of these communities cannot be achieved without an integrated approach that includes coherent interventions in education, employment, infrastructure, and digitalization. Enhancing rural human capital must become a central pillar of regional and national development strategies to ensure real territorial cohesion and a socially and economically fair Romania.

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