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# Statistical Coordinates Of Youth's Living Standards. A Comparative Analysis in EU-27

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## ABSTRACT

*After a health crisis that kept them at home, physically distant from friends, colleagues, and teachers, young people gathered in classrooms, offices, and their favourite places to spend their free time. As declared by the authorities, the end of the pandemic coincided with the start of a geopolitical and security crisis: the war started by Putin's Russia that impacted the quality of life of European citizens. European economies face the restriction of gas supply from Russia, the scourge of ever-increasing energy prices, and galloping inflation. The fear of war replaced the fear of disease during the COVID-19 pandemic, followed by the fear of poverty. The year 2022 is declared by the European Union as the "European year of youth". In this respect, the European Commission proposes as a priority objective the inclusion of young people and their problems in the development of future policies, as well as the organization of activities dedicated to young people throughout the EU. From the perspective of the European Commission, the most pressing problem related to young people is the transition from school to work. Young people are the most affected by economic inactivity, underemployment, unemployment, and poverty. Many European countries, including Romania, have problems with the lack of labour force, with young people leaving school early, with young people who do not study or follow any form of professional training. The completion of studies by young people is only sometimes followed by the search for a job to engage and carry out an activity in one of the economic sectors. Postponing youth employment also leads to leaving the parental home late, which represents a form of social self-protection. To analyze the aspects mentioned above, which define the standard of living of young people, we use descriptive statistical analysis, Bravais-*

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*Pearson correlation, simple regression and ascending hierarchical classification. The data used in this study come from the Eurostat database.*

**Keywords:** *youth, young people, living standard, quality of life, poverty, unemployment, education*

**JEL Classification:** *H520, I310, J130*

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## 1. INTRODUCTION

The year 2022 has been declared by the European Union as the *European Year of Youth*, with the European Commission proposing as a priority objective “to include young people and their priorities in future policy-making and to organise youth activities throughout the European Union (EU)”. According to Eurostat, one in six Europeans is aged 15-29. At EU level, 2005 was the year when the share of the young population under 15 (16.3%) overtook the share of the elderly population aged 65 and over (16.6%) in the total population.

Europe’s population is undergoing a process of demographic ageing. In Romania, 2009 was the year of change in the ratio of young to old people as a share of the total population. Demographic ageing is a firm and long-lasting process; in Romania, it is determined by the falling birth rate, external migration and the increase in life expectancy after 1990. According to demographic projections by the National Institute of Statistics (2022), the young population aged 0-14 years will decrease significantly between 2021-2100 by about 1.2 million people.

In recent decades, young Europeans’ values, concepts and lifestyles have changed in the context of economic, social and cultural developments. The age at first marriage has risen continuously. Young people decide to marry after graduation and enter the labour market in order to have the financial resources needed to make a decent living as a couple. More and more young people prefer common-law unions or civil partnerships to marriage. The increase in the average age at first marriage also increases the average age at which mothers decide to have a child. More and more children are born out of wedlock, the decision to have a child no longer being dependent on married status. In Romania over the last decade, the number of live births to mothers with higher levels of education has increased and the proportion of those whose mothers have low levels of education (secondary school at most) has decreased. This phenomenon is also linked to the increase in the share of women with higher education.

Sociological research at European level reveals that one in three young people faced difficulties during the COVID-19 health crisis, 40% of young Europeans feared for their health, youth unemployment in the EU increased from 11.9% in 2019 to 13.3% in 2020. Eurostat shows that over the

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period 2015-2019, the rate of severe material deprivation for young people aged 15-29 in the EU decreased from 8.4% to 5.4%, but increased to 6.5% in the pandemic year 2020.

Even though they have gone through periods of social and economic problems, young people in the EU remain attached to the European idea, with 75% of them holding a positive view of the European Union and democracy. From the European Commission's perspective, the most pressing issue for young people is the transition from school/education to work. Young people are most affected by economic inactivity, unemployment, poverty. They are increasingly falling prey to drug and alcohol abuse, prostitution, human trafficking, anxiety and depression.

Young people are affected by unemployment to a greater extent than adults because there is not always a link between their education and job vacancies or because they lack the work experience required by employers. Young people are often employed on part-time, fixed-term contracts and are easily dismissed when the economy is weak. But there are also young people who find work while still in education and training.

Eurostat has recently disseminated data on the labour market participation of young students and apprentices. In Romania, only 2% of students and apprentices were participating in the labour market in 2021 (including part-time, weekend jobs, etc.), the lowest level in the European Union and more than ten times below the EU-27 average of 23%. The Netherlands recorded the highest labour market participation of students and apprentices aged 15-29 at 70%. Countries in the north of the EU score best on this indicator, while the southern Mediterranean remains problematic.

In Romania, employers complain of labour shortages due to external migration after the EU accession. External migration is a determinant of poverty, with around 14% of the employed population at risk of relative poverty. More than one million employment contracts are concluded at the gross minimum wage.

While Romania is facing a labour shortage, the education system is facing the problem of early school leaving. According to the National Institute of Statistics (NIS), the early school leaving rate was 15.6% in 2020, above the limit of 11.3% set under the Europe 2020 Strategy. According to Eurostat, the EU-27 average value in 2020 for the early school leaving rate of young people (18-24 years) was 9.9%. Spain has the highest value of early school leaving rate (16%) and Croatia the lowest (2.2%). Romania ranks second last in the EU-27 ranking for this indicator.

From an educational and vocational point of view, young people can be in the following situations: (1) young people who are in education and/or

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training but not in employment; (2) young people who are in education but in employment; (3) young people who are not in education but in employment; (4) young people who are neither in education nor in employment.

Regarding the NEET issues, we should not only consider unemployed, young people registered by employment agencies as job seekers. NEETs also include young people who are unwilling to work or return to the education system because they are looking for job opportunities in line with their aspirations (working conditions/wage package), because they have disabilities and cannot find jobs adapted to their special needs, young people who are sick or caring for sick people, or simply young people who are taking a gap year to travel, read, volunteer (voluntary NEETs).

The COVID-19 pandemic has amplified the problems of NEETs, especially for young people in rural and underdeveloped urban areas, those who have only completed compulsory education or who left school early, without a qualification required by the labour market, excluded from the digital society. They become victims of discrimination, marginalisation and social exclusion, with reduced chances of socio-professional (re)integration, at risk of involvement in crime and organised crime.

According to Eurostat, in 2021, the share of young people aged 15 to 29 in Romania who neither work nor study was 32.7%. In 2021, NEET rates in EU Member States for people aged 15-29 with low educational attainment ranged from 6.4% in Sweden to 32.7% in Romania. Looking more closely at these figures, six countries had higher NEET rates than the EU average: Slovakia (16.6%), Spain (18.4%), Malta (20.3%), Italy (23.0%), Bulgaria (24.4%) and Romania (32.7%).

Completion of undergraduate studies does not mean that all young people will face the labour market. Postgraduate studies (masters and PhD) have long been a transition period from school to work. Delaying employment is also reflected in leaving home late. Eurostat data show that in 2021, young Europeans will have left home at an average age of 26.5 years. Young people in Romania leave home on average at the age of 28, men at 30 and women earlier at 26. In most northern and western EU countries, young people left home on average in their early to mid-twenties, while in southern and eastern countries the average age was in their early thirties.

Leaving home late is also a form of social self-protection for young people. Eurostat data show that in 2020, at EU level, young people aged 15-29 who were not living with their parents were more at risk of poverty (25.9%) than those who lived with their parents (17.8%). In Romania, the at-risk-of-poverty and social exclusion rate among young people was over 36% in 2020. Due to poverty, more and more young people in Romania will consider

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emigration as a solution to their living standards problems. There is a demand for labour in Romania, but many vacancies are poorly paid, especially in the so-called “hospitality industry” (HORECA). Wages in construction, industry and agriculture have become somewhat more attractive in 2018-2022, but work in these economic sectors involves more effort and wages are lower compared to developed European countries.

## 2. LITERATURE REVIEW

Stiglitz, Sen and Fitoussi (2009) consider that quality of life is a concept that includes, in addition to productive activity, the standard of living and the whole range of non-material factors (leisure time, quality of social interactions, general life experience).

An analysis by Brzinsky-Fay (2017) of the relationship between educational supply and labour market demand, focusing on youth unemployment in 30 OECD countries, reveals that no single institution can influence relative youth unemployment. Institutions interact with each other in the sense that the results (effects) of their activities are always conjunctural.

In a study of 24 European countries, Jongbloed and Giret (2020) examine the quality of life of NEET according to the context of each country analysed. The study’s hypothesis is that the well-being of young NEETs will be higher when there are more comprehensive social protection measures, but that inequalities in well-being between NEET and non-NEET groups will be minimised if the transition period from education and training to actual integration into work is reduced.

To assess the quality of life of young people, Tvaronaviciene et al. (2021) propose the creation of an index composed of factors belonging to the economic environment, the socio-political environment, the social environment and the natural environment. The analysis was conducted on a sample of 384 respondents aged 17-25 years in Ukraine (Rivne region). The most important indicators of young people’s well-being are social environment factors, while sociopolitical factors have the least influence. Young people consider family relationships and health the most important indicators of the quality of life.

To explain differences between different European countries regarding the age at which young people leave home, Van den Berg et al. (2021) used panel analysis and found that cultural context forms the most important explanation for cross-national variation (80% of cross-national variation in leaving home). Other important predictors explaining the age at which young people leave the parental home are the following: religiosity, individualistic family values, changing youth unemployment, GDP and net replacement rate.

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In Romania, research on standard of living for youth is a constant concern of the Research Institute for Quality of Life (ICCV) of the Romanian Academy, established at the beginning of the post-communist transition (1990). One of the first collective works on the quality of life of young people – *Tineretul Deceniului Unu. Provocările anilor '90 (Youth of the First Decade. The Challenges of the 90s)* – was coordinated by the sociologist Ioan Mărginean (1994) of the ICCV together with professors and researchers from the Department of Sociology and Social Work of the University of Bucharest, the Research Centre for Youth Problems under the Ministry of Youth and Sport, as well as other institutions and departments of the Ministry of Education, the Ministry of Labour and Social Protection, the Ministry of Public Works and Territorial Planning and the Ministry of Internal Affairs. This work brings together contributions from sociology, demography, statistics, social anthropology, psychology, multidisciplinary approaches to youth issues in contemporary society: youth in the macro-social transition in Romania, theoretical and methodological guidelines in youth research, the economic standard of living of young people, young family values, attitudes and behaviours, health status of youth, youth education, socio-professional integration of young people, anomic behaviours among young people, risk groups among young people, analysis of youth policies.

In a study focusing on the perception of local public authorities regarding young people and their participation in the decision-making process, Popescu and Preoteasa (2004) conducted a series of interviews with local authorities/people from local councils (mayors, deputy mayors, councillors, spokespersons), county youth and sports directorates, school management, etc. The main themes were youth problems, youth participation in decision-making in the respective cities, obstacles encountered and solutions for increasing youth participation. The findings of the study show that the most important problems of young people are related to their low standard of living: lack of jobs, low-paid jobs that do not offer prospects for professional advancement and personal development, lack of housing, limited leisure opportunities. All these problems lead to a low participation of young people in social life and, by extension, in the decision-making process in public authorities and in the affairs of their communities.

Sociologist Sorin Mitulescu (2009) conducted a study in which he sought to record the reaction of young people (pupils and students) who are in the process of shaping their own educational style, depending on whether they accept or ignore innovations. His paper concludes that, at the moment, only a small proportion of young people in Romania are ready to take advantage of educational innovations. Most are still in a state of passivity and conservatism.

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A qualitative research on young people in Romania is conducted by Constantinescu (2013), focusing on the following dimensions of the quality of life of young people in Romania: health, material wealth and work. The author also believes that the concept of quality of life needs to be better promoted among young people.

A study by Sandu et al. (2014) combined both quantitative and qualitative aspects and focused on young people aged 15-29 in Romania (a sample of 1302 respondents). Ten focus groups were conducted, both in urban and rural areas. The main issues covered were: socio-economic context; family and society; youth education and labour market; preferences, lifestyles and leisure time; religion and spirituality. The findings of the study show that more than 50% of young people over 18 live with their parents due to a lack of economic or social opportunities. Almost half of these young people consider their parents to be middle class and one in three see them as working class. In terms of better education access, there are gaps between young people in poor rural regions and urban areas, reducing the chances of young people from rural backgrounds to pursue higher education.

In an article based on a secondary analysis of statistical data, Leovaridis and Antimiu (2017) highlight the ways in which young people spend their leisure time, the factors that influence leisure time, classification of leisure time functions. The study focuses on three categories of young people: single young people, married young people and married young people with children. All three categories have in common watching films and TV series. Young singles also prefer two other passive ways of spending leisure time, reading and surfing the Internet. Young married couples are more inclined to go out with friends and go on trips outside the capital, thus active ways of spending leisure time; and young married couples with children are also more active, preferring to go to the park with their young children.

Sociologist Ion Ionescu's article (2017) on young people at social exclusion risk focuses on presenting some of the factors that hinder the social inclusion of young people, as well as the social protection measures offered to this vulnerable group. The social inclusion of young people refers to a process that seeks to provide the support needed to realise the potential of any person, regardless of their experience or circumstances. In order to support the active participation of young people in socio-economic, cultural and political life, opportunities for access to education, employment and decent living conditions must be provided. Social exclusion of young people could have long-term consequences for their living conditions, social and economic participation, emotional life and health. At EU level, the main determinants of social exclusion are rooted in social inequalities: barriers to accessing quality

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education and training, securing suitable jobs, encountering discriminatory practices and attitudes, etc.

The relation between education and occupation in the youth population is analysed by Gabriela Neagu (2015) from a perspective based on the most known theories in sociology and economics: human capital theory, unequal access to education theory, and signal theory. In the empirical analysis, the author of the study used data from qualitative research conducted in Romania on the education-employment relation, as well as data from the National Institute of Statistics, the Romanian Institute for Evaluation and Strategies (IRES) and Eurostat. The ICCV researcher concludes that people who succeed in multiple levels of education are more likely to get a job.

Petrescu, Neguț and Mihalache's (2021) paper on the implementation of the Youth Guarantee Programme (YGP) in Romania during 2014-2020, identifies the main barriers to the implementation of this programme in our country: lack of coordination of measures between institutions, lack of flexibility in registering NEET, low levels of partnership with local authorities, companies and NGOs, delays in funding measures and lack of centralised monitoring data to provide a picture of progress and therefore of the necessary improvement measures.

### **3. CONCEPTS, INDICATORS, AND DATA SOURCES**

In this paper, the central concept is that of “standard of living” which is defined as the set of elements that make up the well-being in terms of physical, social, cultural, health, etc. state in which people – particularly young people – live, the nature of their activities, social interactions, access to goods and services, lifestyles, leisure patterns, dissatisfaction/satisfaction with personal, family and community life. The concept of standard of living is an evaluative one, which can be measured using quantitative (statistical) and qualitative (sociological) methods.

From a socio-economic point of view, the standard of living is a concept with a high degree of complexity and relativity that underlies the measurement of poverty. The complexity of this concept derives from comprising a multitude of material, educational, health and cultural elements. The relativity of this concept results from the dynamics or volatility of these elements from one historical period to another, from one society to another. For example, what is considered a decent standard of living in a developing country can be interpreted as a minimum standard of living in a socio-economically developed country. A synonymous concept for standard of living is quality of life.



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Looking at it from the European level, the standard of living is measured by the ratio of price of certain goods and services and the income in the country concerned. For this purpose, a common national unit called the purchasing power standard (PPS) is used. Comparing gross domestic product (GDP) per capita expressed in PPS gives an overview of living standards in the EU.

To assess the standard of living, the concept is operationalised in two dimensions: the subsistence minimum and the decent living minimum. A subsistence minimum is defined as a level of income that allows a person or household to survive physically and function in optimal physical and mental health. The calculation of the subsistence minimum includes those expenses related to food consumption, clothing, and household maintenance. A decent minimum subsistence level means that the expenses related to the survival/ subsistence of the person or household are added to the expenditure on participation in social, cultural and political life, access to education and vocational training, and labour market orientation. For the measurement of the two dimensions (subsistence minimum and decent minimum), the “minimum monthly subsistence basket” and the “minimum monthly decent living basket” are used.

To measure the standard of living, Eurostat and the statistical institutes of the member states use indicators constructed from data derived from the Quality of Life Survey (QLS), the Household Budget Survey (HBS) and the Household Labour Force Survey (HFLS). All these statistical surveys are in fact selective (sample-based) surveys whose data are representative at European, national and regional level. The system of statistical indicators for measuring the living standards of young people in Romania, in the European context, is composed of:

- relative poverty rate;
- at-risk-of-poverty or social exclusion rate (AROPE index);
- rate of material and social deprivation;
- the share of NEETs in the young population;
- youth mortality (the proportion of young people who die before their 15th birthday);
- the rate of early leaving from education and training;
- share of the youth population with tertiary education in the total youth population;
- the estimated average age of young people leaving the parental household (years);
- youth employment rate;
- youth unemployment rate;
- Gini coefficient;
- the share of government expenditure on education in GDP

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The **relative poverty rate** (%) is defined as the share of poor people (by the relative method of estimation) in the total population. Persons in households with a disposable income per adult-equivalent (including or excluding the consumption from own resources) below the poverty line are considered poor. This indicator is currently determined for the threshold of 60% of median disposable income per adult-equivalent.

The **at-risk-of-poverty or social exclusion rate (AROPE)** (%) is a composite indicator adopted at European Union level under the Europe 2020 Programme to promote social inclusion and reduce poverty, representing the proportion of the total population at risk of poverty or social exclusion. People subject to the AROPE indicator are those in at least one of the following situations: have disposable income below the poverty line, are in a state of severe material deprivation, live in a household with very low work intensity household.

The **material and social deprivation rate** (%) is defined as the proportion of people living in ordinary dwellings who are unable to meet the costs of at least five out of thirteen basic necessities of life considered desirable or necessary for an acceptable standard of living.

**NEET** (%) refers to young people who are neither in employment nor in education or training. This statistical indicator is used to monitor and evaluate European policies on the socio-professional integration of young people aged 15-24, an age group later extended to 15-29. The category of young adults aged 20-34 is also used in Eurostat reports.

**Early school leaving rate** (18-24 years) (%) refers to the share of young people aged 18-24 who have completed at most lower secondary education and no further education or training in the four weeks preceding the Labour Force Survey (LFS).

**Population with tertiary education** (levels 5-8) (%). The **educational attainment level** of an individual is the highest ISCED (International Standard Classification of Education) level successfully completed, where the successful completion of an education programme is validated by a recognised qualification, i.e. a qualification officially recognised by the relevant national education authorities or recognised as equivalent to another formal education qualification.

**Youth employment rate** (%) is the share of the employed population of age group x in the total population of the same age group x. From 2021 the methodology of the Household Labour Force Survey has been revised to meet the requirements of the new European regulations that came into force on 1 January 2021. The most important change concerns the exclusion from employment of persons who produce agricultural goods intended exclusively

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or mainly for self-consumption and has a noticeable impact on the survey estimates, particularly in terms of: - a reduction in the number of employed and active population (and in the employment and activity rates); - an increase in the unemployment rate (mainly due to the decrease in the active population which is the denominator of the indicator).

**Youth unemployment rate (%)** is the share of unemployed people in the labour force. National and regional analyses use the indicator based on data from administrative sources (National Agency for Employment), and comparative analysis uses the indicator based on the methodology of the International Labour Organisation (AMIGO Research).

The **Gini coefficient** is an indicator of the severity of poverty that describes the inequality of income/resource distribution among members of society. The size of the indicator represents the proportion of total income/resources that would have to be redistributed to members of society to achieve a perfectly equal distribution. The value of the indicator ranges from 0 to 100%, with extreme values having the following hypothetical meanings: 0% means perfect equality and 100% means that all income is held by one person. Reality has shown that inequality never goes away, and that there will always be rich and poor. A relatively low value of the Gini coefficient describes a society with an acceptable standard of living for its members, low poverty, low social and economic inequality.

The **share of public expenditure on education in Gross Domestic Product (GDP)** in a given financial year shows the proportion of annual national financial achievement allocated by the government to education development. To calculate this indicator, the sum of total public expenditure on education is divided by GDP in a given financial year and multiplied by 100. The data source is total public expenditure on education and Gross Domestic Product for a given financial year.

The data used in this study are taken from the Eurostat database.

#### **4. RESEARCH METHODOLOGY, DATA ANALYSIS, AND RESULTS**

In this study, we analyze the standard of living of young people at the level of the European Union in 2021. We use descriptive statistics, simple regression analysis, and building a model based on the Ascending Hierarchical Classification (CIA). In the first part of the analysis, we will descriptively present the key indicators considered in this paper.

## Descriptive statistics

*Table 1*

Summary statistics:							
Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Relative poverty rate for the 15-19 age group	27	0	27	10,000	30,600	19,974	6,260
AROPE index for the 15-19 age group	27	0	27	11,900	44,500	23,789	7,785
Material and social deprivation for the 15-19 age group	27	0	27	3,000	41,200	11,785	9,360
NEETS age group 15-19 years	27	0	27	2,500	13,200	6,211	2,657
Share of the population aged between 15 and 19 out of the total population	27	0	27	4,100	6,500	5,104	0,556
Share of newborns who die before reaching the age of 15 (youth mortality)	27	0	27	0,290	0,850	0,472	0,146
Early leavers from education and training (18-24 age group)	27	0	27	2,400	15,300	8,226	3,393
Share of the population by level of education (tertiary education)	27	0	27	23,300	62,600	44,533	9,907
Estimated average age of young people leaving the parental household	27	0	27	19,000	33,600	26,989	3,674
Youth employment rate for age group 15-19	27	0	27	2,000	64,900	13,815	14,544
Youth unemployment rate for age group 15-19	27	0	27	8,600	50,800	28,823	12,120
Real GDP per capita in 2021	27	0	27	6690,000	84490,000	28067,407	18414,014
Gini coefficient of equivalised disposable income in 2021	27	0	27	20,900	39,700	29,378	4,310
Total general government expenditure on education, 2020	27	0	27	3,100	7,000	5,222	0,915

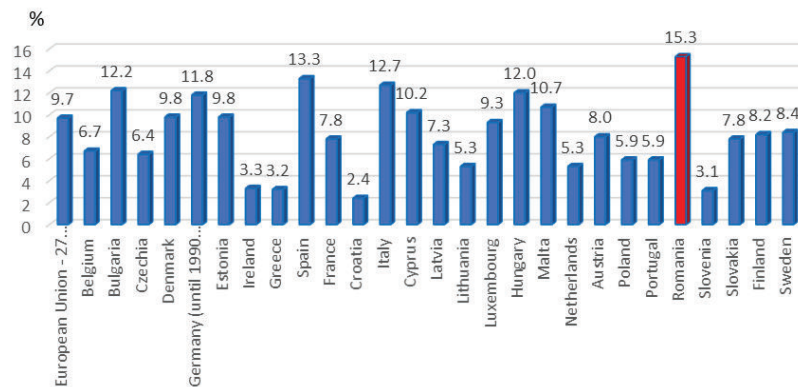
Source: Eurostat

An important indicator reflecting participation in education is the early school leaving rate of young people (18-24 years). In 2021, the rate in Romania was 15.3%, the highest in the European Union. This high rate is driven by factors such as poverty, low level of support from parents and family, low accessibility to education services, lack of infrastructure (especially in rural areas).

In countries such as Croatia, Slovenia, Ireland, Greece, the indicator shows the lowest values (about 3% of young people aged 18-24 left education early).

### Early leavers from education and training (%) (aged 18-24 years)

*Table 2*



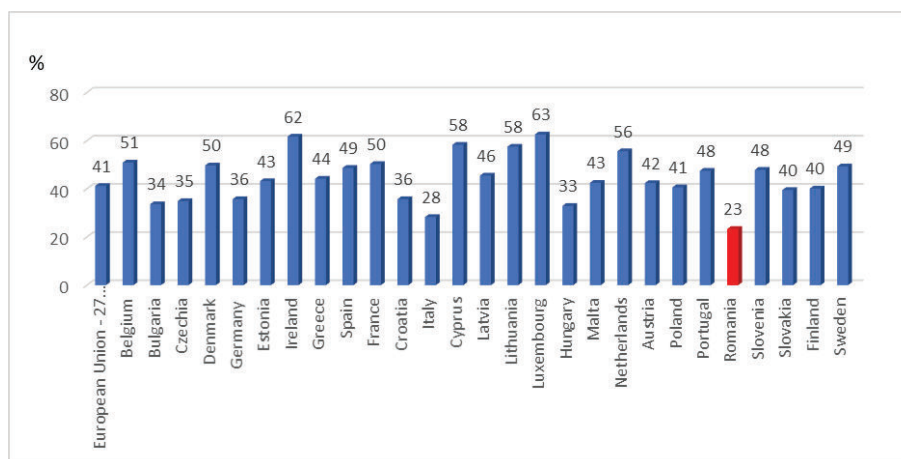
Source: Eurostat

Factors leading to early school leaving are family poverty, seasonal work – especially for rural children, poor parental education, high costs of childcare at school, low accessibility of rural children to prestigious urban schools.

Romanian schools are facing dropouts and functional illiteracy. As interest in school declines, so does the phenomenon of young people delaying employment. More and more young people prefer to delay adulthood, defer actively looking for a job, and are supported by parents at home or by those who have left to work abroad. The category of young people who drop out of school because they are neither interested in a particular qualification/training nor working has also expanded as a result of the changing values, principles and lifestyles characteristic of an ‘open society’.

### Share of people aged 25-34 with tertiary education(levels 5-8) (%)

Table 3



Source: Eurostat

The share of people aged 25-34 with higher education in Romania is 23.3%, well below the EU average of 41.2%. Luxembourg has the highest share at 62.6%. By 2030, EU countries aim to increase the share of the population aged 25-34 completing tertiary education to 45%, due to its importance for a more developed labour market. In 2021, 14 countries have not yet reached 45%.

The youth unemployment rate in Romania in 2021 in the 25-29 age group is 7.5%, below the EU average. In the 20-24 age group, the unemployment rate is 17.4%, 2.2 percentage points above the EU average.

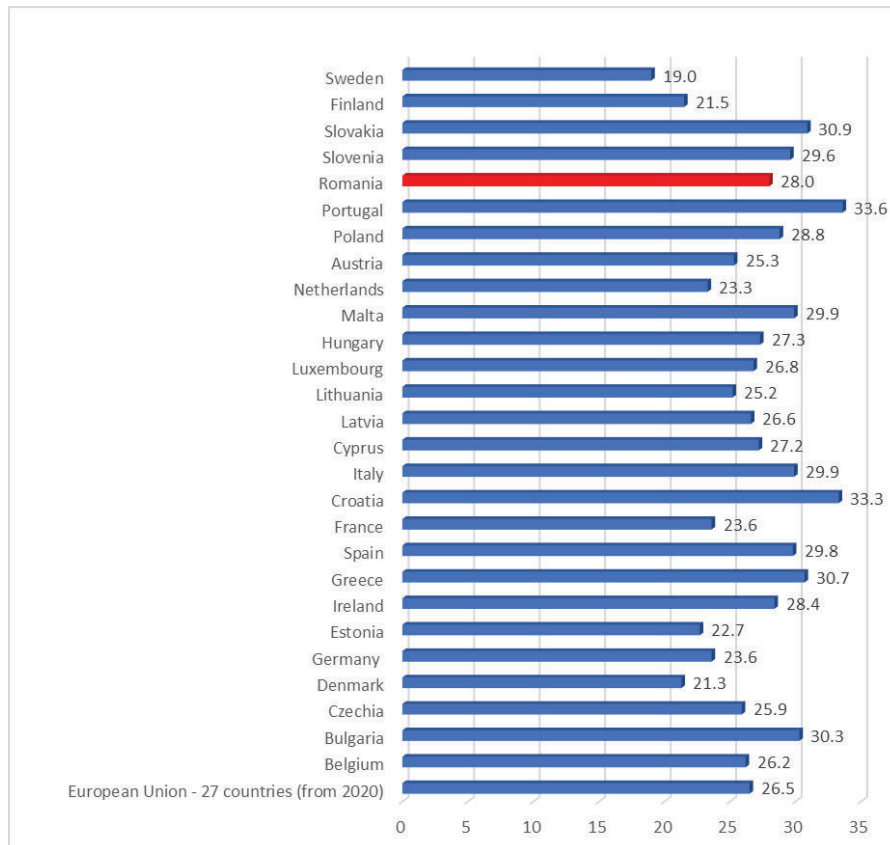
High values are recorded in countries such as Greece and Spain, where more than 30% of the 20-24 age segment are unemployed. Unemployment is highest among graduates of lower (medium and low) education levels.

In terms of the employment rate among young people aged 20-24, Romania records a value of 38.6% for 2021, below the EU average of 50.6%. The Netherlands stands out with an employment rate of 77.9%.

For the 25-29 age group, the employment rate in Romania is 71.3%, 3 percentage points below the EU average. In this age group, Malta has the highest employment rate (88.9%).

### Estimated average age of young people leaving the parental household (age)

Table 4



Source: Eurostat

According to Eurostat, in 2021 the average age at which young people no longer live with their parents is 26.5 years at the EU level. Young people in the Nordic countries (Sweden, Finland) move alone the earliest. At the other end of the spectrum are young people in Portugal and Croatia who leave home after the age of 33. In Romania, the average age is 28. It should also be noted that in most EU countries, men decide to leave their parents' home later than women, with a significant gap in Romania (25.7 years for women compared to 30.3 years for men).

The decision to live alone is closely linked to the labour market. Countries where young people leave home at an older age are more likely to have a lower employment rate for the 15-29 age group. In Romania, among the causes leading to an increase in the average age of leaving the parental home are: high rents and apartment prices in relation to purchasing power; level of financial dependency; traditional considerations.

Romania is above the EU average in terms of the percentage of the population both under 15 (15.8% compared to 15.15% EU average) and for the 15-19 age group (5.3% compared to 5.2% EU average) in relation to the total population. In the 20-24 and 25-29 age segments, their share is 5.2% of the total population.

The Bravais-Pearson correlation is one of the most useful methods to validate hypotheses and to identify new avenues of research based on the identified links.

### Bravais-Pearson correlation and p-values

Table 5

Correlation matrix (Pearson):

Variables	Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7	Var. 8	Var. 9	Var. 10	Var. 11	Var. 12	Var. 13	Var. 14
Var. 1 Relative poverty rate for the 15-19 age group (2021)	1	<b>0,933</b>	<b>0,583</b>	0,370	-0,157	0,354	0,316	-0,148	0,340	<b>-0,399</b>	<b>0,529</b>	-0,138	<b>0,766</b>	-0,352
Var. 2 AROPE index for the 15-19 age group (2021)	<b>0,933</b>	1	<b>0,793</b>	<b>0,399</b>	-0,030	<b>0,475</b>	<b>0,384</b>	-0,223	0,325	<b>-0,406</b>	<b>0,526</b>	-0,171	<b>0,741</b>	-0,495
Var. 3 Material and social deprivation for the 15-19 age group (2021)	<b>0,583</b>	<b>0,793</b>	1	0,319	-0,058	<b>0,625</b>	0,310	-0,334	0,317	<b>-0,433</b>	<b>0,397</b>	-0,425	<b>0,562</b>	-0,519
Var. 4 NEETS age group 15-19 years (2021)	0,370	<b>0,399</b>	0,319	1	-0,283	<b>0,441</b>	<b>0,518</b>	<b>-0,448</b>	0,339	-0,164	0,243	-0,219	0,357	-0,400
Var. 5 Share of the population aged between 15 and 19 out of the total population (2021)	-0,157	-0,030	-0,058	-0,283	1	-0,247	-0,165	<b>0,483</b>	-0,365	<b>0,427</b>	-0,027	<b>0,588</b>	-0,249	-0,026
Var. 6 Share of newborns who die before reaching the age of 15, 2021 (youth mortality)	0,354	<b>0,475</b>	<b>0,625</b>	<b>0,441</b>	-0,247	1	0,297	<b>-0,467</b>	0,379	-0,175	0,090	<b>-0,487</b>	0,324	-0,334
Var. 7 Early leavers from education and training, 2021 (18-24 age group)	0,316	<b>0,384</b>	0,310	<b>0,518</b>	-0,165	0,297	1	<b>-0,437</b>	-0,150	-0,100	0,239	-0,108	<b>0,385</b>	-0,142
Var. 8 Share of the population by level of education, 2021 (tertiary education)	-0,148	-0,223	-0,334	<b>-0,448</b>	<b>0,483</b>	<b>-0,467</b>	<b>-0,437</b>	1	-0,229	0,312	-0,284	<b>0,619</b>	-0,177	0,264
Var. 9 Estimated average age of young people leaving the parental household (2021)	0,340	0,325	0,317	0,339	-0,365	0,379	-0,150	-0,229	1	<b>-0,559</b>	<b>0,406</b>	<b>-0,396</b>	0,234	<b>-0,526</b>
Var. 10 Youth employment rate for age group 15-19 (2021)	<b>-0,399</b>	<b>-0,406</b>	<b>-0,433</b>	-0,164	<b>0,427</b>	-0,175	-0,100	0,312	<b>-0,559</b>	1	<b>-0,610</b>	<b>0,515</b>	-0,303	0,212
Var. 11 Youth unemployment rate for age group 15-19 (2021)	<b>0,529</b>	<b>0,526</b>	<b>0,397</b>	0,243	-0,027	0,090	0,239	-0,284	<b>0,406</b>	<b>-0,610</b>	1	-0,258	0,246	-0,235
Var. 12 Real GDP per capita in 2021	-0,138	-0,171	<b>-0,425</b>	-0,219	<b>0,588</b>	<b>-0,487</b>	-0,108	<b>0,619</b>	<b>-0,396</b>	<b>0,515</b>	-0,258	1	-0,322	0,030
Var. 13 Gini coefficient of equalised disposable income in 2021	<b>0,766</b>	<b>0,741</b>	<b>0,562</b>	0,357	-0,249	0,324	<b>0,385</b>	-0,177	0,234	-0,303	0,246	-0,322	1	-0,306
Var. 14 Total general government expenditure on education, 2020	-0,352	<b>-0,495</b>	<b>-0,519</b>	<b>-0,400</b>	-0,026	-0,334	-0,142	0,264	<b>-0,526</b>	0,212	-0,235	0,030	-0,306	1

Values in bold are different from 0 with a significance level alpha=0,05

p-values:														
Variables	Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7	Var. 8	Var. 9	Var. 10	Var. 11	Var. 12	Var. 13	Var. 14
Var. 1 Relative poverty rate for the 15-19 age group (2021)	0	0,000	0,001	0,058	0,434	0,070	0,109	0,461	0,083	0,039	0,005	0,491	0,000	0,072
Var. 2 AROPE index for the 15-19 age group (2021)	<0,0001	0	0,0001	0,039	0,881	0,012	0,048	0,264	0,098	0,036	0,005	0,394	0,000	0,009
Var. 3 Material and social deprivation for the 15-19 age group (2021)	0,001	0,0001	0	0,105	0,773	0,000	0,116	0,089	0,108	0,024	0,040	0,027	0,002	0,006
Var. 4 NEETS age group 15-19 years (2021)	0,058	0,039	0,105	0	0,153	0,021	0,006	0,019	0,084	0,415	0,222	0,273	0,068	0,039
Var. 5 Share of the population aged between 15 and 19 out of the total population (2021)	0,434	0,881	0,773	0,153	0	0,215	0,411	0,011	0,061	0,026	0,892	0,001	0,211	0,898
Var. 6 Share of newborns who die before reaching the age of 15, 2021 (youth mortality)	0,070	0,012	0,000	0,021	0,215	0	0,132	0,014	0,051	0,383	0,655	0,010	0,099	0,089
Var. 7 Early leavers from education and training, 2021 (18-24 age group)	0,109	0,048	0,116	0,006	0,411	0,132	0	0,023	0,457	0,619	0,230	0,592	0,048	0,479
Var. 8 Share of the population by level of education, 2021 (tertiary education)	0,461	0,264	0,089	0,019	0,011	0,014	0,023	0	0,250	0,113	0,152	0,001	0,376	0,184
Var. 9 Estimated average age of young people leaving the parental household (2021)	0,083	0,098	0,108	0,084	0,061	0,051	0,457	0,250	0	0,002	0,036	0,041	0,241	0,005
Var. 10 Youth employment rate for age group 15-19 (2021)	0,039	0,036	0,024	0,415	0,026	0,383	0,619	0,113	0,002	0	0,001	0,006	0,125	0,289
Var. 11 Youth unemployment rate for age group 15-19 (2021)	0,005	0,005	0,040	0,222	0,892	0,655	0,230	0,152	0,036	0,001	0	0,193	0,217	0,238
Var. 12 Real GDP per capita in 2021	0,491	0,394	0,027	0,273	0,001	0,010	0,592	0,001	0,041	0,006	0,193	0	0,101	0,883
Var. 13 Gini coefficient of equalised disposable income in 2021	<0,0001	0,0001	0,002	0,068	0,211	0,099	0,048	0,376	0,241	0,125	0,217	0,101	0	0,120
Var. 14 Total general government expenditure on education, 2020	0,072	0,009	0,006	0,039	0,898	0,089	0,479	0,184	0,005	0,289	0,238	0,883	0,120	0

Values in bold are different from 0 with a significance level alpha=0,05

Source: own processing

At EU level, the level of material and social deprivation among young people is higher in countries with social class inequalities, while more socially balanced countries are more equal and offer more opportunities for young people to integrate into society.

According to the analysis, countries that invest a higher percentage of GDP in education are less at risk of poverty among the young population, and according to the correlation results, nations in this category have a smaller young population to manage in relation to the total population and are currently affected by the demographic ageing process.

The share of the NEET (Not in Education, Employment, or Training) population is lower in countries that invest in the education sector. States with a higher GDP per capita have (as expected) a more favourable framework for the empowerment of the young population and at the same time a framework is built for the early integration of the mature and financially independent population. The level of material and social deprivation is lower in countries with a dynamic economy, the proportion of the population with higher education is higher than in EU countries (Romania, Bulgaria, Italy) with problematic economies, and the employment rate among young people is high, which implicitly leads to a lower risk of poverty.

All the characteristics listed contribute significantly to creating a favourable framework for increasing the level of independence of the young population, which ultimately reflects an earlier exit from the parental household.

The countries of the European Union that build an adequate framework for the integration of young people into the economy provide important



support in reducing social groups where economic problems are a constant feature of everyday life.

Using simple linear regression analysis, we analyze the statistical relationships between the following variables:

- NEET (dependent variable) and total general expenditure on education (independent variable);
- AROPE (dependent variable) and early leavers from education and training (independent variable);
- employment rate (dependent variable) and total general expenditure on education (independent variable);
- employment rate (dependent variable) and estimated average age of young people leaving the parental household (independent variable).

In the simple regression model, the evolution of the dependent variable is defined in terms of an independent variable. In general, the statistical model of simple linear regression is determined by the relation:

$$Y = \alpha + \beta X_1 + \varepsilon$$

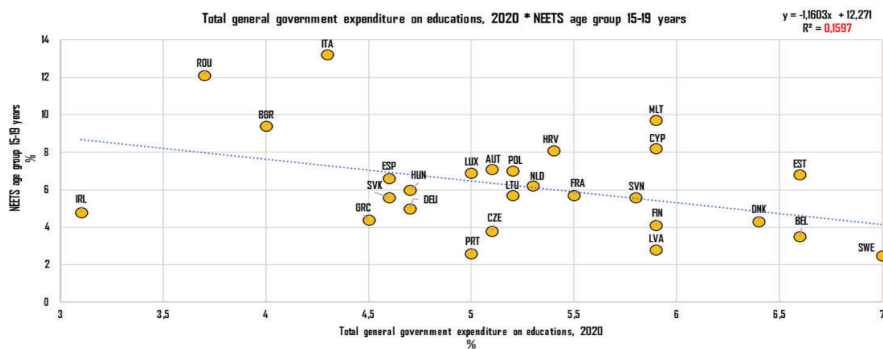
where: Y is the dependent variable

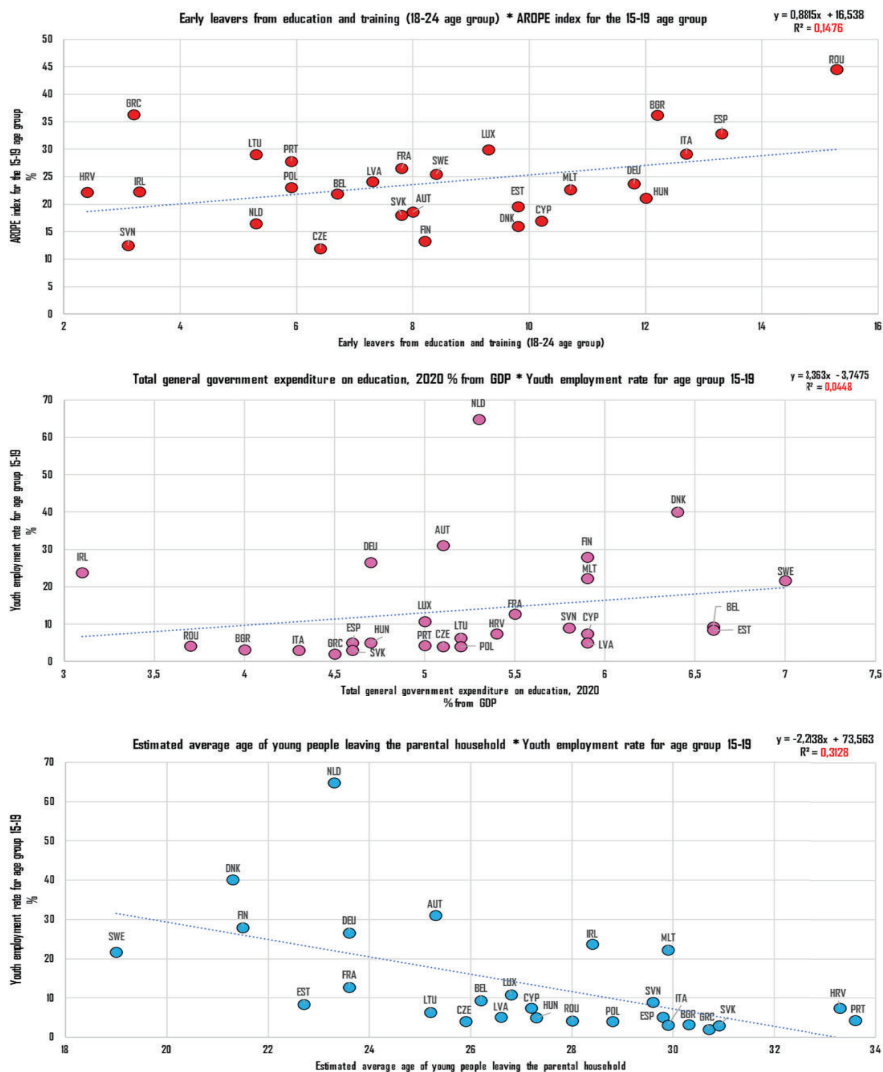
$X_1$  the independent variable

$\alpha, \beta$  are the regression coefficients

### Simple linear regression models

Graph 1





The estimated equation of the regression model between NEETS (age group 15-19 years) and total general government expenditure on education is:

$$\text{NEETS} = 12.271 - 1.1603 * \text{Education\_expenditure}$$

A 1% increase in total general government expenditure on education results in a 1.16% decrease in the percentage of NEETS (age group 15-19 years).

The estimated equation of the regression model between AROPE (dependent variable) and early leavers from education and training (independent variable) is of the form:

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$$\text{ARPE} = 16.538 + 0.8815 * \text{early\_leavers\_from\_education}$$

It can be noticed that there is a direct link between the 2 variables, a 1% increase in early leavers from education and training causes a 0.88% increase in the rate of poverty or social exclusion (age group 15-19 years). Regarding the relationship between employment rate (dependent variable) and total general expenditure on education (independent variable), for the 15-19 age group, the regression equation is:

$$\text{Employment\_Rate} = -3.7475 + 3.383 * \text{Education\_Expenditure}$$

It is found that an increase in education expenses will increase the employment rate among young people (age group 15-19 years).

The statistical link between the estimated average age of young people leaving the parental household (independent variable) and the employment rate (dependent variable) is of the form:

$$\text{Employment\_rate} = 73,563 - 2,213 * \text{age\_leaving\_parental\_house}$$

Thus, an increase in the age of leaving the parental home by young people leads to a decrease in the employment rate among them.

Building a CIA (Hierarchical Ascending Classification) model is quite straightforward: spatial grouping of units based on similarity criteria into alternating groups until all units are integrated into a single class is done. Spatial units are grouped based on the principle of similarity between the datasets describing each spatial unit. The principle used in this analysis is that of the Euclidean distance, a distance that facilitates the measurement of the difference between the centre of gravity of a class and the centre of gravity of the cloud of points described by all the spatial units described by all the variables inserted in the analysis (Groza, 2001).

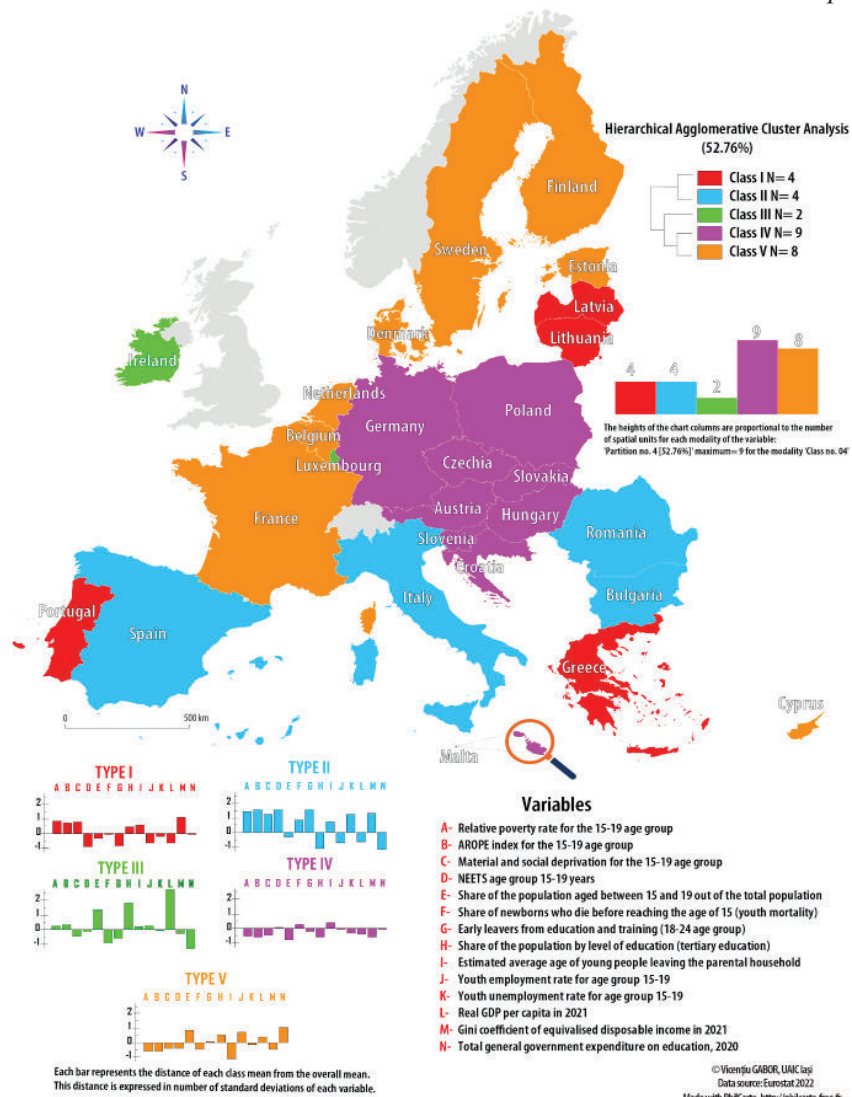
Each house generated will be located in the vicinity or further away from the barycenter of the cloud; the dispersion of the centres of gravity of all classes forms the inter-class variance. The value of the inter-class variance is the parameter that shows how much the classes are separated by the Hierarchical Ascending Classification. The higher its values, the more different the classes are from each other (Groza, 2001).

The dispersion of the values of the variables of each class around the barycenter of that class forms the intra-class variance. The intra-class variance value is the parameter that shows how similar states in the same class are to each other and how different they are from states of other classes/types. The smaller the coefficient, the more representative the division by class, as states are increasingly similar to those in their class and increasingly dissimilar to

those in neighbouring classes. The sum of the two variances constitutes the total inertia (variance) of the cloud of points (respectively 100%).

**The results of the multivariate analysis and mapping of the types of spatial units within the European Union according to variables describing the socio-economic framework of young people**

*Graph 2*



Source: own processing

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At the general level, the degree of intraclass similarity is 52.76%, the generation of a level of similarity over 50% of the spatial entries was also the main reason for performing the analysis with 5 analysis classes.

The five typologies present the following common features that led to their integration into a known and generic group under the name of typology:

Type 1 is a typology of states with high values regarding the share of the poor young population with high existing inequalities expressed from the perspective of the Gini coefficient. Four states from the European Union, from the north of Europe: Latvia and Latvia and two countries from the Mediterranean area, Greece and Portugal, were integrated into this class.

Type 2, the second typology, integrated the European Union states with the most significant problems from the perspective of the quality of life of the young population on the territory of the European Union. These states have the highest rates of relative poverty, the highest values for the AROPE index, the highest values for the material deprivation of the young population and the most significant shares in the presence of NEETS groups. Also, in the states of this class, young people postpone leaving the parental household the most and encounter the biggest problems with finding a job, a situation reflected in the high unemployment rates among young people in the states of the outlined typology. Four countries from Eastern Europe (Romania, Bulgaria) and two states from Southern Europe (Italy and Spain) were integrated into this typology.

Type 3 is a typology consisting of only territorial entities, Ireland and Luxembourg, and this typology was defined based on variables with values that far exceed the European Union average. High values of the share of the young population in the total population, high shares of the population with higher education (tertiary level) and the highest values for the reported GDP per capita also represent the main peculiarity of the class.

Type 4 is the most representative class in the analysis with the most states included, 9 nations. The typology is one of balance; most of the values of the variables used are close to the averages recorded at the European level. From a geographical point of view, the states of this typology are grouped like a nucleus, integrating countries from central and eastern Europe (Germany, Poland, the Czech Republic, Slovakia, Austria, Hungary and Croatia). The only state that is outside this well-represented territorial grouping geographically is Malta.

Type 5, the last typology of the analysis, was defined by the presence of high values of the analysis variables. The states in this class invest the most in the education sector, young people in these nations leave their parents' residence at an early age, and the employment rate of the young population

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(15-19) is also high. In the last typology, the Scandinavian states (Sweden, Finland, Denmark), a Baltic state (Estonia) and part of the states in western Europe (the Netherlands, Belgium and France) were included. Also, in the last typology, the Mediterranean state of Cyprus was integrated.

## 5. CONCLUSIONS

Europe's population is affected by demographic ageing. The share of young people in the total population decreases every year due to the decrease in the birth rate and fertility, but also the increase in life expectancy. Some eastern countries, such as Romania, the demographic ageing is due to the external migration of young people and young adults.

Young people are fewer and fewer and more affected by poverty. From the perspective of education and employment in the labour market, young Europeans represent a group in a situation of risk or vulnerability. Official statistics show that young people are affected by poverty more than adults or older people.

The developed countries of Western Europe partially solved their labour demand through migration from the eastern countries of the continent. Meanwhile, less economically developed countries facing labour shortages have problems with how the education and training system works. In 2021, Romania's early school leaving rate was 15.3%, the highest in the European Union. The indicator shows the lowest values in Croatia, Slovenia, Ireland, and Greece (about 3% of young people aged 18-24 left education early).

The share of people aged 25-34 with higher education in Romania is 23.3%, well below the EU average of 41.2%, although graduates of tertiary education in Romania find work relatively easily, even if not always in the field in which they trained. Luxembourg has the highest share at 62.6%, with tertiary education in the total population.

The youth unemployment rate in Romania in 2021 in the 25-29 age group is 7.5%, below the EU average. In the 20-24 age group, the unemployment rate is 17.4%, 2.2 percentage points above the EU average. High values are recorded in countries such as Greece and Spain, where more than 30% of the 20-24 age segment are unemployed. Unemployment is highest among graduates of lower (medium and low) education levels.

Regression analysis showed that a 1% increase in total general government expenditure on education results in a 1.16% decrease in the percentage of NEETS (age group 15-19 years). Also, a 1% increase in early leavers from education and training causes a 0.88% increase in the rate of poverty or social exclusion (age group 15-19 years). It was found that an

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increase in education expenses will increase the employment rate among young people (age group 15-19 years).

Young people postpone leaving the parental household because encounter a big problem with finding a job, a situation reflected in the high unemployment rates among young people in some European states: two countries from Eastern Europe (Romania, Bulgaria) and two states from Southern Europe (Italy and Spain).

In Romania, Bulgaria, Italy and Spain, young people face the most significant problems related to their quality of life. In these countries that form a particular category, as it was resulted from the Hierarchical Ascending Classification, young people are in risk of poverty, affected by early leaving from education and training, do not work and do not follow professional training, and leave the parental home late.

Taking into account the problems faced by young Europeans, revealed by the statistical analysis, the strategies and public policies for youth must be oriented towards increasing the interest of this age segment in education and professional training, the correlation of professional activity with the job offer, active measures to increase youth employment, developing digital and entrepreneurial skills, combating precarious youth work, poverty or social exclusion.

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