# THE POPULATION AND THE LABOR MARKET UNDER THE IMPACT OF THE COVID-19 PANDEMIC

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## Abstract

The resident or domiciled population of a country is the basic element that feeds the labor market of that country. From this point of view, there must be a correlation between the population and the labor market.

The COVID 19 pandemic has produced a great disruption in the sense that elements have appeared that are destructive and that have unbalanced this correlation population - the labor market and in this context in which a series of other breaks in the necessary macroeconomic correlations have occurred, the economies enter a process of destabilization.

In this article we aimed to emphasize and show concretely what was the impact of the COVID 19 pandemic, which is still manifesting itself, in terms of the evolution of the population and how it affects the market.

In this sense, we used a series of statistical indicators, we used some statistical-econometric methods and models to establish the correlation between the resident population and the labor market in the current context of the manifestation of the COVID 19 pandemic. At the same time, we used the interpretive, logical, to emphasize these aspects.

**Key words:** *population, workforce, crises, correlations, balance, developments*.

**JEL classification:** J30, J60

## Introduction

The resident population in Romania includes those persons who have domicile but, above all, residence for a period of at least 12 months in the territory of Romania. In this sense, the population according to the domicile is decreasing because the birth rate is decreasing, the stillbirth rate is decreasing, in the sense that the mortality is higher than the birth rate, and on the other hand there is a colossal deficit in terms of immigration and emigration.

Emigration is a phenomenon by which personnel settle in other geographical areas, mainly in Europe, due to economic reasons. Immigration is much lower. In this context, aspects appear in this direction.

Under the impact of the pandemic, the birth rate has decreased and will continue to decrease, due to the difficulties that young couples have (the number of marriages has become less and less). Even more so, the number of newborns has also become reduced and as a result of the decrease in desire determined by the reduced financial possibilities.

The labor force is reasonable at the moment but, nevertheless, Romania's economy is going through a paradoxical period, in the sense that on the one hand immigration is increasing, leaving the territory by those who are not satisfied with the jobs they can have in Romania and, on the other hand, the labor shortage in the national economy has increased, in a context in which people from Asian countries (Nepal, Malaysia, Sri Lanka and others) find work in Romania, as well as Romanian citizens who emigrate to Western European countries find more convenient jobs in them.

We have further analyzed how the workforce has evolved and, above all, we have emphasized the need to achieve workforce conversion, i.e. people who are released from certain jobs to be re-converted for other jobs, needed, as the national economy requires.

At the same time, education must also play an important role in ensuring the large-scale reintroduction and provision of vocational education, which will provide necessary elements for the national economy.

We used a series of graphs and tables, precisely to highlight more suggestively the situation of the evolution of the resident population and the situation on the labor market.

## Literature review

A series of works by some researchers have highlighted essential aspects related to the correlation that exists between the population and the labor market. Thus, Anghel and Anghelache (2018) emphasized the increased difficulty for the employed population considering the large number of pensioners existing in Romania. Anghelache, Anghel and Iacob (2020) analyzed a number of aspects related to the natural movement of the population in the context of the coronavirus pandemic. Chéron, Hairault and Langot (2013) focused on the study of available jobs throughout the life cycle. Hili, Lahmandi-Ayed and Lasram (2016) made a number of references to the workforce under globalization. Klein and Ventura (2009) analyzed the correlation between labor mobility and productivity. Maestas, Mullen and Powell (2016) studied the impact of population aging on the labor force and, by implication, on productivity. Mortensen and Pissarides (2011) highlighted

elements of unemployment theory. Raiu, C.V., Juknevičienė, V. (2021) taking a neo-Weberian approach point out that what was widely known in modern times as political is now becoming more bureaucratic due to various political processes such as integration into the European Union or new management reforms public. Vogel, Ludwig and Börsch-Supan (2017) addressed a number of issues related to the employment of older workers and the extension of the retirement age.

## Methodology, data, results and discussion

The employed population includes all persons, both employees and self-employed, who exercise a productive activity within the production limits of the European System of Accounts.

In June 2022, the resident population was 19,861 thousand people, down by 85.9 thousand people compared to January 1, 2014. The main cause of this decrease is the negative natural increase (-4386 people). The urban population and the female population are in the majority (53.7% and 51.0%, respectively). The phenomenon of demographic aging has intensified, the gap between the elderly population aged 65 and over and the young population aged 0-14 growing to over 300 thousand people. The demographic dependency index increased from 48.1 to 48.7 young and elderly persons per 100 adults. The balance of long-term temporary international migration was negative (-31300 people). On June 1, 2022, the urban resident population was 10,437 thousand people, down 0.3% compared to January 1, 2022. The female population on January 1, 2022 was 10,039 thousand people, down 0.31% compared to January 2022.

### Resident population by sex and age, on January 1, 2022

*Chart 1*
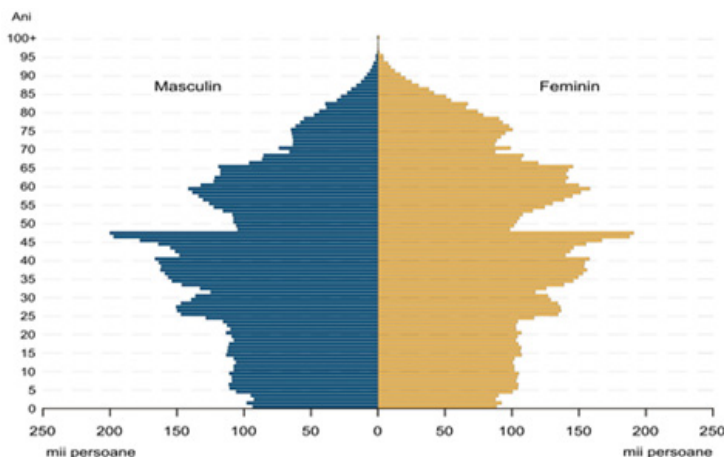


*Source: National Institute of Statistics. Data processed by the authors.*

The demographic aging process deepened, compared to January 1, 2022, noting the decrease in the number of young people (0-14 years) and the increase in the number of elderly people (65 years and over). The demographic aging index has increased. The share of the population aged 0-14 in the total population remained constant (15.5%), but the share of the population aged 65 and over in the total population increased from 17.3% in June 2021 to 17.93% in June 2022 Thus, the demographic dependency index increased from 47.1 (on January 1, 2021) to 48.9 young and elderly people per 100 adults (on June 1, 2022). Romania continues to be a country of emigration. The balance of international migration in 2022 was negative, the number of emigrants exceeding the number of immigrants by 43 thousand people. During 2022, as in 2021, women emigrated in a higher proportion than men. Among immigrants, men were the majority (54.7%).

**International long-term temporary migration by sex and age group, in 2022**

*Chart 2*
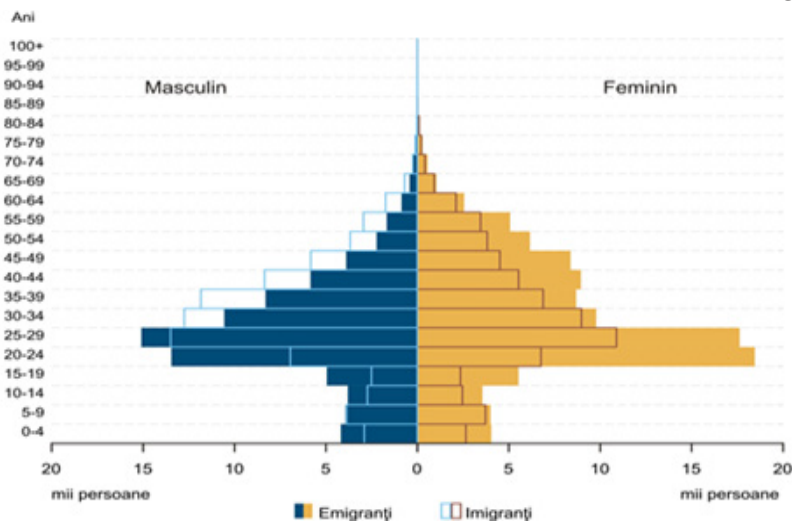


*Source: National Institute of Statistics. Data processed by the authors.*

This number differs significantly from the number of employees currently employed. It includes the total number of employees determined according to the accounts, which take into account both the data sources used to determine employment, such as the Household Employment Survey (AMIGO); Labor Cost Survey (S3); The annual structural survey in enterprises (ASA), as well as administrative data sources (information from the Ministry

of Foreign Affairs, the Ministry of Labour, Family and Equal Opportunities, the Ministry of the Interior and Administrative Reform, etc.); financial and accounting statements of financial companies.

I specify that the number of employees also includes those who work in the unobserved economy, established according to the calculation methodology.

Another category is represented by independent workers (on their own account), these being the people who are the sole owners or co-owners of entities without legal personality, in which they work. This category can also include: unpaid family workers and home workers who produce for the market, workers who exercise, both individually and collectively, production activities exclusively for final consumption or capital formation on their own account.

The employed population according to the SEC methodology is the only indicator that indicates the human potential of the employed workforce that can be used to determine the social productivity of labor as a ratio between GDP and the employed population.

The evolution of labor productivity is, within this series, quite fluctuating, from high positive levels to constant reductions. Until 2019, labor productivity had an upward trend. Starting with the year 2020, with the start of the COVID 19 pandemic, productivity, work decreased, having an oscillating evolution in 2022.

Real productivity per hour shows, in principle, the same evolution as real productivity per employed person.

In the analysis of the employed population, the percentage evolution of the employed structure is noted in terms of the large categories of employees and individual entrepreneurs. In this context, according to the European System of Accounts, 1995 edition, employees have a share of about 70.9% of the employed population.

By branches of activity, the largest share is held by agriculture with 27.0%, followed by industry with 22.8% and transport with 21%. The employed population indicator in Romania compared to other countries shows a worrying negative discrepancy and where I think the attention of decision-makers should be focused.

The information related to the budgetary sector must be carefully analyzed, because the data refer to statistics from economic activities (aggregated by homogeneous activity), according to CAEN Rev.2. by: public administration, education, respectively health and social assistance (including the private sector for education - about 2%, respectively about 4.5% for health and social assistance), exclusive of the armed forces and assimilated personnel (MApN, SRI, MAI, etc.).

These statistics do not take into account the form of financing, their purpose being to provide information on economic activities, according to CAEN Rev.2.

The budgetary sector was characterized in the period 2010-2015 by continuous decreases in the number of employees. The most pronounced decreases were recorded in 2010 and 2011. In the period 2016-2019, employees in the budget sector had reduced associations, starting with the year 2019 and then the period 2020-2009; 2022, the number of employees in the budget sector decreased, as a result of fiscal measures imposed by the crises facing the national economy.

Likewise, decreases in the number of employees registered in the local public administration units are also found in the secondary activities carried out by them, such as: cultural, sports and recreational activities, landscaping and services for buildings, agriculture, water distribution, sanitation, waste management , decontamination activities, construction, transport and storage, production and supply of electricity and thermal energy, gas, hot water and air conditioning, rental and sub-rental of real estate, etc.

As regards the evolution of average net monthly earnings in the period 2009-2016, they were mainly characterized by decreases from one month to the next, with the exception of the months in which, according to national legislation, annual awards were granted and occasional awards, sums from other funds.

After 2013, there was a return to the salary increase, which had been reduced on the occasion of contracting external loans.

After October 2013, in all the activities of the budget sector, salary increases were recorded, due to the payment of occasional awards (including vacation bonuses), sums from other funds (including for previous periods), the accumulation of functions related to the teaching staff, as well as the payment of overtime worked in some health facilities.

The increase in wage earnings was also influenced by layoffs of low-paid staff in this sector. Starting from 2020, the real salaries of budget workers have practically been frozen.

The decrease in the vacancy rate was more pronounced in health and social assistance (by 2.53 percentage points), followed by public administration (by 0.67 percentage points), and in education the vacancy rate remained unchanged (0 .26%).

A little over 10% of the total number of vacant jobs were registered in each of the activities: public administration, respectively health and social assistance, while in education the demand for jobs was higher.

Compared to previous periods, the most significant decrease in the number of vacant jobs was recorded in health and social assistance.

In August 2022, the average gross nominal salary was 6348 lei, 57 lei higher than in June 2022.

The highest values of the average net nominal salary gain were recorded in the extraction of crude oil and natural gas, and the lowest in hotels and restaurants.

The real wage earnings index compared to the same period of the previous year was 107.3%. In August 2022, the net salary was 3933 lei higher than the one recorded in August 2021, by 12.8%.

In August 2022, in most activities in the economic sector, the level of the average net wage gain was higher than in August 2021.

**Evolution of consumer price indices and average net salary earnings indices, in the period August 2020 - August 2022**

*Graph 3*
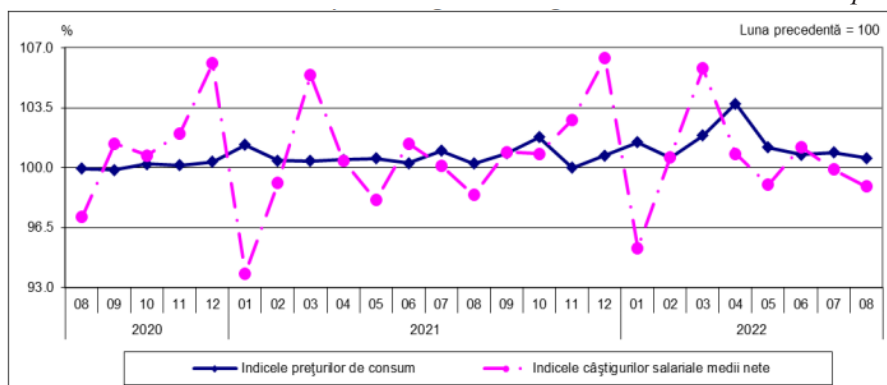


*Source: National Institute of Statistics. Data processed by the authors.*

During the year, there are fluctuations in salary income determined, mainly, by the granting of annual awards and holiday bonuses (December, March/April). They influence the increases or decreases depending on the period in which they are granted, ultimately leading to the blurring of the fluctuations in the monthly salary for the entire year.

The evolution of the real wage depends, both on the fluctuations of the average net wage and on the inflation rate.

In August 2022, in most activities in the economic sector, the level of the average net salary decreased compared to July 2022, as a result of the granting in the previous months of occasional bonuses (quarterly, half-yearly, annual bonuses or for special performances), rights in in kind and financial

aid, amounts from net profit and other funds (including securities). Also, the decreases in the average net salary were determined by production failures, lower receipts (as a function of contracts/projects or as a result of vacations when meal vouchers and other salary rights are not granted).

The most significant decreases in the average net salary at the level of CAEN Rev.2 sections/divisions were recorded as follows: by 15.6% in upper and lower coal extraction; between 4.0% and 8.5% in leather tanning and finishing (including the manufacture of travel and leather goods, harness and footwear; fur preparation and dyeing), storage and auxiliary activities for transport, financial intermediation (except for insurance and of pension funds), cinematographic, video and television program production activities, audio recordings and music publishing activities (including broadcasting and program transmission activities), textile manufacturing, metal constructions and metal products industry (exclusively machines, equipment and installations), the manufacture of rubber and plastic products, the production and supply of electricity and thermal energy, gas, hot water and air conditioning, the manufacture of clothing; between 2.0% and 4.0% in other industrial activities n.e.c., manufacture of other products from non-metallic minerals, manufacture of beverages, capture, treatment and distribution of water, professional, scientific and technical activities, other extractive activities, printing and reproduction on supports of the records.

The increases in the average net salary in August 2022 compared to July 2022 were determined by the granting of occasional awards, rights in kind and monetary aid, amounts from net profit and other funds (including securities). Also, the average net salary earnings in August were higher compared to July, as a result of higher production achievements or receipts (depending on contracts/projects), as well as layoffs of staff with lower salary earnings compared to average, from some economic activities.

The most significant increases in the average net salary at the level of CAEN Rev.2 sections/divisions were recorded as follows: by 11.8% in telecommunications; between 2.0% and 6.0% in the manufacture of tobacco products, service activities related to extraction, metallurgical industry, crude oil and natural gas extraction, water transport, furniture manufacturing; between 1.0% and 1.5% in hotels and restaurants, manufacturing of computers and electronic and optical products, air transport, manufacturing of paper and paper products, real estate transactions, food industry, postal and courier activities.

In the budgetary sector, in August 2022 there were slight decreases in the average net salary compared to the previous month in public administration (-1.1%), respectively in health and social assistance (-0.2%). In education, the

average net salary increased slightly compared to the previous month (+0.6%). In education, there was a decrease in the average net salary as a result of the reduction of the amounts representing the hourly payment of teaching staff during the school holidays. Between the countries of Europe, the developments compared to 2020 are divergent: thus the reduction trend is observed in 12 countries, increase in 12 countries while in 3 countries the share of employees in the administration remained constant compared to the same period of the previous year.

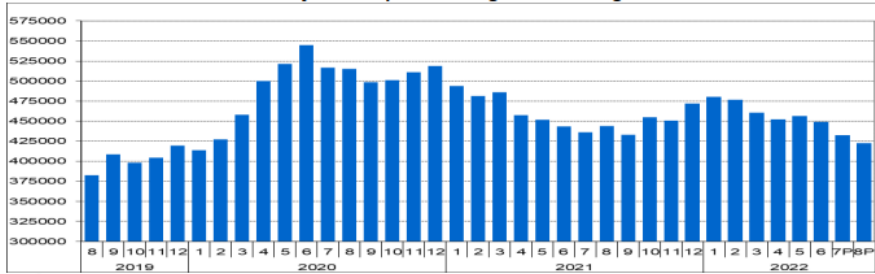### Evolution of the unemployment rate

*Chart 4*
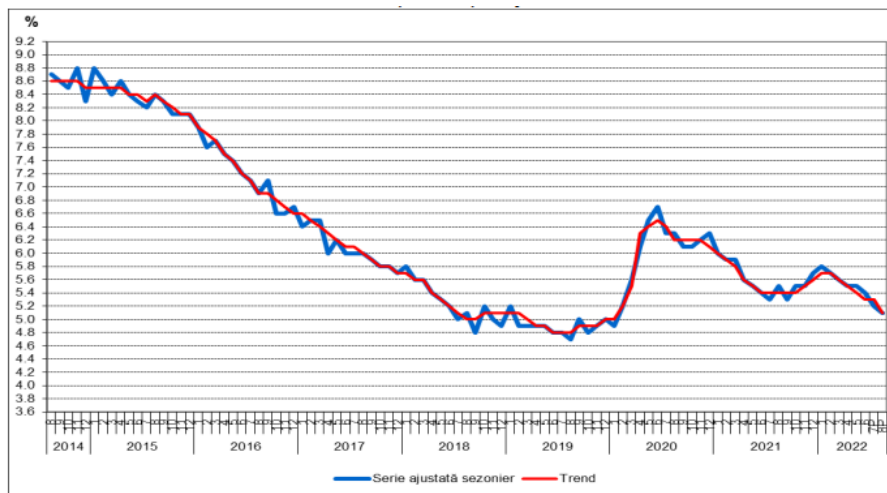


*Source: National Institute of Statistics. Data processed by the authors.*

In August 2022, the seasonally adjusted unemployment rate was 5.1%. The unemployment rate in August 2022 had the same level as that recorded in the previous month. The unemployment rate for men exceeds that of women by 2.2 percentage points.

**Number of unemployed between August 2019 and August 2022**

*Source: National Institute of Statistics. Data processed by the authors.*

The number of unemployed (aged 15-74) estimated for August 2022 was 422.5 thousand people, decreasing both compared to the previous month (432.7 thousand people) and compared to August 2021 (443.8 thousand people).

**Unemployment rate by gender (%)**

*Table 1*

| | 2021 | | | | | 2022 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aug. | Sept. | Oct. | Nov. | Dec. | Ian. | Feb. | Mar. | Apr. | Mai | Iun. | Iul.ᴾ | Aug.ᴾ |
| **Total** | | | | | | | | | | | | | |
| 15-74 ani | 5,5 | 5,3 | 5,5 | 5,5 | 5,7 | 5,8 | 5,7 | 5,6 | 5,5 | 5,5 | 5,4 | 5,2 | 5,1 |
| 15-24 ani | 21,0 | 21,0 | 22,0 | 22,0 | 22,0 | 22,7 | 22,7 | 22,7 | 22,8 | 22,8 | 22,8 | .. | .. |
| 25-74 ani | 4,5 | 4,2 | 4,3 | 4,3 | 4,6 | 4,7 | 4,6 | 4,4 | 4,3 | 4,4 | 4,3 | 4,1 | 3,9 |
| **Masculin** | | | | | | | | | | | | | |
| 15-74 ani | 5,9 | 5,9 | 5,9 | 5,9 | 6,1 | 5,9 | 6,0 | 5,8 | 5,9 | 6,0 | 6,0 | 5,8 | 5,8 |
| 15-24 ani | 20,9 | 20,9 | 21,5 | 21,5 | 21,5 | 22,3 | 22,3 | 22,3 | 21,3 | 21,3 | 21,3 | .. | .. |
| 25-74 ani | 4,9 | 4,7 | 4,6 | 4,7 | 5,1 | 4,7 | 4,9 | 4,6 | 4,7 | 4,9 | 4,9 | 4,7 | 4,5 |
| **Feminin** | | | | | | | | | | | | | |
| 15-74 ani | 4,9 | 4,5 | 5,0 | 4,8 | 5,1 | 5,6 | 5,3 | 5,3 | 4,9 | 4,8 | 4,7 | 4,3 | 4,1 |
| 15-24 ani | 21,2 | 21,2 | 22,8 | 22,8 | 22,8 | 23,4 | 23,4 | 23,4 | 25,5 | 25,5 | 25,5 | .. | .. |
| 25-74 ani | 3,9 | 3,5 | 3,9 | 3,7 | 4,0 | 4,6 | 4,3 | 4,2 | 3,8 | 3,8 | 3,5 | 3,3 | 3,0 |

*Source: National Institute of Statistics. Data processed by the authors.*

By gender, the unemployment rate for men exceeded that of women by 1.7 percentage points (respective values being 5.8% for men and 4.1% for women).

The high level of 22.8% of the unemployment rate among young people (15-24 years) continues to attract attention.

For adults (25-74 years old), the unemployment rate was estimated at 3.9% for August 2022 (3.0% for women and 4.5% for men).

The number of unemployed aged 25-74 represented 72.3% of the total number of unemployed estimated for August 2022.

The real wage earnings index closely follows the evolution of the average net nominal wage earnings index, as can be seen from the graph highlighting the trends recorded in the last two years. The phenomenon is explained by the decrease in the growth rate of inflation, which is taken into account when determining the real salary gain.

During the year, there are fluctuations in salary income determined, mainly, by the granting of occasional bonuses (13th salary, vacation bonuses, holiday bonuses granted in March/April, respectively December). These influence increases or decreases depending on when they are granted, ultimately smoothing out fluctuations in monthly earnings over the entire year. Compared to the month of July of the previous year, the average net nominal wage gain had a slight increase.

Wage gain in relation to the evolution of consumer prices - the average net wage gain index was 97.3% for May 2022 compared to the corresponding month in 2021.

In May 2022, in most activities in the economic sector, the level of the average net salary was higher than in the previous month as a result of the application of the legal provisions for establishing the minimum gross basic salary per country guaranteed in payment, the granting of occasional awards (including vacation and special performance bonuses), amounts from net profit and other funds (including meal vouchers and gift vouchers), but also production achievements or higher receipts (depending on contracts).

The most significant increases in the average net salary were recorded as follows: with in the manufacture of basic pharmaceutical products and pharmaceutical preparations, in other extractive activities; in storage and auxiliary activities for transport, forestry and logging (including fishing and aquaculture), repair, maintenance and installation of machinery and equipment, production and supply of electricity and heat, gas, hot water and air conditioning, manufacture of other means of transport ; in upper and lower coal mining, hotels and restaurants, agriculture, hunting and related services, motion picture, video and television program production activities (including audio recording and music editing activities; program broadcasting and transmission activities), collecting, waste treatment and disposal (including recycling activities; decontamination activities and services), woodworking, manufacture of wood and cork products, except furniture (including manufacture of articles of straw and other woven plant materials), manufacture of articles of housing, constructions. The decreases in average net salary earnings compared to the previous month were determined by the granting in June of occasional awards (including holiday bonuses), amounts from net profit and other funds. Also, the decreases in average net salary earnings were

caused by production failures or lower receipts (as a function of contracts), as well as by the hiring of personnel with low salary earnings in some economic activities.

In the budget sector, there were increases in the average net salary compared to the previous month: public administration, health and social assistance.

**Evolution of the nominal pension index and the consumer price index in the period 2020-2022**

*Chart 6*
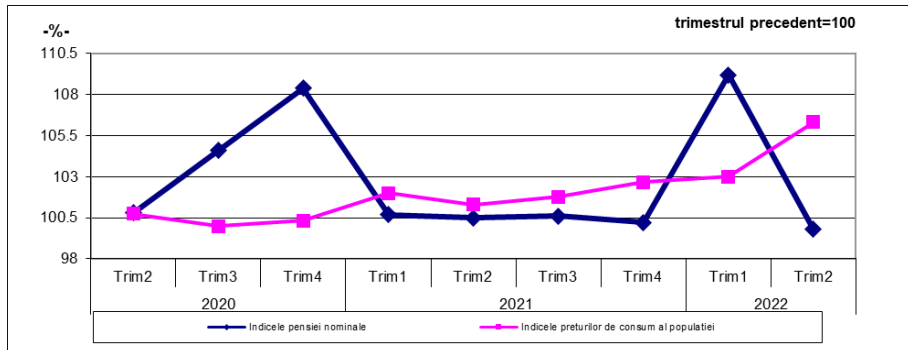


*Source: National Institute of Statistics. Data processed by the authors.*

In the second quarter of 2022, the average number of pensioners was 5,003 thousand people, down by 21 thousand people compared to the previous quarter; the average number of state social insurance pensioners was 4,604 thousand people, down by 13 thousand people compared to the previous quarter; the average monthly pension (determined taking into account the amounts for the pensions of all categories of pensioners - social insurance, disability, survivor, etc. - paid by the pension houses) was 1,851 lei, an increase of 0.3% compared to the previous quarter; the average state social insurance pension was 1774 lei, and the ratio between the average net nominal state social insurance pension for the age limit with full contribution period (without tax and social health insurance contribution) and the average net salary was 51.8% (compared to 54.4% in the previous quarter); the real average pension index compared to the previous quarter, calculated as the ratio between the nominal pension index for calculating the real pension* and the consumer price index, was 93.9%.

**The average number of retirees and the average monthly pension**

*Table 2*

| | Numărul mediu - mii persoane - | | | Pensia medie - lei lunar - | | |
|---|---|---|---|---|---|---|
| | Trim.II 2021 | Trim.I 2022 | Trim.II 2022 | Trim.II 2021 | Trim.I 2022 | Trim.II 2022 |
| **TOTAL** | **5085** | **5024** | **5003** | **1661** | **1846** | **1851** |
| *din care, după nivelul de pensionare:* | | | | | | |
| **Asigurări sociale** | **5084** | **5023** | **5002** | **1661** | **1846** | **1852** |
| din care, de asigurări sociale de stat | 4657 | 4617 | 4604 | 1601 | 1772 | 1774 |
| *din care, asigurări sociale după categorii de pensii:* | | | | | | |
| A) Limită de vârstă | 4023 | 3989 | 3982 | 1852 | 2052 | 2057 |
| B) Pensie anticipată | 14 | 11 | 10 | 2171 | 2477 | 2480 |
| C) Pensie anticipată parţial | 98 | 103 | 102 | 1751 | 2067 | 2100 |
| D) Invaliditate | 435 | 417 | 409 | 768 | 826 | 818 |
| E) Urmas | 514 | 503 | 499 | 893 | 996 | 995 |

*Source: National Institute of Statistics. Data processed by the authors.*

In the second quarter of 2022 compared to the second quarter of the previous year, the average number of pensioners decreased by 82 thousand people, and that of the category belonging to state social insurance decreased by 53 thousand people.

The average monthly pension and the average state social insurance pension increased compared to the same quarter of the previous year, by 11.4% and 10.8%, respectively.

In the second quarter of 2022 compared to the second quarter of the previous year, the average number of pensioners decreased by 21 thousand people compared to the previous quarter, and the average number of state social insurance pensioners decreased by 13 thousand people.

The average monthly pension and the average state social insurance pension increased compared to the previous quarter, by 0.3% and 0.1%, respectively.

Social insurance pensioners hold the majority (99.98%) in the total number of pensioners.

State social insurance pensioners represent 92.0% of all social insurance pensioners. By pension category, the number of old-age pensioners was predominantly (79.6%) among social insurance pensioners. Pensioners included in the categories of pensions (anticipated and partially anticipated) represented 2.2%.

The total ratio between the average number of state social insurance pensioners and that of employees was 8 to 10. This ratio shows significant variations in the territorial profile, from only 4 pensioners to 10 employees in Bucharest Municipality and Ilfov County, to 15 pensioners to 10 employees in Teleorman county, 14 to 10 in Vaslui county.

The average state social insurance pension varied with significant discrepancies in the territorial profile, the difference between the minimum and maximum amount being 945 lei (1409 lei in Botoşani county, 1419 lei in Giurgiu county, 1427 lei in Vrancea county compared to 2354 lei in Hunedoara county, 2249 lei in Bucharest and 2085 lei in Braşov county).

The total number of beneficiaries of the provisions of GEO no. 6/2009 regarding the establishment of the minimum guaranteed social pension (currently social allowance), in the second quarter of 2022, was 1156.5 thousand people, of which: 1023.6 thousand people from the social insurance system state, representing 22.2% of all pensioners in this category; 126.4 thousand people from among pensioners from the former system for farmers, representing 64.3% of their total and 6.5 thousand people from the military system, representing 3.3% of the total of this category.

## Conclusions

A careful study of this article will lead to some conclusions, mostly practical. First, the resident population will continue to decline. It is difficult to anticipate that those who emigrated and settled abroad, acquiring their residence there, will return to the country. It is clear that there will be a further disproportion between the resident population and the supply it provides for the labor force.

Another conclusion that emerges is that the improvement of dual education, professional education and professional reconversion is required as a priority, which in this way will ensure additional personnel on the structure of the national economy in the following periods.

At the same time, it must be taken into account that, both in the public and in the private sphere, greater attention should be shown and methods to be found by which the labor force is better remunerated and to ensure, in this way, the attraction and prevention of emigration, especially of well-qualified personnel.

It is clear that Romania's economy needs the improvement of personnel and in this direction, it must be ensured, through strategies, the maintenance of highly qualified personnel, especially in the fields of medicine, IT, engineering, fields of great sensitivity.

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