Alternative Unemployment Rates in Romania

George ȘTEFAN*
Bucharest University of Economic Studies (ASE), Bucharest, Romania
** Corresponding author, george.stefan@economie.ase.ro*

Anca PARASCHIV
Bucharest University of Economic Studies (ASE), Bucharest, Romania,
anca.maria.gherman@gmail.com

Clara VOLINTIRU
Bucharest University of Economic Studies (ASE), Bucharest, Romania,
clara.volintiru@rei.ase.ro

Abstract. Official statistics and usual metrics place Romania at a relatively low level of unemployment. This paper shows why this can be misleading, considering various specificities of the Romanian economy. Looking at such factors as structural features, a high number of people employed in agriculture, involuntary part-time workers, etc. we show that there are alternative metrics for unemployment that can constitute better diagnostic tools for public policies and labor market reform. The alternative unemployment metrics presented here, show that the real unemployment figures in Romania are much closer to those in Mediterranean economies like Greece, Italy, and Spain that have been struggling with high unemployment. Furthermore, we emphasize possible directions and measures to be implemented in Romania to reduce unemployment (especially structural) and to support inter-regional social cohesion and sustainable economic growth. Given the current context of the economic downturn in the post-COVID-19 and the projected impact on vulnerable groups and the risk of poverty, it is more important than ever to develop sound evidence for the policy-making process.
Keywords: *Unemployment, labor market, Romania, hysteresis, alternative unemployment metrics.*

JEL Classification: *J*01, J21, H00, F63, O1

Introduction

In Romania, the unemployment rate remains at one of the lowest levels in the European Union, amid the fact that there is a potential unused labor force, a high number of NEETs youth, and a large number of people employed in agriculture. On the one side, the level of the unemployment rate 15-64 years was at the end of 2019 at 3.9% according to Eurostat data (EU28 average being 6.3%), the lowest post-crisis level (considering the beginning of the economic crisis in Romania the third quarter of 2008, when the unemployment rate was 5.7%).

On the other side, the unemployment rate among young people (active people under 25) is quite high, around 16-17% of the active population in the same age group. At the same time, the rate of NEET's young people - young people who are not employed in any form of employment, education, or training - is one of the largest in the EU, representing 18% of people aged 14-34 at the end of 2018, according to Eurostat data (EU28 average is 14%).

In general, the recovery of the labor market in a post-recession period is a difficult process. The increase of the number of jobs depends on several factors, such as (i) institutions and labor market flexibility, (ii) the rigidity of wages (iii) the structure sector of economic growth (services, manufacturing, trade, construction sectors) or domestic demand (households credit constraints,

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consumption, government, investment) or external demand, (iv) relative labor costs compared to the cost of capital, (v) incentives and active labor market policies implemented by government authorities to encourage employment or to stimulate domestic demand through counter-cyclical fiscal-budgetary policies, etc. (Acemoglu, Autor, 2017)

In this paper, we analyse how various factors influence unemployment from a theoretical point of view, especially dealing with the hysteresis effect on the unemployment rate and the concept of the natural unemployment rate as shown in the literature.

In addition, in the second part of the paper we build several alternative (or adjusted) unemployment rates for Romania – complementary to national methodology and Eurostat methodology -, in order to reflect the structural specificity of the Romanian economy and the correlation with the dynamics of the production gap.

The last part of the analysis emphasize possible directions and measures that can be implemented by the Romanian government to reduce unemployment (especially structural) and to support inter-regional social cohesion and sustainable economic growth.

Theoretical approaches on unemployment

Labor market analysis and, in particular, the issue of unemployment is a common theme in literature. This happened especially after the Great Depression of 1929-1933 period (A. C. Pigou, 1933; J.M. Keynes, 1936) when the US unemployment reached record levels. A second period in which the issue of unemployment came to light was in the 1960s, when there was a strong debate around the Phillips curve, and a third period of debate was between the two oil shocks, in the 1970s, when in question the validity and timeliness of the relationship represented in the form of the Phillips curve.

Labor market was also a point of interest for economist researchers in the United States in the mid-1990s, when low inflation and low unemployment occurred at the same time, again focusing on the validity of the dominant theory, according to which the two variables are negatively correlated. Although it is not limited to this, macroeconomic theory still considers the short-term trade-off between inflation and unemployment to be a key element in understanding not only the effects of monetary policy but also other policies and events that change aggregate demand for goods and services.

The actual unemployment rate (U) can be broken down into two types of rates, namely the natural unemployment rate (U* or that unemployment rate recorded when the economy produces at the level of potential GDP) and the cyclical unemployment rate - U^c, respectively the part of unemployment caused by fluctuations in aggregate demand.

$$U = U^* + U^c$$

Therefore, the cyclical unemployment rate can be positive when the economy is in a recessionary phase and negative when the economy experiences a phase of expansionary lag, amid excedentary aggregate demand. Unlike the cyclical unemployment rate, the literature shows that the natural rate of unemployment is caused by several structural factors that concern the functioning of the labor market (see Table 1 below).

A. Labor market policies	B. Differences between labor demand and supply
- Impact of the social benefits allocation system - the impact of the fiscal system on the decision to work or leisure - minimum wage and trade unions bargaining power - labor law flexibility, respectively hiring and firing costs	- match between the skills of the labor supply and education/training system and labor demand from companies - Voluntary unemployment - The option to substitute labor with capital factor amid a lower cost of capital (low-interest rates)

Source: adapted after Douglas et al., 1997.

a. Phillips Curve and Natural Unemployment Rate

According to standard macroeconomic theory, the trade-off between unemployment and inflation is a central point in understanding not only the effects of monetary policy but also other policies and events that influence the demand for goods and services. However, most of these policies have effects through other channels.

For example, tax policy influences both aggregate demand through disposable income and aggregate supply by changing people's incentives for work or leisure. Also, the belief that monetary policy affects employment is linked to the hypothesis that there is a negative relationship between unemployment and inflation. In mainstream classical theory, money is neutral and changes in the amount of money supply influence only the overall level of prices, not relative prices, production, and employment.

The non-neutrality of money in the short term has been justified by many factors. Usually, the scientific literature finds several explanations for this phenomenon, such as (i) the imperfect information (see, for example, Friedman, 1968; Lucas, 1973); (ii) long-term employment contracts (Taylor, 1980); (iii) the occurrence of additional costs with price adjustment (Mankiw, 1985) – 'menu costs' – which usually accompany the changes in nominal prices; or (iv) the irrationality of economic operators (Akerlof and Yellen, 1985).

According to various studies (Friedman, 1968; Phelps, 1968), there are three types of factors that make possible this trade-off between inflation and unemployment: inflation expectations, natural unemployment rate, and the shocks on the supply side. The role of inflation expectations is important, with expected inflation growth traditionally associated with current inflation growth.

The reason why expected inflation plays such a role depends on the neutrality of money theory in the short term. Moreover, the validity of the theory will influence how expectations will be formed. In most of the standard theories, we can write the trade-off between inflation and unemployment as:

$$\mathbf{i = i^e - a(U-U^*),}$$

where i = inflation rate, i^e = expected inflation rate, U = unemployment rate,
U* = natural unemployment rate.

According to the above-mentioned relationship, the natural rate is the unemployment rate that is recorded when inflationary expectations are confirmed. Therefore, the natural rate can also be seen as the long-term unemployment rate.

This interpretation came from the logic of the inflation expectations. Over long periods, the average expected inflation should be equal to the average inflation effectively recorded, and, as result, the average unemployment rate should be equal over a long period with its average natural rate. In conclusion, the unemployment rate cannot deviate from its natural rate. This does not automatically mean that the natural unemployment rate is unchanged or that it changes very little

over time. In principle, the U* can be highly volatile over a while, so any change in the trade-off between unemployment and inflation can be described as a change in the U*.

b. Unemployment hysteresis

Some economists have suggested that the labor market manifests a form of "hysteresis" (see, for example, Blanchard and Summers, 1986). This phenomenon of hysteresis of unemployment could occur when the natural unemployment rate (U^*_t) depends on the unemployment rate of the past (U^*_{t-n}). If we assume that the economy is currently at full employment (U=U*, the unemployment rate is at its natural level and there is no cyclical unemployment), a considerable decrease in aggregate demand would lead to a recessionary gap.

Amid the demand deficit, we will also see a sharp increase in the unemployment rate, which makes U > U* (unemployment deviates from its natural value). If there were a hysteresis effect, then this increase in the unemployment rate would be persistent if it would lead to an increase in the natural rate.

Several theories have been proposed to explain this possible effect. Most of them highlight the long-term problems faced by workers who lose their jobs and become unemployed. These workers lose human capital, become less attractive to employers, and gradually devote less and less time to find a workplace (Layard, Nikell, & Jackman, 1991). All these factors reduce the likelihood to be re-employed in the future.

The impact of the social protection system on the incentives to take a job is also important, having in mind the existence of high unemployment traps alongside the lack of active labor market policies provided by the authorities. In general, when a shock occurs (such as a financial crisis) it generates a severe recession. Consequently, the government faces an increase in the unemployment rate, and this increase is felt for a long time and leaves a permanent scar on the economy, causing the natural unemployment rate to be high even after the initial shock that caused the recession has disappeared, as Ball (1999) or Blanchard and Wolfers (2000) show.

A final aspect of unemployment hysteresis is related to the insider-outsider theory, proposed more than 30 years ago by Blanchard et al. (1987), which highlights the role of employed individuals in the wage negotiation process. This model explains the phenomenon of hysteresis by referring to the employee status and the duration of unemployment. On the one hand, the employee status helps to establish the salary level – because individuals who have already employed influence salaries more. On the other hand, in terms of duration, there is a distinction between short-term and long-term unemployment, and is generally considered that long-term unemployment puts less pressure on wages (Blanchard et al., 1986).

Overall, the explanation for the hysteresis effect in this way concerns how those who are employees have higher bargaining power in setting wages, creating, among other things, a rigidity of wages that ultimately forces unemployment not to converge to a constant level of equilibrium.

c. Unemployment groups and specificities of the Romanian economy

Usually, after a shock on aggregate supply or demand, unemployment asymmetrically affects economic sectors and individuals. Practical experience shows that among the most exposed categories of people to this risk of unemployment, most are younger people, minorities, unskilled and low-skilled employees or older persons, etc. A distinct category could be also the young people who cannot find a job after dropping out of school, agriculture employed individuals (in subsistence agriculture), NEETs, or very long term unemployed persons.

The high youth unemployment rate is determined, among other things, by the capacity of government policies to reduce school dropout and to reduce the risk of poverty and social exclusion among young people, areas in which Romania has the highest difficulties. For example, the dropout rate is around 16%, in the context in which the target set in the 2020 Strategy at the European level was 10%. The Education and Training Monitor published by the European Commission for 2019 shows that, in Romania, "public spending on education is low compared to the EU level, while the investment needs of the sector are high. Any major reform may require additional funding to strengthen equity and efficiency mechanisms"[1].

Also, regarding the access to government measures on stimulating the geographical mobility of the labor force managed by ANOFM, in 2018, it is observed that the degree of effectiveness is not very high.

For 2018, was settled a target of 3075 people by stimulating labor mobility. Most of them (1455) through employment in a locality more than 15 km away from the locality of residence or residence, 730 people through employment in another locality at a distance of more than 50 km with a change of address, and 890 persons by relocation premium.

However, results obtained at the end of 2018 show that by stimulating geographical mobility, 2076 people were employed, respectively 67.5% of the scheduled workforce, of which 1057 people benefit from employment facilities for accepting a job at a distance of more than 15 km by place of residence or residence. At the same time, 277 people benefited from installation premiums for employment in another locality at a distance of more than 50 km with the change of residence; 742 employed people benefited from relocation premiums[2].

From the data officially published on the website of the Ministry of Labor, several conclusions can be drawn. Firstly, the total number of beneficiaries in 2018 represents less than 1% of the total number of registered unemployed: 2076 beneficiaries and a total number of 288896 registered unemployed in 2018.

Secondly, the counties with the highest shares of beneficiaries in the total number of unemployed were Alba (4.4%), Botosani (2.9%), and Hunedoara (2.1%).

From a territorial perspective, there are significant differences in terms of access to the geographical mobility and relocation program, noting, for example, that in Alba County the number of beneficiaries (250) exceeds that of the entire Western region (174) or the entire North-West region (236).

Thirdly, the first 10 counties with the highest number of beneficiaries cumulate over 50% of the total beneficiaries (1274 out of 2076 people). The only county with a high unemployment rate in which there is a higher number of beneficiaries is Teleorman.

[1] Source: https://ec.europa.eu/education/sites/education/files/document-library-docs/et-monitor-report-2019-romania_ro_2.pdf.
[2] Source: https://www.anofm.ro/upload/711/BI_Decembrie_2018.pdf.

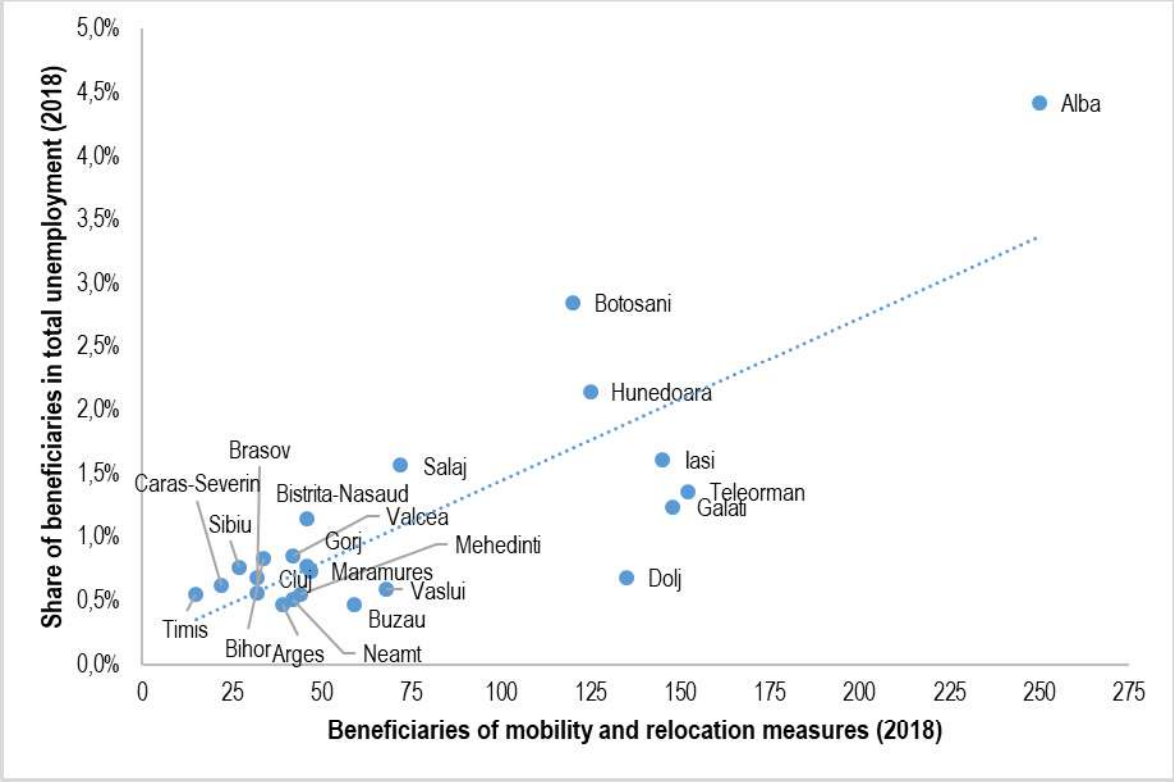


Figure 1. Mobility and relocation beneficiaries at the county level

Source: authors processing based on INS and ANOFM data.

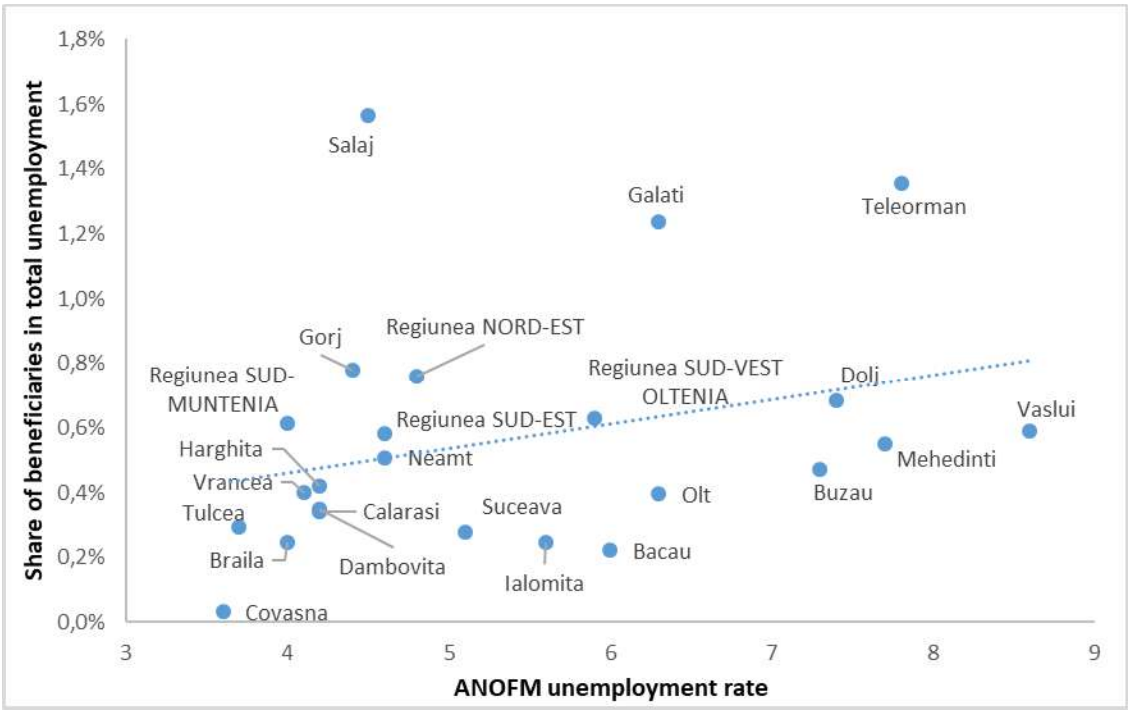


Figure 2. Mobility and relocation beneficiaries – unemployment rate at the county level (2018)

Source: authors processing based on INS and ANOFM data.

One aspect that can be mentioned here is the link between the unemployment rate and the existing industrial parks in each county. Thus, at the end of 2018, 4 out of 5 the highest unemployment rates were found in the counties without any operational industrial park, respectively: Vaslui, Teleorman, Mehedinți, and Buzău. Also, the 5th county with the highest unemployment rate is Dolj, where there is only one operational industrial park out of a total of three. At the national level, there are 11 counties where there is no industrial park, and in Vâlcea county are two parks under construction.

At the same time, in the above-mentioned counties is a significant non-employed population. According to the calculations made based on INS data, it is observed that Teleorman county is the largest share of the population employed in agriculture (non-employees), almost 43% of the total employed population. It is followed by the counties like Vaslui (37.5%), Călărași (36.2%), Mehedinți (34.6%) and Vrancea (33%).

Data shows that there may be a significant potential workforce in these counties that may be reoriented to other sectors, especially manufacturing, if appropriate industrialization and investment policies would be implemented in these counties.

Our calculation shows that if in 11 counties - where there are over 382 thousand persons (non-employees) employed in agriculture -, the share of these people reaches the national average of 19.5%, almost 120 thousand people can be employed in other sectors, especially in Teleorman, Vaslui, and Mehedinți.

In total, in Romania are 83 industrial parks, of which 58 were operational in 2019. Also, 15 are being under construction, and 10 industrial parks are greenfield investment level. According to the Ministry of Regional Development and Public Administration, they have a total area of over 3100 hectares.

Romanian counties with the most industrial parks are Prahova (14), Cluj, and Brașov (each with 11 parks). How they evolved and the structure of the number of industrial parks also shows the trends of territorial development at the county level, in this case noting Cluj county, whereof the 11 industrial parks, only 5 are operational while 6 are under construction. Also, in Prahova 4 out of 14 are of the greenfield type, and 9 are operational.

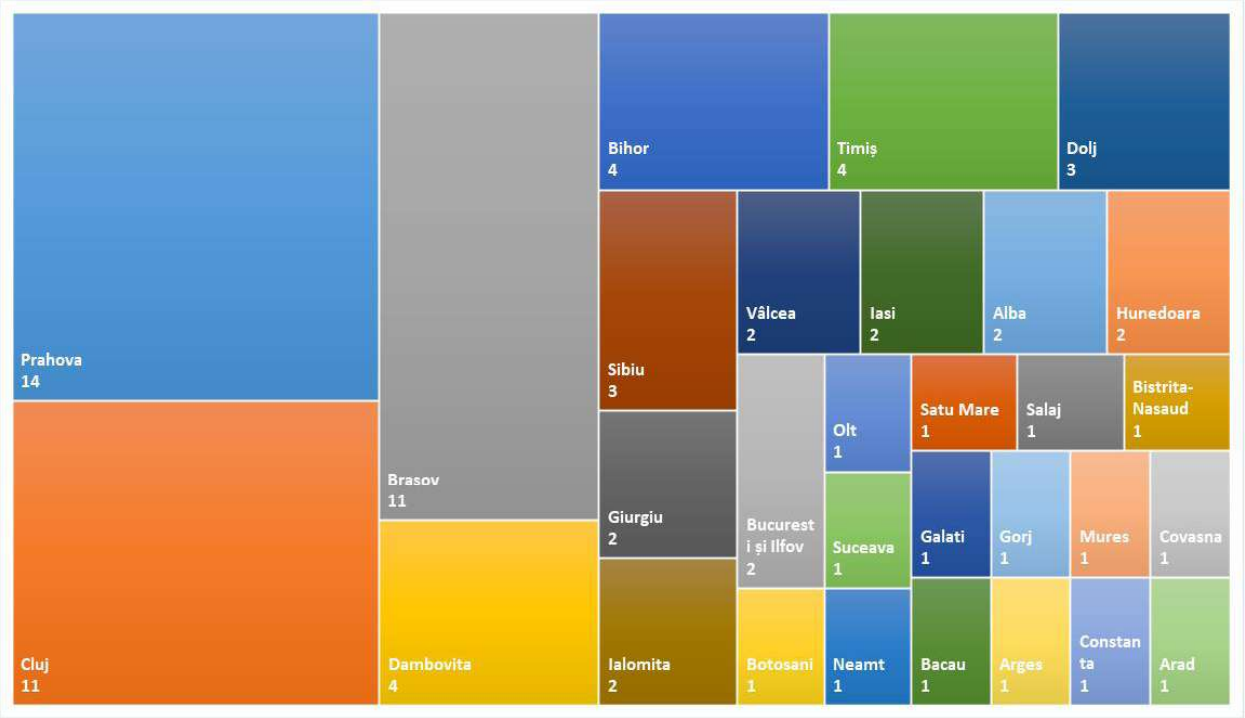


Figure 3. Industrial parks (operational, under construction, Greenfield) at county level (2019)

Source: Ministry of Regional Development and Public Administration (https://www.mlpda.ro/pages/parcuriindustriale).

Alternative unemployment rates

Methodology and data used

Given the above analysis and the relevance of the unemployment rate both from the perspective of the fiscal-budgetary situation and labor market policies, in this section we provided several alternative rates to measure the unemployment rate in Romania and to capture the evolution of the labor market through a more relevant indicator(s).

Thus, we built several alternatives (adjusted) unemployment rates starting from the active population of Romania each year (15-64 years) and different adjusted forms of the number of unemployed or quasi-unemployed individuals. The latter included different categories of persons as the non-employed population working on their own in agriculture, the discouraged population, and the population working in an atypical involuntary regime (for a determined period and/or part-time). [3]

The analysis covers the period 2008-2018, using data provided by the National Institute of Statistics and Eurostat (see Table 1). The results obtained are presented in Table 2.

[3] See for example other similar attempts, like https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-trends/economic-trends-archives/2009-economic-trends/et-20091007-alternative-measures-of-the-unemployment-rate.aspx or https://research.stlouisfed.org/publications/economic-synopses/2014/04/17/accounting-for-discouraged-workers-in-the-unemployment-rate ; Boesler, Matthew. "What the Unemployment and Labor Force Participation Rates Would Be If All of the Discouraged Workers Came Back." Business Insider, January 19, 2014; Davig, Troy and Mustre-del-Río, José. "The Shadow Labor Supply and Its Implications for the Unemployment Rate." Federal Reserve Bank of Kansas City Economic Review, Third quarter 2013;https://wol.iza.org/articles/measuring-employment-and-unemployment/long; https://www.mercatus.org/publications/government-spending/official-unemployment-rate-isn%E2%80%99t-complete-picture.

Table 1. Evolution of the number of people in the selected groups (thousand people)

ANI	L_A	P_D	U ILO definition	P_A	U_{RO}	Inactive population	PT_i
2008	1095,5	107,5	548957	9150,4	403,441	8034,2	396,27
2009	1160,1	169,5	623832	9120,1	709,383	7950,9	384,75
2010	1178,7	200,9	651243	8998,3	626,96	8042,7	436,19
2011	1290,5	276,3	659233	8826,5	461,013	8121,8	396,55
2012	1287,9	258,2	627005	9063,4	493,775	7982,8	404,92
2013	1193,9	251,3	652832	9042,9	512,333	7901,6	413,66
2014	1091,4	236,5	628315	8910	478,338	7723,5	410,818
2015	899,4	187,2	623376	8776,8	436,242	7612,2	427,75
2016	745,6	211,0	529649	8735,8	418,237	7631,9	351,424
2017	708,8	163,2	448720	8717,9	351,105	7341,7	316,386
2018	766,1	94,3	379253	8696,4	288,896	7206,9	295,932
Data sources:	**INS**	**INS**	**INS**	**INS**	**INS**	**INS**	**Eurostat**

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The first unemployment indicator is $U(1) = \frac{La + PD+Uro+PTi}{Pa}$, where:

L_A = Unpaid family workers in agriculture 15-64 years
P_D = Number of discouraged people 15-64 years
U_{RO} = National registered unemployment 15-64 years
PT_I= Total involuntary part-time employees 15-64 years
P_A = Active population 15-64 years

The second unemployment indicator is $U(2) = \frac{PD+Uro+PTi}{Pa}$, where:

P_D = Number of discouraged people 15-64 years
U_{RO} = National registered unemployment 15-64 years
PT_I= Total involuntary part-time employees 15-64 years
P_A = Active population 15-64 years

The third unemployment indicator is $U(3) = \frac{La+Uro+PTi}{Pa}$, where:

L_A =Unpaid family workers in agriculture 15-64 years
U_{RO} = National registered unemployment 15-64 years
PT_I= Total involuntary part-time employees 15-64 years
P_A = Active population 15-64 years

Obtained results

As a result of calculating alternative unemployment rates by including groups that are not usually taken into account in calculating the unemployed population (like unpaid population employed in agriculture, discouraged individuals, and involuntarily part-time employees), it is observed that unemployment rates increase significantly, especially by including the category of the population employed in agriculture (see Table 2 and Figure 4 below).

Also, Table 2 were included all average rates recorded in the period 2008-2018, as well as the difference between the maximum value recorded in this period and the value calculated for 2018.

In general, the trend of each series of recalculated data is relatively similar: unemployment rate increase in periods of recession and significantly decrease during the period of expansion, but with differences in the maximum level of rates:

- In 2009: U_{RO};
- In 2010: U(2) and U(3);
- In 2011: U(1) and U according to ILO methodology.

Table 2. Evolution of alternative unemployment rates (2008-2018)

	U(1)	U(2)	U(3)	U (ILO)	U_{RO}	Output gap
2008	21,9%	9,9%	20,7%	5,60%	4,4%	7,8%
2009	26,6%	13,9%	24,7%	6,50%	**7,8%**	-0,2%
2010	27,1%	**14,0%**	**24,9%**	7%	7,0%	-4,9%
2011	**27,5%**	12,8%	24,3%	**7,20%**	5,2%	-4%
2012	27,0%	12,8%	24,1%	6,80%	5,4%	-3,8%
2013	26,2%	13,0%	23,4%	7,10%	5,7%	-2,6%
2014	24,9%	12,6%	22,2%	6,80%	5,4%	-2,1%
2015	22,2%	12,0%	20,1%	6,80%	5,0%	-2%
2016	19,8%	11,2%	17,3%	5,90%	4,8%	-1,4%
2017	17,7%	9,5%	15,8%	4,90%	4,0%	1%

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	U(1)	U(2)	U(3)	U (ILO)	URO	Output gap
2018	16,6%	7,8%	15,5%	4,20%	3,3%	0,4%
Average 2008-2018	**23,4%**	**11,8%**	**21,2%**	**6,3%**	**5,3%**	-
Difference between 2018 and the max. value	***10,8p.p.***	***6,2p.p.***	***9,4p.p.***	***3p.p.***	***4,5p.p.***	-

Source: authors processing based on INS, AMECO and Eurostat data.

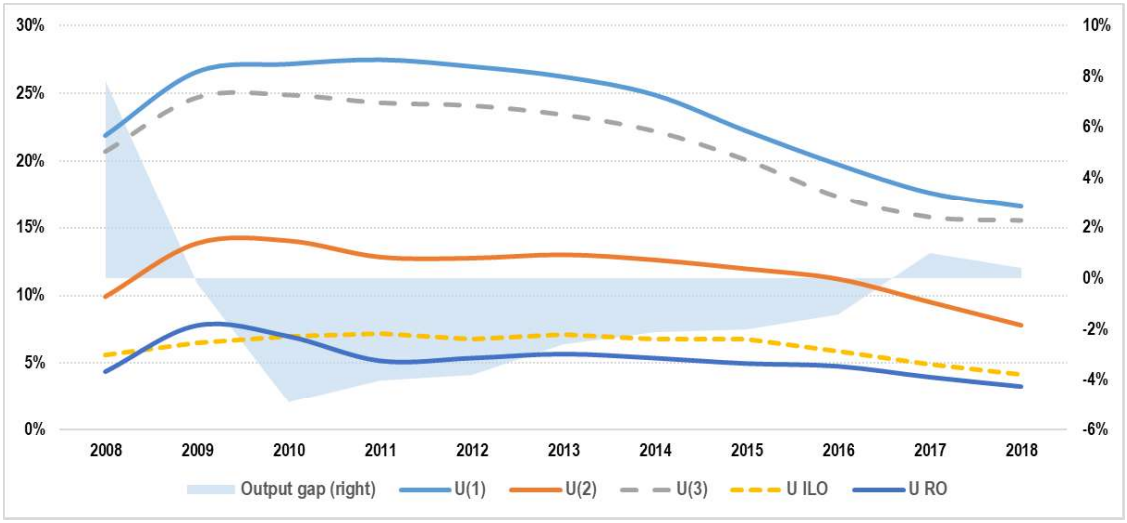


Figure 4. Evolution of alternative unemployment rates

Source: authors processing based on INS, AMECO and Eurostat data.

Structural analysis of alternative unemployment rates

Furthermore, the three alternative unemployment rates in Romania were analyzed, starting from their dynamics by structure, depending on how the groups of individuals taken into account develop. Thus, for the alternative rate no. 1 it is observed that in the period 2009-2013 it was above a level of 25% of the active population mainly due to the high share of non-remunerated family workers in agriculture and the increase of registered unemployed (see Figure 5). However, starting with 2016, when the economy re-entered into the expansionist gap, all the categories included contributed to the reduction of the unemployment rate no. 1.

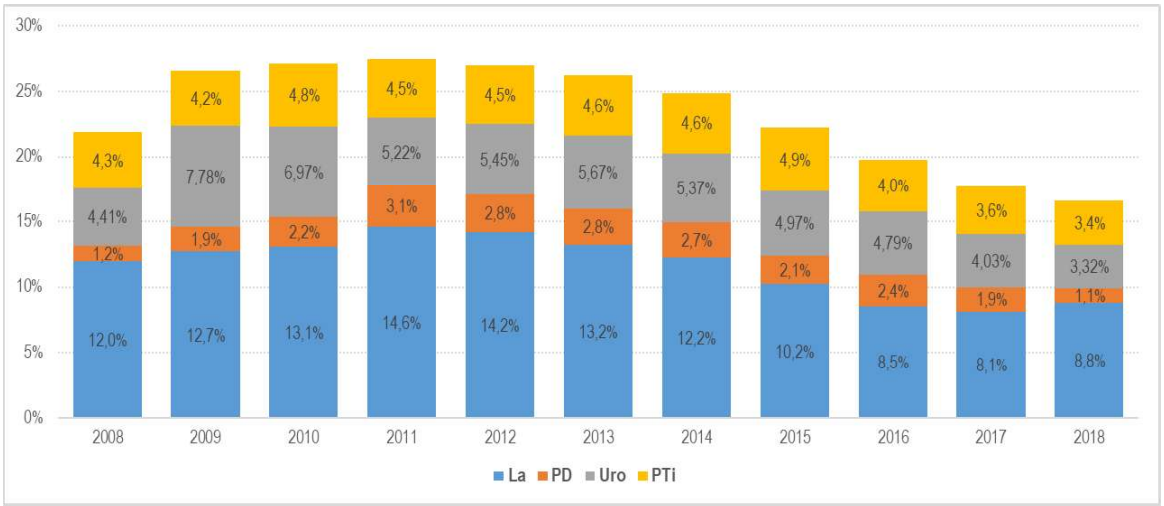


Figure 5. U(1) development by structure

Source: authors processing based on INS and Eurostat data.

U(2) excludes the unpaid population from agriculture, having as categories with a large contribution both the number of unemployed registered by ANOFM and the involuntary part-time workers. U(2) recorded the highest values in 2010 and 2009 when the recession severely affected Romania's economy.

It is also noted that until 2015 inclusive, involuntary part-time workers had a relatively stable contribution of over 4 p.p. The most significant decreases of these categories took place especially after 2016. Regarding the discouraged population, the highest values were recorded in the period 2010-2016 – more than 2 percentage points of the active population. It returned only in 2018 to pre-crisis levels at the end of 2008.

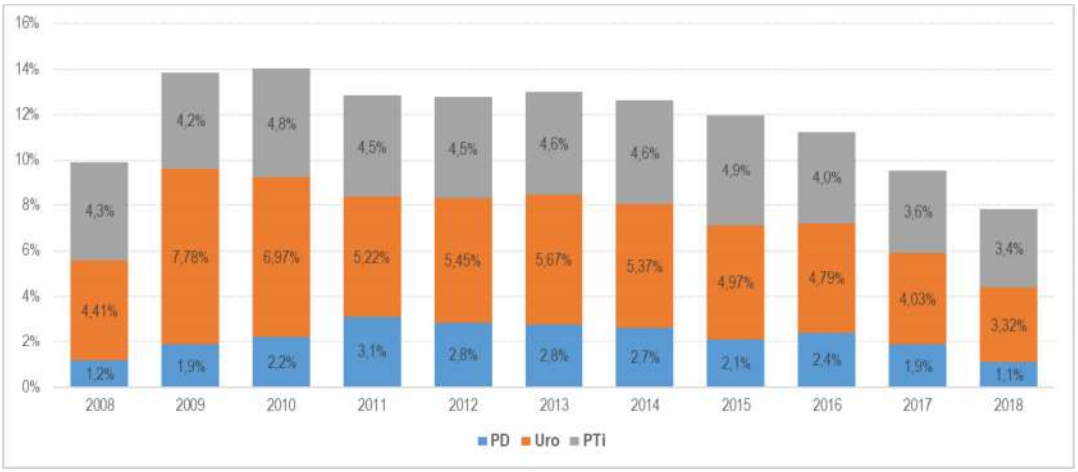


Figure 6. U(2) development by structure

Source: authors processing based on INS and Eurostat data.

Finally, U(3) includes unpaid family workers in agriculture, involuntary part-time workers, and registered unemployed according to national methodology. It is significantly higher than the unemployment rate no. 2. After 2008, it remained at a relatively stable level, around 20%, mainly due to the contribution of unpaid agricultural workers..

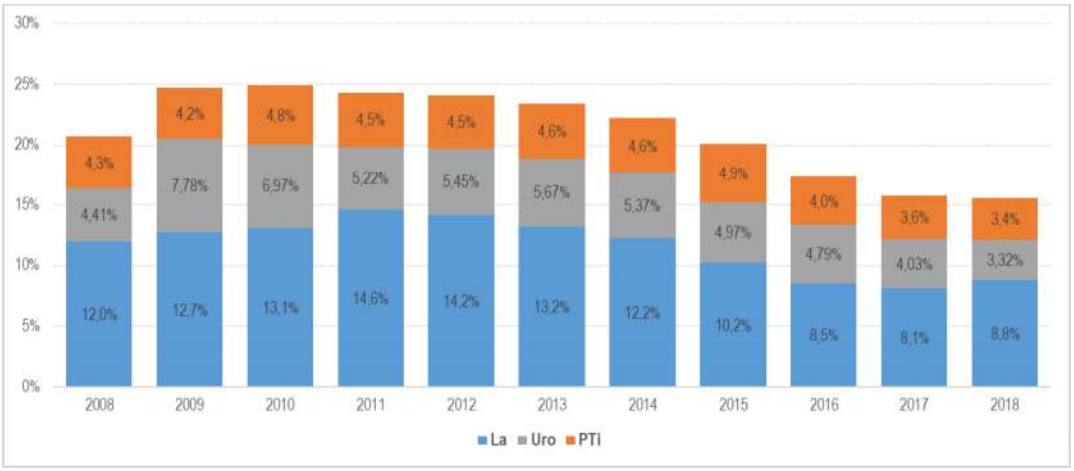


Figure 7. U(3) development by structure

Source: authors processing based on INS and Eurostat data

In the context of the European Union Member States, all three alternative unemployment rates place Romania rather close to the southern countries that have faced severe recessions, austerity measures, and major labor market problems during the last decade. For example, Romania seems closer to the unemployment rates in Spain and Italy, the evolutions being relatively similar. Of particular note is the unemployment rate no. 1 estimated for Romania, which after 2012 has the same trajectory as the unemployment rate in Spain.

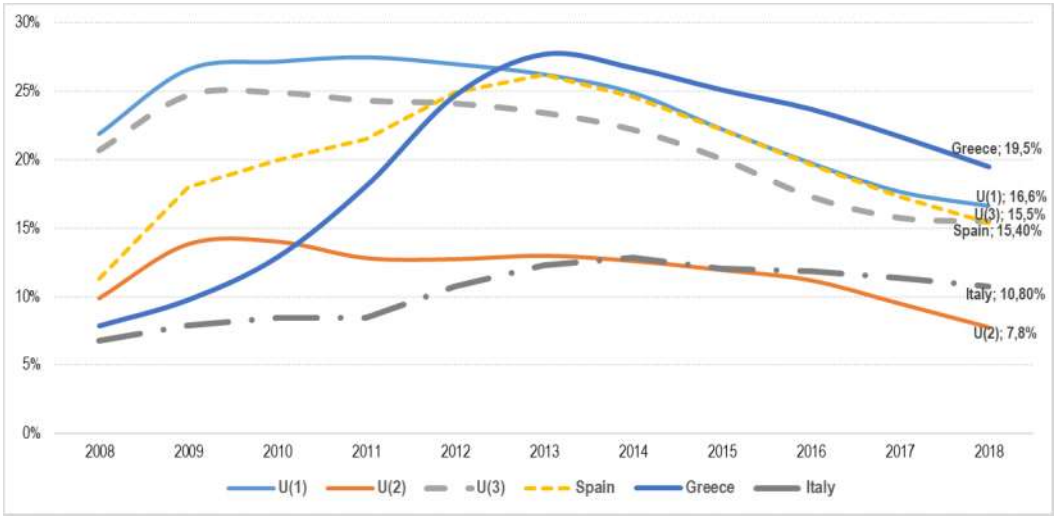


Figure 8. Comparison between Romania and other UE member states

Source: authors processing based on INS and Eurostat data.

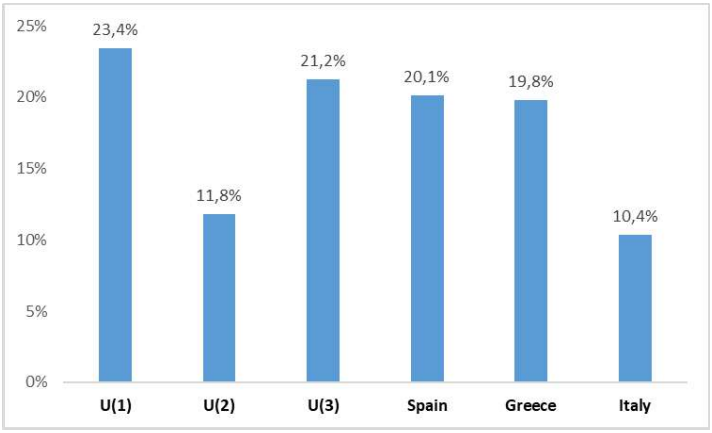


Figure 9. Alternative unemployment rates in Romania and other EU member states (average 2008-2018)

Source: authors processing based on INS and Eurostat data

Conclusions

The present paper analyses the labor market issues and, more specifically, sought to bring a heterodox perspective on the methodology for estimating the unemployment rate in Romania. Although it is usually considered that in Romania the unemployment rate is low (both on the national methodology and the ILO methodology it was below 4% in 2019), the estimates made based on alternative unemployment rates proposed in this paper show that in Romania the unemployment rate is much higher. The alternative values are close to countries such as Greece, Italy, or Spain.

This approach was chosen to emphasize the structural specificities of the Romanian economy, especially the significant unpaid active population employed in agriculture and involuntarily part-time workers.

The results obtained based on the new unemployment rates proposals show that in Romania la labor market is more problematic comparatively with the usual unemployment estimates. There are required important structural measures that will contribute to the improvement of the functioning of the labor market in several directions, among which we can mention:

(i) in the area of problems of the active labor market policy system to support the participation rate (one of the lowest in the EU), including by increasing administrative capacity;

(ii) stimulating labor mobility, especially in the context of personnel shortages reported by companies from manufacturing and other sectors;

(iii) optimizing the social assistance system;

(iv) stimulating entrepreneurship and supporting SMEs;

(v) governmental policies to attract workers from abroad (non-EU states or Romanians from EU Diaspora)

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