

A regional analysis of Romanian labor and human capital losses

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Abstract:

The transition to market economy and in the early post-accession Romania has made significant losses of labour and human capital. There are three major causes of these losses: the demographic decline, emigration and the economy functioning below potential (potential loss). The authors intend to examine these phenomena and to achieve a regional profile of loss of labour and human capital of Romania in the last two decades. In that concerning demographic decline, we believe that Romania is gradually entered a normal trend in the EU, drastic decline in the early years of transition is due mainly demographic regulations forced removal from the communist period (sanctioning abortion and celibacy tax). In the first years of transition has registered a demographic shock reflected a decrease of relative rate of population growth exceeding 6%. Some experts feel that the population decline in the last decades is the largest recorded by any country during a period of peace. Additional Romania has experienced a drastic accentuation of an aging population. The economic slowdown and easing conditions for the movement of people has spurred strong emigration from Romania. The phenomenon has been stimulated by hesitant process of introducing democratic reforms in the early years of transition. Despite the incomplete and controversial statistical data is noted the ampleness of the phenomenon and its regional dynamics is quite interesting. The estimation is difficult due a large scale of illegal emigration, those who work abroad for limited periods of time without changing the home and circular migration. Temporary emigration increased sharply after Romania's EU accession. The authors consider it is necessary to analyze the potential losses of labor and human capital of Romania in the last decades, whereas this potential gap stimulated the emigration and the moving abroad for temporary jobs. To assess the scale of this phenomenon, the authors have used the OECD methodology that is based on a determination of structural unemployment, using the specific rate NAWRU (Non-Accelerating Wage Rate of Unemployment). It accepts the hypothesis that NAWRU change gradually over time. Under these conditions, the values observed in succession on changes in current rates of inflation and unemployment can be used to estimate the corresponding time series NAWRU default value. Based on the differences between the actual rate of unemployment and NAWRU, we calculated and econometric tested the potential workforce losses on development regions (NUTS 2) of Romania, over 1990-2009. The authors have attempted such an estimate of potential loss of workforce in regional profile for 2010 taking into account the economic recession in Romania.

Keywords : labor losses, human capital, NAWRU, demographic decline
JEL : R23, E27

A demographical shock marked the first years of transition, the natural growth having dropped (in relative terms) with more than 6%. Some specialists even consider that this decrease in population is the largest registered by a country in times of peace. Furthermore, Romania was also confronted with an accentuating aging population phenomenon.

There are three main reasons for Romania's population decline in the last decades: demographic loss, emigration and the economy performing below potential (potential loss).

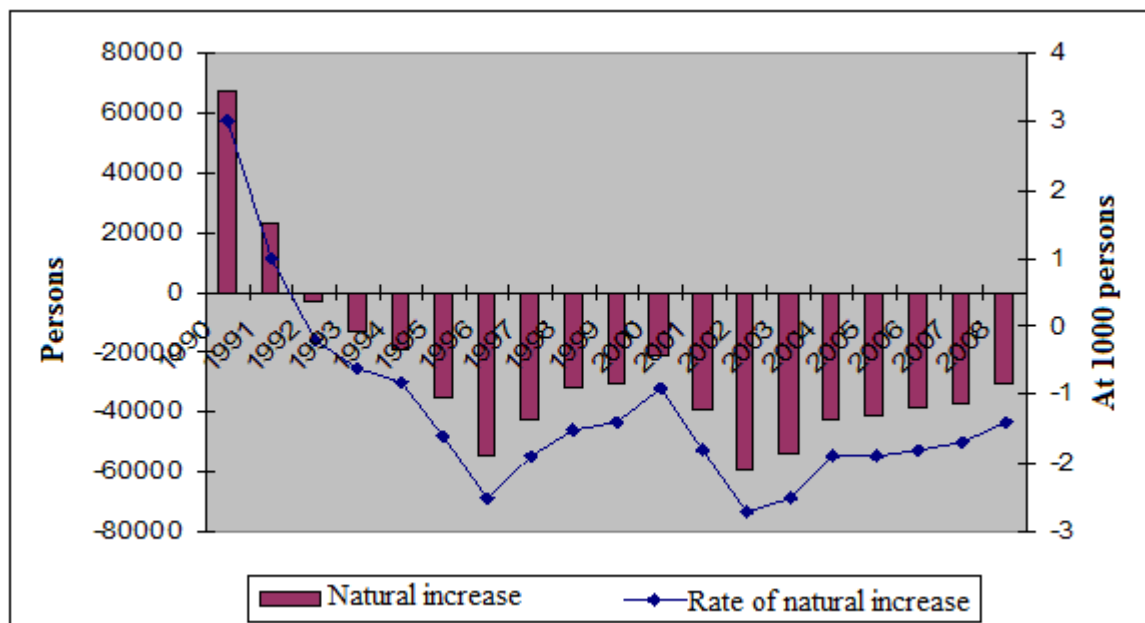
Demographic loss

During the communist period, Romania registered a forced population growth phenomenon, as many other countries in the Central and Eastern Europe. However, in the case of Romania, after the '70, there was the same tendency of a diminishing annual population growth as in other European countries, from +0.9% during 1970-1980 to +0.4% during 1980-1990; this led to Ceausescu's draconian measures directed towards maintaining population's growth (hard punishments for abortions, celibacy tax). Thus, Romania's population registered a historical maximum of 23 million inhabitants.

The instauration of a democratic regime also meant the liberalisation of the population's demographical behaviour. However, the hesitant steps taken towards democracy plus the economic decline registered after 1990 triggered a powerful demographical decline in Romania (see *Graph 1*). Thus, on average, during 1991-2009, the demographic growth became negative (-0.42% yearly), Romania's population diminishing by 94 thousand people per year.

The main reason for the decrease in population of Romania after 1990 is nativity's inferiority to mortality. The result of this situation was an absolute negative growth, starting with 1992, reaching a minimum of -59,137 persons in 2002, meaning a natural growth rate of -2.7 persons per 1,000 inhabitants. In 2008, population decreased by 30,400 persons, -1.4% in relative terms. Nativity, the key component of the population's natural movement, had a downward evolution, more evident in the urban area.

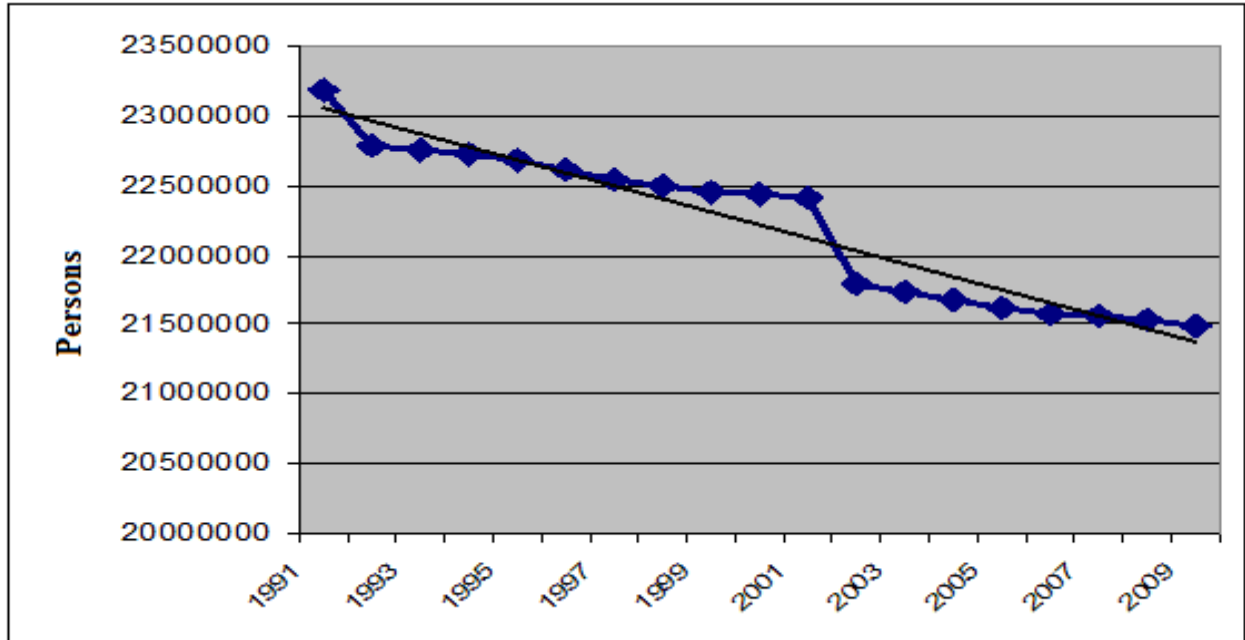
Graph 1. Romania's natural growth, absolute and relative, in the 1990-2008 timeframe



Source: Romanian Statistical Yearbook (2008, National Statistics Institute), EUROSTAT

Thus, during the 1991-2009 timeframe, Romania's population lost 1.5 million persons (see *Graph 2*); as stated before, it is considered by some specialists to be the largest decrease in population registered by a country in times of peace.

Graph 2. Romania's total population dynamics, in the 1990-2009 timeframe



Source: EUROSTAT

Romania's loss in human capital in the last 20 years (especially during the last decade) was mainly caused by external migration due to economical reasons. The official value of this loss is, at national level, 1.67 million persons (the difference between active population in 2008 and active population in 2000, according to the workforce balance). The following table details the losses in workforce at whole economy level, as well as at regional level.

Table 1. Change in active population (2008/2000), according to Romania's workforce balance

	1991/ 1990	1992/ 1991	1993/ 1992	1994/ 1993	1995/ 1994	1996/ 1995	1997/ 1996	1998/ 1997	1999 1998
Total economy	284	264	-160	9	-744	-455	-132	-66	-288
NORTH-WEST	59	42	-29	-16	-138	-24	-28	44	-46
CENTER	18	1	-3	20	-58	-50	-17	-10	-19
NORTH-EAST	44	49	2	37	-117	-60	-29	-9	-9
SOUTH-EAST	57	51	-28	-22	-66	-68	-27	-21	-15
BUCHAREST - ILFOV	78	24	-95	-9	-136	-79	-26	9	-150
SOUTH-MUNTENIA	25	63	21	-42	-111	-59	-19	-21	-17
SOUTH WEST OLTENIA	5	31	-13	24	-102	-53	24	-28	7
WEST	-2	3	-14	18	-16	-63	-10	-30	-39

	2000/ 1999	2001/ 2000	2002/ 2001	2003/ 2002	2004/ 2003	2005/ 2004	2006/ 2005	2007/ 2006	2008/ 2007
Total economy	87	-247	-300	-125	-168	117	16	164	75
NORTH-WEST	4	-16	-47	-21	-22	20	5	24	10
CENTER	-6	-43	2	-28	-25	-5	5	11	12
NORTH-EAST	-4	-55	-100	-50	-59	-2	-29	0	4
SOUTH-EAST	-7	-43	-52	-23	-15	1	-2	8	4
BUCHAREST - ILFOV	103	8	51	35	37	79	68	77	13
SOUTH-MUNTENIA	-24	-51	-49	-28	-39	4	-16	15	0
SOUTH WEST - OLTENIA	-4	-25	-84	-9	-44	9	-9	5	18
WEST	24	-23	-21	-1	-3	11	-5	24	13

	Loss in 2008, as compared to 2000		
	<i>Number of persons (thou)</i>	<i>Share of total economy (%)</i>	<i>Share of total workforce in the region (%)</i>
Total economy	-1,671	100	
NORTH-WEST	-178	10.7	-15.2
CENTER	-195	11.7	-17.9
NORTH-EAST	-386	23.1	-28.4
SOUTH-EAST	-266	15.9	-24.2
BUCHAREST - ILFOV	85	-5.1	8.5
SOUTH-MUNTENIA	-347	20.8	-27.1
SOUTH-WEST OLTENIA	-249	14.9	-27.2
WEST	-135	8.1	-15.5

Source: Data for the 1990-2007 timeframe: National Statistics Institute (<http://www.insse.ro>). For 2008, computations are based on the National Prognosis Commission data ("Projection of the main economical and social indicators at regional level, up to 2012", June 2009, p. 4, http://www.cnp.ro/user/repository/prognoza_regiuni_iunie_2009.pdf)

In relative terms, the largest decrease was registered in the North-East region. Moreover, the South-East, South-Muntenia and South-West Oltenia regions registered losses of more than a quarter of their workforce.

Emigration

Romania is a country of emigration, having been included since 2000 in the top 10 countries of origin for migration flows to OECD countries. In 2005, Poland and Romania (at that time, an EU candidate country) ranked first and second in this top, distancing themselves from the other countries included, despite having been in the top 10 since 2000 (see *Table 2*).

Table 2. Top 10 countries of origin for migration flows to OECD countries in years 2000 and 2005

2000			2005		
Rank	Country	Number of persons (thousands)	Rank	Country	Number of persons (thousands)
1	Morocco	96	1	Poland	324
2	Ecuador	95	2	Romania	202
3	Poland	94	3	Morocco	128
4	Bulgaria	81	4	Bulgaria	82
5	Turkey	79	5	Germany	77
6	Romania	76	6	Ukraine	70
7	USA	64	7	Turkey	66
8	Germany	61	8	UK	65
9	France	60	9	Russian Federation	54
10	Italy	56	10	France	49

Source: International Migration Outlook, OECD, 2007, p. 38

Although they refer only to the legal migration phenomenon (changing the address), official statistical data indicate significant increases of migration in 2008 as opposed to 2007 (39%). There can be also noticed that the trend of the phenomenon is oscillating: after years of high migration (over 50 thousand persons), years of moderate migration follow (around 40 thousand persons).

Besides the legal emigrants, there are other types as well: illegal emigrants (those that work abroad for fixed periods of time without changing their address) and persons that practice circular migration.

Illegal migration, though not revealed statistically, is important in size, being estimated at 20-30% above the legal migration level¹.

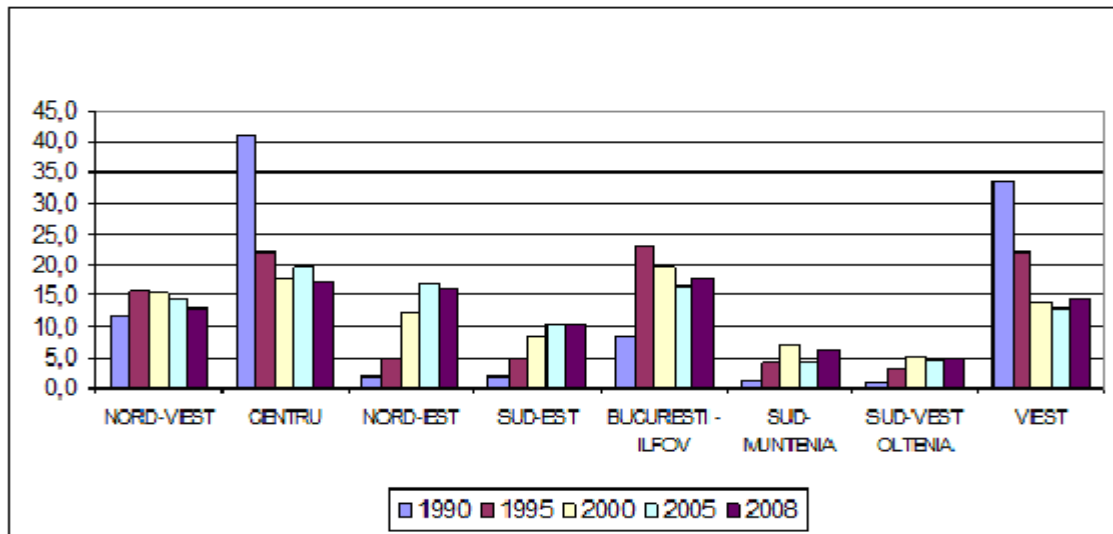
Temporary work-related migration has also become important for Romania in recent years. Although the size of the phenomenon is not known exactly, some estimations exist, the most recent being made by the Open Society Foundation (OSF) for the 1990-2006 timeframe². According to the results of this research, more than a third of Romania's households had at least one member working abroad during 1990-2006.

Regarding emigrant dynamics at development region level, the trend observed during years 1990 to 2008 is ascending, with two exceptions: the Centre and West regions, in the case of which the migratory phenomenon peaked during the 1990-1995 period.

¹ *National Report on Human Development, Romania, 2007*

² *Temporary residence abroad. The economical migration of Romanians: 1990-2006*, Open Society Foundation, December 2006

Graph 3. Dynamics of emigrants share in national total, at regional level



Potential workforce losses

Obviously, most of these losses are caused by external migration and natural causes. However, this section will deal with another issue: sizing the regional losses generated by the national economy performing below potential at year-end 2008 and their medium-term outlook. To this purpose, we will estimate the difference between the actual unemployment rate and the natural unemployment rate (or structural unemployment, according to the OECD definition).

Methodology

In recent years, the Organisation for Economic Co-operation and Development (OECD) has initiated a series of studies related to structural unemployment³. OECD methodology indicates the usage of a specific indicator when estimating the structural unemployment, namely Non-Accelerating Wage Rate of Unemployment (NAWRU), an indicator suggested by Elmeskov and MacFarlan (1993)⁴ and Elmeskov (1994)⁵. NAWRU is the measurement for the structural unemployment rate, seen as the unemployment rate at which wages increase is stable on the long-term. In other words, NAWRU corresponds to a situation of macroeconomic equilibrium, when, at a certain level of the unemployment rate, the increase in real wages matches the evolution in productivity. When the actual unemployment rate is higher than the structural unemployment rate, a potential loss in workforce occurs.

The most used method of calculating NAWRU is that suggested by Elmeskov and MacFarlan in 1993. The method is based on the hypothesis that the wage inflation (a strictly nominal change in wages, not a real change) is proportional to the gap between the actual

³ For reference, please see: OECD, Economics Department, June 2009, *Adjustments to the OECD's Method of Projecting the NAIRU*, <http://www.oecd.org/dataoecd/56/9/43098869.pdf> (accessed August 2009); OECD, Economic Outlook No. 85, June 2009, Chapter 4, *Beyond the Crisis: Medium-Term Challenges Relating to Potential Output, Unemployment and Fiscal Positions*, <http://www.oecd.org/oecdEconomicOutlook> (accessed August 2009).

⁴ Elmeskov, J., MacFarlan, M., *Unemployment persistence*, OECD Economic Studies, No. 21, winter 1993

⁵ Elmeskov, J., *High and persistent unemployment: assessment of the problem and its causes*, OECD Economics Department, Working Paper No. 132, 1993.

unemployment rate and the structural unemployment rate (NAWRU). The hypothesis that NAWRU changes over time is also taken into account. Considering all this, one can use the empirical values of the changes in actual inflation rate and unemployment rate in order to estimate the time series correspondent to NAWRU's implicit value.

More specifically, it is assumed that wage inflation is proportional to the difference between the actual unemployment rate and NAWRU, thus:

$$D^2 \ln W = -a(U - \text{NAWRU}),$$

where:

- D is the differential operator⁶;
- W is the average wage level;
- U is the unemployment rate;
- $a > 0$ is a proportionality parameter.

Assuming that NAWRU is constant during two consecutive time periods, parameter a can be estimated as follows:

$$a = -\frac{D^3(\log W)}{D(U)}$$

Parameter a can be further used in computing NAWRU⁷:

$$\text{NAWRU} = U - \frac{D(U)}{D^3(\log W)} \cdot D^2(\log W)$$

The series computed for NAWRU need smoothing in order to eliminate inconsistent values. Such values can appear when $D^3(\log W)$ is close to 0, which makes the previous formula unstable.

Data used

With the purpose of estimating the size of regional losses in workforce generated by the national economy's performance below potential, we used national statistics data, such as active population, employment, unemployment, average monthly net nominal earnings at development region and county level (1990-2008), as well as forecast data from the National Prognosis Commission (for the 2009-2012 timeframe)⁸. This data is synthetically presented in the following tables.

Results

The structural unemployment rate (NAWRU) was computed by following the previously presented methodology. The results are as follows:

⁶The 1st degree differential operator is $D(x_t) = x_t - x_{t-1}$. Therefore, $D^2(x_t) = D(x_t) - D(x_{t-1})$, or $D^2(x_t) = x_t - 2x_{t-1} + x_{t-2}$. If L is the 1st degree lag operator, $Lx_t = x_{t-1}$, and L^n the nth degree lag operator, $L^n x_t = x_{t-n}$, then $D(x_t) = (1-L)x_t$ and $D^2(x_t) = (1-L)^2 x_t$ (for details, please check Jula, D., *Introduction into econometrics*, Professional Consulting Publishing, Bucharest, 2003).

⁷Giorno C., Richardson, P., Roseveare, D., Noord (van den), P., p. 11-12, 1995

⁸National Prognosis Commission, *Projection of the main economical and social indicators at regional level, up to 2012*, June 2009, http://www.cnp.ro/user/repository/prognoza_regiuni_iunie_2009.pdf

Table 3. Structural unemployment rate (NAWRU)

NAWRU	1996	1997	1998	1999	2000	2001	2002	2003
Total economy	8.2	8.4	11.2	11.7	12.2	11.9	10.8	7.8
Centre	9.6	10.0	9.9	10.5	11.2	11.1	10.5	8.6
North-East	11.1	11.0	12.3	12.8	13.0	12.5	10.9	9.6
South-East	9.3	9.5	10.1	11.4	11.9	11.7	10.5	9.4
Bucharest-Ilfov	3.4	3.6	3.9	5.5	5.6	5.2	4.3	3.5
South-Muntenia	7.1	7.5	8.5	9.3	10.0	10.0	9.2	8.6
South-Oltenia	8.7	8.8	9.3	9.6	10.2	10.1	9.4	8.5
West	7.3	8.1	9.3	10.0	10.4	9.8	8.4	7.1
NAWRU	2004	2005	2006	2007	2008	2009	2010	
Total economy	7.0	6.2	5.4	5.0	5.1	5.0	6.0	
Centre	7.7	7.1	6.3	5.6	5.5	6.5	6.7	
North-East	8.3	7.3	6.2	5.0	5.1	5.2	5.5	
South-East	7.8	6.9	5.9	5.3	5.4	5.3	6.5	
Bucharest-Ilfov	3.0	2.6	2.3	2.1	2.0	2.0	2.0	
South-Muntenia	7.9	7.2	6.5	5.8	5.7	5.0	4.4	
South-Oltenia	8.3	7.6	6.9	7.2	7.3	7.5	7.2	
West	6.1	5.3	4.7	1.7	2.0	1.8	2.1	

Next, we compare the structural unemployment rate to the recorded unemployment rate. The difference between the unemployment rate and NAWRU, at regional level, is presented in the following table:

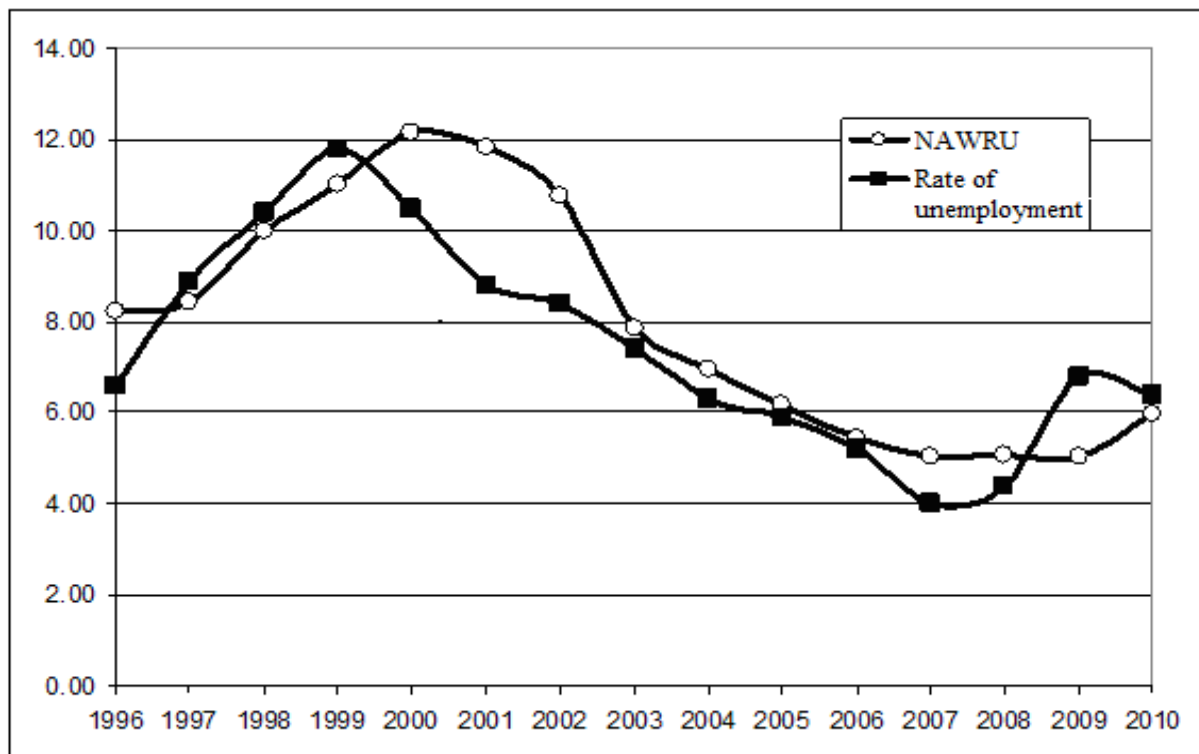
Table 4. Difference between unemployment rate and NAWRU, at regional level

u-NAWRU	1996	1997	1998	1999	2000	2001	2002	2003
Total economy	-1.6	0.5	0.8	0.1	-1.7	-3.1	-2.4	-0.4
North West	-6.5	-4.1	0.9	1.8	-0.1	-1.4	-0.3	-0.6
Centre	-3.5	-1.3	0.3	0.5	-0.9	-2.5	-1.5	-0.3
North-East	-1.1	1.2	1.6	2.1	0.2	-1.9	-0.1	-0.6
South-East	-1.9	-0.1	1.6	1.8	-0.5	-1.9	-0.5	-1.3
Bucharest-Ilfov	0.0	1.8	1.0	1.4	0.2	-0.5	-1.0	-0.7
South-Muntenia	-1.5	0.5	1.6	2.5	0.4	-1.1	0.0	-0.3
South-Oltenia	-2.2	0.3	1.6	2.1	1.4	0.3	0.0	0.6
West	-1.4	0.2	1.3	2.6	0.0	-0.3	-1.8	-0.1
u-NAWRU	2004	2005	2006	2007	2008	2009	2010	
Total economy	-0.7	-0.3	-0.2	-1.0	-0.7	1.8	0.4	
North-West	-1.0	-0.5	-0.2	-0.2	-0.3	2.8	2.0	
Centre	0.1	0.2	-0.2	-0.8	-0.3	0.9	0.3	
North-East	-0.5	-0.5	0.0	0.1	0.2	2.3	1.7	
South-East	-0.9	-0.5	-0.3	-0.9	-0.7	2.1	0.6	
Bucharest-Ilfov	-0.2	-0.2	-0.1	-0.4	-0.3	1.1	0.6	
South-Muntenia	-0.5	0.1	-0.1	-0.7	-0.6	2.1	2.5	
South-Oltenia	-0.8	-0.2	0.1	-2.1	-0.3	0.7	0.8	
West	-0.3	-0.2	-0.6	1.6	1.7	5.2	4.4	

Source: Authors callculus.

At national level, both unemployment rates tend to progress similarly. However, during periods of economic growth (2000-2008), the unemployment rate was situated below the structural unemployment rate (see *Graph 4*).

Graph 4. Compared evolution of structural unemployment rate (NAWRU) and unemployment rate, at national level



A similar evolution was registered at regional level. With the exception of the North-West, Centre and South-East regions in year 1997, the relationship between the structural unemployment and the recorded unemployment was in accordance with the economics for all years considered and all regions. The exceptions can be explained by the higher inertia of the structural unemployment rate as compared to the actual unemployment rate.

For the last part of year 2008 and, in prospective, the years 2009-2010, the potential loss in workforce was computed by applying the difference between the actual unemployment rate and NAWRU to the active population. The results are presented in the following table:

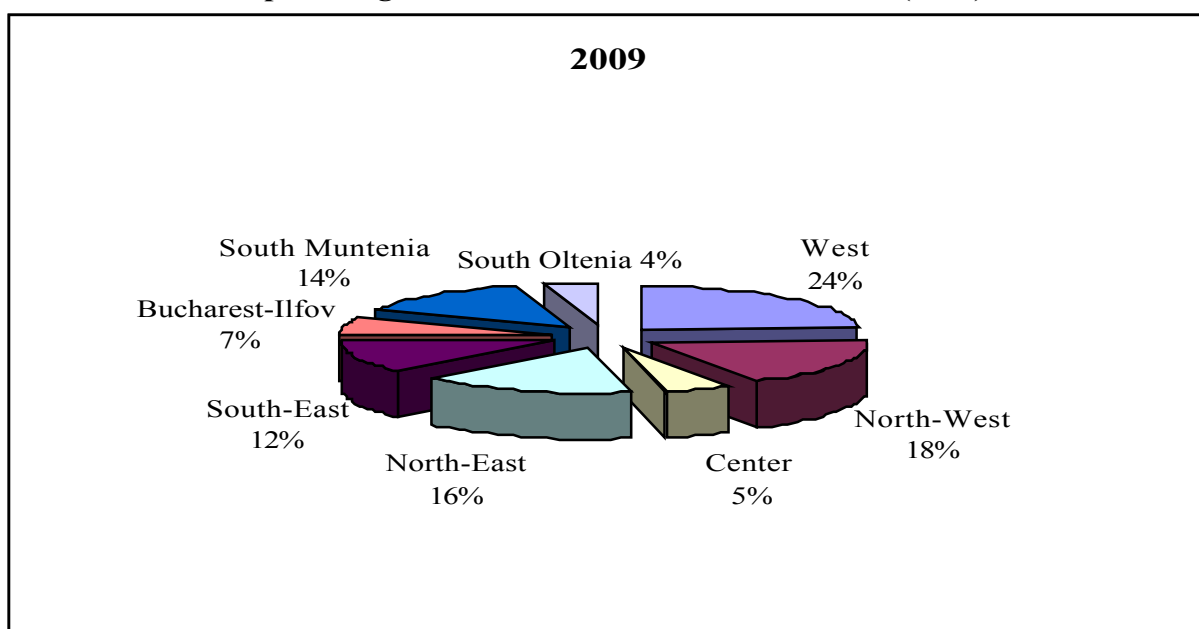
Table 5. Regional sizing of workforce losses generated by the national economy performing below potential (thousand persons)

	2009	2010		2009	2010
Total economy	161.1	143.3			
North West	34.9	24.3	Centre	9.9	2.9
BH	-6.5	-7.7	AB	1.8	4.5
BN	1.1	0.2	BV	3.5	1.9
CJ	11.7	8.5	CV	0.7	-0.5
MM	1.9	0.5	HR	3.1	3.3
SM	4.8	4.2	MS	12.0	10.2
SJ	4.4	3.8	SB	3.6	1.6

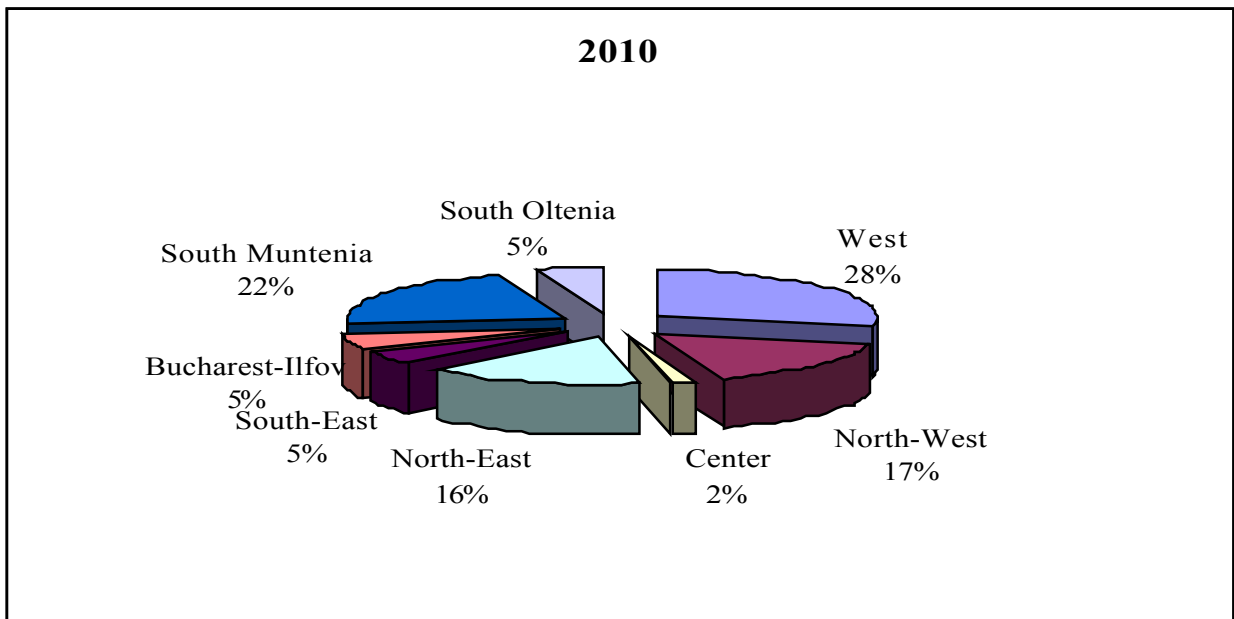
North-East	30.1	22.9	South-East	23.8	7.0
BC	4.4	3.3	BR	-0.5	-0.3
BT	-7.5	-7.7	BZ	0.6	0.9
IS	1.6	1.2	CT	7.1	5.1
NT	1.4	1.2	GL	6.7	3.3
SV	-13.1	-13.6	TL	4.0	5.3
VS	4.0	4.0	VR	3.5	3.0
South-Muntenia	27.4	31.8	South-Oltenia	6.8	7.1
AG	3.0	1.5	DJ	4.3	3.4
CL	1.1	1.2	GJ	1.0	0.6
DB	0.8	0.9	MH	1.8	3.3
GR	1.1	0.6	OT	1.1	0.8
IL	1.6	2.1	VL	2.7	1.8
PH	5.9	3.5			
TR	2.6	0.3			
West	47.2	40.3	Bucharest-Ilfov	13.8	7.1
AR	-0.1	-0.9	IF	2.4	1.2
CS	2.7	3.0	B	5.1	1.8
HD	1.3	0.8			
TM	9.9	7.9			

The regional structure of the potential loss in workforce for the years 2009 and 2010 is presented in the next graphs (*Graph 5-6*). As it can be noticed, the largest potential losses in workforce are registered in the West, North-West and South regions.

Graph 5. Regional breakdown of workforce losses (2009)

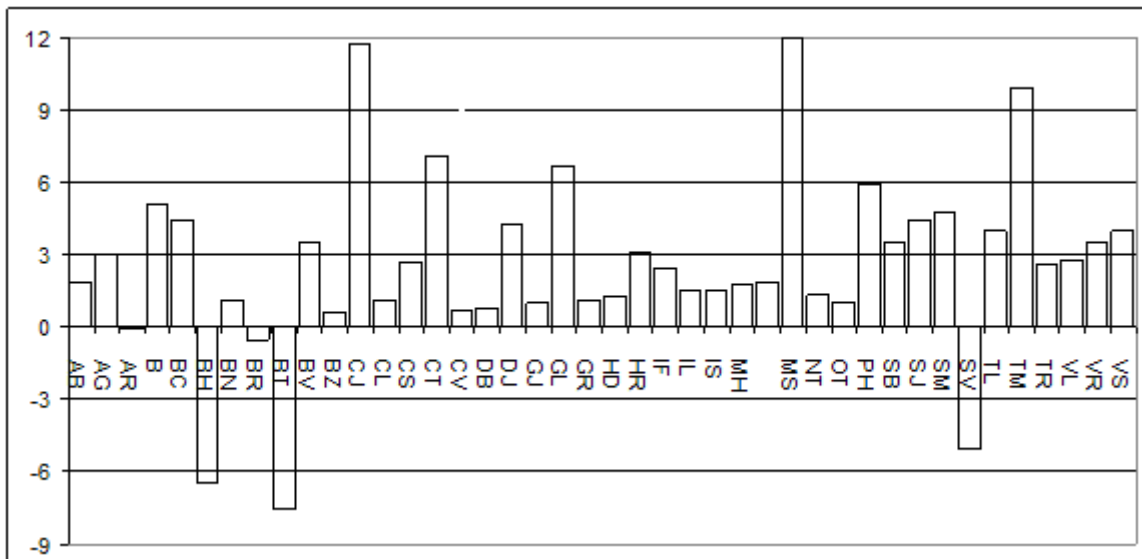


Graph 6. Regional breakdown of workforce losses (2010)

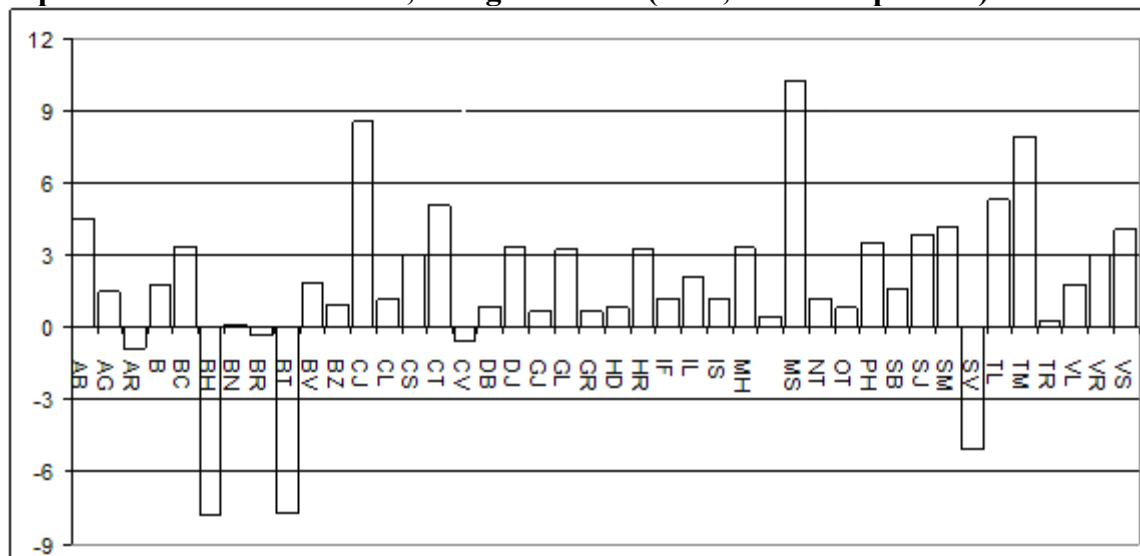


At territorial administrative unit level (NUTS 3), the largest potential losses in workforce are registered in Mures, Cluj and Timis counties (see *Graph 7-8*).

Graph 7. Workforce losses size, at regional level (2009, thousand persons)



Graph 8. Workforce losses size, at regional level (2010, thousand persons)



With the exception of Bihor, Botosani and Suceava counties, for which the structural unemployment rate surpasses the actual unemployment rate, in the case of all the other counties, the economic and financial crisis led to a unbalanced state, where the workforce potential is underused. The sizes of the losses are about 160 thousand persons in 2009 and 137 thousand in 2010. This means 2.1% of the workforce in 2009 and 1.6% in 2010.

References :

- Appave, G., Cholewinski (2007), „Managing Labour Mobility in the Evolving Global Economy”, in *Migration. Labour on the Move: Opportunities and Challenges*, IOM, December 2007
- Arango, Joaquin. (2000). Explaining migration: a critical view, *International Social Science Journal*, 165.
- Baker D., Schmitt, J., - The Macroeconomic Roots of High Unemployment: the Impact of Foreign Growth”, *Economic Policy Institute*, <http://www.epinet.org>, 1999
- Bijak, J. et al., 2004, International migration scenarios for 27 European countries, 2002-2052, www.cefmr.pan.pl
- Bijak, J. et al., 2007, Population and labour force projections for 27 European countries, 2002-2052: impact of international migration un population ageing, www.cefmr.pan.pl
- Boyd, Monica. (1996). Family and personal network in international migration: recent developments and new agendas. In Robin Cohen (ed.), *The sociology of Migration*. Brookfield, Vermont, US: Edward Elgar Publishing Company.
- Castels, Stephen, Miller Mark J. (1993). *The age of migration. International Population Movements in the Modern World*. London: Macmillan
- Brochmann, Kristof Tamas, Thomas faist (eds.), *international Migration, Immobility and Development. Multidisciplinary perspectives*. Oxford, New York; Brookfield, Vermont, US: Edward Elgar Publishing Company.
- Constantin D.L, Vasile, V., Preda, D., Nicolescu L., (2008), „Current issues regarding Romania’s external migration”, in J. Poot, B. Waldorf, L. van Wissen, L. (Eds.), *Migration and Human Capital: Regional and Global Perspectives*, Edward Elgar, Cheltenham, UK

Cucuruzan, R.E. (2009), *Migrația și mobilitatea forței de muncă din România în contextul integrării europene*, Editura Fundației pentru Studii Europene, Cluj-Napoca, 2009

Gabrisch, H.; Buscher H., "The Relationship between Unemployment and Output in Post- communist Countries", *Post-Communist Economies*, Vol.18, No. 3, 2006

Gurak, Douglas T., Caces, Fe. (1992). Migration Networks and the Shaping of Migration systems. În Kritz.M., Lim, L, Zlotnik, H. (eds.), *International migration systems – a global approach*, Oxford; Clarendon Press.

Massey, Douglas, Arango, Joaquin, Hugo, Graeme, Kouaouci, Ali, Pellegrino, Adela Taylor, Edward J. (1993). An evaluation of international migration theory: The North American Case. *Population and Development Review*. Vol. 20, 699 – 751

Sandu, Dumitru. (1984). *Fluxurile de migrație în România*, București; Editura Academiei

Zlotnik, H. (1992). Empirical identification of international migration systems. În Kritz.M.

*** - "Evoluția ocupațiilor pe piața forței de muncă din România în perspectiva anului 2010", Studio INCSMPS, coordonatori dr. Speranța Pîrciog, dr. Vasilica Ciucă, dr. Eugen Blaga, București, 2006.

*** - "Anuarul demografic al României", INS, 2006.

*** - "Anuarul Statistic al României", INS, 2006, 2007, 2008.

*** - "Ancheta asupra forței de muncă în gospodăria 2008", INS, 2009

*** - "Ancheta asupra forței de muncă în gospodăria trimestrul I 2009", INS, 2009

*** EUROSTAT, <http://epp.eurostat.ec.europa.eu>.