STUDY ON THE CORRELATION OF INFLATION-UNEMPLOYMENT IN THE EUROPEAN UNION

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Abstract: Inflation is significant and persistent increase in the price level, is seen as the depreciation of money. Unemployment is an unbalanced labour market in which there is a surplus of demand over supply of jobs. To ensure sustainable growth, any economic policy should aim both moderate inflation and low unemployment. Economic reality has shown that between the two indicators there is a strong connection, but opposite direction. Thus, a reduction in inflation is followed often by rising unemployment, and vice versa, measures to reduce unemployment may increase inflation. In this paper, the authors have proposed to realize a statistical study on the correlation between inflation and unemployment in the European Union.

1. INTRODUCTION

Two of the most important issues confronting contemporary states are represented by inflation and unemployment. The problems are even more pronounced in the responsible institutions (government, ministries) because, often, they must choose to improve one alone. In other words, the government that a policy of macroeconomic stabilization can not in any case to act on both issues (inflation and unemployment). Policymakers must weigh the implications of a decision on any matter (for example, if you want to reduce inflation by a certain percentage, the higher will increase unemployment), respectively, to choose between several variations on the least harmful to people.

1.1. Unemployment

Unemployment - by great extent, by complex structures, especially by changing rhythms and dynamics that sense - is emerging as a macro subject to heated debate theoretical, methodological and political-ideological. In the literature we find many ways to analyze unemployment and national and international official statistics use different methods for recording and measuring it, which creates confusion and conceptual.

Unemployment reflects the number of people officially unemployed status. In the most common definition is considered unemployed person seeking paid employment, and which it currently occurs. In national and international regulations are used other criteria for determining the unemployed. According to the International Labour Organization (ILO) unemployed person is seeking gainful employment because labor is free and available to start work immediately (15 days).

At present, unemployment is discussed and analyzed, currently, as an imbalance of national labor market, which is the place of encounter and confrontation between global demand and global supply work. This approach is, in fact, a continuation of the economic and demographic analysis, on the one hand, and economic and financial analysis and investment, on the other hand, indicating that both labor resources (supply) and needs work (demand) are studied in terms of unique requirements and rules of remuneration and salary. Therefore, regardless of the angle of approach, unemployment is a dysfunction of the national labor market.

Knowledge of direct causes of unemployment, forms it generates these causes, is of great importance to assess his expectations and formulating ways to improve employment and socio-economic status of unemployed.[1]

1.2. Inflation

Inflation is the difference between nominal gross national product (GNPn) and real gross domestic product rate (GNPr), difference determined to the increase of prices of goods and services generalized (figure no. 1.). Inflation rate is just the percentage increase in the level of prices and tariffs in a given period. On account of inflation there is no real loss result.
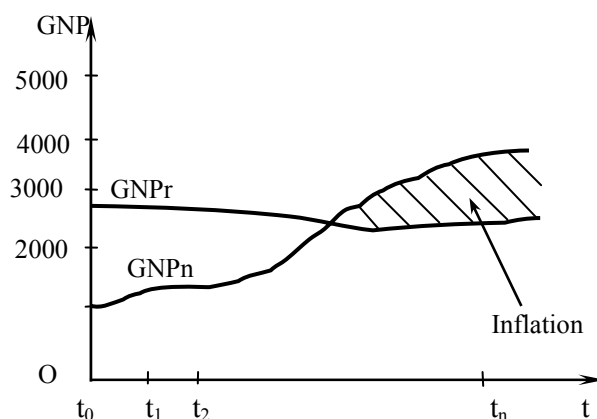

Figure no. 1. Graphical representation of inflation[2].

The emergence of inflation affects mainly two types of contracts: contracts of long-term debt and wage contracts. The protection link contract terms of price level behavior. When inflation record high rates and unsafe, long-term loans incurred by

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[1] Additional items on the subject of extensive unemployment, see also *ECONOMIC FORECAST. Theory. Test grid. Applications*, Ciurlău C. (coordinator), Universitaria Publishing House, Craiova, 2008, pp.84-93.
[2] Ciurlău C. (coordinator), *ECONOMIC FORECAST. Theory. Test grid. Applications,* Universitaria Publishing House, Craiova, 2008, p. 94.

nominal debt becomes impossible, because creditors have no certainty as to the real value of sums they will receive a reimbursement.

Some employment contracts include clauses for adjusting living standards, linking wage increases to price increases. Clauses provide workers recover all or part of the loss of purchasing power due to price increases after signing contract. Increase of real costs is passed by firms in final product prices. Increase consumer prices and, to a system of wage indexation, raise salaries. This leads to further increases in prices, material costs and wages. Indexing feeds so inflationary spiral. This could be avoided in a system of wage increases expected because real wages could decrease due to higher prices of materials. Experience shows that we must distinguish between two possibilities for development, taking into account the effects of wage indexation, namely: demand shocks and supply shocks. A demand shock produces an inflationary disturbance „pure" - companies can afford to pay the same real wages without negatively affected in real terms, a significant index (100%). Unfavorable supply shock lowers real wages - this can be prevented by total indexing. Wage indexing complicates greatly the adjustment of an economy to supply shocks.

American economist James Tobin has argued that a low inflation in the economy (reduce the natural rate of unemployment), it offer a mechanism to decrease real wages without affecting nominal wages[3]. This idea has been called into question[4], the justification being that in a changing world, real wages have increased and some others should be reduced to achieve economic efficiency and a low unemployment. Real wages will be increased by simply increasing slightly in nominal wages faster than inflation. To reduce real wages, but wage increases should be kept below inflation. Because workers are resistant to reducing nominal remuneration, such action is very costly for firms. It is recommended, therefore, keeping inflation at a low level (3%), so that real wages can be adjusted without reducing nominal wages.[5]

1.3. Basic correlations of the national economy: Okun's Law and the Phillips curve[6]

Among the main economic variables - economic growth, unemployment and inflation - are obvious relations. The link between economic growth and unemployment rate is known as Okun's law (named after its discoverer, Arthur Okun of the Brookings Institution in the U.S., former leader of the Association of Economic Advisers), which says that the unemployment rate decreases when the growth rate exceeds 2.5% annual trend rate. This is called improper law, it is an empirical regularity; however, provides a method to estimate the real growth effects on unemployment.

Relationship between inflation and the business cycle is that in an economy with low global demand tends to reduce inflation, while a policy of increasing global demand will increase inflation. This is favored by high unemployment. Inflation, as unemployment, is a major macroeconomic problem, but its effects are much less obvious than unemployment. In the case of unemployment, decreases potential production, requiring

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[3] Tobin James, „*Inflation and Unemployment*" (American Economic Association presidential addres), American Economic Review, mars 1972.
[4] Akerlof G.A., Dickens W.T. şi Perry G.L., „*The Macroeconomics of Low Inflation*", Brookings Papers on Economic Activity I (1996).
[5] For more items related to inflation, see *ECONOMIC FORECAST. Theory. Test grid. Applications,* Ciurlău C. (coordinator), Universitaria Publishing House, Craiova, 2008, pp.94-100.
[6] Ciurlău C. (coordinator), *ECONOMIC FORECAST. Theory. Test grid. Applications,* Universitaria Publishing House, Craiova, 2008, pp.105-106.

reduction. In the case of inflation, there isn't a clear decrease in production. But consumers do not like inflation because it causes disturbances that reduce revenue and adversely affect normal relations between prices. Whatever the reasons, economic policy prefer higher unemployment to reduce inflation, respectively high unemployment compensation with low inflation.

Offset inflation-unemployment relationship is known as the Phillips curve. This is an empirical relationship that reflects the behavior of wages and inflation to unemployment - the unemployment rate is higher the lower the inflation rate. Therefore, it is suggested that a relationship exists between inflation and unemployment compensation.[7]

2. CORRELATION ANALYSIS INFLATION-UNEMPLOYMENT IN THE EUROPEAN UNION

### 2.1. The evolution of the inflation rate and the unemployment rate in the European Union

In what follows, we will make a presentation of the overall rate of unemployment and the annual inflation rate in the EU (27 countries) between 2000-2011. Data were taken from the website of the Statistical Office of the European Communities (Eurostat). In the graphs, we plotted the data on the first and last three states in total (Ranking compiled based on annual average, plus the EU27 and, where appropriate, Romania, Bulgaria and Hungary; Detailed data are provided in Annex).

The annual inflation rate in the European Union, during 2000-2011, had a relatively balanced between 1-3% (Figure no. 2). The annual inflation rate in Romania in the period under review was a positive development, with an almost continuous reduction (from 45.7% in 2000 to 5.8% in 2011). Minimum inflation in this period was recorded in 2007 (4.9%). Unfortunately, the EU has placed our country in almost the entire period, the first (annual average was 14.66%). The lowest level of inflation, we find Germany (annual average of 1.68%), Sweden (annual average of 1.81%) and France (annual average of 1.89%). In the region, both Hungary and Bulgaria have lower inflation levels Romania (5.82% first and second 6.15%). Note that in the EU, the top three are held by Romania, Bulgaria and Hungary.

Annual unemployment rate in the European Union, during 2000-2011, had a fluctuating trend (Figure no. 3). The average annual unemployment rate in Romania has a relatively uniform on the interval from 5.8 to 8.0%, with an average of 7%. The minimum unemployment rate during this period was recorded in 2008 (5.8%) and high in 2004 (8.0%). In the EU, the lowest average annual unemployment, find Netherlands (annual average of 3.92%) and Luxembourg (annual average of 4.03%). Leading position is Slovakia which is registering an annual average unemployment rate of 15.35%. In the region, both Hungary and Bulgaria have higher levels of unemployment (7.62% Hungary and Bulgaria 11.66% respectively).
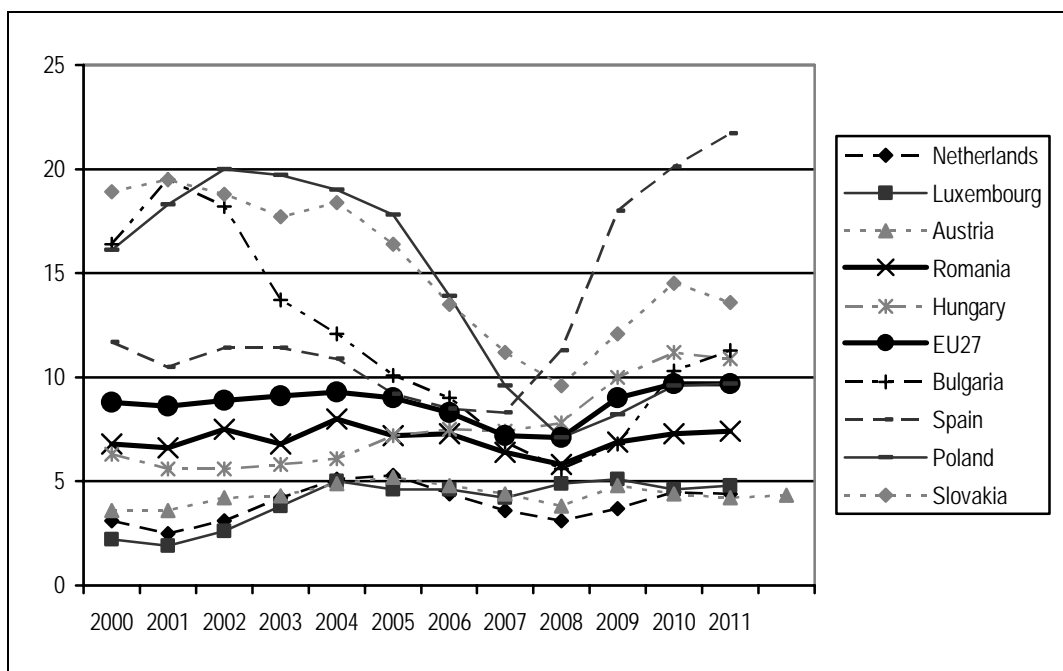
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[7] Niță Dobrotă (coordinator), *Economic Dictionary*, Economic Publishing House, Bucharest, 1999, pp. 157, 272-273.
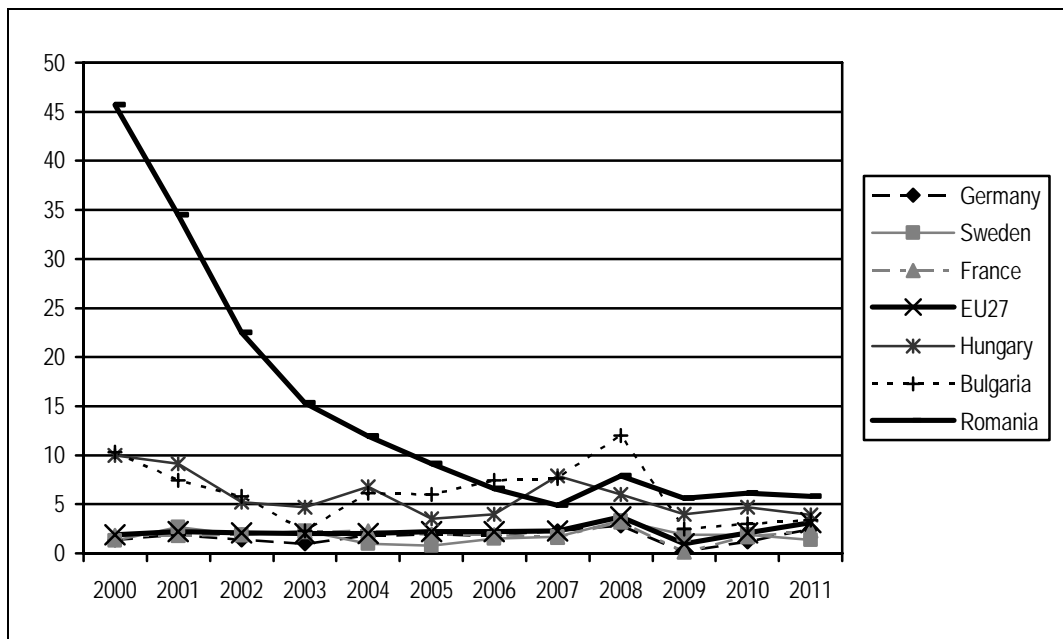
Figure no. 2. Evolution of annual inflation in the European Union during 2000-2011

Figure no. 3. Evolution annual rate of unemployment in the European Union during 2000-2011

2.2. Correlation analysis inflation-unemployment in the European Union

Cross-country correlation, each year, between inflation and unemployment, is shown in Table no. 1. The results are inconclusive in terms of our analysis: for many years, the Pearson correlation coefficient is close to zero, which means a very weak relation between inflation and unemployment (we can even say that it is missing).

Table no.1 The correlation coefficient between inflation and unemployment in the EU in the period 2000-2011.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Correlation coefficient	0,081	0,023	-0,038	-0,044	0,319	0,074	0,113	-0,063	0,012	0,038	-0,279	0,133

Source: data processed by Eurostat

Table no. 2 present results aimed correlation coefficient and Multiple R on each of the countries studied, from 2000 to 2011. Because the link between inflation and unemployment is modeled on a nonlinear function (parabolic for most countries, except Estonia and the United Kingdom - for which the function is hyperbolic), the indicator used to assess the intensity of this relationship is Multiple R. Entering values in this table and the correlation coefficient is motivated by the possibility of characterizing the meaning of the link (note that, although the correlation is reversed for most countries, there are direct correlation: Greece, Italy, Slovakia, United Kingdom). Based on Multiple R, the countries included in the analysis can be grouped as follows:

-   *Countries where there is no link between inflation and unemployment:* Greece, Luxembourg, Italy;
-   *Countries with poor link between inflation and unemployment:* Romania, Slovenia, Poland, Germany, Austria, Sweden, Cyprus, France, Belgium;
-   *Countries with medium intensity:* Bulgaria, Hungary, Spain, Portugal, Malta, Finland, Estonia, Lithuania, Denmark, United Kingdom, Slovakia;
-   *Countries with strong link between inflation and unemployment:* Latvia, Netherlands, Czech Republic, Ireland.

Table no.2 Value of the correlation coefficient and Multiple R between inflation and unemployment in the EU.

No.	Indicator / Country	Correlation coefficient	Multiple R	No.	Indicator / Country	Correlation coefficient	Multiple R
1	Greece	0,046	0,112	16	Spain	-0,524	0,559
2	Luxembourg	-0,002	0,154	17	Portugal	-0,482	0,565
3	Italy	0,047	0,187	18	Malta	-0,333	0,578
4	Romania	-0,094	0,251	19	Finland	-0,250	0,627
5	Slovenia	-0,149	0,267	20	Estonia	-0,573	0,646
6	Poland	-0,076	0,273	21	Lithuania	-0,603	0,674
7	Germany	-0,105	0,365	22	EU 27	-0,394	0,685
8	Austria	-0,391	0,397	23	Denmark	-0,190	0,703
9	Sweden	-0,365	0,398	24	United Kingdom	0,702	0,704
10	Cyprus	-0,086	0,412	25	Slovakia	0,644	0,723
11	France	-0,420	0,473	26	Latvia	-0,757	0,787
12	Euro area (17)	-0,454	0,490	27	Netherlands	-0,677	0,815
13	Belgium	-0,415	0,491	28	Czech Republic	-0,374	0,822
14	Bulgaria	-0,021	0,506	29	Ireland	-0,817	0,855
15	Hungary	-0,500	0,509				

Source: data processed by Eurostat

In what follows, we analyze the correlation total unemployment rate inflation rate in the European Union, during 2000-2011. Data are presented in Table no.3.

Table no.3 Evolution of unemployment rate and the annual rate of inflation in the European Union in the period 2000-2011

Year	Annual inflation rate	Annual unemployment rate
2000	1,9	8,8
2001	2,2	8,6
2002	2,1	8,9
2003	2,0	9,1
2004	2,0	9,3
2005	2,2	9,0
2006	2,2	8,3
2007	2,3	7,2
2008	3,7	7,1
2009	1,0	9,0
2010	2,1	9,7
2011	3,1	9,7

For correlation analysis we applied regression. As shown above, in the EU27, for modeling the relationship between inflation and unemployment is most effective parabolic function. After processing the data obtained the results in Table no.4. Multiple R is 0.6852, which allows us to appreciate that we have a median intensity between inflation and unemployment. The coefficient of determination (0.4695) leads to the conclusion that almost half of inflation (46.95%) is justified by the benefits.

Table No.4 Correlation between inflation and unemployment in the EU.

Regression Statistics	
Multiple R	0,6852
R Square	0,4695
Adjusted R Square	0,3517
Standard Error	0,5256
Observations	12

Source: data processed by Eurostat

To analyze the significance of the correlation value is used ratio F test (results are in Table no.5.). Depending on degrees of freedom ($v1= k-1=2$ and $v2 =nk=9$ - parabolic function) we have value $F_{table}=4.26$. As shown in Table no.5, we have $F_{calc}=3.9831$. So $F_{table}> F_{calc}$, which means that the relationship between inflation and unemployment is not deterministic. However it is (as stated above) and can be exploited in economic and social decisions.

Table no.5 Test report Multiple R between inflation and unemployment in the EU.

	df	SS	MS	F	Significance F
Regression	2	2,2005	1,1003	3,9831	0,0577
Residual	9	2,4861	0,2762		
Total	11	4,6867			

Source: data processed by Eurostat

To estimate the trend of inflation we need estimation of unemployment for the next three years. Applying specific methodology, we obtain the values in Table no.6. (which *li* is the lower limit of their prospective and *Li* prospective upper limit).

Table no.6 Estimated annual unemployment rate in the EU in the period 2012-2014

Year	li	Annual unemployment rate (Yi)	Li
2012	9,01	9,82	10,63
2013	9,45	10,29	11,14
2014	9,95	10,84	11,73

Estimating the trend of inflation, based on previously identified parabolic model involves determination of ranges. The results are presented in Table 7 and in Figure 4.

Table no.7 Estimated annual inflation rate in the EU in the period 2012-2014

Year	li	Annual inflation rate (Yi)	Li
2012	2,10	2,63	3,17
2013	2,68	3,36	4,05
2014	3,58	4,50	5,42
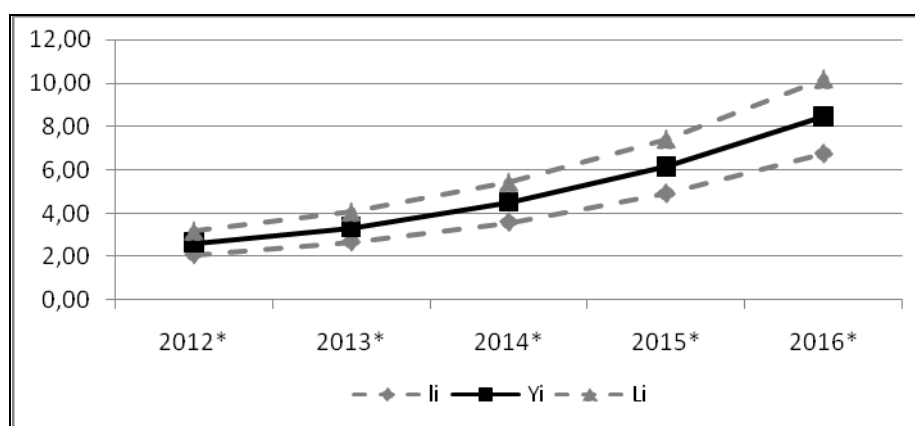
) forecast

Figure no. 4. Estimate the annual inflation rate in the EU from 2012-2014

We find that the annual inflation rate in the EU from prospective varies on the interval [2.63 to 4.50], the trend is upward, reflecting an unfavorable situation.

3. CONCLUSIONS

The annual inflation rate in the European Union, during 2000-2011, had a relatively balanced. In our country, the inflation rate was a positive development, with an almost continuous decrease (annual average was 14.66%). At the EU level, however, Romania placed in almost the entire period, first. In the EU, the lowest level of inflation is also found in Germany, Sweden and France. Regionally, Hungary and Bulgaria have lower levels of inflation compared to our country.

Annual unemployment rate in the European Union had a fluctuating trend. In Romania, the annual average unemployment rate was relatively uniform variation (with an average of 7.0%). Lowest average level of unemployment is found in the Netherlands and Luxembourg, while it has maximum Slovakia. Compared to Romania, Hungary and Bulgaria have higher levels of unemployment.

Based on the ratio of the correlation between inflation and unemployment, countries included in the analysis are *countries where there is no link between inflation and unemployment* (Greece, Luxembourg, Italy), *states with weak connection* (Romania, Slovenia, Poland, Germany, Austria, Sweden, Cyprus, France, Belgium), *states with median intensity* (Bulgaria, Hungary, Spain, Portugal, Malta, Finland, Estonia, Lithuania, Denmark, United Kingdom, Slovakia), *states with strong connection* (Latvia, Netherlands, Czech Republic, Ireland).

At EU27 level, the ratio of correlation allows us to appreciate that we have a median intensity between inflation and unemployment, almost half of the unemployed justifying inflation. Prospective analysis shows an upward trend in inflation, reflecting an unfavorable situation.

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6.	* * *	http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

ANNEX 1

Evolution of annual inflation in the European Union during 2000-2011

Nr.crt.	geo\time	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Media
1	Japan*	-0,7	-0,7	-0,9	-0,3	0	-0,3	0,3	0	1,4	-1,4	-0,7	:	-0,300
2	Germany	1,4	1,9	1,4	1	1,8	1,9	1,8	2,3	2,8	0,2	1,2	2,5	1,683
3	Sweden	1,3	2,7	1,9	2,3	1	0,8	1,5	1,7	3,3	1,9	1,9	1,4	1,808
4	France	1,8	1,8	1,9	2,2	2,3	1,9	1,9	1,6	3,2	0,1	1,7	2,3	1,892
5	Norway*	3	2,7	0,8	2	0,6	1,5	2,5	0,7	3,4	2,3	2,3	1,2	1,917
6	Finland	2,9	2,7	2	1,3	0,1	0,8	1,3	1,6	3,9	1,6	1,7	3,3	1,933
7	Austria	2	2,3	1,7	1,3	2	2,1	1,7	2,2	3,2	0,4	1,7	3,6	2,017
8	Denmark	2,7	2,3	2,4	2	0,9	1,7	1,9	1,7	3,6	1,1	2,2	2,7	2,100
9	Euro area (17)	2,2	2,4	2,3	2,1	2,2	2,2	2,2	2,1	3,3	0,3	1,6	2,7	2,133
10	Netherlands	2,3	5,1	3,9	2,2	1,4	1,5	1,7	1,6	2,2	1	0,9	2,5	2,192
11	United Kingdom	0,8	1,2	1,3	1,4	1,3	2,1	2,3	2,3	3,6	2,2	3,3	4,5	2,192
12	European Union (27)	1,9	2,2	2,1	2	2	2,2	2,2	2,3	3,7	1	2,1	3,1	2,233
13	Belgium	2,7	2,4	1,6	1,5	1,9	2,5	2,3	1,8	4,5	0	2,3	3,5	2,250
14	Italy	2,6	2,3	2,6	2,8	2,3	2,2	2,2	2	3,5	0,8	1,6	2,9	2,317
15	Ireland	5,3	4	4,7	4	2,3	2,2	2,7	2,9	3,1	-1,7	-1,6	1,2	2,425
16	Czech Republic	3,9	4,5	1,4	-0,1	2,6	1,6	2,1	3	6,3	0,6	1,2	2,1	2,433

Nr.crt.	geo\time	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Media
17	Malta	3	2,5	2,6	1,9	2,7	2,5	2,6	0,7	4,7	1,8	2	2,5	2,458
18	United States*	3,4	2,8	1,6	2,3	2,7	3,4	3,2	2,8	3,8	-0,4	1,6	:	2,473
19	Portugal	2,8	4,4	3,7	3,3	2,5	2,1	3	2,4	2,7	-0,9	1,4	3,6	2,583
20	Cyprus	4,9	2	2,8	4	1,9	2	2,2	2,2	4,4	0,2	2,6	3,5	2,725
21	Luxembourg	3,8	2,4	2,1	2,5	3,2	3,8	3	2,7	4,1	0	2,8	3,7	2,842
22	Spain	3,5	2,8	3,6	3,1	3,1	3,4	3,6	2,8	4,1	-0,2	2	3,1	2,908
23	Lithuania	1,1	1,6	0,3	-1,1	1,2	2,7	3,8	5,8	11,1	4,2	1,2	4,1	3,000
24	Croatia*	4,5	4,3	2,5	2,4	2,1	3	3,3	2,7	5,8	2,2	1,1	2,2	3,008
25	Greece	2,9	3,7	3,9	3,4	3	3,5	3,3	3	4,2	1,3	4,7	3,1	3,333
26	Poland	10,1	5,3	1,9	0,7	3,6	2,2	1,3	2,6	4,2	4	2,7	3,9	3,542
27	Estonia	3,9	5,6	3,6	1,4	3	4,1	4,4	6,7	10,6	0,2	2,7	5,1	4,275
28	Slovenia	8,9	8,6	7,5	5,7	3,7	2,5	2,5	3,8	5,5	0,9	2,1	2,1	4,483
29	Slovakia	12,2	7,2	3,5	8,4	7,5	2,8	4,3	1,9	3,9	0,9	0,7	4,1	4,783
30	Latvia	2,6	2,5	2	2,9	6,2	6,9	6,6	10,1	15,3	3,3	-1,2	4,2	5,117
31	Hungary	10	9,1	5,2	4,7	6,8	3,5	4	7,9	6	4	4,7	3,9	5,817
32	Iceland*	4,4	6,6	5,3	1,4	2,3	1,4	4,6	3,6	12,8	16,3	7,5	4,2	5,867
33	Bulgaria	10,3	7,4	5,8	2,3	6,1	6	7,4	7,6	12	2,5	3	3,4	6,150
34	Romania	45,7	34,5	22,5	15,3	11,9	9,1	6,6	4,9	7,9	5,6	6,1	5,8	14,658
35	Turkey*	53,2	56,8	47	25,3	10,1	8,1	9,3	8,8	10,4	6,3	8,6	6,5	20,867

*) non-EU countries

Evolution of total annual unemployment rate in the European Union in the period 2000-2011

Nr.crt.	geo\time	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Media
1	Norway*	3,2	3,4	3,7	4,2	4,3	4,5	3,4	2,5	2,5	3,2	3,6	3,3	3,483
2	Netherlands	3,1	2,5	3,1	4,2	5,1	5,3	4,4	3,6	3,1	3,7	4,5	4,4	3,917
3	Luxembourg	2,2	1,9	2,6	3,8	5	4,6	4,6	4,2	4,9	5,1	4,6	4,8	4,025
4	Iceland*	:	:	:	3,3	3,1	2,6	2,9	2,3	3	7,2	7,6	7,1	4,344
5	Austria	3,6	3,6	4,2	4,3	4,9	5,2	4,8	4,4	3,8	4,8	4,4	4,2	4,350
6	Japan*	4,7	5	5,4	5,3	4,7	4,4	4,1	3,9	4	5,1	5,1	4,6	4,692
7	Cyprus	4,8	4	3,6	4,2	4,7	5,5	4,7	4,1	3,8	5,5	6,4	7,9	4,933
8	Denmark	4,3	4,5	4,6	5,4	5,5	4,8	3,9	3,8	3,4	6	7,5	7,6	5,108
9	United Kingdom	5,4	5	5,1	5	4,7	4,8	5,4	5,3	5,6	7,6	7,8	8	5,808
10	United States*	4	4,8	5,8	6	5,5	5,1	4,6	4,6	5,8	9,3	9,6	8,9	6,167
11	Slovenia	6,7	6,2	6,3	6,7	6,3	6,5	6	4,9	4,4	5,9	7,3	8,2	6,283
12	Ireland	4,2	3,9	4,5	4,6	4,5	4,4	4,5	4,6	6,3	11,9	13,7	14,4	6,792
13	Sweden	5,6	5,8	6	6,6	7,4	7,7	7,1	6,1	6,2	8,3	8,4	7,5	6,892
14	Malta	6,7	7,6	7,4	7,7	7,2	7,3	6,9	6,5	6	6,9	6,9	6,5	6,967
15	Romania	6,8	6,6	7,5	6,8	8	7,2	7,3	6,4	5,8	6,9	7,3	7,4	7,000
16	Czech Republic	8,7	8	7,3	7,8	8,3	7,9	7,1	5,3	4,4	6,7	7,3	6,7	7,125
17	Hungary	6,3	5,6	5,6	5,8	6,1	7,2	7,5	7,4	7,8	10	11,2	10,9	7,617
18	Belgium	6,9	6,6	7,5	8,2	8,4	8,5	8,3	7,5	7	7,9	8,3	7,2	7,692
19	Italy	10	9	8,5	8,4	8	7,7	6,8	6,1	6,7	7,8	8,4	8,4	7,983
20	Portugal	4,5	4,6	5,7	7,1	7,5	8,6	8,6	8,9	8,5	10,6	12	12,9	8,292
21	Finland	9,8	9,1	9,1	9	8,8	8,4	7,7	6,9	6,4	8,2	8,4	7,8	8,300
22	Germany	8	7,9	8,7	9,8	10,5	11,3	10,3	8,7	7,5	7,8	7,1	5,9	8,625
23	EU (27)	8,8	8,6	8,9	9,1	9,3	9	8,3	7,2	7,1	9	9,7	9,7	8,725
24	Euro area (17)	8,7	8,1	8,5	9	9,3	9,2	8,5	7,6	7,6	9,6	10,1	10,1	8,858
25	France	9	8,2	8,3	8,9	9,3	9,3	9,2	8,4	7,8	9,5	9,7	9,6	8,933
26	Turkey*	:	:	:	:	:	9,2	8,7	8,8	9,7	12,5	10,7	8,8	9,771
27	Estonia	13,7	12,6	10,3	10	9,7	7,9	5,9	4,7	5,5	13,8	16,9	12,5	10,292
28	Greece	11,2	10,7	10,3	9,7	10,5	9,9	8,9	8,3	7,7	9,5	12,6	17,7	10,583
29	Bulgaria	16,4	19,5	18,2	13,7	12,1	10,1	9	6,9	5,6	6,8	10,3	11,3	11,658
30	Croatia*	:	:	14,8	14,2	13,7	12,7	11,2	9	8,4	9,1	11,8	13,5	11,840
31	Lithuania	16,4	17,4	13,8	12,4	11,4	8,3	5,6	4,3	5,8	13,7	17,8	15,4	11,858
32	Latvia	13,7	12,9	12,8	11,3	11,2	9,6	7,3	6,5	8	18,2	19,8	16,2	12,292
33	Spain	11,7	10,5	11,4	11,4	10,9	9,2	8,5	8,3	11,3	18	20,1	21,7	12,750
34	Poland	16,1	18,3	20	19,7	19	17,8	13,9	9,6	7,1	8,2	9,6	9,7	14,083
35	Slovakia	18,9	19,5	18,8	17,7	18,4	16,4	13,5	11,2	9,6	12,1	14,5	13,6	15,350

*) non-EU countries