INFLATION AND UNEMPLOYMENT IN THE ROMANIAN ECONOMY

EMILIA HERMAN *

ABSTRACT: *The current economic theory and practice highlights the fact that between inflation and unemployment, two macroeconomic issues which affect the lives of millions of individuals, directly and indirectly, there is no simple correlation. Taking into consideration these aspects, we aim to present a theoretical and empirical view on the relationship between inflation and unemployment in this study. Also, our intention is to analyze if in Romania, during 1990 and 2009, there is a Phillips type relation between the inflation rate and the unemployment rate. The results of this research show that, in Romania, in the long run (20 years) one cannot identify a stable, statistically significant relationship between inflation and unemployment.*

KEY WORDS: *inflation; unemployment; misery index; Phillips curve*

JEL CLASSIFICATION: *E24, E31, J64*

1. INTRODUCTION

Among the multitude of economic problems, two are considered as the closest to people's soul: inflation and unemployment, influencing directly or indirectly their lives and economy in general. Inflation is deleterious because it affects the reproduction spheres, especially due to the uncontrolled increase of prices; it disorganizes the banking system and implies a progressive decline of the national economic competitiveness. On the other hand, unemployment is undesirable because it disturbs the lives of many people (willing to work), and it is associated with an irrecoverable loss of real production.

* *Lecturer, PhD., "Petru Maior" University of Târgu Mureş, Romania, Postdoctoral researcher, Academy of Economic Studies, Bucharest, Romania,* emilia.herman@ea.upm.ro

This work was supported from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU-89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain".

The objective of our paper is to present a theoretical and empirical view on the trade-off between inflation and unemployment.

In order to pinpoint the relationship between inflation and unemployment in Romania, we use the inflation rate and the unemployment rate (registered unemployment) in our study, for the period between 1990 and 2008. In order to study the intensity of the relation between the two macroeconomic variables, we have applied *the Pearson correlation coefficient.* The coefficient result is situated in the interval (-1;+1). The plus sign shows a direct relation (as the independent variable increases also the dependent variable increases or inversely) and the minus sign indicates an inverse relationship between the macroeconomic variables.

2. THEORETIC CONSIDERATIONS ON THE RELATIONSHIP BETWEEN INFLATION AND UNEMPLOYMENT

The importance of knowing inflation and unemployment, as far as level, evolution, factors of influence, implications on the real economy are concerned, has been for a long time of great interest for the economists, and not only, thus many specialist papers aim to show the interdependence between the two macroeconomic phenomena: inflation and unemployment.

Since 1958, when A.W. Phillips (in the paper "*The Relationship between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861-1957")*, based on the data registered in Great Britain for almost a century showed for the first time that there is an inverse relationship between the rate of change in nominal wages and the rate of unemployment, a vast economic literature has been dedicated to the analysis of this relationship. The author noticed that nominal wages tended to increase in the periods with a low unemployment and vice versa. This relationship was depicted through a convex curve, called today the "Phillips Curve".

Due to the fact that a positive correlation emerges between the increase rate of nominal wages and the one of prices, subsequently, at most of the specialists this curve was the basis of a reflection on the existence of an arbitration between inflation and unemployment and thus on the consequences of the economic policy.

In 1960, based on the data regarding inflation and unemployment in the USA economy, Samuelson and R. Solow (in the paper „*Analytical Aspects of Anti-inflation Policy*"***)*** made an interpretation of the Phillips curve, in order for this to be used in the choice of the economic policy. Phillips curve, according to these economists, represents a relationship between the inflation rate and the unemployment rate and not between the variation rate of nominal wages and the unemployment rate, as Phillips stated. Furthermore, P. Samuelson reaches the conclusion that society is, in reality, either in the situation of opting for a reasonable level of using the labour force and a moderate but continuous increase of prices (A-C, fig.1), either able of offering a relative stability of prices, but associated with a high degree of unemployment (A-B, fig.1).

For many years the Phillips curve has been recommended as a tool that allows the formulation of political programmes with alternative combinations of the inflation and unemployment rate. Each point on the Phillips curve can be interpreted as a possible variant for the economic policy. All over the Phillips curve there is an inverse

relationship between the unemployment rate and the inflation rate, thing which reflects that a nation can "buy" a lower unemployment level if it is willing to pay the price of a superior inflation rate, the conditions of the trade-off being given by the slope of the Phillips curve (Samuelson & Nordhaus**,** 2000, pp. 698).

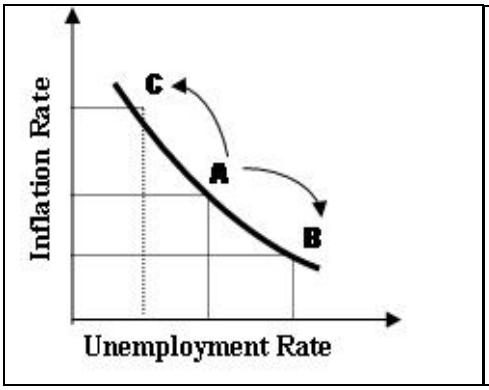


Figure 1. Phillips Curve

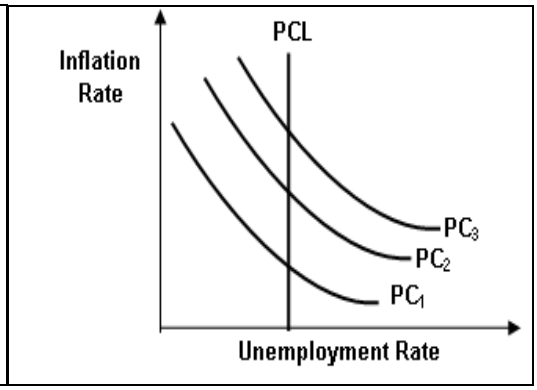


Figure 2. Inflation Expectations and the Phillips curve

Because Phillips' argument proved to be obsolete due to the economic reality, monetary experts Milton Friedman (*The Role of Monetary Policy*, 1968) and E. Phelps (*Phillips Curve, Expectations of Inflation and Optimal Employment Over Time*, 1967), starting from the existence of a natural unemployment rate, determined mainly by structural factors, accept the inverse correlation between inflation and unemployment, but only in the short run and only to the extent to which the change of the inflation rate is unanticipated (PC1 - PC3, from fig.2). In the long run (Phillips Curve becomes a vertical line -PCL), this correlation does not exist because unemployment cannot be reduced as a result of a re-launching monetary policy, this having as effect only the increase of the inflation rate.

Therefore, in the economic theory emerges another alternative of explaining the Phillips curve, known as the ***Phillips curve of the natural rate.*** According to this theory the Phillips curve with a descending slope is characteristic only in the short run, and in the long run there is only one unemployment rate compatible with stable inflation (the natural unemployment rate), the Phillips curve being vertical.

From the point of view of the relationship between unemployment and inflation the NAIRU concept ("*Non Accelerating Inflation Rate of Unemployment")* is used in the economic theory, representing that unemployment rate according to which effective and anticipated inflation are equal, and inflation is stable (Stiglitz & Walsh, 2005, pp.770). The existence of a NAIRU implies the absence of any long-run trade-off between inflation and unemployment.

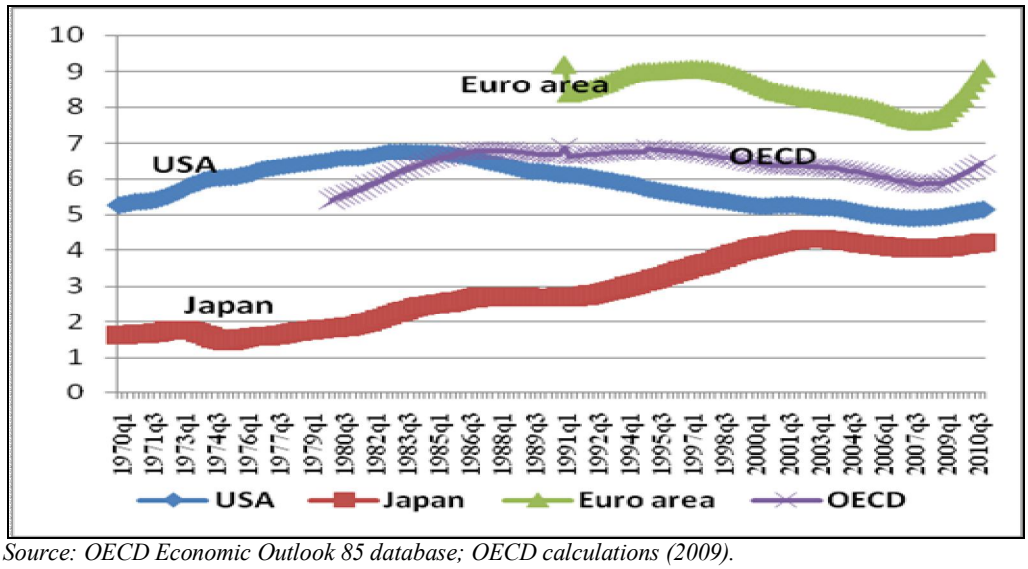
In the '70, when the phenomenon of "stagflation" (simultaneous increase in inflation and unemployment) appeared, it became obvious that policymakers did not have the option of settling for a higher rate of inflation in order to reach a lower rate of unemployment. Despite the widespread public and press perceptions that stagflation

was unexplainable and unexpected, it had in fact been predicted by the natural rate hypothesis several years before it occurred.

The natural rate hypothesis has serious implications for the economic policy, first of all because it implies the existence of a minimum unemployment rate level, which it can sustain in the long run and secondly, it states that a nation cannot sustain unemployment below the natural unemployment rate for a long period of time without setting in motion the ascending spiral of prices and salaries (Samuelson & Nordhaus**,** 2000, pp. 698).

Knowing the true natural unemployment rate is extremely important for the founding of the macroeconomic policy under the circumstances in which *the full employment rate is the positive aspect of the process, and unemployment is the negative one.* It is certain that the level of this rate is not static because it is permanently influenced by a series of factors, which are in a permanent dynamics. Concerning this, Phelps (2000) estimates that the natural unemployment rate is not an "*intertemporal constant, something such as the speed of light independent of anything existing under the sun*" depending on numerous factors, which give it a dynamic character.

The idea that the natural rate of unemployment (NAIRU) is not a unique number has been seen in recent empirical research. One of the most well known and quoted estimations is that of Robert Gordon, who appreciated for the American economy in 1955 a 5.1% rate; in the '60-70 (20th century) the rate increased as a result of the high influx of young people in the labour force; in the '80 it reached a value between 5-7%. In the '90 other American researchers (Staiger, et al., 1997) estimated a rate between 5.1-7.7%.



Source: OECD Economic Outlook 85 database; OECD calculations (2009).

Figure 3. NAIRU, 1970-2010, in Euro area, OECD, Japan and USA

The estimations made in OECD (2001, p.192), for the 1980-1995 period, showed that NAIRU increased in the OECD countries from 5% to 6.5% as well as in

the Euro area from 5.5% to 9.2%. In the second half of the ’90 a NAIRU fall can be noticed, in the Euro area as well as in the OECD countries. In contrast with NAIRU registered in the Euro area, in the USA it is the most reduced and having a descending tendency for the period between 1980 and 1999 (6.1 % in 1980 and 5.2% in 1999).

According to the OECD study (2009, p.213), in the wake of past recessions structural unemployment has tended to rise in many countries, which may be partly a reflection of rising long-term unemployment and hysteresis-type effects. Moreover past experience suggests that European countries may be more vulnerable than other countries (USA, Japan, OECD countries), fact reflected in current projections, which show a more pronounced increase in NAIRU in the Euro area (fig.3).

From the studies carried out by numerous specialists, after the oil shock in the ’70, based on the data on unemployment and inflation for the last three decades, the existence of a more complicated relationship than the one which results from the simple shape of Philips curve emerges, testing in this way the natural rate of the Philips curve hypothesis.

It is stated in (Turner, D. et al., 2001, p.173) that the dominant view among economic analysts is that there is not a long-term trade-off between inflation and unemployment: in the long run, unemployment depends on essentially structural variables, whereas inflation is a monetary phenomenon. In the short term, however, a trade-off exists, so if unemployment falls below the NAIRU, inflation will rise until unemployment returns to the NAIRU, at which time inflation will stabilise at a permanently higher level.

There is a current opinion (Gordon, 2000) that inflation can be either negatively or positively correlated with unemployment, depending on whether shocks to aggregate demand or to aggregate supply are more important.

3. STATISTIC-ECONOMIC ANALYSIS OF THE RELATIONSHIP BETWEEN INFLATION AND UNEMPLOYMENT IN ROMANIA

3.1. Unemployment and inflation - costs of the transition to the market economy

The events in December 1989 were the releaser factor of some reforming and restructuring processes which severely affected the entire resources and needs system in the Romanian economy. The transition from the command economy to the market economy became a necessity for Romania, imposed by the deepening of the socio-economic crisis between 1980 and 1989.

In Romania, the evolution of the transition process led to severe disequilibrium with matching socio-economic costs and the erosion of the standard of living. The following are considered elements of the ***transition costs***: increase in the inflation rate; the pronounced balance of trade deficit; budget deficit; increase in the external debt, inefficient restructuring of the enterprises; financial bottleneck; the increase in the share of the consumer credits out of the total contracted credits; decrease of the employment rate of work resources, increase in the unemployment rate; increase in the poverty rate, etc.

In the present paper we focus our attention on two major problems of the Romanian economy after 1990: inflation and unemployment.

Achieving a market economy implied a series of actions, among which liberalization of the economic agents' activity, including price liberalization. In Romania, starting off price liberalization took place based on a universal penury of consumption goods, fact which created the emergence premises of the ***inflationist process***. Between 1990 and 2008 an extremely powerful price rise of the consumer goods happened, on the main categories as well as overall. Thus, in 2008 the price of the consumer goods was 3120.96 times higher than in 1990. This fact is the result of the 2465.37 times rise of prices for alimentary goods, 3204.79 times for non-alimentary goods and 5569.57 times for services (NIS, 2009).

The analysis of the statistical data on the inflation rate in Romania, presented in table no.1 shows that inflation started off strongly even at the end of 1990 (being repressed and hidden through the price system and the one of income redistribution until now), when the first measure of price liberalization was taken.

Table 1. Inflation, unemployment and misery index, in Romania, 1990-2009

Years	Inflation Rate (%)	Un-employment Rate (%)	Misery Index (%)	Annual Change in inflation Rate (%)	Annual Change in Unemployment Rate (%)
1990	5.1	0	5.1	-	-
1991	170.2	3	173.2	3237.25	-
1992	210.4	8.2	218.6	23.62	173.33
1993	256.1	10.4	266.5	21.72	26.83
1994	136.7	10.9	147.6	-46.62	4.81
1995	32.3	9.5	41.8	-76.37	-12.84
1996	38.8	6.6	45.4	20.12	-30.53
1997	154.8	8.9	163.7	298.97	34.85
1998	59.1	10.4	69.5	-61.82	16.85
1999	45.8	11.8	57.6	-22.50	13.46
2000	45.7	10.5	56.2	-0.22	-11.02
2001	34.5	8.8	43.3	-24.51	-16.19
2002	22.5	8.4	30.9	-34.78	-4.55
2003	15.3	7.4	22.7	-32.00	-11.90
2004	11.9	6.3	18.2	-22.22	-14.86
2005	9	5.9	14.9	-24.37	-6.35
2006	6.56	5.2	11.76	-27.11	-11.86
2007	4.84	4.1	8.94	-26.22	-21.15
2008	7.85	4.4	12.25	62.19	7.32
2009[1]	5.59	7.8	13.39	-28.79	77.27

Source: NIS (2009) Romanian Statistical Yearbook, time series 1990-2008; [1] NIS (2010) The socio-economic evolution of Romania in the European context, in 2009, http://www.insse.ro

The high inflation rate (expressed by 3 digits) between 1991 and 1993 is the result of correcting the administrated price distortions and the GDP fall (as a result of confronting the production structures in the centralized economy with the market mechanisms). Between 1994 and 1998 the evolution of the inflation rate was fluctuant,

and since 1999 it recorded decreases from year to year, reaching in 2005 an annual inflation rate expressed by a single digit (9%). The disinflation process continued until 2007, but in 2008 a rise in the inflation rate was noticed as compared to the previous year, by 3.01 percentage points, based on the international price rise for raw materials and fuels, currency depreciation, as well as on the persistence of the pressures on behalf of the aggregated demand and pay rises. Although there was a decrease in the inflation rate, in Romania, in 2009, the highest inflation rate in EU-27 was recorded, 5.6% respectively.

It is known, from both the economic theory and practice, that inflation is an extremely complex phenomenon, having multiple causes. In Romania, some authors state (Postelnicu, 1999, p.122) that the main cause of starting off and maintaining the inflationist process is the increase in costs and the dramatic fall in work productivity. Also, the currency devaluation, especially compared to the dollar, created a source for keeping inflation in the transition period.

A factor of increasing the transition cost in Romania, of lavishing human capital, is represented by the decline of the employed population, but mostly by its structural changes, through its dimensions and effects. We mention that civil employed population fell in Romania, between 1990 and 2008, by 2093 thousand people. (NIS, 2009). Since 1990 and until today the Romanian economy has been confronted with a consolidated process of outsourcing the benefits that result from employment and using the labour force and internalizing the economic and social costs of a reform.

We consider that the main contribution to the decline of the employment in Romania was given by the restructuring of the Romanian economy, the dissembling of economic and social reform elements, the errors of employment policies which were mainly passive and concerned more with recovering the effects than with removing the causes; all these, and many others, raised the risk of firing a large number of employees and created the conditions for increasing unemployment (Herman, 2008).

Traditionally, it is considered that between inflation and unemployment there is an inverse correlation, more precisely that anti-inflationist measures generate unemployment, while an increase in employment may generate a relative demand rise - a more elastic one in comparison with the goods supply - and, thus, inflation. In Romania, the structure of the labour force market had inflationist characteristics.

On the one hand, the relation between the employed population and dependent labour force, disadvantageous for the employed labour force, created a solvable demand deprived of a correspondent within supply. On the other hand, maintaining an excessive labour force in non-performing structures, without stimulating the competitive, private sector, which can absorb the labour force surplus, under the circumstances in which direct taxes were reduced and thus the net wage increased without the increase in production (consuming more than producing), this represents the clearest example of a gap between real economy and monetary supply.

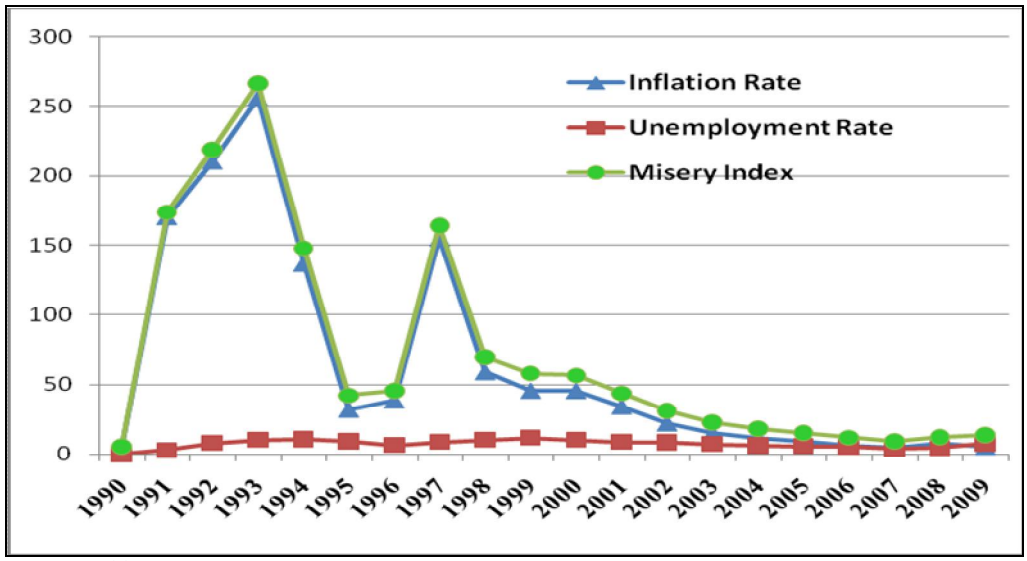
The transition to the market economy and the massive re-structuring of certain branches of the economy considered as non-viable imply raised social costs, one of these being the increase of the number of unemployed people (Dobre-Baron &Fleşer, 2009, pp.199). Together with the decline of the employed population, during the

transition process, the dimensions, dynamics, shapes and characteristics of unemployment, in our country, have evolved differently from one year to another.

The lack of employment represents a dimension of social exclusion, because it means exclusion from one of the most important components of human activity, from the social relationships that it implies and facilitates their participation in work. Moreover, the lack of employment also means the impossibility of valuing your own potential.

The unemployment phenomenon emerged in Romania, once with the first measures for liberalization and restructuring of the economy, not having a normal, predictable evolution. The shift to the market economy determined the visible manifestation and officially acknowledgement of unemployment in our country. Thus unemployment was legislatively institutionalized even since the first years of transition, based on Law no.1/1991 on the social protection of the unemployed and their professional reintegration. After this moment, a series of other legislative acts brought changes to the initial criteria so as to adapt to the changes which subsequently appeared on the labour market. Starting with the 1st March 2002, Law no.1/1991 was abrogated, and the issue of unemployment and employment is regulated in Law. no. 76/2002 on the unemployment insurances system and labour force employment stimulation, subsequently modified and completed.

According to the data in table no.1 and figure 4 the unemployment evolution, after 1991, is often marked by leaps, both in the increase and decrease of the phenomenon. Seen from the laws of the economic market perspective, strong fluctuations of unemployment are appreciated by some specialists as unusual; but they are unusual in relation to a stable, established market economy. However, in our country, these fluctuations are specific to the changes in the national economy, determined by the transition process.



Source: Table 1

Figure 4. Inflation, unemployment and misery index in Romania, 1990-2009

Thus, the unemployment rate recorded a sinuous evolution, between 1991 and 2009, reaching minimum values in 1991 (3%) and maximum values in 1999 (of 11.8%), according to table 1 and figure 4. We have to mention the fact that low rates, mainly in the first years of transition (for example the rate of 6.6% recorded in 1996) do not actually reflect the Romanian economic state, because this percentage may index also a hidden unemployment, due to the over dimensioned staff in many state-owned enterprises which have not gone through the privatization and restructuring process.

On the other hand, the fact that in Romania a lower unemployment rate was recorded in the first years of transition as compared to the other East-European countries, also in transition, is not necessarily a positive aspect, taking into consideration the fact that only the East-European countries having a high unemployment rate recovered more rapidly what they had lost at the beginning of transition (between 1990 and 1993 all East-European economies faced recoils of GDP). For example, Poland, having the most unemployed people in the region, equalled even since 1996 the GDP from 1989, the following counties in the sequence of unemployment rates being: Slovakia (1999) and Hungary (2000). Therefore, those countries which accepted bankruptcies and unemployment, which gave up raw work where its substitution with high technology proved profitable, got increases in productivity, with positive effects on the national economy. As opposed to Poland which opted for a higher unemployment but a lower inflation, Romania opted for the highest inflation rate in Central and Eastern Europe, being able to reach the GDP level it had in 1989 only in 2004.

Furthermore, statistical data on unemployment evolution do not mention anything about the underemployment as part of the employed population, about the precarious structure of the labour force employment in Romania (in Romania in 2008 27.7% out of the total employed population is employed in agriculture as compared to the EU-27 average of 5.7%), about the high number of early retirements, as a consequence of the massive layoffs made at the level of big state-owned enterprises (so we take into consideration the fact that many of the people made redundant opted for early retirements out of fear of being unemployed) and about the dimensions of potential unemployment.

In order to measure the performance and the economic well-being of Romania we take into consideration the ***misery index*** **(**calculated as the sum between the unemployment rate and inflation rate) because it is assumed that both a higher rate of unemployment and a worsening of inflation create higher economic and social costs for a country. In Romania, in the first part of transition (1990-1993) a significant increase of inflation as well as of people out of work was recorded, thing which determined a deterioration in economic performance and a rise in the misery index.

The evolution of the misery index in Romania, between 1994 and 2007, can be appreciated as positive because it felt from a maximum value of 266.5% to 8.94%. In the last two years (2008-2009) the rise in inflation and unemployment in Romania, based on the international economic crisis, determined a rise of the misery index, fact that leads to lower consumer expenditures and contributes to an economic slow-down, and even to economic recession.

Although inflation and unemployment directly or indirectly affect the lives of the Romanians, they do not know the size of these indicators. Thus, the results of *Special Eurobarometer*-Europeans Knowledge on Economical Indicators (2008) indicate that 82% of the interviewed Romanians do not know their country's inflation rate (as compared to the 53% of the Europeans from EU-27) and 85% do not know the unemployment rate in their Country (as compared to the 48% of the Europeans).

3.2. The correlation between the inflation rate and unemployment rate: empirical approach

Over the past decades, empirical evidences from various studies seem to suggest that the shape of the long-run Phillips curve varies widely across different countries. For example, using data on the inflation rate and unemployment rate from USA, from 1970 through 1999, Beyer and Farmer (2007) identified a long term positive correlation between these variables. The same long term positive correlation wad identified by Berentsen, Menzio and Wright (2009) for the period between 1955 and 2005. On the other hand, the result of a study made by Karanassou, Sala and Snower (2003) using data from 22 European countries suggest that, in the long run, there is a trade-off between inflation and unemployment. The same negative relationship is demonstrated in Schreiber and Wolters (2007), focusing on the experience of Germany.

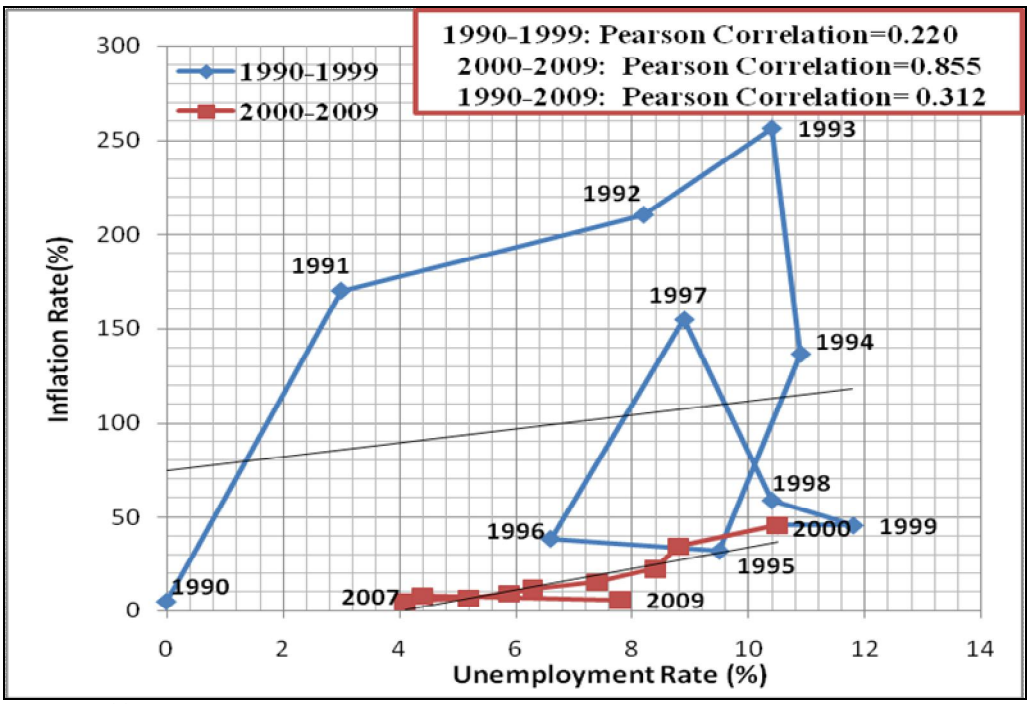
In the study carried out by Pallis (2006)**,** on the 10 New European Union Member-States, it is highlighted that any attempt to push the unemployment rate below the estimated natural rate of unemployment will result in accelerated inflation, thus there is a trade-off between the inflation rate and unemployment rate in the 10 new EU member states.

Analysing the Phillips curve, as the relation between the inflation rate and unemployment rate, for Romania during 1990-2009, we notice that we do not have a gradual decrease of one indicator and an increase of the other, but rather that we are witness of spectacular changes - from low unemployment rate and high inflation in 1991 to high unemployment rate and strong inflation (1993), from lower inflation and high unemployment (1995) to strong inflation and lower unemployment (1997) ... from lower unemployment (1997) … lower unemployment and reduced inflation (2007) to higher unemployment and inflation rates (2009).

Figure 5 shows what happened to the relationship between the unemployment rate and inflation rate in Romania, between 1990 and 2009. What seems clear is that any trade-off that may have existed during the 1960s, 1970s in various countries of the world did not last in Romania in the period analysed by us.

From the statistical analysis of the data on the inflation rate and unemployment rate, based on the correlation Pearson coefficient (correlation Pearson coefficient =0,312, for a significance level sig. of 0.18 higher than 0.05 the chosen one), it is noticed that between the two variables there is a direct relationship, but of a very low and statistically insignificant medium intensity. This fact entitles us to state that in the long run (20 years) between inflation and unemployment in Romania there is no significant relation, the monetary theory being confirmed, according to which *in the long run* the two variables are

independent, there being a size of the unemployment rate which does not influence inflation and this is the size of the natural unemployment rate.



Source: Table 1

Figure 5. Phillips Curve in Romania, in 1990-2009

The inexistence of a significant relation in the long run between inflation and unemployment can be motivated first of all by the fact that unemployment is affected by a number of factors other than inflation, most of which have nothing to do with monetary policy, such as productivity changes, changes in regulatory systems and various shocks that regularly impact on the national economy. Secondly we have to take into consideration the fact that inflation is affected not only by developments in the labour market, but by many other strictly monetary factors.

Our empirical research has shown that unemployment "explains" a relatively small percentage of total inflation. The determining report, which shows the share of the variable X influence (unemployment rate) on the variable Y variation (inflation rate) calculated for Romania, for the period between 1990 and 2009, based on the data in table 1, is of 0.097, fact which shows that inflation in Romania was influenced by unemployment only in a proportion of 9.7%. This means that inflation developments are largely "explained" by other factors than unemployment.

One implication of the absence of any durable trade-off is that fiscal and monetary policy is limited in its ability to reduce unemployment. If unemployment cannot be pushed below the natural rate for very long without generating continuing

increases in the rate of inflation, suggests that policymakers might as well aim to keep inflation rates low and find ways to reduce the natural rate itself.

But in the case of Romania it is very difficult to determine the natural unemployment rate because this has in view a stable, structured market economy characterized by the inflation's inexistence or its existence in reduced and low limits. In our country as it can be noticed in table no. 1, the instability determined by the price rise makes the determination of the natural unemployment rate difficult.

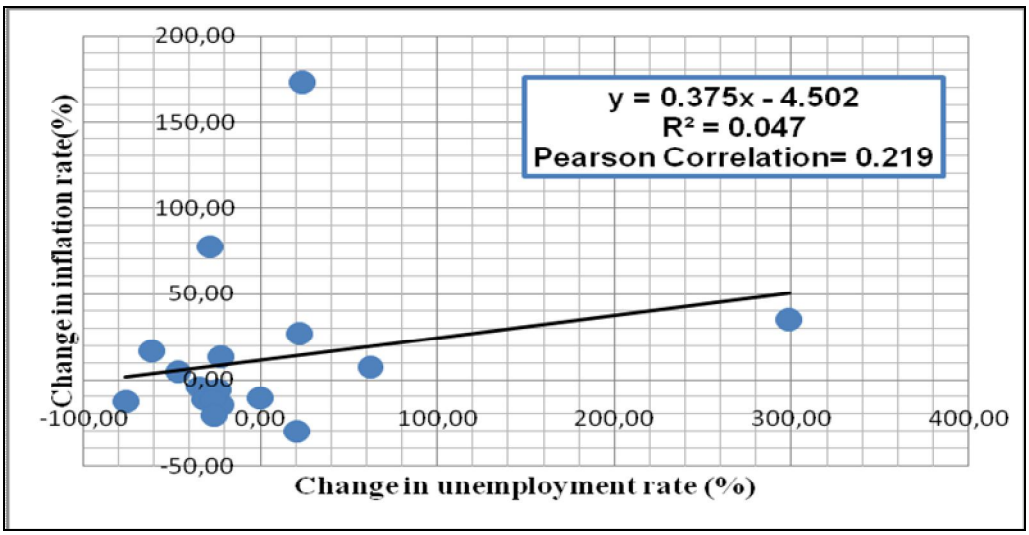
The current economic theory and practice prove the fact that there is no simple correlation between inflation and unemployment. If we analyse the correlation between the inflation rate and unemployment rate on subperioads, between 1990-1999 and 2000-2009 respectively, we notive that in the first period the intensity of the relation between the two indicators is very reduced (the Pearson correlation coeffcient = 0.220, for a significance level sig. of 0.541 higher than 0.05 the chosen one) as compared to the period between 2000 and 2009, where we notice that between the two macroeconomic variables there is a direct, very strong, statistically significant relation, (Pearson correlation coefficient of =0.855, for a significance level sig. of 0.002 lower than 0.01 the chosen one).

The low intensity of the relation between inflation and unemployment during 1990 and 1999 can be noticed also through the graphic shape of the relation, which seems to be described by distinct clockwise pattern. The clockwise cycling of unemployment and inflation is believed to be due to the combination of expectations adjustments and policy changes.

If in the first analysed period we are witness, in general, to fluctuations in the unemployment evolution in tandem with the inflation's fluctuations between 2000 and 2009 there was a reduction of the unemployment rate as well as the inflation rate, the last two years being the exception, 2008 and 2009 respectively. Thus, the statistical data after 2000 not only invalidate the Phillips curve but they even prove the contrary, the two variables evolving in the same way. The main factor, which generated this favourable change, is the new information economy, the national economy benefiting from the advantages of the new technology which led to increase in work productivity (Stiglitz & Walsh, 2005, p. 637). However, reduced unemployment and reduced inflation may coexist only to the extent to which pay rises do not surpass work productivity. In Romania, this fundamental correlation between salaries and productivity was not respected, fact which led to the increase in inflation and unemployment in 2008.

The statistical analysis between *the annual relative change* of the inflation rate and the one of unemployment, between 1990 and 2008, highlights the fact that between the two economic variables there is a direct relationship, but of a very low and statistically insignificant intensity (Person correlation = 0.219), as in the case of the correlation between the level of the unemployment and inflation rate.

The low intensity of the correlation between the two macroeconomic variables can be motivated by the fact that Romania, in most of the period in which we detected this relation, went through an ample process of transition, marked by profound economic, structural and institutional transformations.



Source: Table 1

Figure 6. Correlation between anual change in inflation rate and anual change in unemployment rate, in Romania, 1992-2009

On the other hand, the shape and intensity of the relationship between inflation and unemployment depends very much on the changes which appeared in the level and structure of the aggregated supply and demand, and the quantitative relationship between these changes, being known that aggregated supply and demand depend on the monetary policy as well on the fiscal and budgetary policy.

4. CONCLUSIONS

The evolution of inflation and unemployment in Romania, between 1990 and 2009, cannot be noticed with the help of a Phillips curve relation type. The results of the statistical analysis show that between the two macroeconomic variables one cannot identify a stable, statistically significant relationship, because the economic policies applied did not aim directly at the decrease of the inflation rate based on the increase in unemployment and vice versa the decrease in unemployment based on the increase in the inflation rate. This fact does not mean that in Romania, in the short run, there is not a trade-off between inflation and unemployment.

The existence of a very strong, direct correlation between inflation and unemployment, for the period between 2000 and 2009, when in Romania there was a decrease in unemployment as well as in inflation, is considered the result of the increase in labour productivity in the context of the new information economy. We highlight the fact that in order to maintain inflation as well as unemployment at a low level, the fundamental economic relationship between salaries and productivity must be respected, meaning that pay rises have to be based on the increase in the labour productivity.

REFERENCES:

[1]. Berentsen, A.; Menzio, G.; Wright, R. (2009) *Inflation and unemployment in the long run*, Working Paper [Online], 442, Institute for Empirical Research in Economics University of Zurich, Available at: http://www.iew.uzh.ch/wp/iewwp442.pdf [Accessed 2 june 2010]

[2]. Beyer, A.; Farmer, R.E. (2007) *Natural rate doubts*, Journal of Economic Dynamics and Control, 31(3), pp.797-825

[3]. Dobre-Baron, O.; Fleşer, A. (2009) *The analysis of social security for unemployed during the period 1991-2008***,** Annals of the University of Petroşani, Economics, 9(1), pp. 199 - 206 [Online], Available at: http://www.upet.ro/annals/pdf/annals-2009-part1.pdf [Accessed 10 june 2010]

[4]. Gordon, R.J. (2000) *Was the Economy of the 1990s a New One?* Northwestern University and National Bureau of Economic Research Presentation for CBO New Economy Briefing, Washington, D.C., June 6, Available at: http://www.cbo.gov/ftpdocs/20xx/doc2095/gordon.pdf [Accessed 10 june 2010]

[5]. Herman, E. (2008) *The investments impact on the employment in Romania***,** Analele Universitații din Oradea, Seria: Ştiinţe economice, TOM XVII, vol. II, Editura Universității din Oradea, pp. 837-842

[6]. Karanassou, M.; Sala, H.; Snower, D.J. (2003) *The European Phillips Curve: Does The Nairu Exist?* IZA Discussion Papers, [Online], 876, Institute for the Study of Labor (IZA), Available at: ftp://repec.iza.org/RePEc/Discussionpaper/dp876.pdf [Accessed 2 june 2010]

[7]. Phelps, E.S. (2000) *Lessons in natural-rate dynamics*, Oxford Economic Papers no. 52, Oxford University Press, pp.51-71

[8]. Postelnicu, G. (1999) *Resorturile inflației contemporane*, Presa Universitară Clujeană, Cluj-Napoca

[9]. Pallis, D. (*2006) The Trade-Off between Inflation and Unemployment in the New European Union Member-States***,** International Research Journal of Finance and Economics, EuroJournals Publishing, Inc., 1, pp.80-97

[10]. Samuelson, P.; Nordhaus, W. (2000) *Economie*, Editura Teora, Bucureşti

[11]. Schreiber, S.; Wolters, J. (2007) *The long-run Phillips curve revisited: Is the NAIRU framework data-consistent?* Journal of Macroeconomics 29(2), pp.355-367

[12]. Staiger, D.; Stock, J.; Watson, M. (1997) *NAIRU, Unemployment, and Monetary Policy,* Journal of Economic Perspectives, 11(1), pp. 828-864.

[13]. Stiglitz, J.E.; Walsh, C.E. (2005) *Economie*, Ed. Economică, Bucureşti

[11]. Turner, D. et al. (2001) *Estimating the structural rate of unemployment for the OECD countries***,** OECD Economic Studies, 33

[15]. European Commission (2008) *Special Eurobarometer. Europeans' Knowledge Of Economic Indicators,* Available at: http://ec.europa.eu/public_opinion/archives/ebs/ebs_special_eco_ind_en.pdf [Accessed 10 june 2010]

[16]. OECD (2009) *Economic Outlook*, [Online], 85, Chapter 4. Beyond The Crisis: Medium-Term Challenges Relating To Potential Output, Unemployment And Fiscal Positions, Available at: http://www.oecd.org/dataoecd/27/46/18464874.pdf [Accessed 10 june 2010]

[**17]. NIS** (2009) *Romanian Statistical Yerbook, time series 1990-2008*

[18]. NIS (2010) *The socio-economic evolution of Romania in the European context, in 2009,* [Online], Available at: *http://www.insse.ro/cms/rw/pages/confPresa.ro.do* [Accessed 15 june 2010]