# THE ROLE OF EDUCATION IN EXPLAINING YOUTH LABOUR MARKET IMBALANCES IN CEE COUNTRIES

## Gina Cristina Dimian

Bucharest Academy of Economic Studies
ginadimian@gmail.com

## Abstract

The main aim of this paper is to investigate the determinants of youth labour market performances and their influence on the future economic and social development of a country. The objectives refer to the assessment of demographic and labour market trends for young people, the analysis of the factors responsible for increasing youth unemployment and for the differences between skilled and unskilled young people concerning unemployment rates.

To achieve the paper's objectives several statistical and econometric models (descriptive statistics, correlation and regression analysis) have been used. The main interest was to look for the key drivers of youth labour market sustainable performances.

The degree of originality is given by our choice to analyse youth labour market dynamics from an interconnected perspective (demographic trends, youth unemployment, education) and to apply the model for 10 CEE (Central and Eastern Europe) countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, and Slovakia) in order to compare their performances.

## Key Words

Demographic trends, labour market, youth unemployment, education, skill mismatch, economic crisis

## Introduction

In recent years, a large body of research has been dedicated to youth labour market problems, especially since the global economic crisis has proved once again that young people represent a vulnerable category and their increasing unemployment can lead to the loss of a generation (International Labour Organization, 2010). Specialists of the same institution pointed out that long term unemployment can be a real threat especially for those young people 'who lack general or vocational education and work experience', but, at the same time 'many young people employed and overqualified for the job they perform' can become unsatisfied and discouraged (Torres and Tobin, 2010).

In this respect, the "Youth - Investing and Empowering" EU strategy for youth policy for the coming decade (Commission of the European Communities, 2009) 'acknowledged that young people are one of the most vulnerable groups in society, especially in the current economic and financial crisis, and in our ageing society, young people are a precious resource'. Thus, according to EUROSTAT, during the last decade, in the EU-27 youth unemployment rate was almost two times higher than the rate for total population and, more than that, after 2008 this situation has become common even for euro area (EUROSTAT, 2011).

Taking into account all these remarks, the interest for this topic, shown by the pile of theoretical and empirical studies focused on describing and exploring the determinants of youth unemployment, is not surprising.

O'Higgins (1997) suggests that among the main causes of youth unemployment a key role is played by aggregate demand, while

Caroleo and Pastore (2007) point out to the youth experience gap as one of the main drivers of young people unemployment.

In their paper *Regional differences in labour market participation of young people in the European Union* Green et al. (2001) emphasize the importance of those factors related to demographic and economic context, labour market configuration, education and training system, the role of the state and of the family. In fact, these drivers differ from country to country and the measures for reducing youth unemployment depend on the national or regional particular conditions.

In this respect, analysing the transition from school to work of a cohort of 3000 young Hungarian people, Audas et al. (2005) demonstrate that two conditions are of particular importance in ensuring successful integration in the labour market: initial labour market circumstances (those who have made good initial choices are more likely to succeed than those who started their careers as unemployed) and academic achievement in a selective educational system.

Regarding Bulgaria, Ribarova (2010) points out to three categories of factors that have put their mark on the youth labour market situation: 1. Education, vocational training and qualifications; 2. Lack of work experience and misguided career choices; 3. The values of the younger generation.

According to Lithuanian Confederation of Industrialists (the largest employers' organization in Lithuania) among the reasons for youth unemployment in this country are included: the mismatch between the qualification of young people and labour market demands, the lack of practical experience and the law wages offered in the labour market (European Commission, 2010).

In Czech Republic, even though youth unemployment is higher than total unemployment, this fact is considered as being a natural feature taking into account the job search process particularities of this category of population: lack of work experience and past labour market credentials (Münich and Jurajda, 2010). Education remains instead for young Czech people the key factor of success in finding a job on the labour market.

Considering the intense debate related to the youth unemployment drivers, one should not neglect the problem of appropriate skills for the labour market requirements.

The skills theme has been addressed in a holistic manner by Elias and McKnight (2001) in the paper *Skill measurement in official statistics: recent developments in the UK and the rest of Europe*. The authors emphasize the direct link between the nature and structure of skills and economic and technological evolution. Among the criteria that make the difference between skilled and unskilled people the authors recall education and work experience but also the level of the earnings.

Other researches were focused on the relationship between educational mismatches and skills mismatches. Allen and Van der Velden (2001) point out to the idea that not only higher education raises productivity, but also the match between job characteristics and educational level, while Allen and de Weert (2007) considere over-education, overutilisation and underutilisation as main consequences of the mismatch between the required and available skills.

In this context, the aim of this paper is to analyze the main factors responsible for increasing youth unemployment in 10 new member states and for the differences between skilled and unskilled young people concerning unemployment rates.

The next section focuses on differences and changes in youth unemployment rates across the 10 emerging countries.

Section 3 is dedicated to the econometric approach by which we study the impact of determinant factors on youth unemployment. Section 4 is devoted to the discussions of model results. Main conclusions are subject to section 5.

## Material and Methods

### Descriptive empirical evidence

In all European countries, young people have become a vulnerable category and their situation on the labour market has worsened with the global economic crisis.

In some of the 10 analyzed countries, even though during last decade youth unemployment rates have significantly decreased (Bulgaria, Poland, Slovenia), they remain more than double compared to the unemployment rates of people aged 25-64 years (Fig. 1 and 2).

In Estonia, Hungary, Latvia, Lithuania, Romania, unemployment rate among young people increased in 2009 compared to 2000 and in 2009 was three times higher than adults' unemployment rate (Fig. 1 and 2).
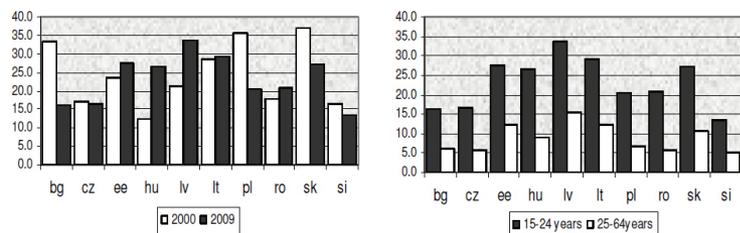
**Fig. 1: Youth unemployment rates (YUR) (%)**
**Fig. 2: Unemployment rates by age groups (%)**

**Source: EUROSTAT 2011, General and regional statistics**



**Fig. 3: YUR - unskilled (%)**     **Fig. 4: YUR - skilled (%)**

**Source: EUROSTAT 2011, General and regional statistics**

Though, more interesting to study are differences between countries related to unemployment rates for skilled and unskilled young people (In this paper, skilled are considered those people aged 15-24 years who completed at least upper secondary and post-secondary non-tertiary education - levels 3-4 (ISCED 1997), while unskilled are those who completed preprimary, primary and lower secondary education - levels 0-2 (ISCED 1997)).In this respect, a special case is represented by Slovakia that, according to EUROSTAT data, experience the highest unemployment rates for young people with the lowest education level (64.6% in 2009, a decrease by 16% compared to 2000) (Fig. 3).

At the opposite pole we can find Romania and Slovenia, with the lowest unemployment rates among unskilled young people (19.4%, respectively 18.9% in 2009) (Fig. 3).

In Romania's case, differences between unskilled and skilled young people unemployment rates are very small: 19.4 compared to 20.9, in 2009, while for all the other countries young educated people have more chances to find a job on the labour market (Fig.3 and 4).
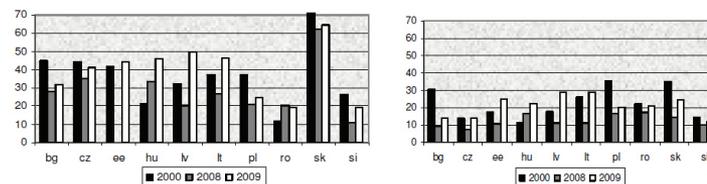
Even though the sample analysed contains 10 new EU member states with almost similar economic and social features, as is confirmed by the box-plots in Fig. 5, the differences between performers and those with poor performances remain high, especially when assessed in terms of unskilled youth unemployment. Moreover, if in terms of skilled youth unemployment rate last years have shown a decreasing tendency of these differences, regarding unskilled young people unemployment the difference between the smallest and the highest rate remained almost the same during 1999-2008. In 2008, skilled youth unemployment rates ranged from 7.1% (in Czech Republic) to 17.5% (in Romania), while the difference between the lowest unemployment rate for unskilled people (10.9% in Slovenia) and the highest (62.5% in Slovakia) was of 51.6 percentage points, a decrease by 1.4 percentage points compared to previous year.

The same reality is emphasized by the k-density graphs, namely, the tendency of polarization and formation of two groups of performers, more obvious in terms of unemployment rates for young unskilled people (Fig. 5).
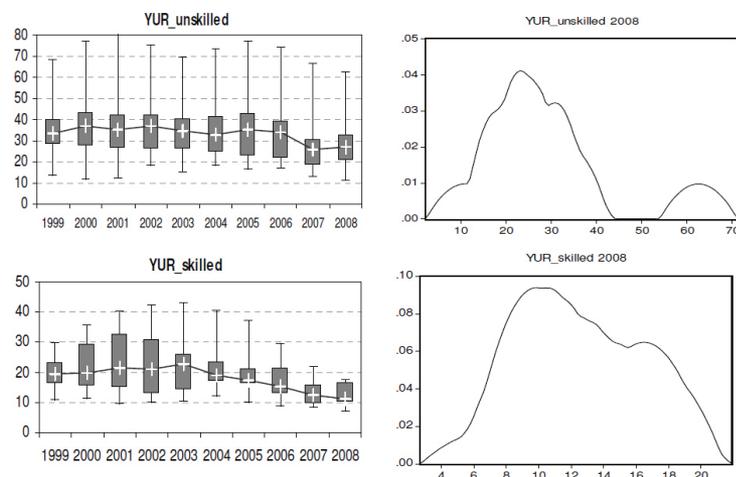
**Fig. 5: Box plots and k-density estimates of unemployment rates for skilled and unskilled young people in 10 new EU member states**

Source: EUROSTAT, 2011; own calculations

When assessed from a temporal perspective, graphs show that examined phenomena are persistent over time even though Spearman coefficients are in some cases very low (Fig. 6). Spearman's rank correlation coefficient:

$$S = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$ , where $d_i$ are differences between the ranks of each observation of the variables x and y .

In this sense, the rank correlation coefficient recorded for unskilled youth unemployment rate (S=0.539), means that, on the whole, most of the countries kept in 2008 their positions from 1999. Among them, in 2008, only Poland, Slovenia and Bulgaria improved their performances, going up four or three places, while Hungary felt six positions.

With respect to unemployment rate for skilled young people, countries changed their positions, in some cases quite significantly: Hungary and Romania (worsened their performances), Bulgaria, Latvia and Slovakia (improved their positions).
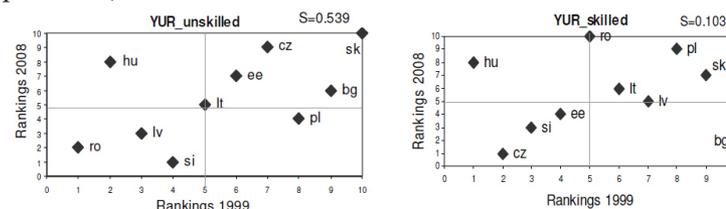


**Fig. 6: Ranking of unemployment rates for skilled and unskilled young people in 10 new EU member states**

Source: EUROSTAT, 2011; own calculations

Regarding the positioning of countries according to GDP per capita and youth unemployment, two different situations can be distinguished (Fig. 7):

- Top ranked countries in terms of GDP per capita (Czech Republic, Slovakia, Estonia), except Slovenia do not experience the same situation as regards unemployment among young unskilled people. Rank correlation coefficient has a negative value: S=-0.385.

- Instead, countries economic results (high GDP per capita) seem to be directly correlated with labour market performances concerning skilled youth employment (low skilled youth unemployment rate).
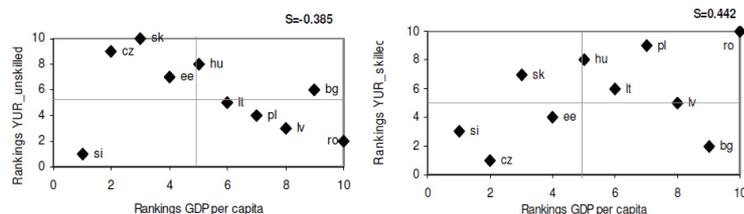
**Fig. 7: Ranking of unemployment rates for skilled and unskilled young people in 10 new EU member states**

**Source: EUROSTAT, 2011; own calculations**

## Variables and models

In the literature existing on the determinants of youth labour market performances, demographic, structural, institutional and cyclical factors emerge as the most significant.

To achieve the paper's objectives i.e. to study the determinants of youth unemployment and assess their impact an econometric model based on combining statistical and econometric methods (descriptive statistics, correlation and regression analysis) is designed. This is one of the best ways to capture the influence of determinant factors and to decide which labour market policy measures are more appropriate for a specific group of countries.

So, looking to create a general overview of the factors determining youth unemployment an econometric analysis based on panel data for the 10 new states that recently joined the EU was preferred. The period under analysis was 1999-2008 for which data were available for all eleven variables and 10 countries taken into account.

The nine factors representing the independent variables have been grouped in four categories: demographic factors (female share, part time employment), structural factors (employment in agriculture, industry and services), institutional factors (monthly minimum wages, tax wedge on labour cost, unemployment benefits) and cyclical ones (GDP per capita), while the dependent variable is in turn unemployment rate for unskilled young people (defined as people aged 15-24 which have attained only pre-primary, primary and lower secondary education) and unemployment rate for skilled young people (defined as people aged 15-24 which have upper secondary and post-secondary non-tertiary education).

The econometric model has the following form:

$$\ln u_{it} = \beta_1 + \beta_2 \ln u_{it-1} + \beta_3 X_{it} + \beta_4 Z_{it} + \beta_5 W_{it} + \beta_6 GDP_{it} + \varepsilon_{it}, \qquad (1)$$

where $X_{it}$ is demographic factor: young female share in total population at time t for country i (%), the share of part time youth employment (%), $Z_{it}$ Z structural factors: employment in agriculture, industry respectively services (% of total employment), it W institutional factors: monthly minimum wages (EURO PPP), tax wedge on labour costs (% of the total labour costs of the earner), unemployment benefits (% of GDP), $GDP_{it}$ is GDP per capita (PPP, constant 2005 international $). For all variables, except *the share of part time youth employment* and institutional factors for which the source of data has been EUROSTAT, data series have been extracted from World Bank DataBank.

In general, it is expected that the four categories of factors selected to have a differentiated influence on youth unemployment (Dimian, 2010):

- *Demographic factors* (young female and part time youth employment shares) tend to have an effect of increasing the efficiency of the labour market functioning, considering the willingness of these groups to accept other types of jobs (e.g. part-time or contacts on determined period). At the same time, part time employment is often seen as a factor which contributes to reducing unemployment, especially for vulnerable persons.

- *Structural factors* impact on labour market performances differs according to the share of each type of activity. If agriculture is considered by many authors (e.g. Perugini and Signorelli, 2010) a 'buffer against unemployment' for the most vulnerable groups of people, top industries require in most cases skilled and experience work force.

- *Institutional factors* proved to have a significant influence on unemployment. Monthly minimum wages, unemployment benefits and tax wedge on labour costs tend to contribute to the increase in unemployment, the latter, for example, by lowering the net pays.

- In times of economic boom, *business cycle factor* (GDP per capita) is expected to reduce labour market imbalances conducting to unemployment decrease as economy is at a point when can sustain job creation.

## Results

Before estimating model's coefficients we run a correlation analysis and computed variance inflation factor (VIF) in order to test for the existence of multicollinearity.

VIF$= 1/(1- R^2_j)$, shows how the variance of en estimator is inflated by the presence of multicollinearity. When $R^2_j$ approaches 1 (perfect collinearity), VIF approaches infinity. The inverse of the VIF is called tolerance and approaches 1 when is no collinearity (Gujarati, 2004).

The results show that there is multicollinearity in some variables' case (between structural factors, respectively GDP per capita and monthly minimum wages) (Tab.1).

| Variables | Collinearity Statistics | | | |
|---|---|---|---|---|
| | Tolerance | VIF | Tolerance | VIF |
| GDP per capita (PPP, constant 2005 international $) | 0.074 | 13.486 | 0.079 | 12.594 |
| Employment in agriculture (% of total employment) | 0.001 | 1443.484 | 0.001 | 1435.552 |
| Employment in industry (% of total employment) | 0.003 | 343.110 | 0.003 | 345.376 |
| Employment in services (% of total employment) | 0.001 | 921.950 | 0.001 | 921.411 |
| Young female share in total population (%) | 0.543 | 1.842 | 0.580 | 1.725 |
| The share of part time youth employment (%) | 0.185 | 5.400 | 0.211 | 4.734 |
| Monthly minimum wages (EURO PPP) | 0.077 | 12.910 | 0.083 | 12.087 |
| Tax wedge on labour costs | 0.588 | 1.700 | 0.585 | 1.710 |
| Unemployment benefits (% of GDP) | 0.463 | 2.159 | 0.464 | 2.155 |
| Dependent Variable | YUR_unskilled | | YUR_skilled | |

Tab. 1: Multicollinearity analysis results

In order to tackle this problem we run factor analysis so that the three structural variables to be reduce to a single one (Tab. 2) and eliminated the variable monthly minimum wages that proved to be correlated with GDP per capita.

| Variables | Component |
|---|---|
| Employment in agriculture (% of total employment) | -0.998 |
| Employment in industry (% of total employment) | 0.668 |
| Employment in services (% of total employment) | 0.856 |

**Tab. 2: Component Matrix (Extraction Method: Principal Component Analysis, 1 component extracted)**

The results of regression analysis for the two categories of young unemployed people are presented in Tab. 3.

| Dependent variable: log youth unemployment rate | | |
|---|---|---|
| | Unskilled | Skilled |
| Log youth unemployment rate (t-1) | 0.739 (0.069)*** | 0.838 (0.052)*** |
| Log GDP per capita | -0.332 (0.080)*** | -0.143 (0.064)*** |
| Factor 1 (scores) | 0.149 (0.0340*** | - |
| Young female share in total population | 0.051 (0.021)*** | - |
| The share of part time youth employment | - | - |
| Tax wedge on labour costs | - | -0.014 (0.007)*** |
| Unemployment benefits | - | 0.197 (0.098)*** |
| Constant | 3.335 (0.833)*** | 2.388 (0.731)*** |
| Observation | 90 | 90 |
| R-squared | 0.862 | 0.810 |
| F-statistic | 132.4*** | 904.5*** |

Regression coefficients: *** significantly different from zero at the 0.01 level of significance (standard errors are in brackets)

**Tab.3: Panel country analysis**

## Discussion

Regression outcomes prove that selected variables (available for all the countries) explain only a part of the variation in youth unemployment rates. It means that other important determinants of youth unemployment remained to be explored. This is the case for factors such as: labour market regulation, active labour market policies or youth labour mobility and level of education.

In addition, not all the factors have been shown to have a significant impact on unemployment. For both dependent variables (youth unemployment for unskilled people and youth unemployment for skilled people) the significant factors are: lagged youth unemployment rate and GDP per capita. Youth unemployment for unskilled people proved to be also related to: structural factor and female share, but not to unemployment benefits. Youth unemployment for skilled people seemed to be significantly influenced by institutional factors: unemployment benefits and tax wedge on labour costs.

The results obtained for the variables included in the model are consistent with other empirical studies on this topic.

As expected, regression coefficients show that youth unemployment is negatively related to GDP per capita and positively with lagged unemployment rate. For example, if GDP per capita goes up by 1 percent, on average, youth unemployment rate goes down by about 0.3 percent for unskilled people and 0.1 percent in the skilled people case.

Still, it is interesting that for unskilled people this negative relationship exists even related to employment in agriculture: countries with a high share of people employed in primary sector seem to have lower youth unemployment rates. The regression coefficient obtained for this group of people indicates

that young unskilled people are more expected to be employed in the primary sector. This result was already explained in the literature by "the role of agriculture as a buffer against unemployment by providing some employment, food and income to the most vulnerable groups in society" (Perugini and Signorelli, 2010).

The other factor with significant influence on youth unemployment for unskilled peopleproved to be young female share in total population. Regression coefficient is significantly different from zero at the 0.01 level of significance and indicates that if young female share in total population increases by 1 percent, on average, unskilled unemployment rate increases by 5.1 percents. This factor seems to have a negative impact on unemployment even though the inverse linkage would have been expected.

The explanation of this result can be related to the fact that female role in reducing unemployment is not always possible because it depends on the level of education and the particularities of each labour market.

Institutional factors proved to have a significant impact on skilled unemployment rate. For example, if unemployment benefits are increased youth unemployment among skilled people also raises. This situation specific only in skilled young people case can be explain by the fact that, in many cases, educated youth prefers unemployment benefit instead of an inappropriate job and a low salary.

## Conclusions

The aim of this paper was to analyze the main factors responsible for increasing youth unemployment in 10 new member states and for the differences between skilled and unskilled young people concerning unemployment rates. In the first part we provided some theoretical background related to the most important drivers of youth unemployment, how they influence labour market performances and what is the role of education in this framework.

The basic descriptive statistics show that in all 10 analysed countries youth unemployment has remained very high during the last decade, being more than double compared to unemployment rates of people aged 24-64 years. Significant differences between countries exist in terms of unemployment rates for people with low and high level of education. In addition, youth unemployment is a persistent phenomenon over time, especially for unskilled young people. So, even in times of economic boom, for this category finding a proper job is a more difficult task than for those more qualified.

Unskilled and skilled youth unemployment rate determinants are then studied using panel data for the period 1999-2008 and Regression Model. Only a few of the youth unemployment eterminants factors proved to have a significant influence. Among them, factor 1 (negatively correlated with employment in agriculture) seems to have an important impact only on young people with low level of education. Primary sector is often considered a buffer against unemployment, especially for vulnerable categories.

As for the variables related to institutional and policy settings, they didn't emerge significant than in the case of skilled young people. One explanation of this result may be the fact that active

or passive labour market policies, especially focused to solve unskilled youth unemployed problems, are not in many cases available. But, as Bell and Blanchflower (2010), in their paper *Youth Unemployment: Déjà Vu?* emphasize: "there is a strong case for policy intervention now to address the difficulties that the current cohort is having in finding access to work".

In this respect, it is widely recognized that facing recent economic downturn consequences involves more than ever investments in skills. This process has become more complicated nowadays when companies are looking not only for knowledge and skills but also for aptitudes to apply them effectively (Frey et. al 2009).

Thus, a step forward in the research of the youth unemployment theme can be made by applying new modelling techniques in order to analyze the effectiveness of labour market policies. One of them is Data Envelopment Analysis, which may be used for efficiency and performances evaluation of decision making units (Jablonsky and Dlouhy, 2010).

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