# The Macedonian Labour Market: What makes it so different?

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The aim of this paper is to investigate the performance of the Macedonian labour market in the period 2006-2011, as well as to provide a comparative analysis with the countries from the region and the EU. In particular, for over a decade, Macedonian labour market puzzles economic researchers. Despite the expected improvement in the allocative efficiency of the markets (including labour market) in the process of transition to a market economy, the performance of the Macedonian labour market has deteriorated during the transition. Unemployment rate for the population aged 15-64 reached 37.7% in 2005, though has been declining modestly since then to 31.6% in 2011. Participation and employment rates of 64.2% and 43.9%, respectively, are low compared to the peer countries form the region, and even more if compared to the EU countries. This holds even more so for Macedonian females.

In this regard, the paper examines the main challenges in the labour market, in general, but also does so for specific groups of workers (differentiated by age, gender анд education). We also calculate the extent of the skill match, as well as the presence of the over/under-education phenomenon (mismatches). Moreover, it empirically tests the determinants of the employment, that is which factors might bring higher employment rates.

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## 1. Introduction

Macedonian labour market is challenged by the low participation and employment rates and high unemployment rate. The unemployment rate in 2011 equaled 31.6%. It has been on a declining path since 2005, but the progress is very slow. Participation and employment rates of 64.2% and 43.9%, respectively, are low compared to the peer countries form the region, and the EU countries. Certain types of workers experience even worse labour market outcomes. Those are mainly young workers, females and lower educated workers.

In this regard, the aim of this paper is to investigate the performance of the Macedonian labour market in the period 2006-2011, as well as to provide a comparative analysis with the countries from the region and the EU. The study examines in detail labour market performance of different groups of workers, mainly differentiated by gender, age and education. Given the underperformance of the Macedonian labour market, we provide an empirical investigation of the main determinants of employment using an OLS estimation method.

The structure of the paper is as follows. Section 2 examines in detail the participation in the Macedonian labour market, whereas section 3 turns to the employment developments in the country. Section 4 analyses the unemployment in the country, latest developments and factors driving the unemployment. In section 5 we explore the quality of the matches between jobs and workers in the Macedonian labour market. Section 6 estimates the main determinants of the employment rates across the European countries, including Macedonia, whereas section 7 concludes.

## 2. Activity in the Macedonian labour market

Labour market participation in 2011 was at 64.2%, unchanged compared to the previous year (see Table 1). However, there was a divergent trend by gender. In particular, between 2010 and 2011, male participation rate decreased by 1.2%, whereas that of females increased by 1.6%. Declining participation of males is both a result of increasing working-age population, as well as a shrinking male labour force. From age perspective the activity of young workers (15-24) declined by 3.7%, which most likely is a result of increased participation in education, especially in tertiary education. In particular, the number of students enrolled in the first year of studies at the universities in the country increased by 10% between the academic year 2009/2010 and 2010/2011. Majority of these students (above 85%) are full-time students and hence most likely inactive in the labour market.

Participation rate in the country is low by international standards, which is mainly due to: (i) the very low number of employed which is only partially compensated by a high incidence of unemployment, (ii) the effect of sizeable net inflows of remittances (private transfers) from abroad, by increasing the reservation wage of recipient households/individuals, and iii) low participation of females (Mojsoska-Blazevski, 2011).

Female inactivity is disproportionately spread among young, rural and unskilled females, though the single most important reason for female inactivity is household responsibilities (Angel-Urdinola and Macias, 2008; ETF, 2008). For instance, Eurostat data for 2011 show that the main reason for female inactivity in Macedonia is "other family or personal responsibilities", with 41.9% of inactive females in Macedonia reporting that as a main reason. The respective share for the EU-27 is 11.3%. Additional 6.2% of females in Macedonia are inactive because of taking care after children or incapacitated adults, whereas that is true for 14.8% of inactive females in the EU-27. This implies that about half of Macedonian females are inactive because of family responsibilities, though the effect of this factor on inactivity is likely to be magnified at the lower levels of education. In addition, the sizeable remittances might have greater effect on participation of females than of males (as well as that of youth and elderly persons) – the categories that are anyway more likely to be inactive.

Table 1 - Main Labour Market Indicators, 2006 to 2011

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| **Participation rate** | **62.2** | **62.8** | **63.5** | **64.0** | **64.2** | **64.2** |
| **men** | 75.0 | 74.8 | 76.6 | 77.6 | 77.7 | 76.8 |
| **women** | 49.2 | 50.4 | 50.1 | 50.0 | 50.4 | 51.2 |
| **age 15-24** | 35.8 | 35.8 | 35.9 | 35.0 | 33.3 | 32.1 |
| **age 25-49** | 78.9 | 79.0 | 79.4 | 79.5 | 80.4 | 80.2 |
| **age 50-64** | 50.8 | 52.9 | 54.9 | 57.2 | 57.5 | 58.3 |
| **Employment rate** | **39.6** | **40.7** | **42.0** | **43.3** | **43.5** | **43.9** |
| **men** | 48.3 | 48.8 | 50.8 | 52.8 | 52.8 | 52.3 |
| **women** | 30.8 | 32.3 | 32.9 | 33.5 | 34.0 | 35.3 |
| **age 15-24** | 14.4 | 15.2 | 15.7 | 15.7 | 15.4 | 14.4 |
| **age 25-49** | 52.0 | 53.0 | 54.3 | 55.4 | 55.8 | 56.5 |
| **age 50-64** | 36.4 | 37.8 | 39.6 | 42.4 | 42.6 | 43.0 |
| **Unemployment** | **36.3** | **35.2** | **34.0** | **32.3** | **32.2** | **31.6** |
| **men** | 35.6 | 34.8 | 33.7 | 32.0 | 32.1 | 31.9 |
| **women** | 37.4 | 35.8 | 34.3 | 32.9 | 32.5 | 31.0 |
| **age 15-24** | 59.7 | 57.7 | 56.4 | 55.1 | 53.7 | 55.3 |
| **age 25-49** | 34.1 | 32.9 | 31.6 | 30.3 | 30.7 | 29.6 |
| **age 50-64** | 28.3 | 28.5 | 28.0 | 25.9 | 26.0 | 26.2 |

*Source: Author's calculations based on data from State Statistical Office and Eurostat.*[1]

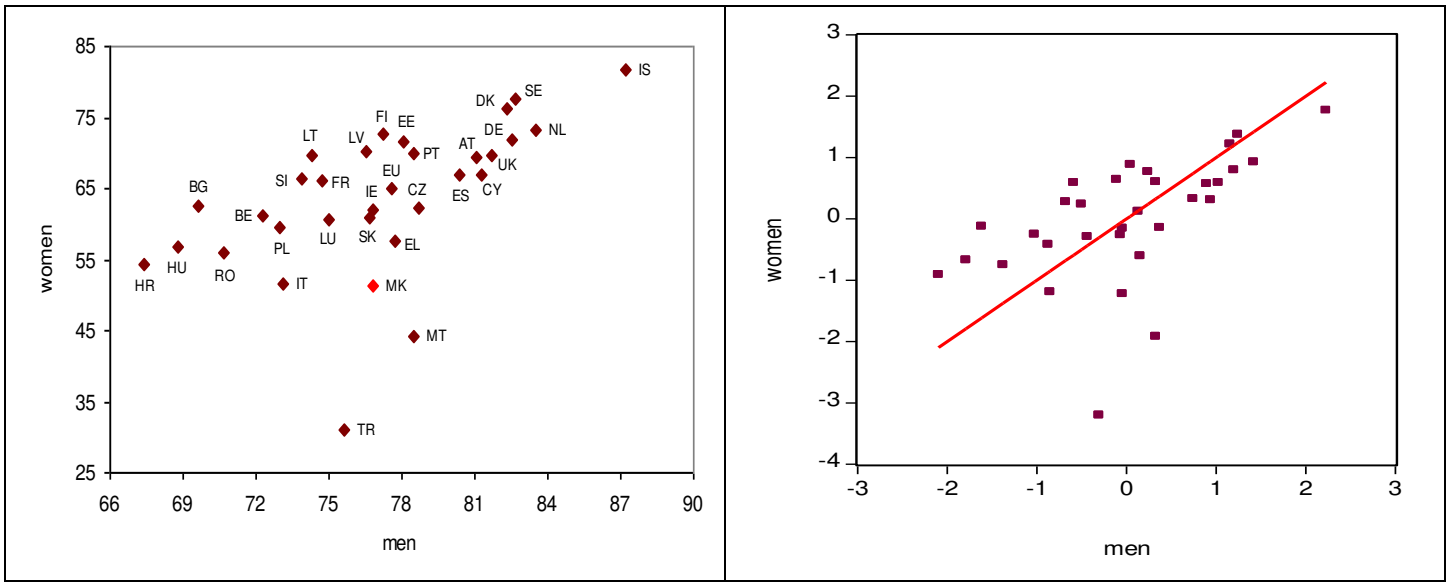
The low participation of young persons in Macedonia (32.1% in 2011) can be attributed to few factors, such as: (i) generally low employment probabilities in the country, and the corresponding difficulty of school-to-work transition, which is relatively high and maybe even

[1] Data for Macedonian labour market for 2011 are available only from the Eurostat database, but are not yet published nationally.

increasing at these times, ii) unwillingness of employers in Macedonia to bear the costs of on-the-job training of inexperienced youth given the existence of experienced unemployed applicants, iii) skills mismatch between employer's needs and skills produced by the education system, etc.

Participation rate of those with tertiary education in 2011 was 89.1%, which is more than double the participation rate of workers with primary education or less (44.3%). However, the participation rate of the latter category of workers registered a mild increase compared to 2010, while that of the workers with higher educational levels declined by 1.4%. The latter has been feed by a decrease of male participation rate.

Chart 1 - Male and Female Participation Rate in EU/Candidate Countries (left) and their Z-Scores (right) in 2011



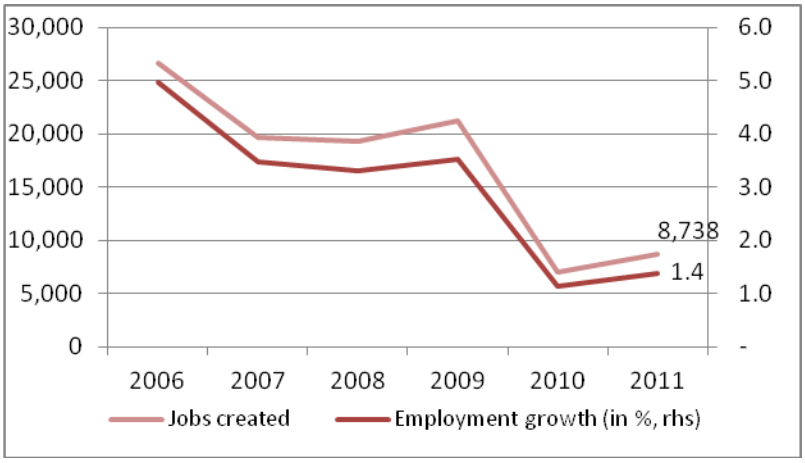

*Source: Author's calculations based on data from Eurostat.*

The gender participation gap in Macedonia in 2011 equalled 25.6 p.p., which is a slight decline (by 6%) compared to the previous year. Still, in comparable terms, the gender gap in Macedonia is 7 p.p. higher than that the EU-average. Chart 1 shows that a number of EU countries have lower participation rates of males compared to Macedonia (Croatia, Hungary, Romania, Bulgaria, Belgium, Poland, Italy, Slovenia, etc.). On the other hand, Macedonia has one of the lowest participation rates of females (comparable to Italy, and higher than that in Turkey and Malta). This places Macedonia under the estimated line for the relationship between male-to-female activity (see Chart 1, both graphs), though it is not outlier (as judged by the calculated z-score).

## 3. Employment

In 2011, the labour market of the Republic of Macedonia generated 8,738 jobs (in net terms), with an employment growth of 1.4%.[2] However, as Chart 2 shows, the employment growth in the country slowed down in the last couple of years, from 5% (or 26,640 new jobs) in 2006 to 1.4% in 2011. Such low employment growth contributed very little to a reduction of unemployment.

Chart 2 – Employment growth and jobs creation, 2006-2011

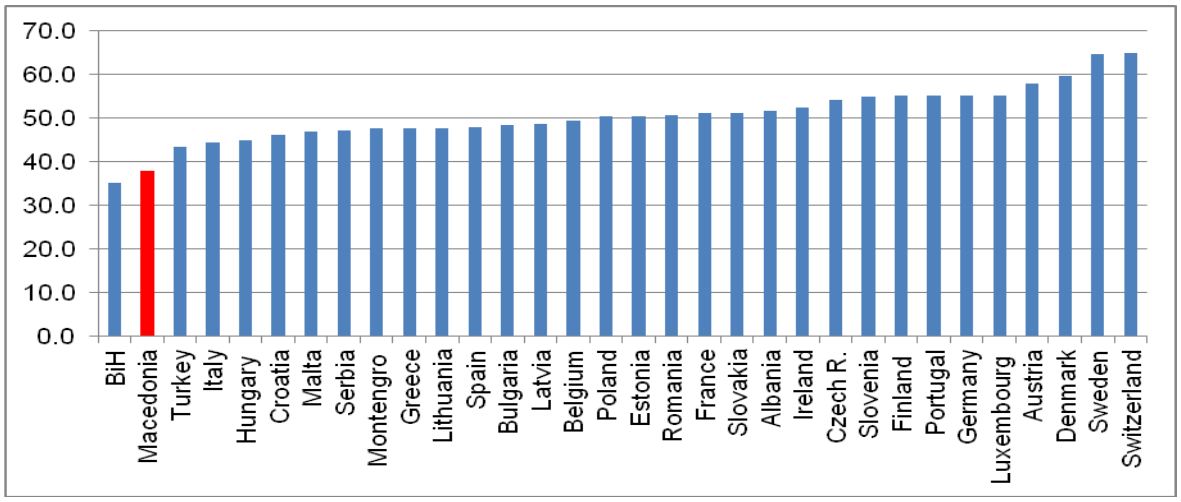



*Source: Author's calculations based on data from State Statistical Office, Labour Force Survey and Eurostat.*

Employment rate in 2011 was at 43.9%, continuing the gradual improvement from previous years. Though, the last quarter of the year saw a decline in the employment rate of 3% on yearly basis. Gender employment gap declined to 17 p.p. from 18.7 p.p. in 2010, given the increasing female employment (3.8%) and declining male employment (0.9%). Employment rates by gender and age groups are presented in Table 1. The employment rate of young workers declined by 7.2% between 2010 and 2011, whereas the employment rates of the prime-age workers and older workers increased. Workers with tertiary education have relatively high employment rate: in 2011 employment rate of tertiary educated workers was 68.6%, which is 2.5 times that of workers with primary education or less. Looking at the dynamics of employment rates by education, we observe, however, relatively high decrease of employment rate of workers with tertiary education, as opposed to the increase of that of workers with primary education or less (see Table 1).

Chart 3 - Employment rate in the European countries, 2010 (population aged 15+)

2 The analysis is based on data from the Labour Force Survey for the population aged 15-64, unless otherwise stated. Additional data, regarding unemployment, are provided from the Employment Service Agency.



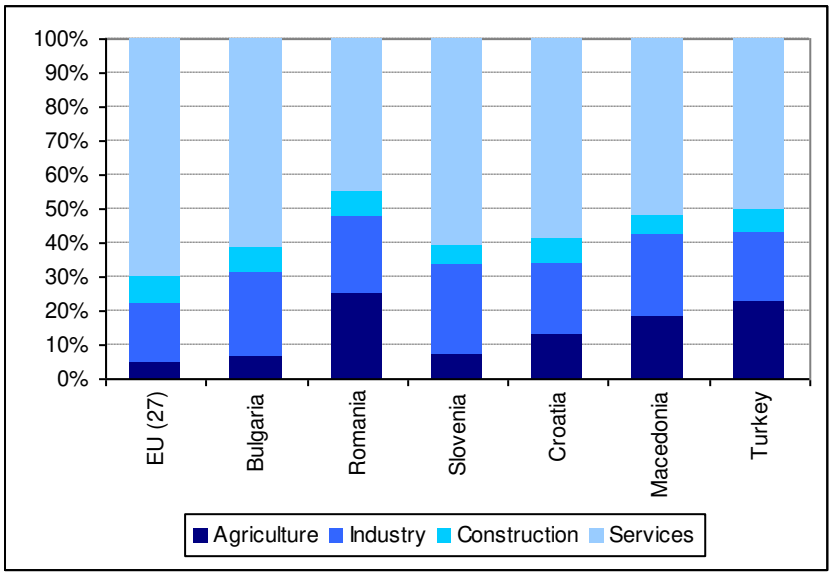

*Source: Author's calculations, data from ILO, available at [http://kilm.ilo.org/KILMnet/](http://kilm.ilo.org/KILMnet/).*

Employment rate in Macedonia is fairly low compared to those of the EU member states. In particular, employment rate in Macedonia is 1.7 p.p. lower than that in Greece, a country registering the lowest employment rate within the EU-27 in 2011 (see Chart 3). This holds both for male and female employment rate.

Besides the relatively low employment in the country, the labour market values highly the education. For instance, while the ratio of employment rate of primary educated individuals to employment rate of tertiary educated individuals in Macedonia was 39.9% in 2011, the same ratio was 54.6% in the EU-27. However, this relative disadvantage of low educated individuals in Macedonia is mainly driven by low employment opportunities for females with completed primary education. For instance, the ratio of employment rate of primary to tertiary educated females in 2011 was 26.3%, but 56.5% for males.

According to the Eurostat data (from the LFS), about 14.700 workers in Macedonia reported to have a second job in 2011, which is 2.3% of total employment, up from 2.1% last year. Males are much more likely to hold a second job - this is the case for almost 3% of males, versus 1.5% for females. The same holds for workers in elementary occupations and workers with secondary education.

Chart 4 – Structure of Employment by Type of Economic Activity, 2011




*Source: Author's calculations based on data from Eurostat.*

The employment structure by sectors in Macedonia is somewhat similar to that of Turkey and Romania, where the share of workers in agriculture in total employment is relatively high. The portion of workers engaged in services is smaller when compared to Slovenia, Bulgaria and the EU-27 average (Chart 4).

Table 2 - Structure of Employment in Macedonia

| | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
|---|---|---|---|---|---|---|
| *Economic status* | | | | | | |
| **employee** | 71.6 | 73.1 | 72.6 | 72.7 | 72.3 | 72.4 |
| **employer** | 5.9 | 5.5 | 5.0 | 5.2 | 5.4 | 5.7 |
| **self-employed** | 12.0 | 11.7 | 12.4 | 12.2 | 12.6 | 12.7 |
| **family worker** | 10.5 | 9.8 | 10.0 | 10.0 | 9.7 | 9.2 |
| *Ownership (15-74)* | | | | | | |
| **private** | 66.1 | 69.0 | 71.4 | 73.6 | 73.7 | 74.9 |
| **other**[3] | 33.9 | 31.0 | 28.6 | 26.4 | 26.3 | 25.1 |
| *Type of contract* | | | | | | |
| **part-time** | 6.3 | 6.4 | 5.6 | 5.3 | 5.6 | 6.0 |
| **full-time** | 93.7 | 93.6 | 94.4 | 94.7 | 94.4 | 94.0 |
| *Type of contract* | | | | | | |
| **permanent** | 91.5 | 90.8 | 89.4 | 88.8 | 88.1 | 89.2 |
| **temporary** | 8.5 | 9.2 | 10.6 | 11.2 | 11.9 | 10.8 |

*Source: Author's calculations based on data from Labour Force Survey, State Statistical Office and Eurostat.*

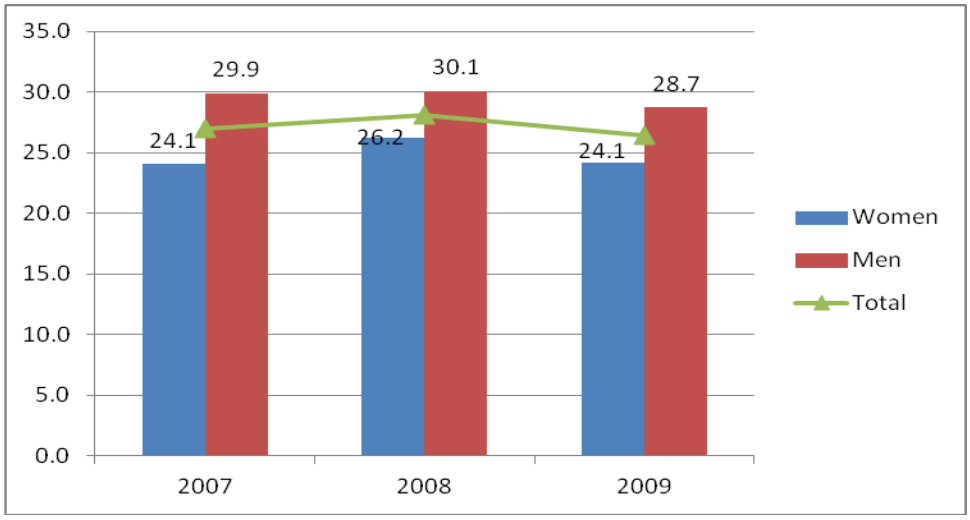
[3] Other ownership refers to social, mixed, collective and/or state.

As Table 2 shows, in 2011 the number of part-time workers increased by 8.8% compared to 2010, representing 6% of the total employments. Women in Macedonia make slightly more use of part-time employment (6.7% of overall female employment), whereas 13.5% of the employed youth have part-time contracts. In the EU, the share of workers under part-time contract was 18.8% in 2011. Eurostat data show that 41% of total part-time employment in Macedonia in 2011 was involuntary, whereas that holds for 26.1% of the part-time employment in the EU-27. Involuntary part-time employment is more widespread across males both in Macedonia and the EU-27. In this sense, higher share of females working on part-time contracts is probably a result of their choice where as a second breadwinner in a family they can afford to work less, rather than indicating poor job opportunities for females.

The share of workers with temporary employment contract in Macedonia is relatively high, at 10.8% of the total number of employed persons in 2011. Temporary employment is used more across males, representing 11.6% of their total employment, than for females. Young workers are much more likely to work on temporary basis, 22.1% of total youth employment. About ¾ of temporary employment in Macedonia is involuntary, the main reason for working with temporary contract being inability to find a permanent job. The respective share in the EU-27 is 60.4%.

The incidence of "vulnerable employment", that is the share of self-employment and unpaid family workers in total employment is relatively stable, amounting to 21.9% in 2011. World Bank (2007) finds that self-employment in the country is mainly disguised wage-employment rather than entrepreneurship with high-productivity activity. Hence, they argue that, during downturns, these low-productivity self-employment or disguised wage employment jobs are most likely to be destructed, so that declining GDP and rising productivity is observed simultaneously. Though, recent developments in the structure of employed workers by economic status does not support that claim. It seems that the self-employment is rather stable, although concentrated in low-productivity activities, and faced with barriers to growth (for instance, access to credit).

Chart 5 - Share of Informal in Total Employment, National and by Gender, 2007-2009



*Source: Author's presentation based on data from State Statistical Office, 2010.*

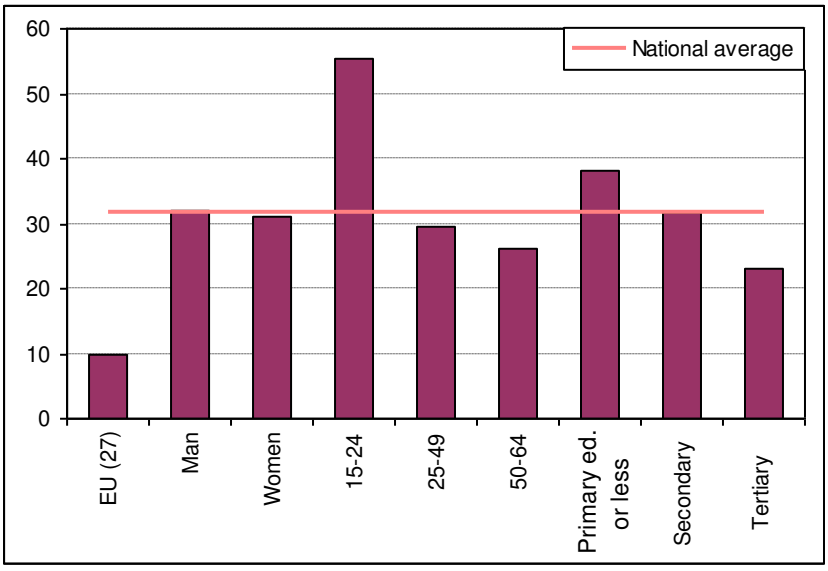
According to the latest available data by the State Statistical Office (2010), the size of the informal employment in Macedonia in 2009 was 26.4% of total employment (data are published only for period 2007-2009), and declined between 2008 and 2009. Women are less likely to work informally, i.e. 24% of employed females in 2009 were working without a work contract (Chart 5).

## 4. Unemployment

The number of unemployed in the country fell by 1.8% between 2010 and 2011, triggering a small decline in the unemployment rate from 32.2% in 2010 to 31.6% in 2011. The continuous decline in unemployment rate stopped in Q4, when unemployment rate somewhat increased on annual basis. Worsening labour market situation in Q4 (declining participation and employment rate along with increasing unemployment rate) might be a result of the 2009 recession, as labour markets tend to adjust with some time lag. The economy in the last two years is creating very little jobs compared to the period 2006-2008 (Chart 2).

While participation and employment rates of women are much lower than those of men, unemployment rates are almost equally distributed between the genders (Chart 6). This may reflect the relatively high willingness of women to take up low-paid, secure public sector jobs, or jobs in newly created small private firms (Munich et al., 2004), since by tradition, they are second-income family earners. Male unemployment rate in 2011 was slightly reduced to 31.9%, while female unemployment rate fell by 4.6% compared to 2010, to 30.6%.

Chart 6 - Unemployment Rates by Different Characteristics, 2011

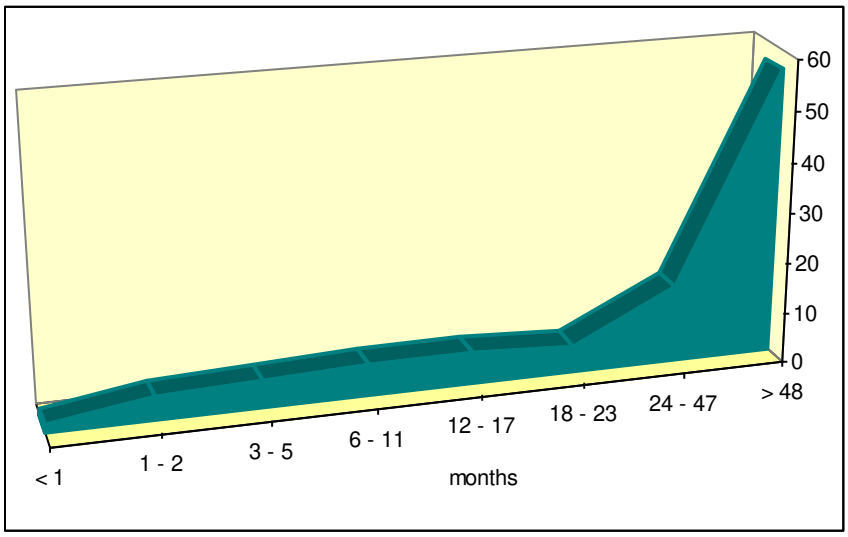



*Source: Author's calculations based on data from State Statistical Office and Eurostat.*

The unemployment rate of young workers in 2011 increased by 3% (to 55.3%), whereas that of prime-age working population declined to 29.6%, and that of older workers stayed stable. Such

developments have led to increase of the youth-to-adult unemployment ratio to 1.9 in 2011 from 1.8 in 2010. Persons with completed primary education or less have higher probability of being unemployed than those with secondary education, especially compared to those with tertiary attainment (Chart 6). Thus, the unemployment rate for persons with completed primary education or less is 21% above the national average, and that of individuals with tertiary education is 27% below the average. However, there was a certain worsening of the unemployment rate among persons with tertiary education in 2011, which is related to the increased supply of such workers in an environment of moderate demand. For instance, between 2000 and 2011 the number of graduated students from universities (i.e. labour market entrants) tripled, from 3,338 to 9,944.

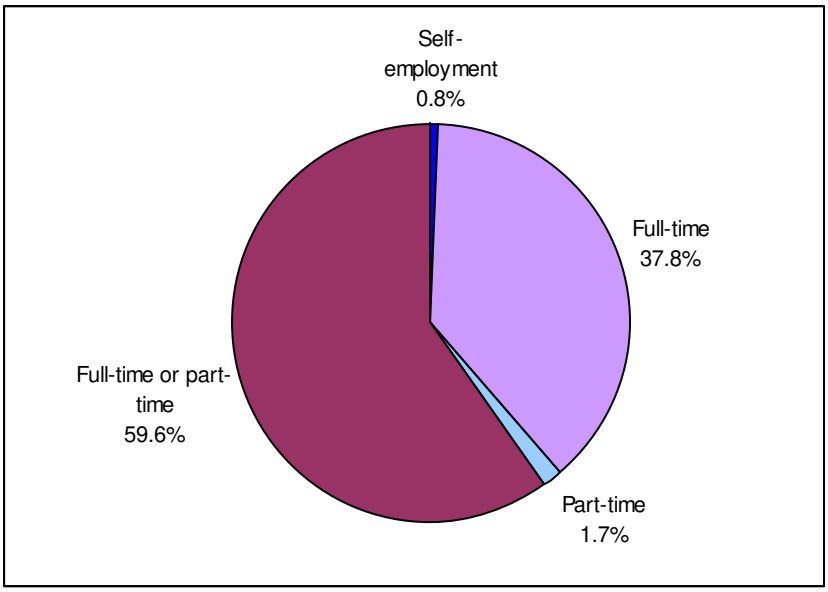
Chart 7 – Distribution of duration of unemployment in 2011 (in % of total unemployed)




*Source: Author's calculations based on data from Eurostat.*

The low job creation and static labour market in Macedonia results in a long duration of unemployment spell (and consequently high long-term unemployment). In particular, 82.6% of unemployed in the country in 2011 searched for a job for more than 1 year, and 56.3% searched for a job for more than 4 years (Chart 7). Though this latter category of workers are more likely to be "inactive" than truly "unemployed". According to the Eurostat, jobseekers in Macedonia prefer to find full-time employment, though about 60% of them would accept any available job offer, part- or full-time. Only 0.8% of all unemployed in 2011 would like to start an own business (search for self-employment). The structure of unemployment by type of employment sought is shown in Chart 8.

Chart 8 – Type of Job that Unemployed Search For, 2011

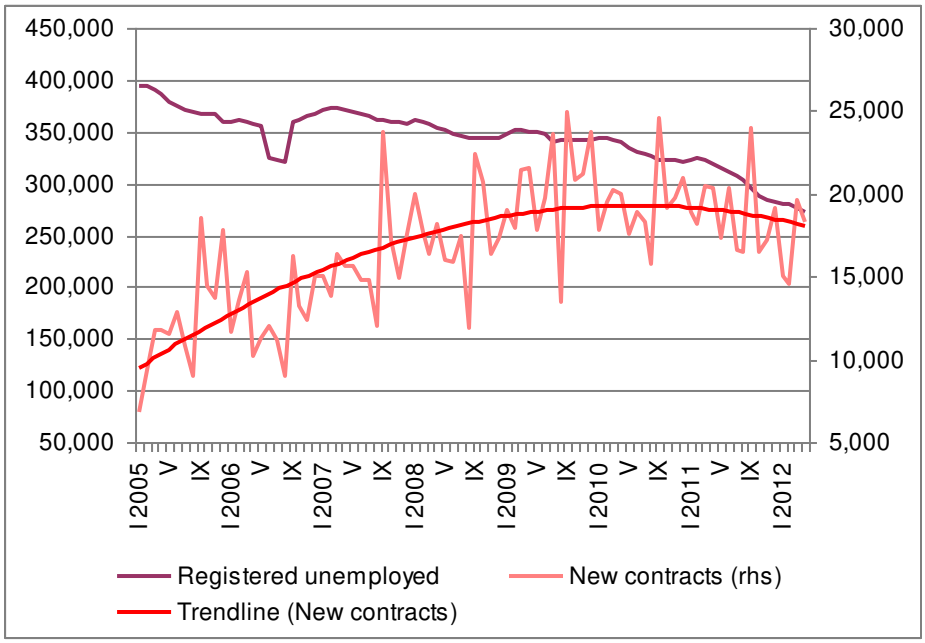



*Source: Author's calculations based on data from Eurostat.*

Jobseekers in Macedonia are most likely to use contact with (registration in) the Employment Service Agency (ESA) as a method of searching for a job, although we see some downward trend in the use of this channel from 2008 onwards. In 2011 this is the case for 78.2% of jobseekers, which is comparable to the EU countries with the highest share of jobseekers that register with the public employment agency (Lithuania-87.7%, Czech Republic-86.8%, Croatia-84.6% and Germany-82.3%). The EU-27 average is about 56% in 2011. The median number of search methods used in Macedonia is 4. The high use of the ESA in Macedonia is probably related to the long tradition in which registered unemployed were eligible for free-health insurance, though it might also be an indication of a relatively low search intensity of unemployed (if the ESA is considered as a low effective search channel). The system of provision of health insurance has been changed from September 2011, with the Health Insurance Fund providing free health insurance for all citizens with low income (under certain threshold) or no income. However, the system change has so far not brought the intended effect of reduction of "false" registration in the ESA of inactive population or informal workers.

Data from the ESA show a continuous downward trend of the registered number of unemployed. In April 2012, the number of registered unemployed was 272,392 persons, which is 14.7% decline in registered unemployment compared to April 2011. On the other hand, there is a slightly declining trend in the new registered work contracts (see Chart 9).

Chart 9 – Number of Registered Unemployed and New Work Contracts, I.2005-IV.2012




*Source: Author's calculations based on data from Employment Service Agency, www.avrm.gov.mk.*

## 5. Are matches between the skills and jobs in Macedonian labour market efficient?

The high increase in the enrolments and graduation from tertiary education might lead to an overeducation phenomenon if those workers are afterwards attached to jobs which require lower skill levels. In this section we argued that the rising unemployment rate of workers with completed tertiary education might suggest that the economy is not able to create high-skill and high-productivity jobs. Hence we would expect that the overeducation is present in the country and increasing in the last years. On the contrary, we expect that undereducation and skills match are declining. The widespread overeducation phenomenon presents a loss for the society - foregone growth and productivity and individuals - lower returns to education compared to their educational peers (Burdia and Moro-Egido, 2009).

We test that the extent of the skills (mis)match matching the LFS data for the employment classified by education and by occupation. Assuming that groups 1 to 3 of the ISCO (International Standard Classification of Occupations) classification are high skill jobs, groups 4 to 8 are medium skill jobs and the group 9 is a low skill job[4], we have a 3 x 3 matrix, where each element (cell) of the matrix represents a share in the total employment.

Table 3 – Skills mismatch (education vs. occupation) in 2010 in Macedonia (in % of total employment)

| Occupation / Education | Primary or less ISCED, levels 0 to 2 | Secondary ISCED, levels 3 and 4 | Tertiary ISCED, levels 5 and 6 |
|---|---|---|---|

[4] The group 0 – Armed forces, is not included in the calculations.

| | | | |
|---|---|---|---|
| ISCO, 1 to 3 | 0.5<br>(highly undereducated) | 9.7<br>(undereducated) | 16.7<br>(skills match) |
| ISCO, 4 to 8 | 8.6<br>(undereducated) | 34.0<br>(skills match) | 4.2<br>(overeducated) |
| ISCO, 9 | 15.7<br>(skills match) | 9.7<br>(overeducated) | 0.6<br>(highly overeducated) |

*Source: Author's calculations based on data from Eurostat.*

We measure the size of the overeducation by the share of workers with tertiary education employed in occupational categories 4 to 9, and workers with upper secondary education working in occupation 9 (red cells).[5] As Table 3 shows, 4.2% of workers with tertiary education work in occupations which require lower skills and knowledge (ISCO 4-8), and 0.6% are employed in the lowest occupational category. Moreover, about 9.7% of workers that work on lowest occupational category (ISCO 9) which requires primary education or less, have completed secondary education. The overeducation represents 14.5% of total employment. It increased by 29% compared to 2006, whereas the overeducation among workers with tertiary education (performing jobs from ISCO 4-9) increased by almost 49% (Mojsoska and Ristovski, 2012). The overeducation is equally distributed among the genders. The overeducation in Macedonia is higher than that in most of the EU member states. For instance applying the same calculation we come up with an overeducation of 13.4% in Bulgaria, 11.7% in Germany, 7.9% in Denmark, 6.2% in Slovenia). The Table also allows us to calculate undereducation phenomenon, that are workers with lower skills performing a job that requires higher skills. According to this data (green cells), 19.8% of jobs in Macedonia are performed by workers that posses lower skills than the job requirements. The undereducation declined by 17% compared to 2006. In Slovakia the extent of undereducation in 2009 was 22.5%. At 66.4% of all jobs in the Macedonian economy, workers and skills and matched efficiently meaning that jobs make use of the full workers' potential. This share has increased slightly, from 64.5% in 2006.

## 6. What determines the employment rates across the European countries?

This section investigates the main determinants of the employment rates among the European countries (EU and Western Balkan countries). This issue is important for Macedonia and across the Western Balkan countries, as these countries suffer low employment rates, implying spare labour capacity, lost production and growth.

As Chart 3 shows, employment-to-population ratio in Macedonia and all Western Balkan countries are lowest in Europe (with exception of Italy and Hungary). Moreover, only Macedonia and Bosnia and Herzegovina experience employment rates lower than 40%.

We pursue the analysis through an estimation of an econometric model of the following form:

[5] This analysis has a drawback because it accounts only for the formally gained skills, whereas workers might have acquired some skills in the non-formal education or training.

$$Empl.rate_i = \beta_1 + \beta_2 logGDP_i + \beta_3 LMefficiency_i + \beta_4 LTU_i + \beta_5 education_i + u_i, \quad (1)$$

where i stands for a country and variables are defined as:
Empl.rate is the employment to population ratio (in %), population aged 15+,
logGDP, is logged GDP per capita in US$,
LMefficency, is the efficiency of the labour market, measured on a scale of 1 to 7 (most efficient),
LTU, is the share of long-term in total unemployment,
education, is the quality of education, measured on a scale of 1 to 7 (highest quality).

The higher the economic development of a country (i.e. the higher the production) the more people are employed. The intuition behind incorporation of long-term unemployment (LTU) is that the higher the share of LTU among unemployed, the less effective the supply of labour is (Machin and Manning, 1999; Nickell et al., 2005). Nickell et al. (2005) define the search effective stock of unemployed as the number of "employable" people in the economy which are effective in reducing inflationary pressures. In an environment of ineffective labour supply, monetary and fiscal authorities are constrained in boosting the demand (and job creation), since the likely effect of the expansion would be higher inflation. Hence, the main determinant of the number of jobs (i.e. employment) in an economy is the search effective stock of unemployed investigated (Mojsoska, 2006). Greater effectiveness of labour supply may therefore stimulate job creation (Boone and Van Ours, 2004). Similarly, the quality of education (as perceived by the employers) is a proxy for the human capital in a country. Higher human capital would imply higher productivity of workers and potentially higher employment. Well-functioning and efficient labour market also contributes to higher employment by positively affecting both labour demand and labour supply, through reduction of transaction costs and better allocation of labour.

The sample includes 32 European countries, i.e. most of the EU Member States and the Western Balkan Countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, and Serbia), as well as Turkey as EU candidate country. Data on employment rates (population aged 15+) were collected from the International Labour Organization (ILO) dabase called Key Indicators of the Labour Market (http://kilm.ilo.org/KILMnet/), except data for Serbia and Montenegro for which data were taken from their statistical offices. Data on GDP per capita (in US$), as well as labour market efficiency and educational quality were collected from the data from the World Competitiveness Report. Labour market efficiency is calculated as a composite index by the World Economic Forum (WEF) for which data are mainly collected through the Executive Opinion Survey of the WEF.[6] The survey is on average distributed to 98 respondents (companies) per country. Data on LTU were taken from the Eurostat database and from national statistical offices (for Albania, Bosnia and Herzegovina, Montenegro and Serbia).

[6] It is a composite indicator that consists of several indicators: cooperation in labour-employer relations, flexibility of wage determination, pay and productivity, rigidity of employment index, hiring and firing practices, redundancy costs, reliance on professional management, brain drain and women in labour force.

Results from the OLS estimation[7] of the equation (1) are presented in Table 4, equation 1. The model has relatively high explanatory power as measured by R-squared of 0.64 (adjusted R-squared of 0.59). The coefficients are jointly significant, whereas the constant and the variable measuring the quality of education are independently insignificant. Hence, we decide to exclude the quality of education variable, which increased the adjusted R-squared, as well as the joint and individual significance of the other regressors (see Table 4, equation 2). The efficiency of the labour market coefficient and the GDP per capital coefficient are highly significant at 0.1% and 1% level of significance, respectively. The LTU coefficient is significant at 10% significance level only. All coefficients have the expected signs. The interpretation of the coefficients is the following:

- Increasing the GDP per capita by 1% would increase employment rate by 2.4 p,p;
- Increasing the labour market efficiency by 1 unit would increase employment rate by 7.8 p.p. This implies that if Macedonia manages to increase the labour market efficiency from the current 4.3 to 4.9 (as that in Estonia), the employment rate would increase by 4.8 p.p.
- Reducing the share of LTU in total unemployment by 1 p.p would increase employment rate by 0.1 p.p. practically, if the share of LTU in Macedonia is halved to about 40% (as in Slovenia, Czech Republic, Hungary, Italy, etc) then employment rate would increase by 4-4.5 p.p.

In conclusion, relatively low employment rate in Macedonia (as well as across the Western Balkan countries) steams from low level of development, low labour market efficiency and high share of long-term unemployment. Contrary to our initial expectations, the quality of education does not influence the employment rate.

Table 4. Estimation Results for the Observed Determinants of the Employment Rate

| *Explanatory variables* | equation 1 | equation 2 |
|---|---|---|
| logGDP | 2.262**<br>(0.965) | 2.388***<br>(0.866) |
| LMefficency | 5.044***<br>(1.802) | 5.312***<br>(1.295) |
| LTU | -0.091*<br>(0.052) | -0.089*<br>(0.051) |
| education | 0.271<br>(1.259) | |
| constant | 9.197<br>(10.807) | 7.811<br>(9.562) |

[7] Heteroskedasticity and autocorrelation consistent (HAC) covariance estimator has been applied to adjust the data for autocorrelation and/or heteroscedastisity.

| | | |
|---|---|---|
| F-statistic (P-value) | 0.000 | 0.000 |
| R-squared | 0.644 | 0.644 |
| Adjusted R-squared | 0.592 | 0.606 |
| Akaike info criterion | 5.801 | 5.739 |
| Included observations | 32 | 32 |

Note: ***, **, and * indicate significance at 1, 5, and 10 percent levels, respectively.
Standard errors in parentheses;
Source: Authors' calculations.

## 7. Conclusion

The aim of this paper was to investigate the performance of the Macedonian labour market in the period 2006-2011, as well as to provide a comparative analysis with the countries from the region and the EU countries. We comparative analysis showed that the labour market in Macedonia is underperformer as measured by the general labour market indicators: the participation rate, employment and unemployment rate. The analysis was differentiated by groups of workers, finding that females, young workers and low educated workers exhibit worse labour market outcomes than other workers. Data also show relatively low quality of jobs and high presentence of involuntary part-time and temporary work, meaning that there are few good job opportunities. The share of long-term unemployment exceeds 80%, suggesting that almost all workers face difficulty in finding a job.

We showed that the recent trend of expansion and higher subsidies to post-compulsory education has lead to declining employment rates of workers with tertiary education and increasing overeducation phenomenon. The findings from our empirical investigation showed that Macedonia can increase the overall employment rate through higher growth rates, improved labour market efficiency and reduction of the share of long-term unemployment.

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## Резиме

Целта на овој труд е да ги испита движењата на пазарот на труд во Република Македонија во периодот 2006-2011, како и да прикаже споредбена анализа со земјите од регионот и земјите од ЕУ. Повеќе од една декада, Македонскиот пазар на труд претставува енигма за истражувачите. Иако се очекуваше подобрување на алокативната ефикасност на пазарите (вклучително и пазарот на труд) во процесот на транзиција, состојбата на пазарот на труд во Македонија се влоши низ транзицијата. Стапката на невработеност на населението на возраст 15-64 достигна 37.7% во 2005 година, и оттогаш се намалува постепено, достигнувајќи 31.6% во 2011. Стапките на активност и вработеност од 64.2% и 43.9%, соодветно, се ниски во споредба со земјите од регионот, и уште повеќе во споредба со

земјите на ЕУ. Жените во Македонија се во уште понеповолна положба во однос на мажите.

Оттука, овој труд ги испитува основните предизвици на пазарот на труд во Македонија, воопшто, како и за специфични групи на работници (диференцирани според возраст, род и образование). Исто така, во трудот е пресметано совпаѓањето помеѓу вештините и работните места, како и присуството на над-образованост и под-образованост (несовпаѓање). Понатаму, трудот ги испитува емпириски факторите кои делуваат врз вработеноста, односно кои фактори можат да придонесат кон зголемување на стапките на вработеност.