Roma and non-Roma in the Labour Market in Central and South Eastern Europe

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Abstract

This paper looks at the situation of Roma in the labour market in twelve countries of Central and South Eastern Europe. Data from the 2011 UNDP/WB regional survey on Roma communities are analysed and compared with the 2004 UNDP regional Roma survey in order to gain some understanding of the extent and nature of Roma labour market disadvantage. The paper documents the existence of substantial labour market disadvantage amongst Roma – which is particularly accentuated in the case of women. Positive developments in the form of significant economic and employment growth across much of the region and substantial increases in participation in higher – upper secondary and tertiary - educational levels between 2004 and 2011 have not been translated into anything more than very marginal gains in employment. To some extent this may be attributed to the recession and the tendency for the Global slowdown to hit more marginalized groups in the labour market more severely, however, the analysis also shows that educational differences cannot account for the substantial differences which remain in labour market opportunities between Roma and non-Roma and that a substantial part of this differential is explainable in terms of discrimination and other non-observable factors. Clearly more work needs to be done in order to identify just where these barriers to effective Roma labour market integration lie.

1. Introduction

The Roma are both the largest 'minority' ethnic group in Central and South Eastern Europe and the one which suffered most from transition to the market. Opinions differ as to the causes of these difficulties but the fact remains that still today, people from the Roma minority have unemployment rates far above – and employment rates far below – those of majority populations. The situation of the Roma in SEE countries has been documented in some detail by Ivanov et al. (2006) amongst others. Two major explanations have been put forward to explain this disadvantaged position: a) the lower level of educational achievement observable amongst the Roma; and, b) the discrimination faced by Roma in the labour market. O'Higgins (2010a) has attempted to identify the relative contribution of these two explanations and finds that both have some validity but that indeed the lower returns to education available for Roma arising from discrimination, in itself goes some way towards explaining the lower educational participation of this ethnic group. Looking at the issue for five countries separately, Milcher & Fischer (2011) find evidence of wage discrimination against the Roma in Albania and Kosovo, but not in Bulgaria, Croatia or Serbia. One central theme underlying, and developed by, this paper is that the education and discrimination based explanations are not mutually exclusive and indeed may well be intricately connected

This paper is concerned with documenting and looking into the causes – and in particular the relative importance of education and discrimination – of the labour market situation of Roma in the countries of Central and South Eastern Europe covered by the recent UNDP/World Bank survey on Roma in the region[1]. After documenting the relative situation of Roma in 2011, the paper goes on to consider changes in the situation occurring since the previous UNDP Regional Roma survey undertaken in December 2004. The analysis then considers in more details differences in the returns to education between Roma and non-Roma. In the concluding comments to the paper specific suggestions for the modification of policies aimed at improving the employment situation of Roma.

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[1] The countries covered by the survey are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Macedonia, Montenegro, Moldova, Romania, Serbia, and Slovakia.

2. *General Economic Context*

The current global economic recession is a forceful reminder to us all that the key determinant of employment (and its lack) is the state of aggregate demand in an economy. Moreover, a number of recent papers have emphasized the role of the current recession in exacerbating inequalities in the labour market[2]. As regards the countries under consideration, one may observe that this is considerable variation both in their growth performance during the new millennium and in the reactions of national growth rates to the global downturn (figure 1).

Figure 1: Index of GDP (PPP) per capita, CSEE 2000-2012, 2000=100
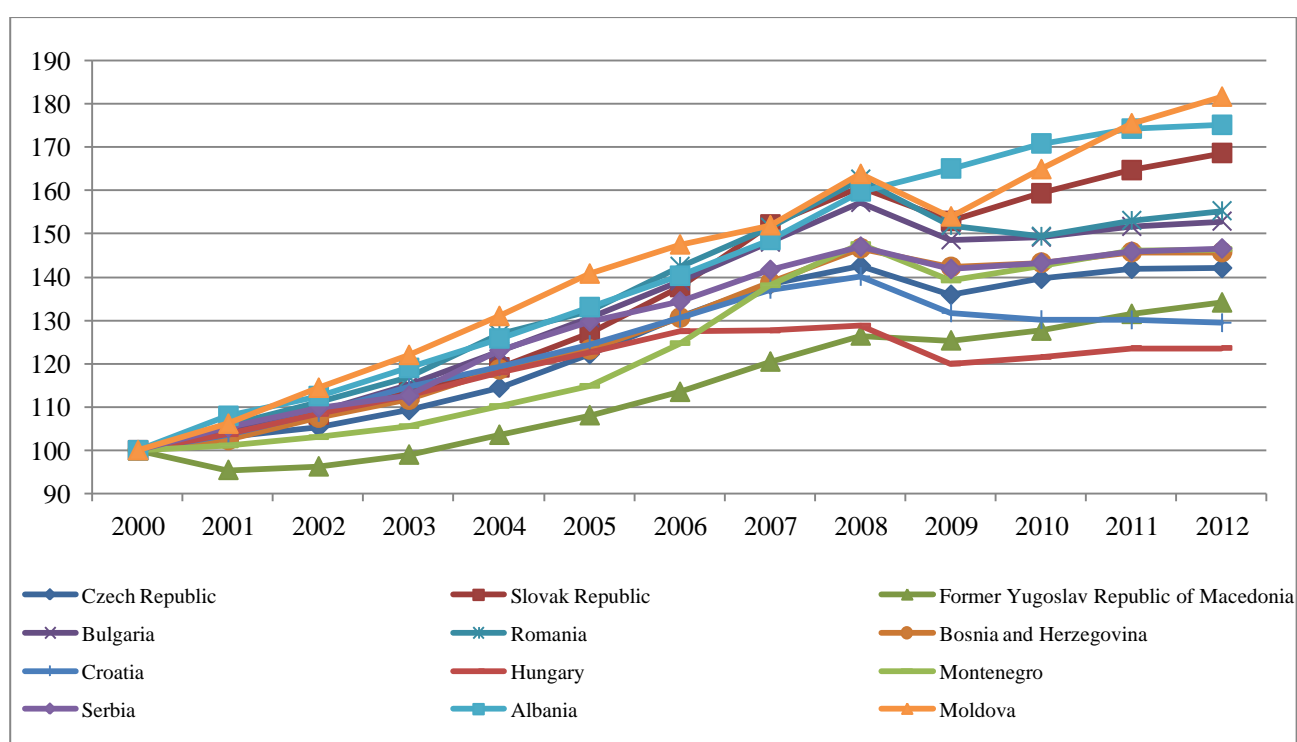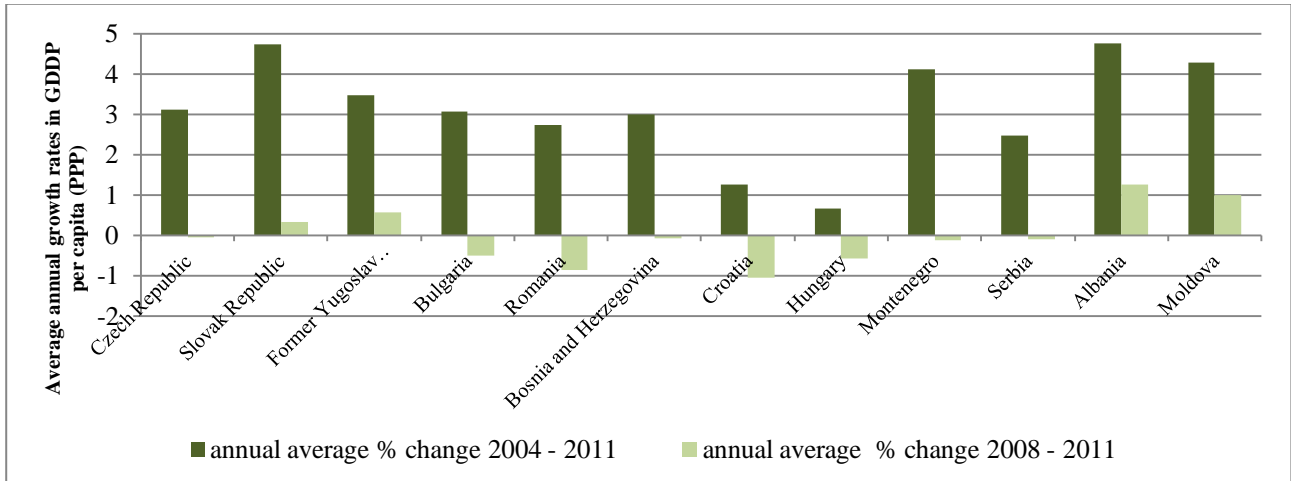

Source: Calculated on the basis of data drawn from the IMF WEO database, April 2012 update, www.imf.org

Looking more specifically at average economic growth rates over the periods 2004-2011 and 2008-2011 (figure 2), one may observe that all the countries in the region had positive growth in incomes between 2004 and 2011, albeit with substantial variations in the average rate. In Hungary incomes are still close to what they were in 2004 with an average annual growth rate of 0.7%, whereas in Slovakia incomes have increased at a rate of almost 5% per annum over the entire period. Albania is noteworthy in being the only country in the survey which did not experience negative growth following the onset of the global downturn, and Macedonia also emerged relatively unscathed with incomes dropping by less than 1% between 2008 and 2009. These two countries

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[2] *references*

along with Slovakia and Moldova, are the only countries which have increased their GDP between 2008 and 2011.

Figure 2: Average annual GDP growth rates, 2004-2011 and 2008-2011.

Source: Calculated on the basis of data drawn from the IMF WEO database, April 2012 update, www.imf.org

Examination of national unemployment rates clearly illustrates the labour market consequences of the differential growth performance of countries in recent years (figure 3). These mirror rather closely cross-country variation in growth performance[3]; strong growth is accompanied by falling unemployment rates, weaker or negative growth by increasing unemployment.

Figure 3: Percentage point changes in unemployment rates, 2004-2001 and 2008-2011
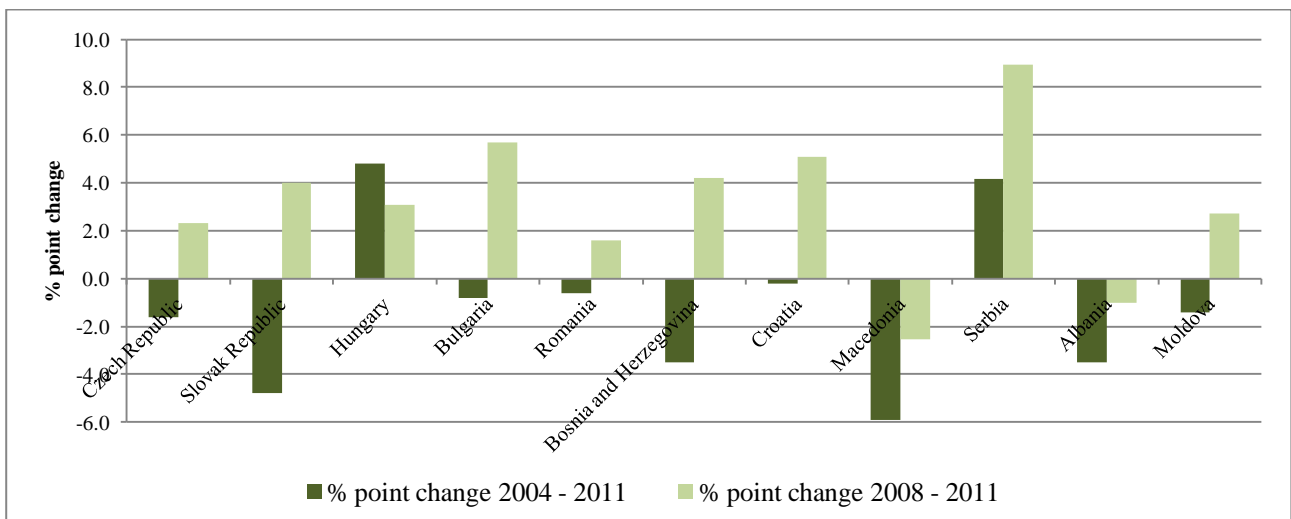
Source: Calculated on the basis of data drawn from the Eurostat (Czech Republic, Slovak Republic, Hungary, Bulgaria, Romania and Croatia; epp.eurostat.ec.europa.eu) and IMF WEO, April 2012 update (Bosnia &Herzegovina, Macedonia, Serbia, Albania and Moldova; www.imf.org) databases.

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[3] Indeed, the simple correlation of the GDP and unemployment changes is 0.71 for the period 2004-2011.

3. *Roma in the labour market in CSEE in 2011*

3.1 Unemployment and joblessness

The most commonly used indicator of labour market performance, the unemployment rate, illustrates the situation of Roma disadvantage (figures 4 and 5). Unsurprisingly, throughout CSEE, **the Roma face higher unemployment rates than non-Roma populations.** Roma are more likely to be unemployed than their non-Roma counterparts in all countries and for both men and women. One may also notice that the relation to the national averages of both Roma and non-Roma populations living in close proximity varies across countries. This in part reflects the geographical distribution of Roma communities which, for example, in Slovakia and Hungary are concentrated in more impoverished parts of the country. Thus, in these cases both Roma AND non-Roma unemployment rates based on the UNDP/WB regional survey are significantly higher than the national averages.
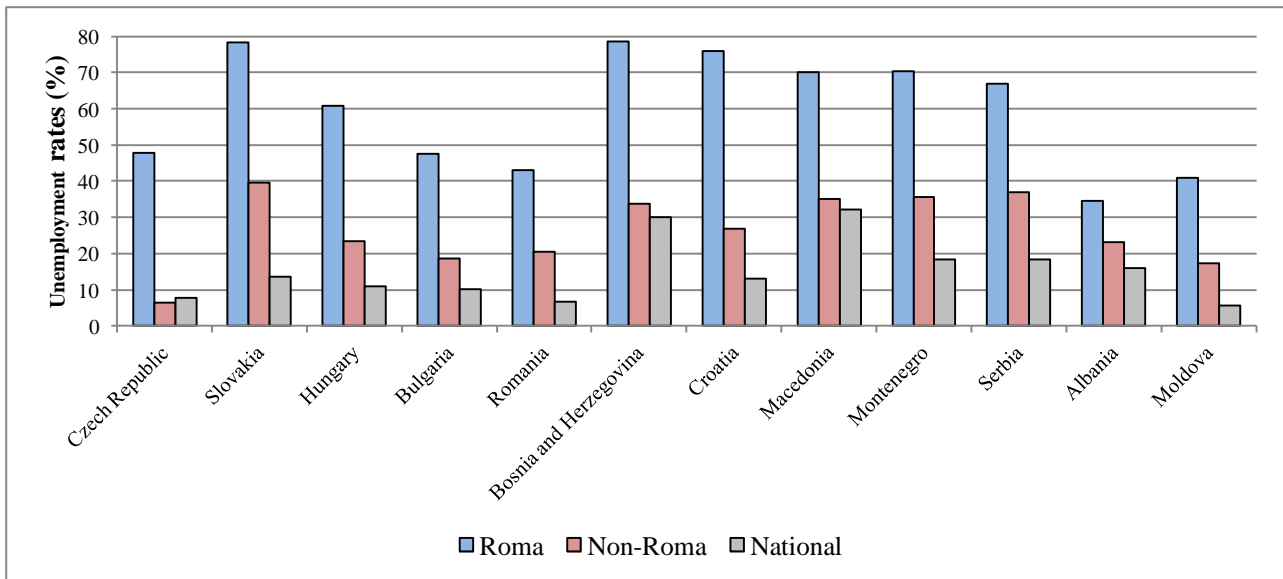
Figure 4: Unemployment rates of male Roma and non-Roma in CSEE, 2011
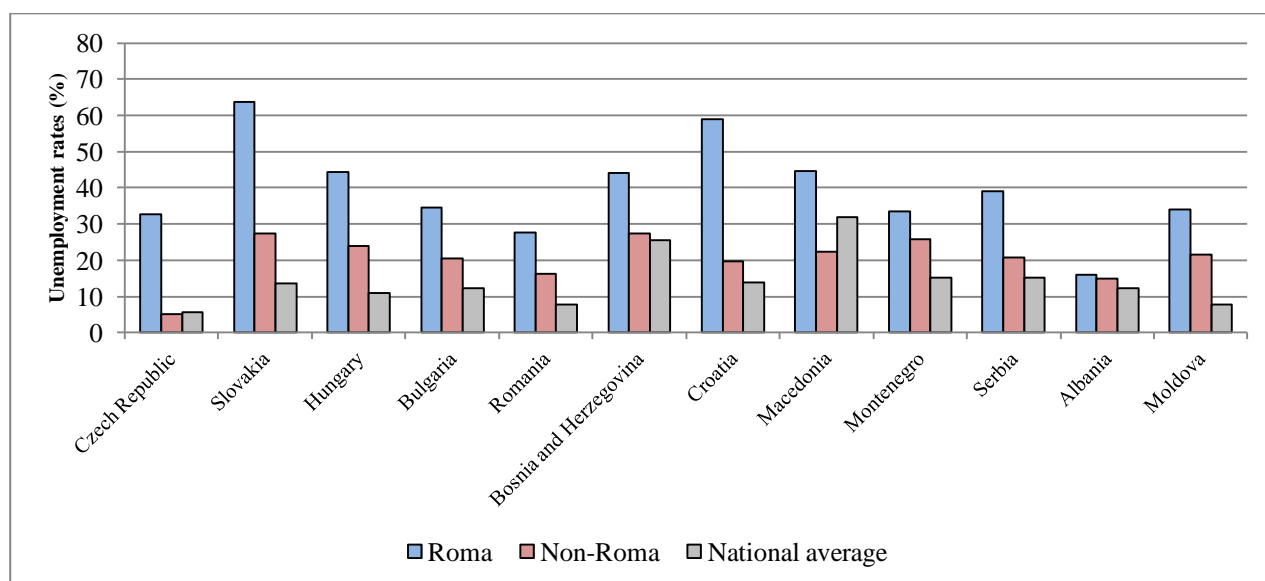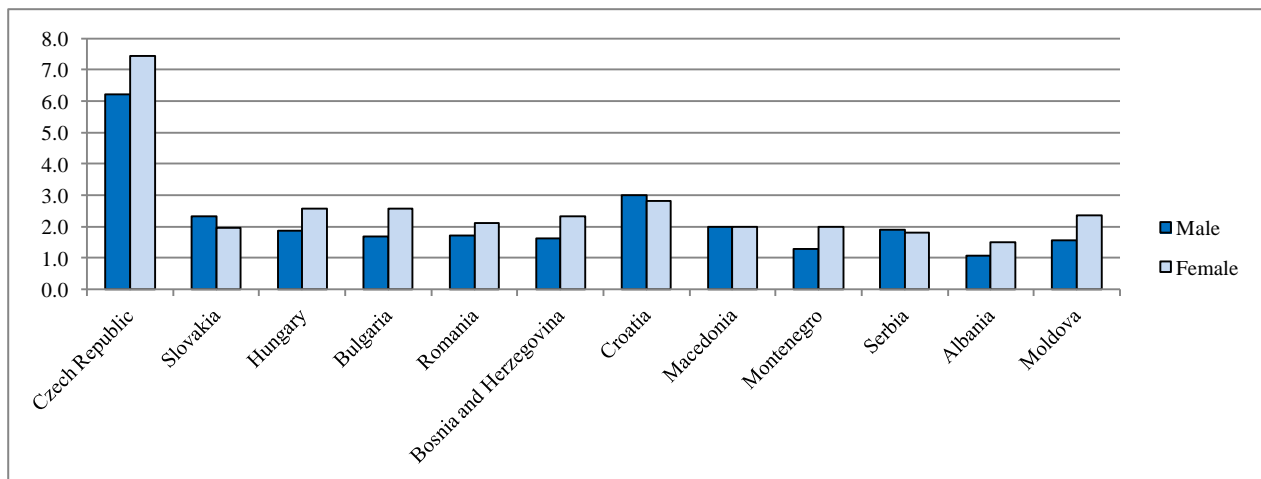

Source: Roma and non-Roma percentages calculated from UNDP/WB regional survey on Roma communities 2011; National averages are drawn from Eurostat (Czech Republic, Slovak Republic, Hungary, Bulgaria, Romania and Croatia; epp.eurostat.ec.europa.eu) and ILO-KILM (Bosnia &Herzegovina, Macedonia, Serbia & Montenegro, Albania and Moldova; www.ilo.org) databases.

Note: 1) the unemployed are defined on the basis of the standard ILO criteria; that is, as those who are a) without work, b) willing and able to work, and, c) actively seeking work;

2) the unemployment rate is the number of unemployed expressed as a percentage of the labour force for those within working age (15-64).

3) National averages are the annual average for 2011 except for Bosnia &Herzegovina and Macedonia (2010) and Serbia & Montenegro and Albania (2009).

4) The 'National' averages for Montenegro and Serbia are both the average for the two countries taken together.

Figure 5: Unemployment rates of female Roma and non-Roma in CSEE, 2011

What is perhaps of more interest than this well established 'fact' of Roma disadvantage is to consider how this varies across country and gender. Examination of the Roma/non-Roma ratio of unemployment rates provides a clear picture of how the relative situation of Roma varies across country and gender (figure 6). For the most part, the relative disadvantage of women – as measured by the ratio of unemployment rates – is greater for Roma women. Exceptions are provided by Macedonia (where the ratios are the same for men and women), Croatia and Serbia, however, here too the difference is slight. For both men and women, in most countries, the ratio is close to two. That is, in most countries in the region, Roma are around twice as likely as non-Roma to be unemployed. Exceptions are provided by Albania, where the ratio is close to one, and in Croatia and above-all Czech Republic where it is significantly higher, although, as regards the latter country, the high ratio arises from the very low unemployment rates recorded amongst non-Roma rather than arising due to an extraordinarily high unemployment rate amongst Roma.

**Figure 6: Ratio of Roma to non-Roma unemployment rates, 2011**

However, the Unemployment rate is a problematic indicator for assessing the situation of Roma, particularly in making comparisons over time and space. It can be argued that the jobless rate – defined as the ratio of those not in employment or education to the relevant population - may be a more informative, or at least a useful complementary, indicator to unemployment rates for several reasons[4]. Amongst other things: the ILO defined unemployment rate implies a rather restricted definition of the labour market; it does not necessarily provide an accurate picture of the size of labour market problems as they affect specific groups since it excludes all those who drop out of the labour market, and/or decide to do 'other things' due to their poor labour market prospects – the socially excluded; and, in the present context, definitional differences across surveys affecting unemployment, but not joblessness, make temporal comparisons on unemployment rates problematic[5]. Thus, although not perfect, the jobless rate is used as the principal indicator of difficulty in labour market access for the remainder of the paper.

Similarly to unemployment rates, **jobless rates are much higher amongst Roma than non-Roma** (figures 7 and 8), **however, the relative disadvantage of women is not nearly so strong using this indicator** (figure 9). Also the cross-country differences are somewhat attenuated particularly at the extremes. A Roma in the Czech Republic is 'only' around three times as likely as a non-Roma to be jobless.

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[4] This has led the World Bank (2006) to employ the jobless rate as an additional indicator of the youth labour market situation in their flagship report on youth in the world economy. The OECD also now reports information on this indicator, calling it the NEET (not in employment or education or training) rate. An appendix to this report goes into more detail as to why this indicator is useful. See also O'Higgins (2010b) for a more detailed discussion in the context of youth labour markets.

[5] Although both are affected by potential differences in the definition of employment. Efforts have been made to minimize this.
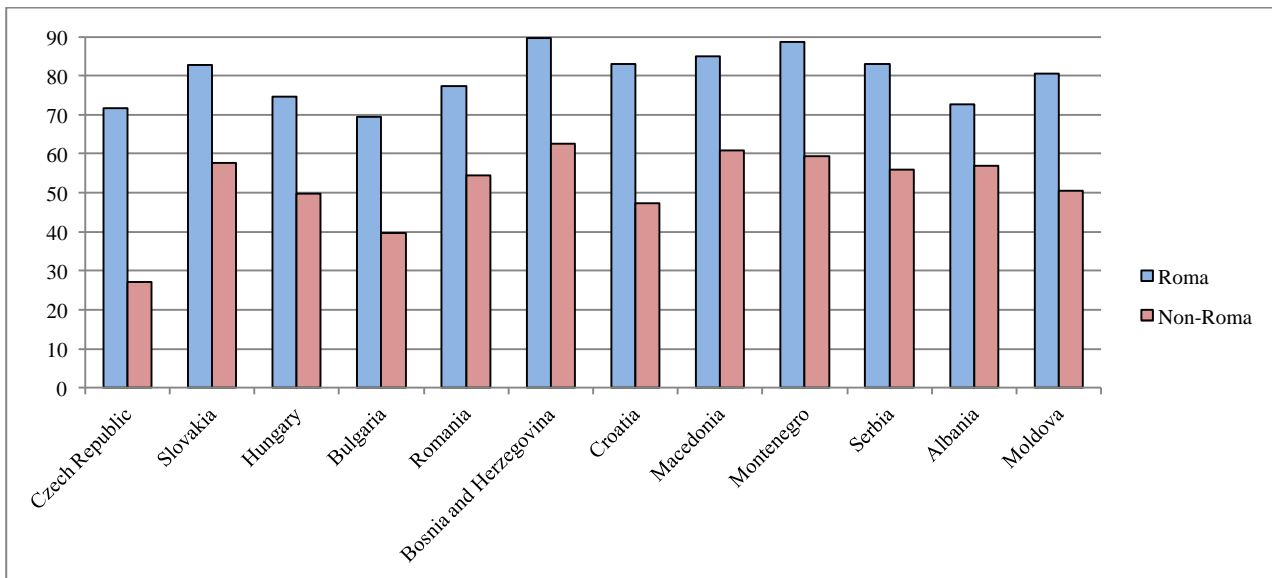
Figure 7: Jobless rates of male Roma and non-Roma in CSEE, 2011
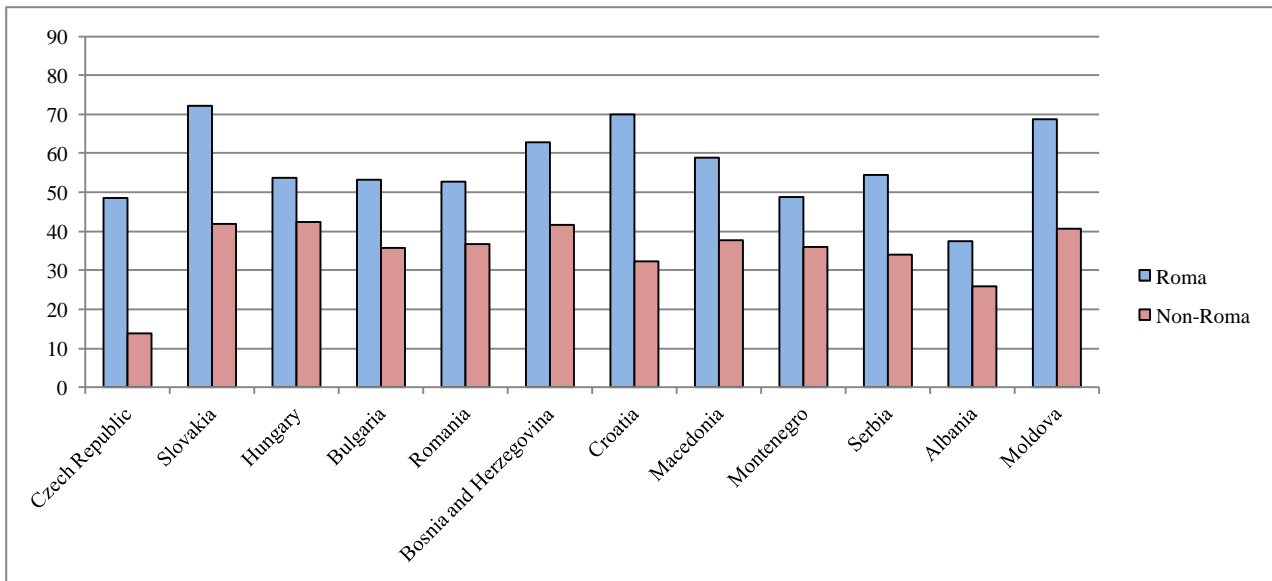
Source: calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the jobless rate is calculated on the working age (15-64) population
2) the jobless rate is defined as the proportion of the gender/ethnic specific population which is neither in education nor employment.

Figure 8: Jobless rates of female Roma and non-Roma in CSEE, 2011

Source: calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the jobless rate is calculated on the working age (15-64) population
2) the jobless rate is defined as the proportion of the gender/ethnic specific population which is neither in education nor employment.

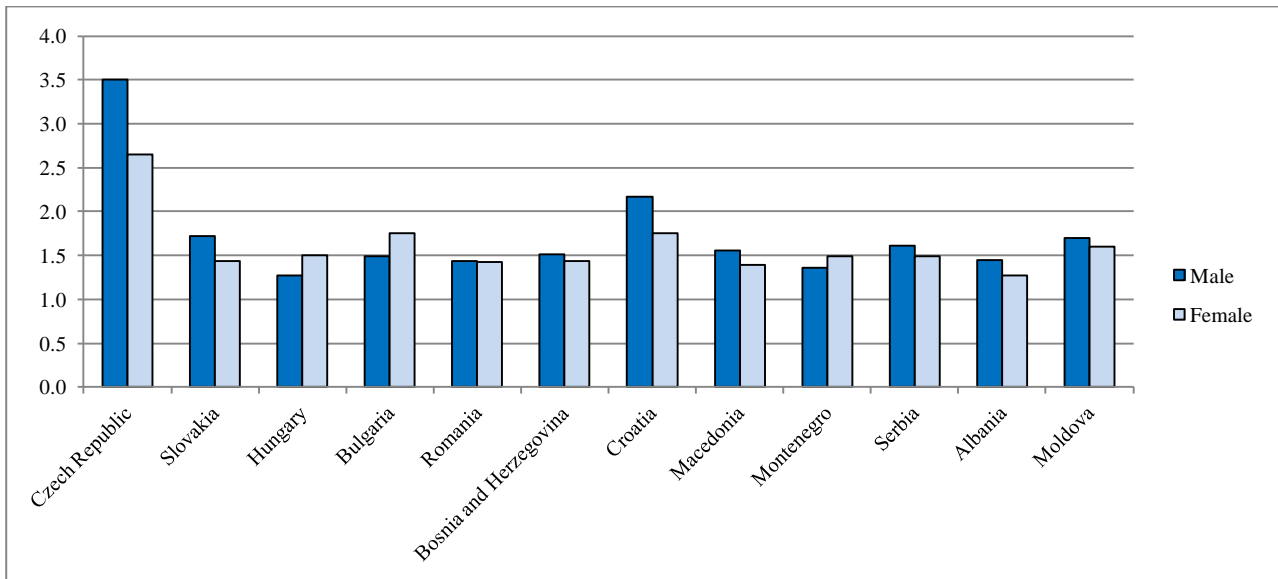**Figure 9: Ratio of Roma to non-Roma jobless rates, 2011**

Source: calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the jobless rate is calculated on the working age (15-64) population
2) the jobless rate is defined as the proportion of the gender/ethnic specific population which is neither in education nor employment.

Examination of joblessness by age suggests that although the prevalence of joblessness – for both Roma and non-Roma - is greatest amongst older workers (figure 10), the largest gap in opportunities arises for young people (figure 11).

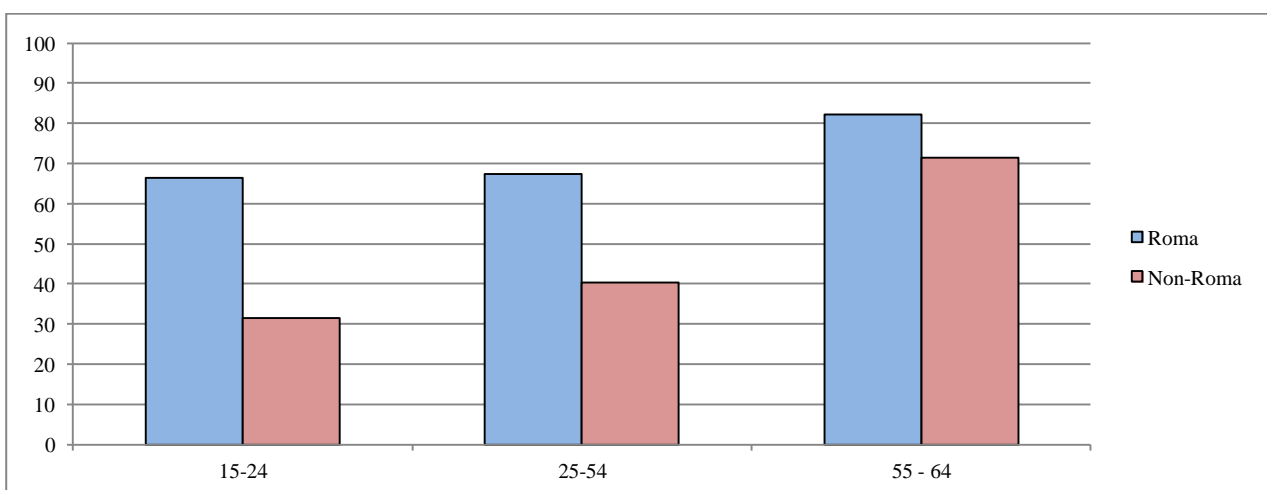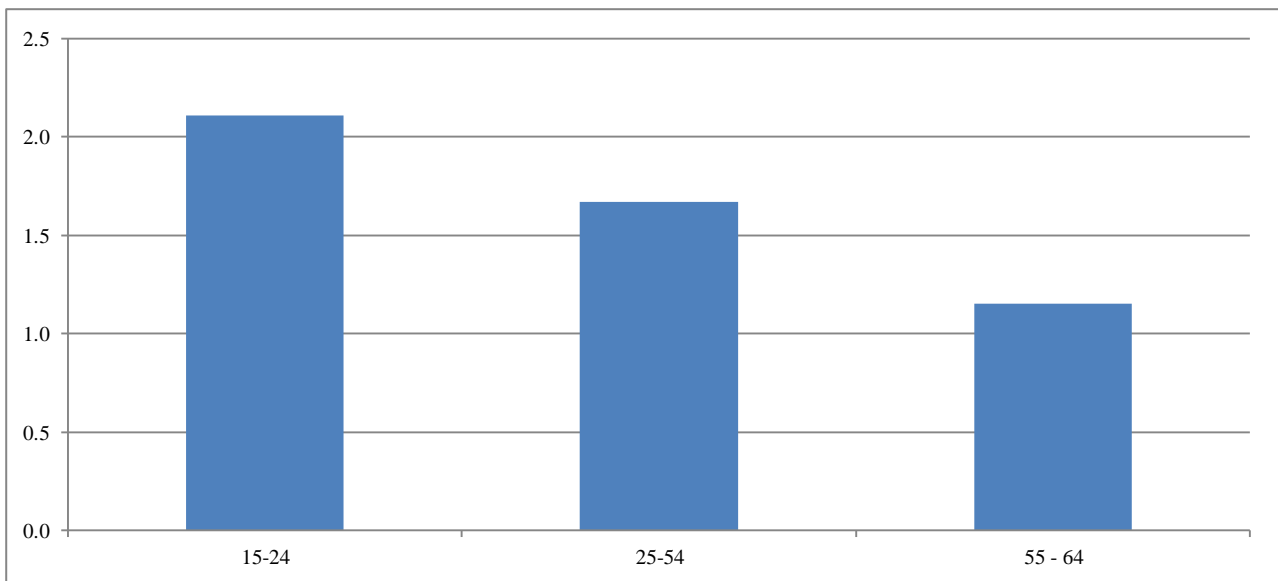**Figure 10: Jobless rates by age, CSEE 2011**

Source: calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the jobless rate is calculated on the working age (15-64) population
2) the jobless rate is defined as the proportion of the gender/ethnic specific population which is neither in education nor employment.
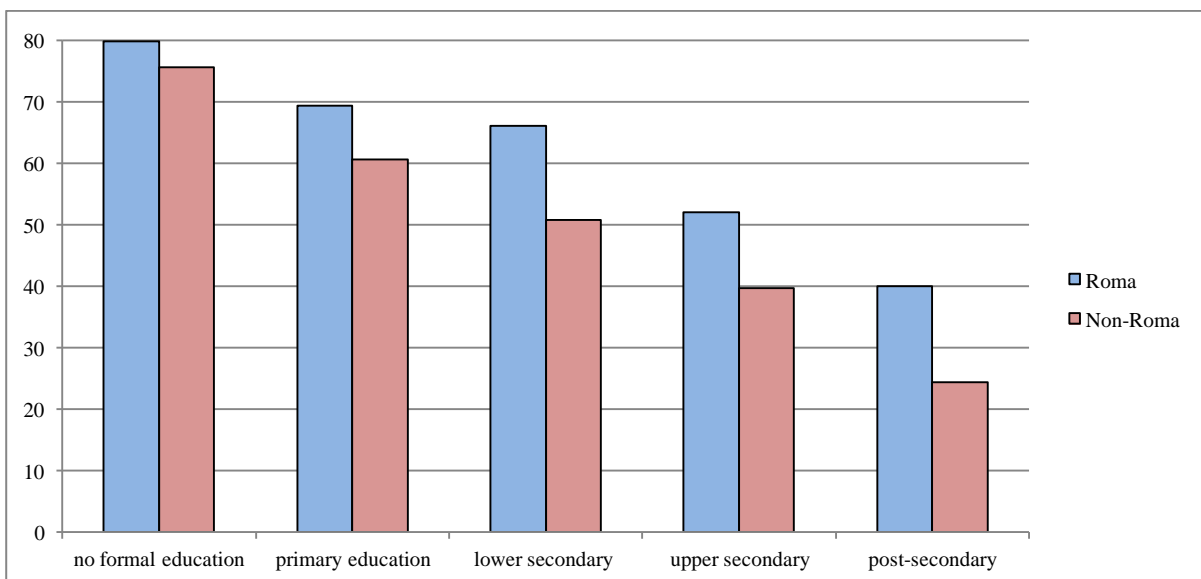
Figure 11: Ratio of Roma to non-Roma jobless rates by age, 2011

Figure 12: Jobless rates by education, CSEE 2011

Turning to joblessness by education, one may observe that - for both Roma and non-Roma – jobless rates fall as the level of education rises; however, observe also that although joblessness is greater amongst Roma than non-Roma at all levels (figure 12), the gap is greatest at higher levels of education (figure 13). Another way of looking at this is to state that the returns to education, in

terms of the reduction in joblessness, is lower for Roma than for non-Roma, a point which will be returned to below.

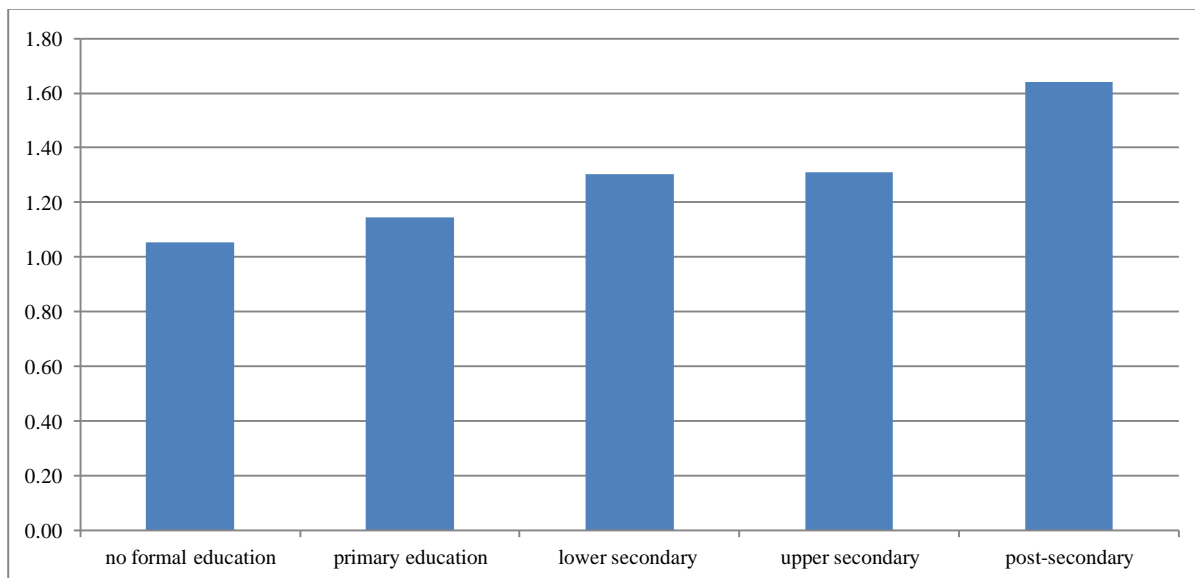**Figure 13: Ratio of Roma/non-Roma jobless rates by education, CSEE 2011**

Source: calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the jobless rate is calculated on the working age (15-64) population
2) the jobless rate is defined as the proportion of the gender/ethnic specific population which is neither in education nor employment.

3.2 Employment

3.2.1   *Quantity of employment*

Perhaps the most reliable indicator for the state of the labour market facing Roma and non-Roma is the employment rate. Increasingly this is used as the base indicator for targeting in the EU, as with, for example the Lisbon 2020 targets. Examination of employment rates, confirms the general picture of Roma disadvantage, particularly for Roma women (figures 14 and 15) although the ranking of countries by the Roma/non-Roma ratio (figure 16) suggests that Croatia is the poorest performer for both men and women, and, as with joblessness, Albania is the 'best'. As with unemployment rates, the national averages are, with the exception of Hungary, Slovakia and Moldova, fairly close to the non-Roma percentages.

Figure 14: Employment rates of male Roma and non-Roma in CSEE, 2011

Source: Roma and non-Roma employment rates are calculated from the UNDP/WB regional survey on Roma communities 2011; National averages are drawn from Eurostat (Czech Republic, Slovak Republic, Hungary, Bulgaria, Romania, Croatia and Macedonia; epp.eurostat.ec.europa.eu) and ILO-KILM (Bosnia &Herzegovina, Serbia & Montenegro, Albania and Moldova; www.ilo.org) databases.
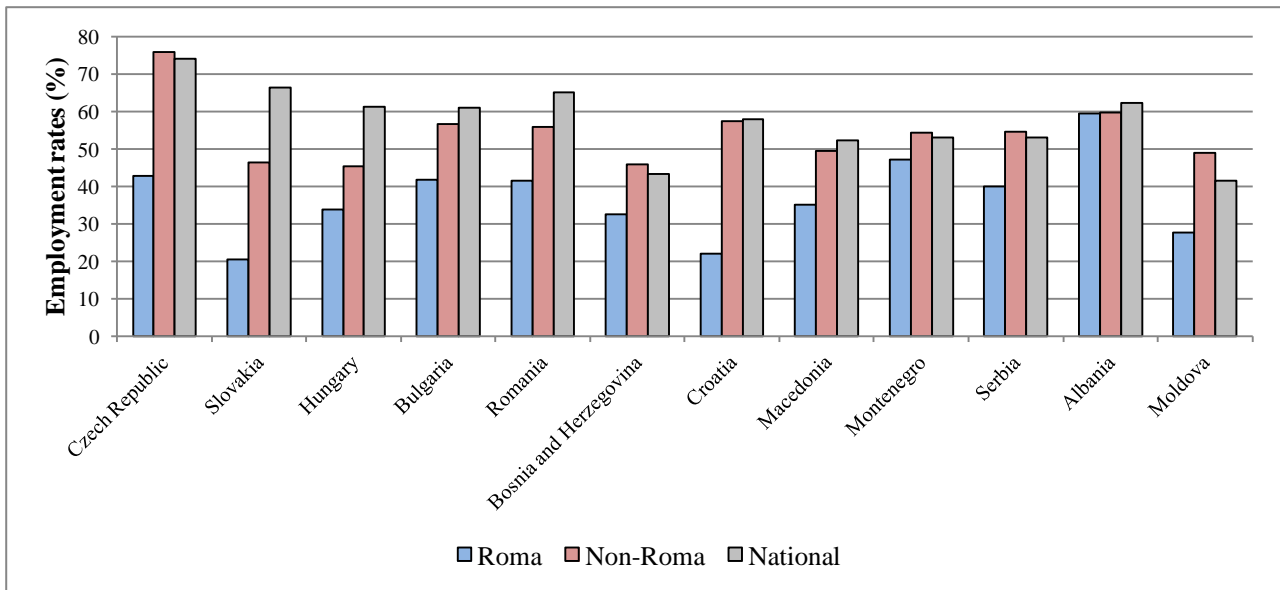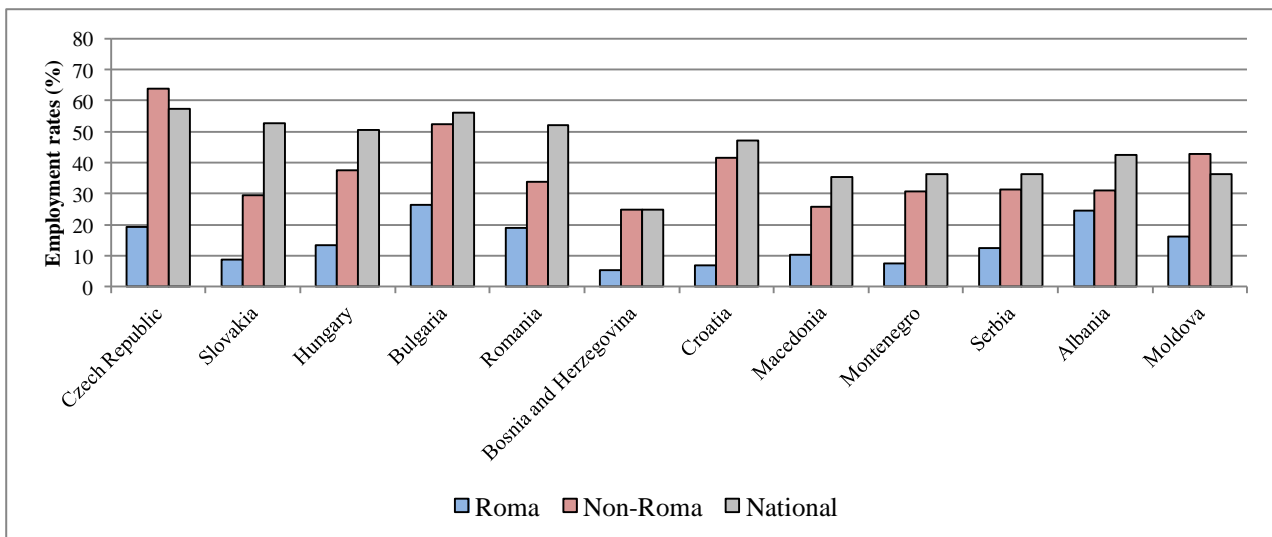
Notes: 1) the employment rate is calculated on the working age (15-64) population

2) the employment rate is defined as the proportion of the gender/ethnic specific population which is in employment.

3) National employment rates are the annual average for 2011 except for Bosnia &Herzegovina (2010) and Serbia & Montenegro and Albania (2009).

4) The 'National' averages for Montenegro and Serbia are in both cases the average for the two countries taken together.

Figure 15: Employment rates of female Roma and non-Roma in CSEE, 2011

Source: Roma and non-Roma employment rates are calculated from the UNDP/WB regional survey on Roma communities 2011; National averages are drawn from Eurostat (Czech Republic, Slovak Republic, Hungary, Bulgaria, Romania, Croatia and Macedonia; epp.eurostat.ec.europa.eu) and ILO-KILM (Bosnia &Herzegovina, Serbia & Montenegro, Albania and Moldova; www.ilo.org) databases.

Notes: 1) the employment rate is calculated on the working age (15-64) population

2) the employment rate is defined as the proportion of the gender/ethnic specific population which is in employment.
 3) National employment rates are the annual average for 2011 except for Bosnia &Herzegovina (2010) and Serbia & Montenegro and Albania (2009).
4) The 'National' averages for Montenegro and Serbia are in both cases the average for the two countries taken together.

Figure 16: Ratio of Roma/non-Roma employment rates, CSEE 2011

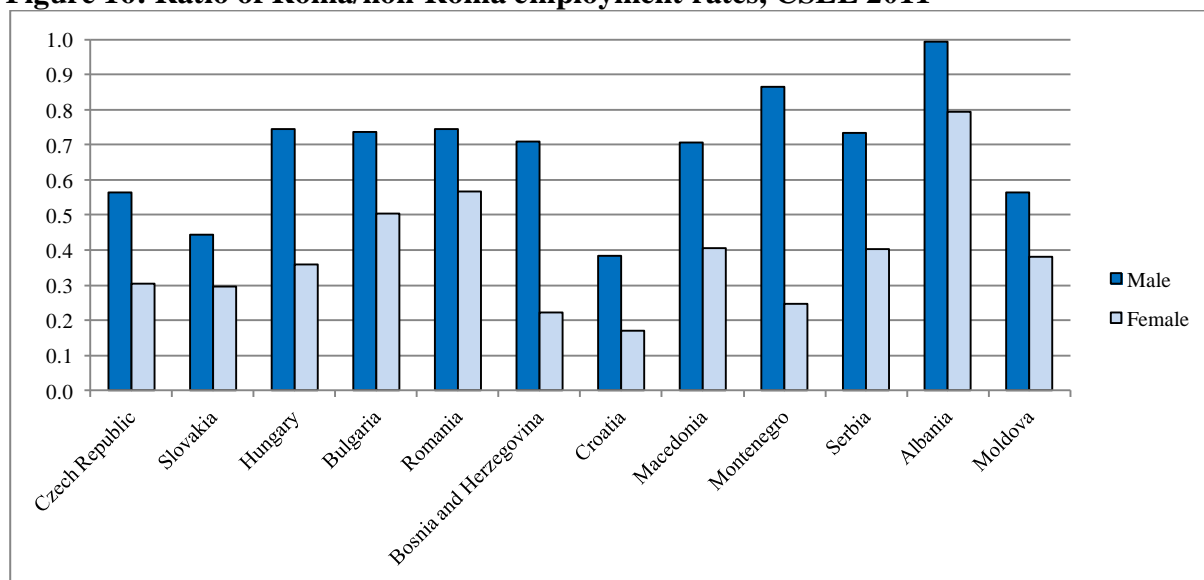**Source:** calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the employment rate is calculated on the working age (15-64) population
2) the employment rate is defined as the proportion of the gender/ethnic specific population which is in employment.

Looking at employment rates by age, the biggest gap arises for prime age adults (aged 25-54); the relatively small difference in the employment rates amongst young Roma and non-Roma (figure 17) however, largely reflects the relatively low educational participation rates of young Roma (figure 18). With the exception of Montenegro, between 50 and 60 percent of young non-Roma are still in education; save for Hungary, young non-Roma are more than twice as likely as young Roma to participate in education and, in the case of Albania and Moldova, they are around five times as likely to participate. Thus, low employment rates amongst young non-Roma depend primarily on the fact that most young people are still in education throughout most of their youth, low employment rates amongst young Roma is largely accounted for by their high rates of joblessness shown above – a much less positive phenomenon.

Figure 17: Employment rates by age of Roma and non-Roma in CSEE, 2011

Figure 18: Educational participation rates of 15-24 year olds in CSEE, 2011

One potential explanation for the low level of educational participation amongst young Roma is suggested by an examination of employment rates by education (figure 19). Employment rates by education reflect the relatively low returns associated with higher levels of education for those Roma who do stay on in school. For Roma, employment rates range from a little under 20% for those with no formal schooling to 60% for those with post-secondary education – a difference of just over 40 percentage points. For the non-Roma population, the analogous range of employment

rates goes from 21% to 71% - an increase of 50 percentage points. Again, at least as far as the chances of finding employment is concerned, education seems to exacerbate rather than reduce employment differences.

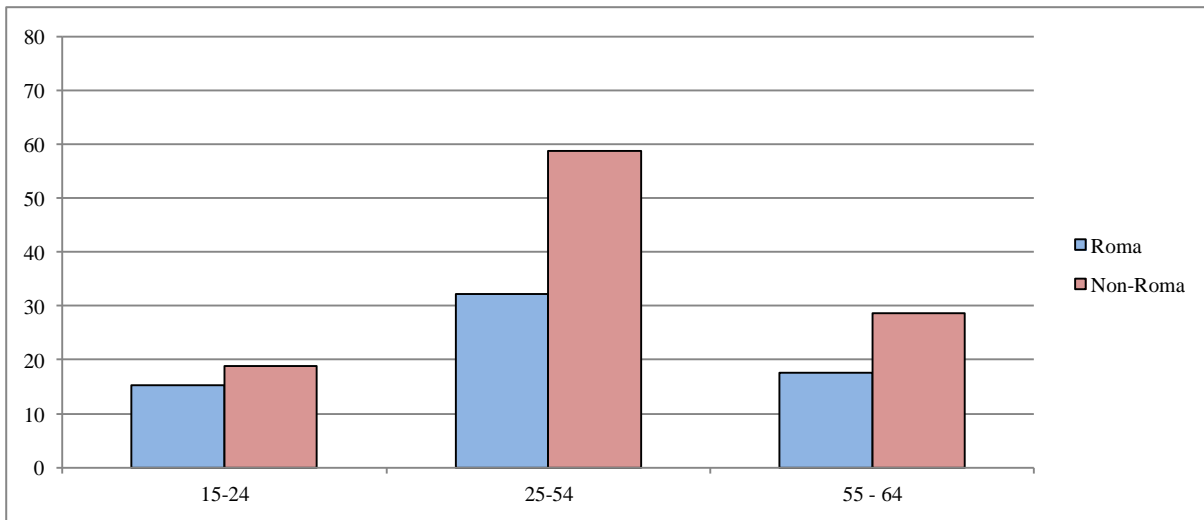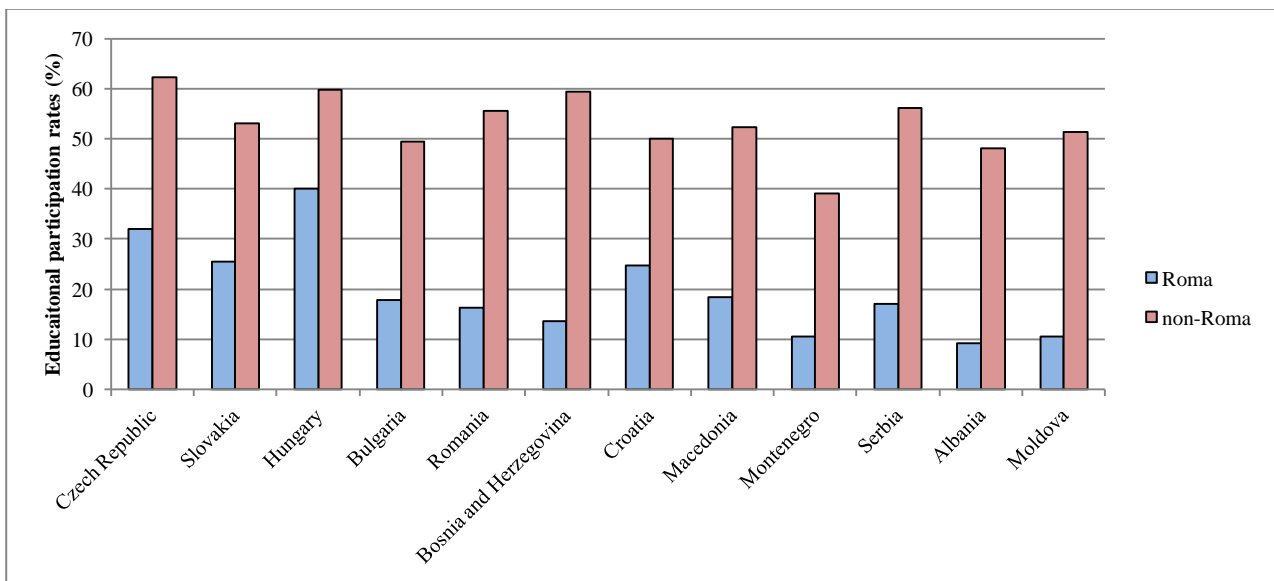**Figure 19: Employment rates by education of Roma and non-Roma in CSEE, 2011**
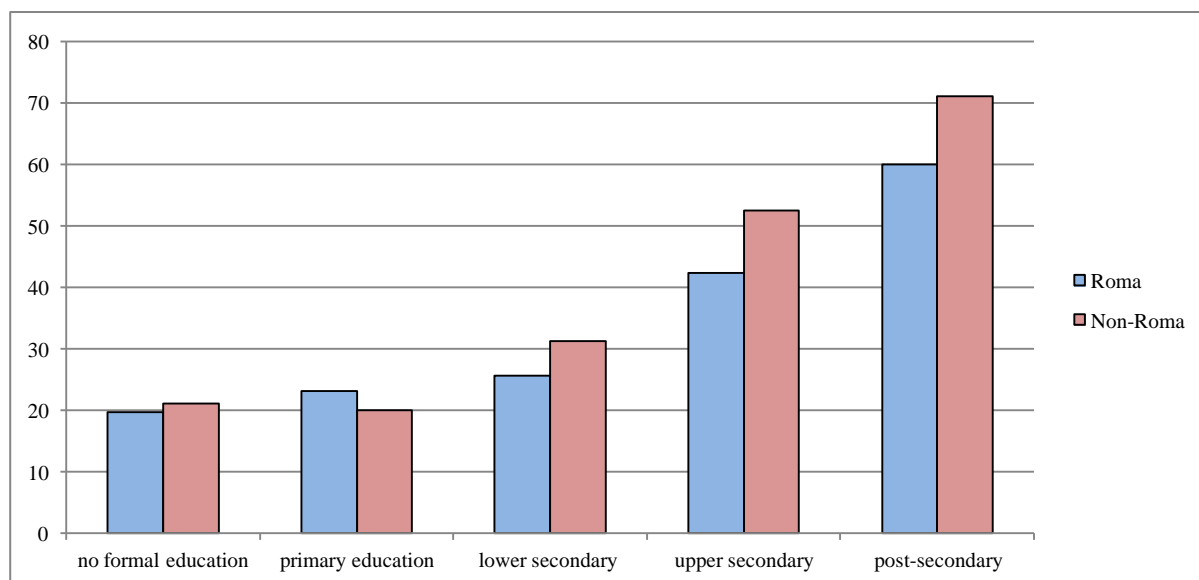

Source: calculated from the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the employment rate is calculated on the working age (15-64) population
        2) the employment rate is defined as the proportion of the gender/ethnic specific population which is in employment.

3.2.2   *Quality of employment*

Obtaining employment is not, or at least should not be, the only issue of concern. Roma are also disadvantaged when it comes to a consideration of the quality of employment for those who do find work. Recently the ILO has put increasing emphasis on the concept of Decent Work as a goal for societies to work towards. Several indicators may be employed to look at the quality of employment once obtained. One principal indicator concerns the incidence of informal employment. Typically, **informal employment involves lower pay and the absence of any kind of employment, health and/or safety protection**[6].

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[6] There are difficulties and variations in the definitions of informal employment. In part, this explains the adoption by the ILO of the concept of vulnerable employment which has an unequivocal definition, if not meaning, across countries. In common with the convention in this region, here informal employment is defined as employment for which social contributions are not paid.

Figure 20: Prevalence of Informal employment amongst men in CSEE, 2011
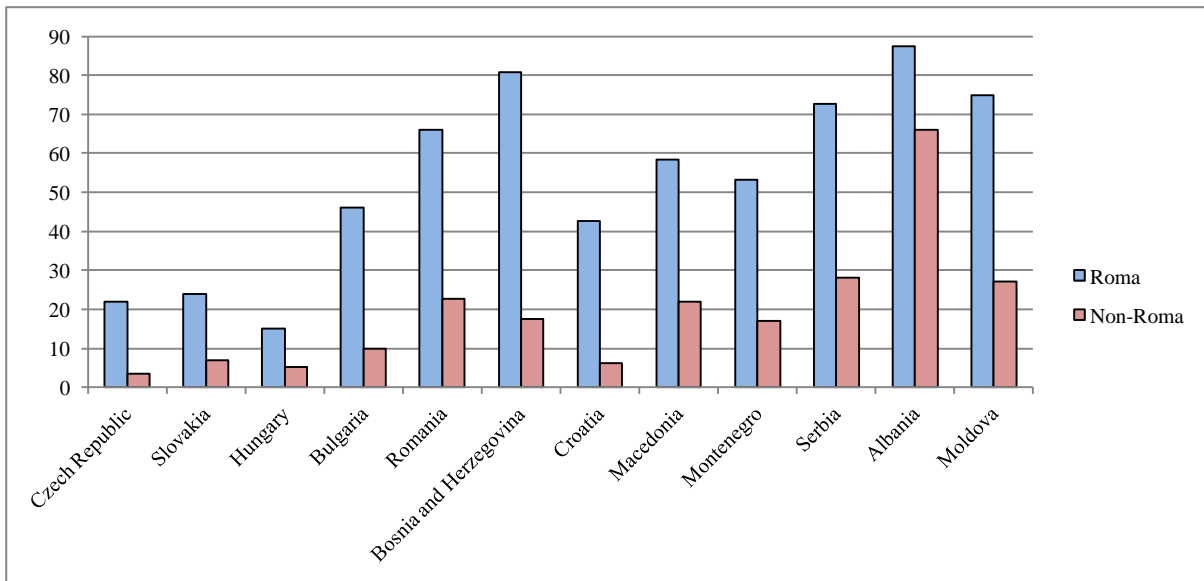
Source: calculated on the basis of the UNDP/WB regional survey on Roma communities 2011
Note: The prevalence of informal employment is calculated as the percentage of workers aged 15-64 who are not paying health or pension contributions.

Figure 21: Prevalence of Informal employment amongst women in CSEE, 2011

Source: calculated on the basis of the UNDP/WB regional survey on Roma communities 2011
Note: The prevalence of informal employment is calculated as the percentage of workers aged 15-64 who are not paying health or pension contributions.

Throughout the region, the prevalence of informal employment is much higher for Roma than for non-Roma (figures 20 and 21). Moreover, whereas amongst the non-Roma population, informal employment is much more common amongst men than women, for Roma, the reverse is

very often true. The consequence of this is that, with the exception of the Czech Republic and Slovakia, the Roma/non-Roma ratio of the prevalence of informal employment is higher, often much higher, for women than men (figure 22). In Croatia, which is characterized by a very low prevalence of informal employment amongst majority workers, a female Roma employee is more than twelve times as likely as their non-Roma counterparts, for men the ratio is 'only' just over six-to-one.
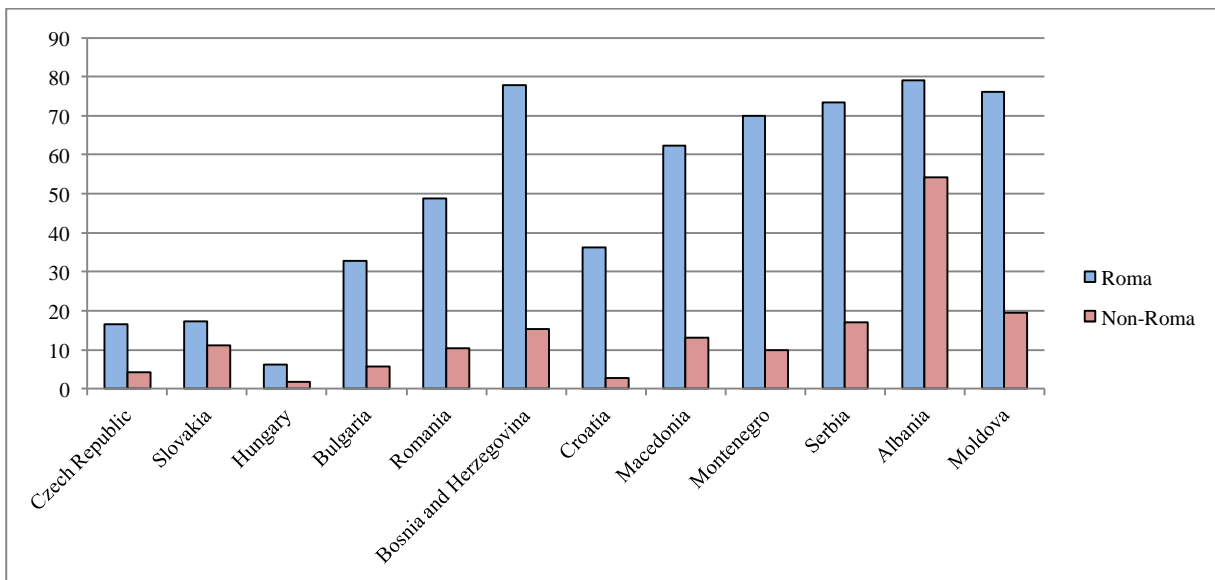
Figure 22: Roma/non-Roma ratio of prevalence of Informal employment in CSEE, 2011

Source: calculated on the basis of the UNDP/WB regional survey on Roma communities 2011
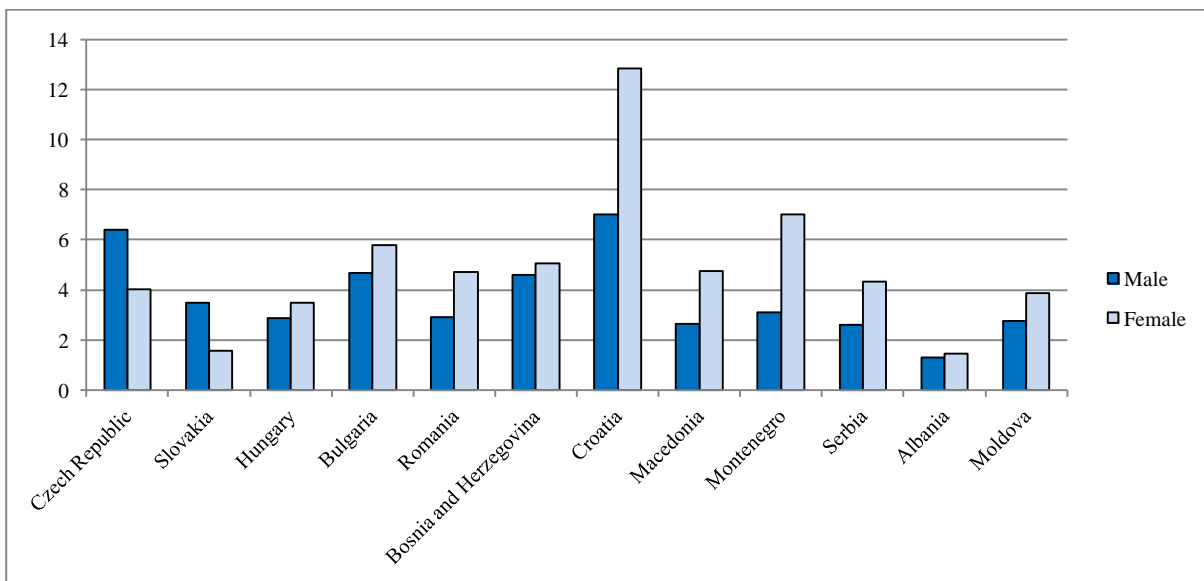**Note:**   The prevalence of informal employment is calculated as the percentage of workers aged 15-64 who are not paying health or pension contributions.

Also, **the wages received by Roma are lower than their non-Roma counterparts.** Roma men earn on average between around 45% (Serbia) and 80% (Slovakia) of the male non-Roma wage (figure 23). Roma Women are doubly disadvantaged; median Roma female earnings are around between one- (Montenegro) and two-thirds (Czech republic, Bulgaria and Moldova) of female non-Roma median wages (figure 23) and between just over 30% (Bosnia & Herzegovina) and just under 60% (Moldova) of male non-Roma average wages. **Both the ethnic divide and the gender gap in earnings are greater for Roma women**; female non-Roma earn on average 63% of the median male non-Roma wage, whilst for Roma women this percentage is only 54%.

Figure 23: Male Roma and non-Roma median monthly wages, CSEE 2011 (male non-Roma wages =100)
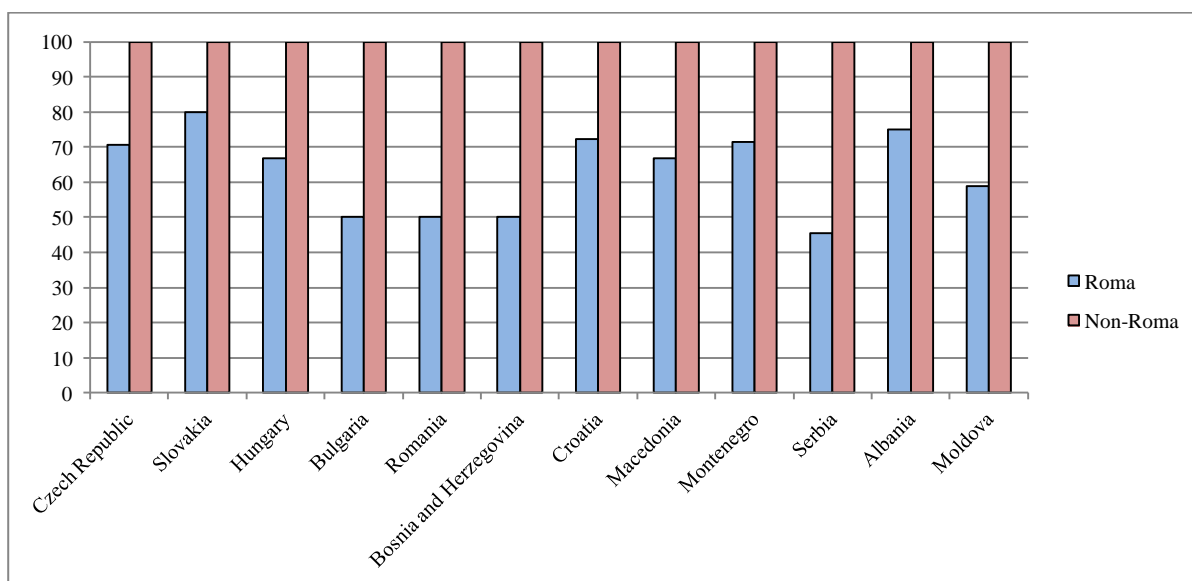
Source: calculated on the basis of the UNDP/WB regional survey on Roma communities 2011.
Note: The median monthly wage for Roma (and non-Roma) men is reported as a percentage of the male non-Roma median monthly wage for employees.

Figure 23: Female Roma and non-Roma median monthly wages, CSEE 2011 (male non-Roma wages =100)
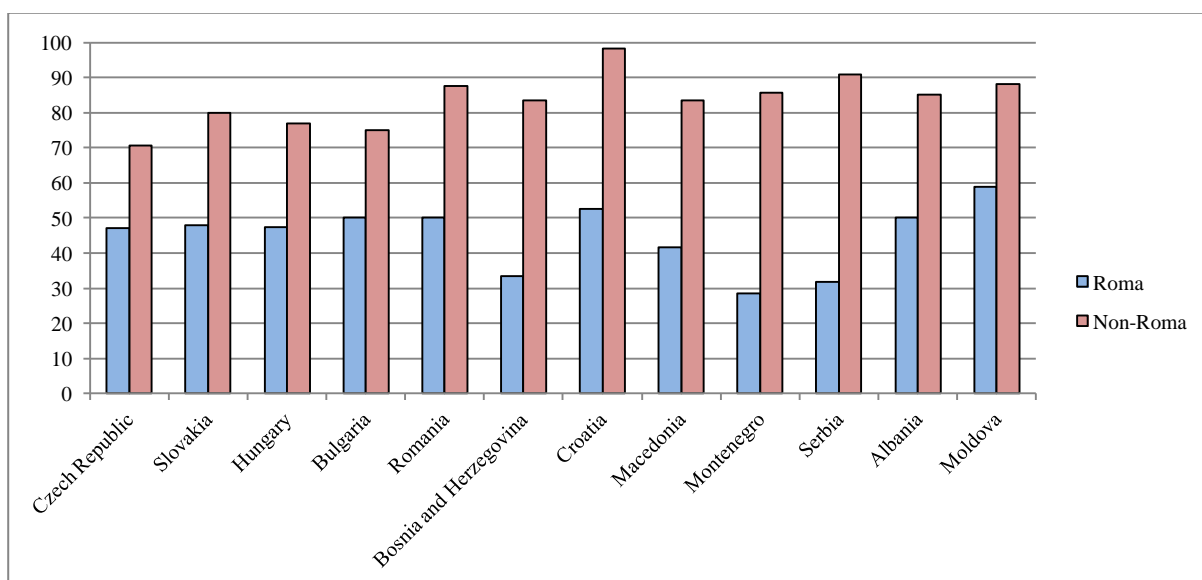
Source: calculated on the basis of the UNDP/WB regional survey on Roma communities 2011.
Note: The median monthly wage for Roma and non-Roma women is reported as a percentage of the male non-Roma median monthly wage for employees.

Figure 24: Roma/non-Roma ratio of median wages, CSEE 2011
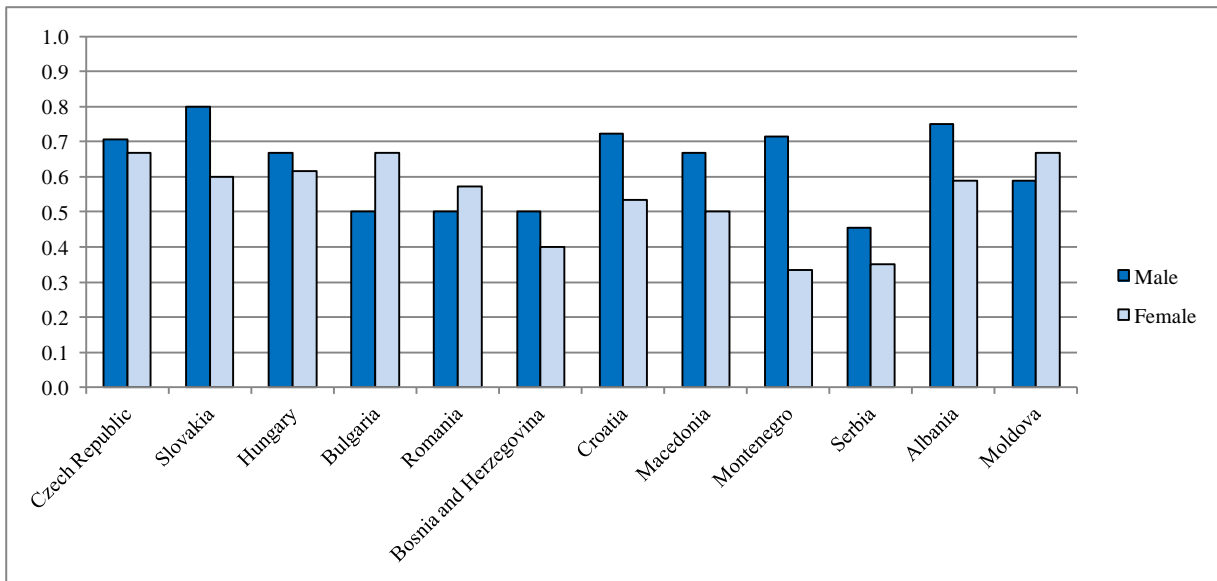
Source: calculated on the basis of the UNDP/WB regional survey on Roma communities 2011.
Note: The figure reports the ratio of median monthly wages for male and female Roma employees to their non-Roma (gender-specific) counterparts.

Once again, **part of the explanation surely lies in the lower average educational attainment of Roma, but this is clearly not the full story;** we shall return to this below.

4. Changes in the situation of Roma between 2004 and 2011

Although differences in data collection and variable definition make comparisons with the 2004 Regional Roma survey problematic, it is worth having a look at changes in the main indicators over this period, in order to have some sense of where improvements (or not) have occurred in the situation of Roma. If one looks at employment rates, one can observe that almost everywhere things have dis-improved for both Roma and non-Roma (figures 25 and 26), despite positive economic growth recorded over the period (figure 2 above); only male Montenegran Roma and female Bulgarian Roma saw a (slight) increase in employment rates over the period. Possibly of more concern, the Roma/non-Roma ratio of employment rates also worsened over the period with the exception of Bulgaria, Albania, and, for women Serbia. A partial explanation for this, may be that – in common with findings for other countries – the recession tended to exacerbate existing labour market inequalities – hitting already disadvantaged groups hardest[7].
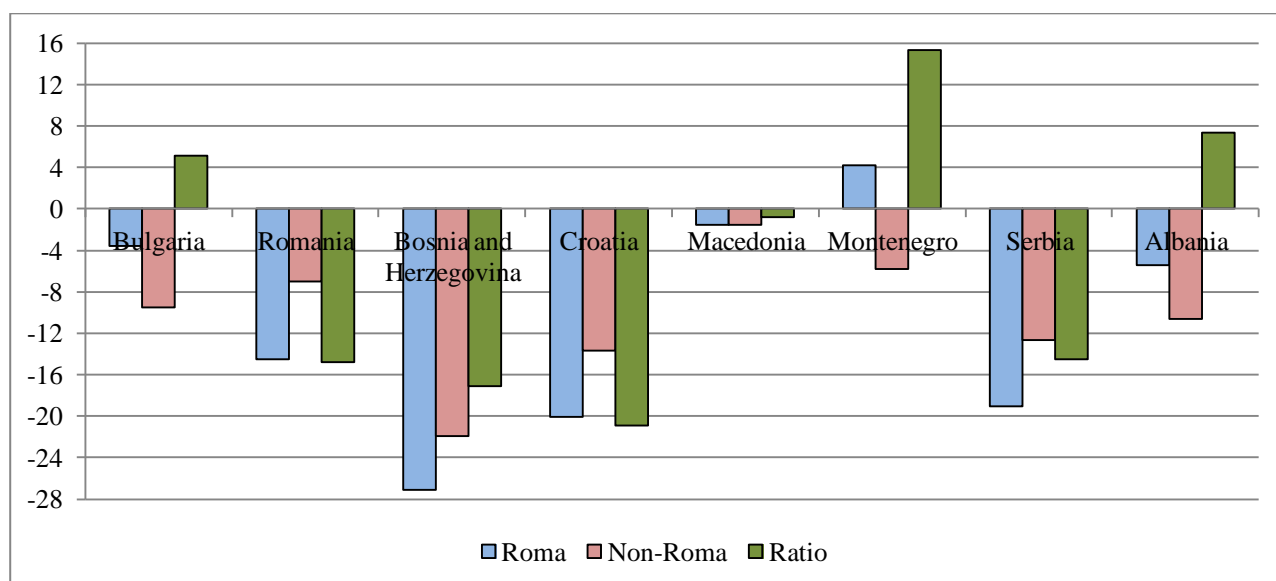
Figure 25: Change in Employment rates of male Roma and non-Roma and the Roma/non-Roma ratio 2004 -2011

Source: calculated from the UNDP Regional Roma survey 2004 and the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) definitions are as before.
2) The ratio is defined so that equality = 100 (as opposed to 1 used above) in order to facilitate comparability.

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[7] See, for example, Vaughan-Whitehead (2011) and contributions there-in on the effects of the recession in a number of EU countries. One of the general findings of the study was that the recession has tended to exacerbate existing inequalities.

Figure 26: Change in Employment rates of female Roma and non-Roma and the Roma/non-Roma ratio 2004 -2011

Source: calculated from the UNDP Regional Roma survey 2004 and the UNDP/WB regional survey on Roma communities 2011.

Notes: 1) definitions are as before.

2) The ratio is defined so that equality = 100 (as opposed to 1 used above) in order to facilitate comparability.

At the same time, however, although jobless rates increased slightly almost everywhere, the Roma/non-Roma ratio of jobless rates improved – that is it fell - more or less across the board, marking a **relative** improvement in the situation of Roma compared to non-Roma (figures 27 and 28). The explanation of these two, apparently contradictory, phenomena: a relative dis-improvement in Roma employment rates and an improvement of the Roma situation when measured in terms of jobless rates is reconciled when one recognises the increased Roma educational participation over the period which has occurred in all countries (figure 29) – taken together with the fall in educational participation amongst young people in majority communities covered by the survey, the result has been a marked reduction in the disparity between Roma and non-Roma educational participation rates amongst young people (aged 15-24). The Roma/non-Roma disparity in educational participation is far from being removed – as was shown above in figure 18 - however, the increased educational participation of 15-24 year old Roma is certainly a step in the right direction. At the same time, this improvement has not yet lead to any marked benefits in terms of the relative employment prospects of Roma.

Figure 27: Change in Jobless rates of male Roma and non-Roma and the Roma/non-Roma ratio 2004 -2011
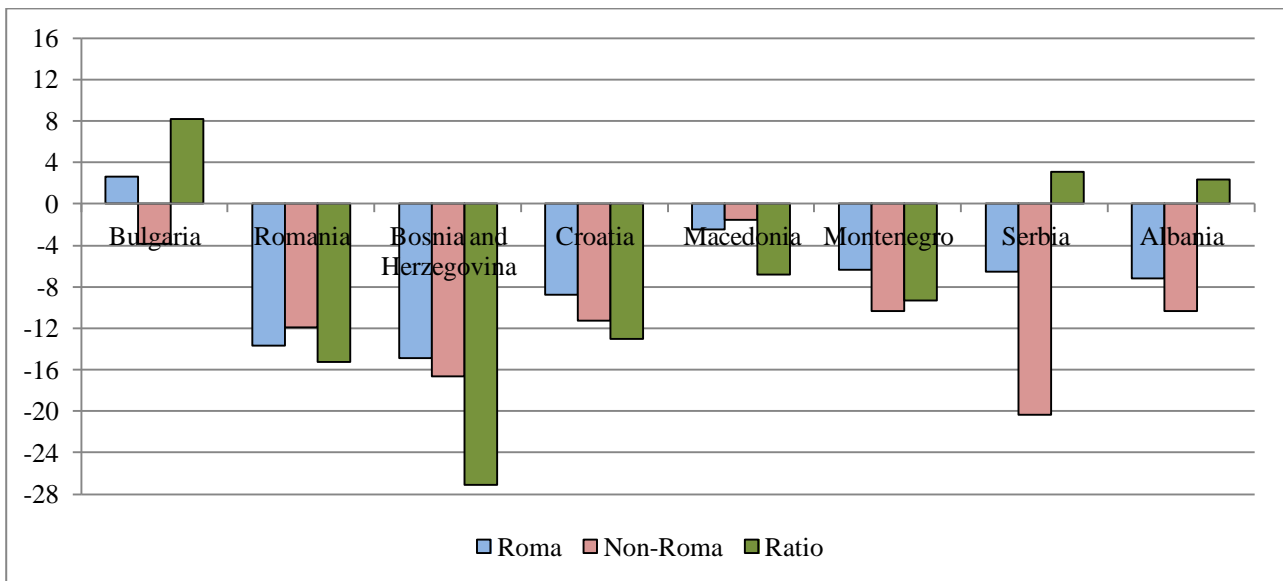

Source: calculated from the UNDP Regional Roma survey 2004 and the UNDP/WB regional survey on Roma communities 2011.

Notes: 1) definitions are as before.

      2) The ratio is defined so that equality = 100 (as opposed to 1 used above) in order to facilitate comparability.

Figure 28: Change in Jobless rates of female Roma and non-Roma and the Roma/non-Roma ratio 2004 -2011
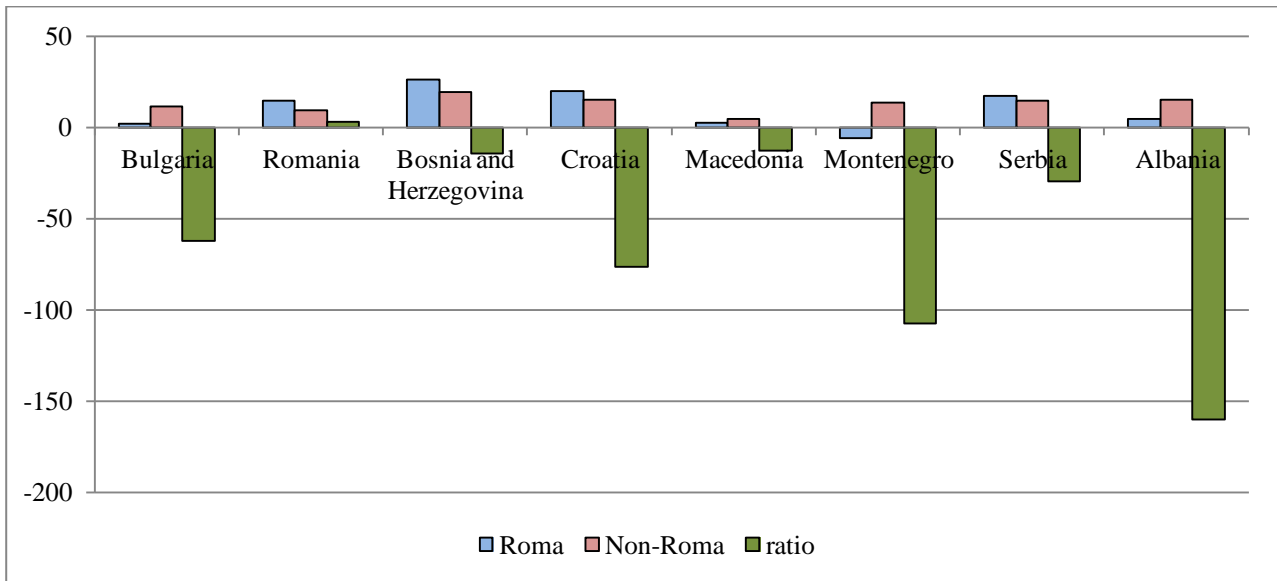

Source: calculated from the UNDP Regional Roma survey 2004 and the UNDP/WB regional survey on Roma communities 2011.

Notes: 1) definitions are as before.

      2) The ratio is defined so that equality = 100 (as opposed to 1 used above) in order to facilitate comparability.

Figure 29: Change in Educational participation rates of Roma and non-Roma and the Roma/non-Roma ratio 2004 -2011
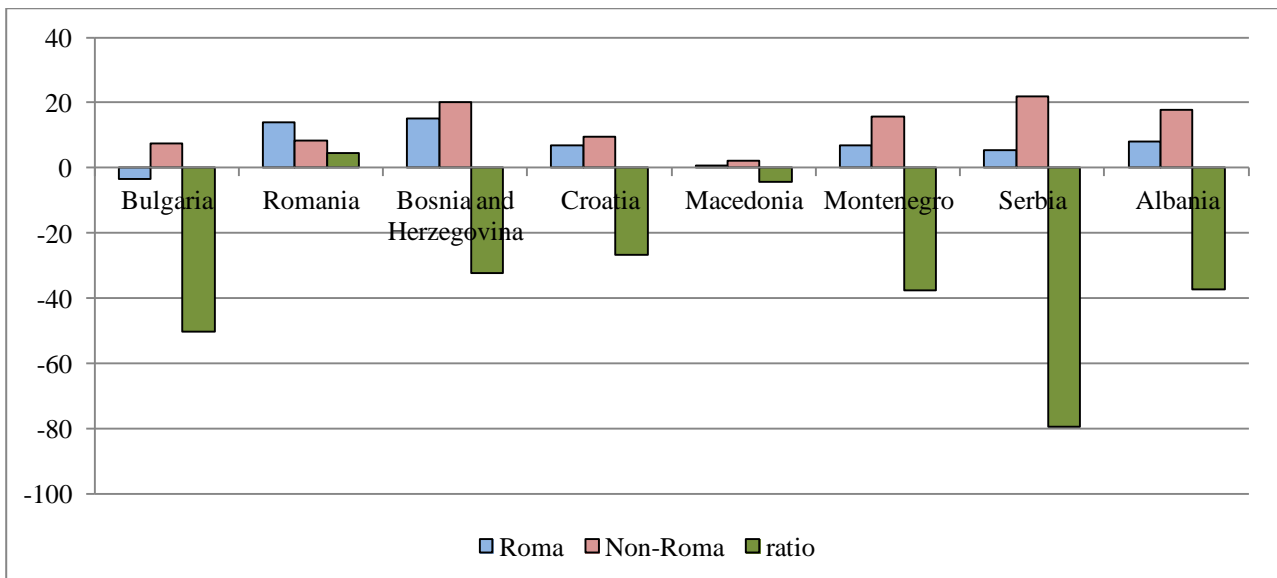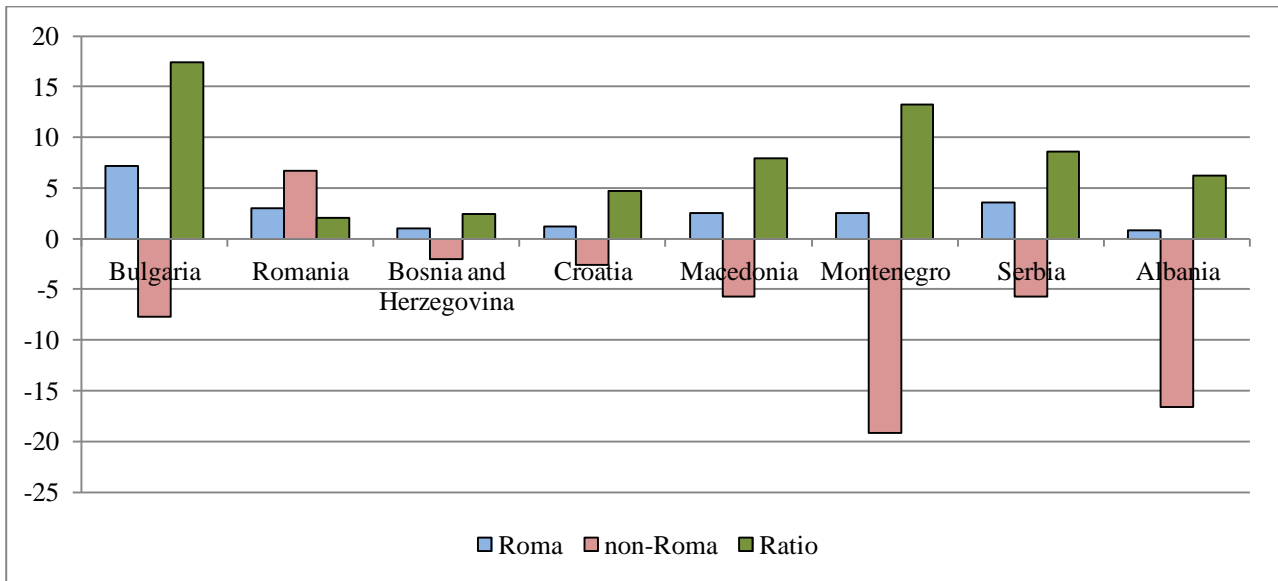

Source: calculated from the UNDP Regional Roma survey 2004 and the UNDP/WB regional survey on Roma communities 2011.

Notes: 1) definitions are as before.

2) The ratio is defined so that equality = 100 (as opposed to 1 used above) in order to facilitate comparability.

5. Towards explaining disadvantage

The paper thusfar has documented the extensive disadvantage faced by Roma on the labour market in CSEE and the relative lack of improvement ion the Roma's labour market situation since 2004; the obvious question which arises is why? One important issue, mentioned in the introduction, concerns the extent to which differences in the labour market experiences of Roma and non-Roma are due to the relative lack of education of the Roma on the one hand, and the extent of discrimination in employment and wages experienced by the Roma on the other. The proponents of either of these explanations tend to not be politically disinterested and thus posed as mutually exclusive. Of course this is not the case; Roma certainly do have lower levels of education than non-Roma, but also, it was shown above that the returns to education – in terms of improved employment and wage prospects - appear to be smaller for Roma than non-Roma[8]. Moreover, the two factors tend also to be mutually reinforcing; if the benefits of education are lower for Roma, then it is not surprising that Roma tend to invest less time and energy in acquiring higher educational levels[9].

The estimation of simple Mincerian returns to education allows a first look at this question (Table 1). The table reports the results of estimating the probability of employment and the wages of the employed - separately for Roma and non-Roma – for the region as a whole including education and (potential) experience (and country fixed effects) as explanatory variables. Looking at the employment probability, one may observe that the returns to education – as measured by the coefficients on the educational variables - are similar for Roma and non-Roma, the latter group, however, have a much larger return to experience; that is, the probability of employment rises much more quickly with experience for non-Roma than for Roma. Moreover, the country fixed effects tend to be much smaller for Roma than non-Roma reflecting the lower employment probabilities of Roma for all levels of education and experience.

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[8] This is a consistent finding in the literature. See, for example, Ivanov et al. (2006) and more recently, Trentini (2011) who applies a very similar approach to O'Higgins (2010a) to the analysis of Roma and Turk minorities in Bulgaria.
[9] That is, even in a rigidly neo-classical model of human capital investment, in the context of lower returns, it is rational for Roma to spend less time in school. O'Higgins (2010a) argues this to be the case on the basis of differences in primarily absolute returns to education whilst Trentini (2011) has found also lower relative rates of return in Bulgaria.

Table 1: Estimation of employment probability and (natural logarithm) wage returns to education

	Employment				Wages			
	Male		Female		Male		Female	
	Roma	Non-Roma	Roma	Non-Roma	Roma	Non-Roma	Roma	Non-Roma
bosnia and herzegovina	*-0.839*	*-0.722*	*-1.071*	*-0.446*	*0.244*	**0.172**	*0.581*	*0.746*
bulgaria	*-0.656*	*-0.339*	*-0.129*	*0.328*	**0.154**	**0.227**	-0.018	0.081
czech republic	*-0.688*	*0.256*	*-0.581*	*0.651*	*1.149*	*0.957*	*0.927*	*0.661*
slovakia	*-1.399*	*-0.677*	*-1.058*	*-0.339*	*1.456*	*0.630*	*1.125*	*1.044*
montenegro	*-0.382*	*-0.432*	*-0.797*	*-0.275*	*0.582*	*0.444*	*0.879*	*0.760*
croatia	*-1.267*	*-0.382*	*-0.920*	0.175	*1.022*	*0.623*	*1.003*	*0.773*
hungary	*-0.885*	*-0.636*	*-0.700*	0.128	*0.375*	0.071	-0.093	0.026
macedonia	*-0.785*	*-0.542*	*-0.734*	*-0.358*	*0.419*	*0.335*	*0.541*	*0.497*
moldova	*-1.002*	*-0.538*	*-0.477*	0.052	**0.172**	*-0.568*	0.154	*-0.440*
romania	*-0.658*	*-0.481*	*-0.334*	-0.035	-0.010	*-0.167*	0.074	0.140
serbia	*-0.653*	*-0.454*	*-0.620*	-0.154	**0.149**	**0.225**	0.136	*0.362*
Experience	*0.028*	*0.071*	*0.066*	*0.089*	0.004	-0.005	*-0.027*	*-0.039*
Experience^2	*-0.001*	*-0.002*	*-0.001*	*-0.002*	0.000	0.000	*0.001*	*0.001*
primary education	0.054	0.075	*0.167*	0.135	**0.091**	-0.057	*0.112*	0.309
lower secondary	*0.136*	0.169	*0.297*	0.310	*0.275*	0.319	*0.297*	0.182
upper secondary	*0.472*	*0.393*	*0.960*	*0.805*	*0.364*	**0.489**	**0.203**	0.060
post-secondary	*0.855*	*0.627*	*1.655*	*1.566*	*0.444*	*0.813*	-0.058	0.201
Intercept	*0.316*	0.138	*-1.417*	*-1.431*	*5.768*	*5.726*	*6.590*	*6.619*
n	8114	3341	8461	3450	3509	826	1724	1301
R2	0.07	0.12	0.09	0.18				
Rho					*-0.84*	0.03	*-0.89*	*-0.93*

Source: estimated on the basis of the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) statistical significance is indicated as follows – *italic type* indicates p < 0.10; **bold type** indicates p < 0.05, ***bold and italic type*** indicates p < 0.01.
2) Model is estimated for adult 25-64 population.
3) Monthly wages are adjusted for PPP to produce broadly comparable cross-country values.
3) Estimates for wages based on two equation model with MLE estimation of sample selection.
3) Omitted country= Albania; omitted educational category = no formal education.

Looking at wages, once non-random selection into employment is controlled for[10], the wage returns to education are much lower for Roma than non-Roma, particularly for men; for example, the wage benefits of post-secondary education are, in percentage terms, around twice as large for non-Roma as they are for Roma men[11].

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[10] The estimates of wages include the standard Heckman correction for sample selection bias.
[11] Given the logarithmic form of the dependent variable, the coefficient on the each education dummy measures the percentage change in the wages arising from the achievement of that level of education – compared to the default category of no formal education.

In principle, one may use this type of parametric estimation technique as a basis for drawing inferences about discrimination. Specifically, one may decompose the differences in employment probability and wages into a part which is explained by differences in individual characteristics (education and experience) and a second which is explained by the differing returns to characteristics. The first part of the wage and employment gaps concerns the difference in earnings and employment opportunities which are due essentially to the lower levels of education of Roma, whereas the second part is due to 'unexplained' differences between the two groups and is generally attributed to discrimination[12].

However, a problem arises which is of central relevance here. The methodology assumes the existence of common support – or to be more precise assumes that the estimates of returns are valid outside the field of common support. In other words, the approach presumes that Roma and non-Roma are similar across the observed characteristics. Given the huge disparity in educational levels, this is clearly not the case here. Recently, several non-parametric approaches have been suggested based on matching have been proposed. In particular, the method proposed by Nopo (2008) is used here. This involves person-to-person matching (with re-sampling) which bases the estimates of explained and unexplained components on observed differences in outcomes for which there is common support. Using this approach Roma/non-Roma employment and wage gaps are decomposed into four components, an unexplained component corresponding to discrimination and other unobservable characteristics estimated for the common support and three terms corresponding to differences which can be attributed to differences in observed characteristics[13].

The results of this exercise for employment and wages are shown graphically in figures 30 and 31. The height of the bar for each country (and sex) represents a comparable measure of the size of the gap in each case, and the red part of the bar represents the size of the unexplained part of the gap. The three 'explained' components of the employment and wage differences are added together for visual comparison. The figures reflect the substantial cross-country variation in both the size of the employment and wage gaps and the extent to which this can be attributed to differences in education and experience between Roma and non-Roma. In general the size of the gap in employment and wages non attributable to differences in education and experience is substantial. In the region as a whole, over 50% of the gap in employment opportunities for males and around 40% of the gap for females is not explainable in terms of observed differences; similarly, for wages around two thirds of the gap for males and two-fifths for women is not explained by education and experience.

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[12] The original methodology was proposed independently by Blinder (1973) and Oaxaca (1973). Extension to the non-linear case was proposed by inter alia Bauer and Sinning (2008).
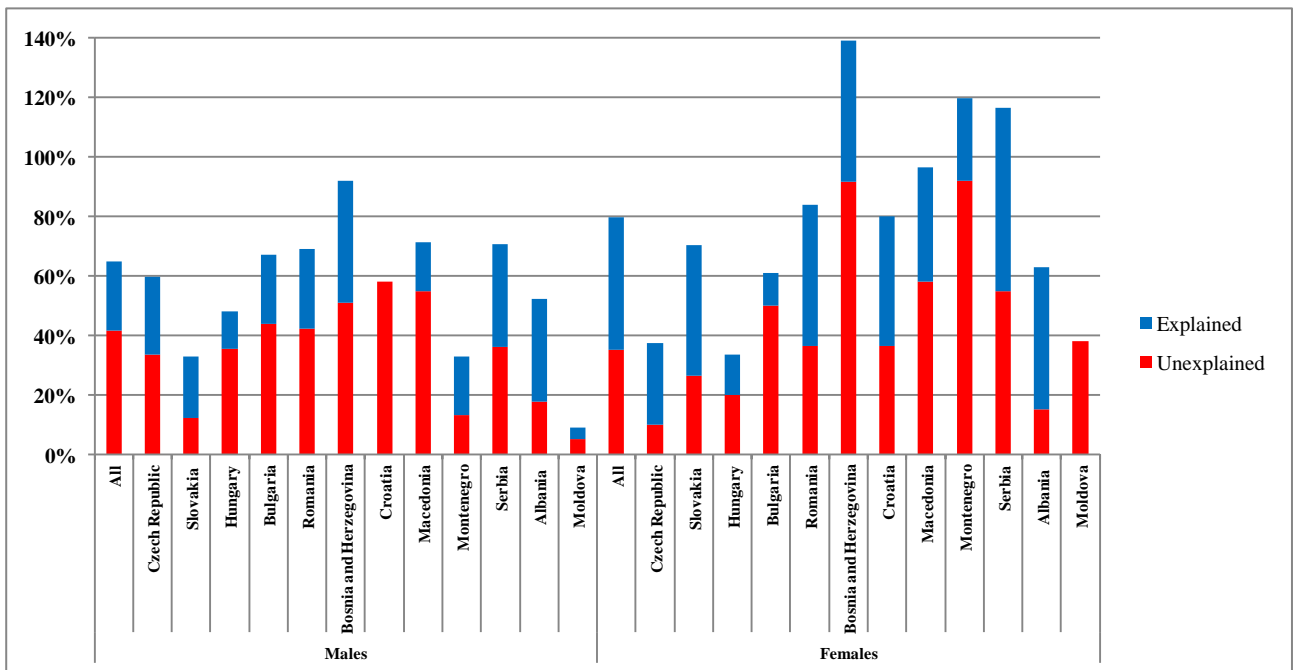[13] See Nopo (2008) for details.

Figure 30: Estimation of unexplained differences in employment using nonparametric matching
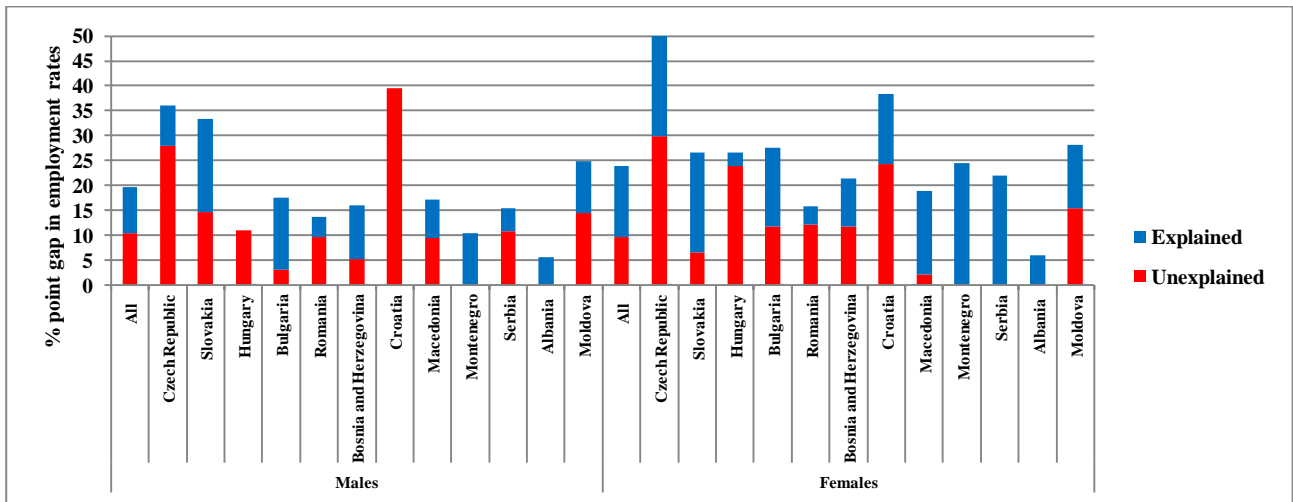
Source: estimated on the basis of the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the figure reports the results of estimating the explained and unexplained components of wages using the non-parametric matching technique proposed by Nopo (2008).
2) the height of each bar is the percentage point gap in the (sex and country specific) mean employment rate.
3) On occasion the estimates of the 'unexplained' portion are either above 100% or below 0% of the total gap; in these cases the 'unexplained portion was set to 100% (or 0%) as relevant.

Figure 31: Estimation of unexplained differences in wages using nonparametric matching

Source: estimated on the basis of the UNDP/WB regional survey on Roma communities 2011.
Notes: 1) the figure reports the results of estimating the explained and unexplained components of wages using the non-parametric matching technique proposed by Nopo (2008).
2) the height of each bar is the gap between the mean wage of Roma and non-Roma expressed as a percentage of the (sex and country specific) mean Roma wage.
3) On occasion the estimates of the 'unexplained' portion are either above 100% or below 0% of the total gap; in these cases the 'unexplained portion was set to 100% (or 0%) as relevant.

Thus, the results show that **differences in educational level are not sufficient to explain the gap in employment opportunities and wages between Roma and non-Roma.** The existence of substantial gaps which are not explainable in terms of observed characteristics suggest that there is indeed significant discrimination in both access to employment and wages once employment is obtained for both Roma men and women. For both employment and wages, the Roma/non-Roma gap is larger for the women than for men, however, in both cases a smaller portion of the gap for females is unexplained so that over all, the size of the gap attributable to discrimination and other unobservable factors is similar for men and women. There is much variation across countries, both in the size of the gap and the portion of it not explainable by education and experience, however, the analysis suggests that across the region much still needs to be done to combat the substantial differential in opportunities facing Roma and that clearly raising the educational levels of Roma will not in itself be sufficient.

6. Conclusions

This paper as examined in some detail the situation of Roma in the labour market and compared their experiences with non-Roma living in comparable situations across countries and time. The analysis is not very comforting for those who would have wished to see substantial gains accruing to Roma as a consequence of the Roma decade. As the end of the Decade comes within sight, Roma still face extensive labour market disadvantage.

There have been gains; in particular, the participation of Roma young people (aged 15-24) in education has risen substantially since 2004 reflecting their greater participation in upper secondary and tertiary education, although the gap in educational participation at these levels is still very substantial. Moreover, such gains in educational participation have not been matched by any significant gains in employment and wages. Huge differentials in Roma/non-Roma labour market opportunities remain and to a significant degree these cannot be explained by differences in education. More work needs to be done on identifying more precisely the underlying causes of these differentials and thus in finding adequate remedial measures, and it is clear that the measures thusfar adopted have not been sufficient to erode Roma labour market disadvantage to any significant degree.

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