1 Regional Labour Market Differences in Croatia: Evidence from the 2000-2005 Labour Force Survey Data

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Abstract

In Croatia, there are noticeable differences in regional labour market indicators. Some regions continue to experience high unemployment rates, implying that equilibrating mechanisms on the labour market are underdeveloped. Using the data from the Labour Force Survey for several consecutive years, the interaction between different regional labour market indicators is analysed. The goal of the analysis is to provide basic information on the characteristics of the labour force in a particular region (education, unemployment, wages, etc.) to give a more complete insight into the question why some regions constantly lag behind others. Differences in unemployment rates in the Croatian counties are related to the characteristics of the workforce in the specific region within the panel data framework.

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1   Introduction[1]

The fact that unemployment varies with region is widely recognised in the economic literature. However, the reasons why these differences occur, and even more why they are persistent, still puzzle researchers.[2] Labour markets are not homogenous, and many reasons for spatial segmentation exist. Elhorst (2003) reviews theoretical and empirical literature aiming to explain regional differences in unemployment, and lists the following most common explanatory variables:

- **Natural rate of change in population**, which determines the size of the labour force; the reasoning is that regions with persistent unemployment are those in which natural population growth exceeds employment growth.

- **Participation rates.** The literature is inconclusive on the expected sign of this variable. It could exert a negative impact on the unemployment rate, since factors determining low participation are those affecting low investment in human capital in general. On the other side, if the participation rate increases, ceteris paribus, unemployment should rise. To reconcile these statements, the latter might be considered as a short-term effect, while the former is more related to the longer-term factors.

- **Migration.** The expected sign is related to the underlying theory. According to the neoclassical approach, workers move towards prosperous regions, thereby reducing regional unemployment. On the other side, selective migration, in particular migration of high-skilled labour force, may result in widening regional unemployment disparities.

[2] *An excellent review of the most common theoretical explanations as well as empirical variables used in explaining regional unemployment differentials can be found in Elhorst (2003).*

- **Commuting.** It can be shown that, with the development of infrastructure, the workforce tends to move towards the suburbs and commute regularly. Consequently, urbanised areas tend to suffer from excess unemployment rates, while surrounding areas, where commuters live, tend to have lower unemployment rates.

- **Wages** are traditionally included with a negative sign – higher wages will increase labour supply and reduce labour demand, thereby increasing the unemployment rate.

- **Employment growth** almost always reduces the unemployment rate, although the magnitude of the effect also depends on simultaneous changes in migration and participation rates.

- **Gross regional product** is a variable that has been widely used in the literature as a proxy for labour demand. Increases in labour demand should help reduce unemployment.

- **Market potential** is usually found to have a negative impact on the unemployment rate.

- **Industry mix**. It can be argued that the unemployment rate is more related to the specific industry than to the region. Declining industry is producing unemployment, and a specific industry mix in the region is responsible for the overall effect on the regional labour market.

- **Educational attainment of the population**. Higher education almost always has a downward effect on the unemployment rate, as more educated workers have more diversified options for finding a job.

Most of the variables mentioned as usual explanations for regional labour market disparities significantly change only during a longer time span. This translates into a need for longer time series data in order to capture their effect on the unemployment rate. However, few of them (like industry mix or wages and participation rates) could significantly change even during a shorter time period, especially in the context of a fast changing economic environment immanent to transition economies. This is highly relevant, since data sources

in transition economies usually do not provide longer time series. This also applies to the Croatian case.

The aim of this paper is to analyse the differences in regional (county) labour markets in Croatia, with a particular emphasis on explaining the determinants of different regional unemployment rates. Due to a short time span, an analysis that would include all the variables most commonly used in the literature for explaining regional unemployment rates in more advanced economies was not possible. Therefore, certain limitations to the empirical analysis should be considered. Nevertheless, the unemployment issue is a highly significant feature of the Croatian economy, and consequently deserves attention.

A rise in unemployment at the beginning of transition is not only a Croatian problem. Gacs and Huber (2005) argue that labour market disparities in the EU candidate countries increased throughout the 1990s and reached the levels comparable to those of Western Europe by the end of the decade. However, unemployment in market economies is commonly moderated by migration (predominately in the US market) or changes in participation rates (characteristics of the European labour market). As Bornhorst and Commander (2006) argue, research conducted in the first years of transition usually found that mobility was not only low across the European and Russian regions, but that there was very limited evidence of other equilibrating mechanisms. Whether the same argument applies to the Croatian economy has not been empirically documented.

As Puljiz and Maleković (2007) stress out, some regional differences in Croatia were visible even in the former Yugoslavia. Based on the Croatian Tax Office data, Puljiz and Maleković (2007) show that on the county level both disparities in wages before taxation as well as the overall income per capita (including the other sources of income, besides wages) have been increasing in Croatia. Special global issues are related to the recent developments in the country (war experience), which have adversely affected the Croatian territory, implying that adjustment to structural changes was even slower in the most affected regions. This argument can be used to confirm the hypothesis that

different Croatian regions are unevenly adjusting to the labour market shocks, and these effects are more visible in some regions.

Botrić (2003) analyses whether regional differences in unemployment rates are region specific or under the influence of nation-wide shocks. The results imply that some of the regions, where the labour market indicators generally reveal lagging in performance, are more influenced by region-specific shocks – i.e., they have developed a path of their own, which might lead to the increased persistence of high unemployment rates in these regions.

By using the Labour Force Survey data for 2002-2004, Luo (2007) examines regional differences in wages and employment, and argues that both individual and regional characteristics played an important role in determination of employment and earnings. Furthermore, a large part of the differences in regional labour market performance is attributed to the differences in human capital endowment. We supplement these findings by analysing the influences of regional characteristics on unemployment rates.

The structure of the paper is following. The next section overviews the data used and presents differences in regional labour market indicators in Croatia. Section 3 brings an explication of estimation strategy, followed by a presentation of empirical results and a discussion on most relevant points. The last section concludes.

2 Depicting Regional Differences in Croatian Labour Market: Basic Indicators Review

The period analysed in this paper is relatively short. It only covers the 2000-2005 period, due to a lack of available data. Although the Central Bureau of Statistics (CBS) has been conducting the Labour Force Survey since 1996, the question on the net wage was not included in the 1999 Survey. Since this question is considered an important indicator of labour market differences at the regional level, we shortened the period of analysis.

The main issue addressed in this paper is illustrated in Figure 1, where average regional unemployment rates for the period 2000-2005 are presented. The regions in this paper refer to counties. Official unemployment rates data at the county level (which correspond to the EU NUTS3 level of aggregation of territorial units) are not published on regular basis. Therefore, the data presented had to be estimated, and this was accomplished by using the Labour Force Survey data. It has to be noticed that throughout the paper the sample values were used, without a usual weighing procedure the Central Bureau of Statistics applies when publishing the official data. Since the sample was not originally designed to estimate regional indicators, we did not use the CBS weights in order to estimate the population averages.

Instead, the indicators presented in the paper as well as the estimation results are based only on the original CBS sample data. When comparing the levels of indicators, this should be taken into consideration, as the results might differ if the data were obtained from a survey designed to produce regional indicators.

In order to estimate the unemployment rate, the usual ILO methodology was applied. Therefore, the unemployment definition in our paper is different from the Croatian Employment Service register data. For the unemployed in our sample, the key characteristics are the following:

- that he or she did not perform any activity for any sort of remuneration (monetary or in kind);
- that he or she is actively looking for a job, and could accept a job offer within next 2 weeks.

After considering all these conditions, it can be easily seen that unemployment in Croatia according to the ILO methodology is always lower than the registered unemployment.

Figure 1 reveals that Šibensko-kninska county had the highest unemployment rate on average, followed by Vukovarsko-srijemska county. The lowest

unemployment rates were recorded in Krapinsko-zagorska county, followed by Varaždinska county. Annual variations in the data have to be noted – for instance, since 2004 the unemployment rate in Vukovarsko-srijemska has been higher than in Šibensko-kninska county.

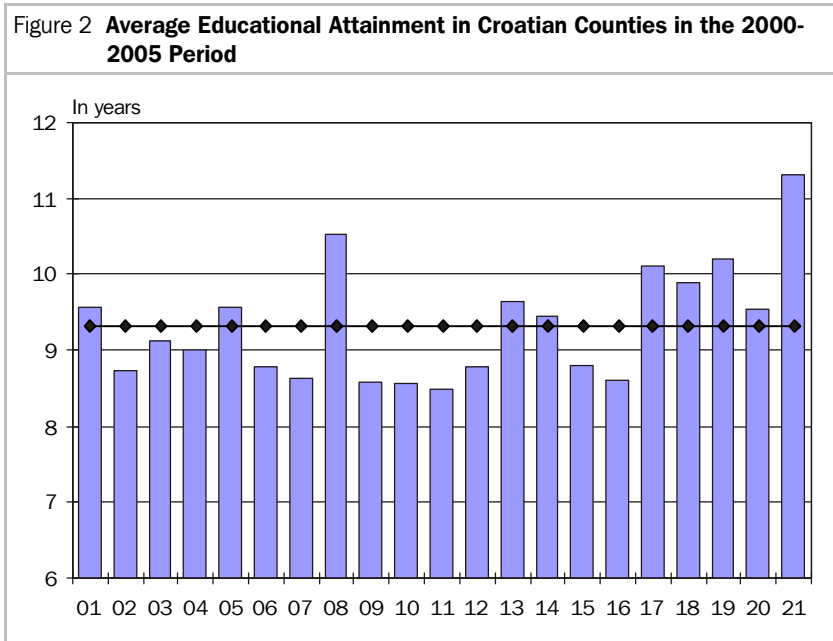Figure 1 **Average Unemployment Rates in Croatian Counties in the 2000-2005 Period**
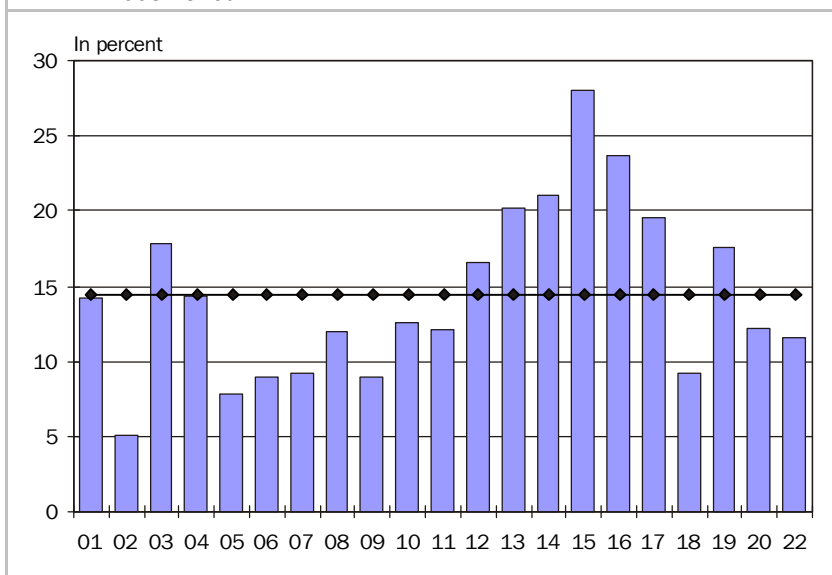
Notes: Counties are: 01 - Zagrebačka; 02 - Krapinsko-zagorska; 03 - Sisačko-moslavačka; 04 - Karlovačka; 05 – Varaždinska; 06 - Koprivničko-križevačka; 07 - Bjelovarsko-bilogorska; 08 - Primorsko-goranska; 09 - Ličko-senjska; 10 - Virovitičko-podravska; 11 - Požeško-slavonska; 12 - Brodsko-posavska; 13 – Zadarska; 14 - Osječko-baranjska; 15 - Šibensko-kninska; 16 - Vukovarsko-srijemska; 17 - Splitsko-dalmatinska; 18 - Istarska; 19 - Dubrovačko-neretvanska; 20 - Međimurska; 21 – City of Zagreb.
The line represents the Croatian average.
Source: Central Bureau of Statistics.

One of the most common explanations for differences in the regional unemployment rates is a difference in human capital across regions, which is proxied by average educational attainment. The rational for this variable is that in increasingly changing labour market conditions, which are related to the countries in transition, the labour force with more human capital is more flexible, and can adapt less painfully to demand changes. Consequently, a more educated labour force should be more agile in finding new jobs, and this

might lead to a lower overall unemployment rate. Regional differences in the average number of schooling years within the sample are presented in Figure 2.

Figure 2 **Average Educational Attainment in Croatian Counties in the 2000-2005 Period**

Notes: *Counties are: 01 - Zagrebačka; 02 - Krapinsko-zagorska; 03 - Sisačko-moslavačka; 04 - Karlovačka; 05 – Varaždinska; 06 - Koprivničko-križevačka; 07 - Bjelovarsko-bilogorska; 08 - Primorsko-goranska; 09 - Ličko-senjska; 10 - Virovitičko-podravska; 11 - Požeško-slavonska; 12 - Brodsko-posavska; 13 – Zadarska; 14 - Osječko-baranjska; 15 - Šibensko-kninska; 16 - Vukovarsko-srijemska; 17 - Splitsko-dalmatinska; 18 – Istarska; 19 - Dubrovačko-neretvanska; 20 - Međimurska; 21 – City of Zagreb. The line represents the Croatian average. Source: Central Bureau of Statistics.*
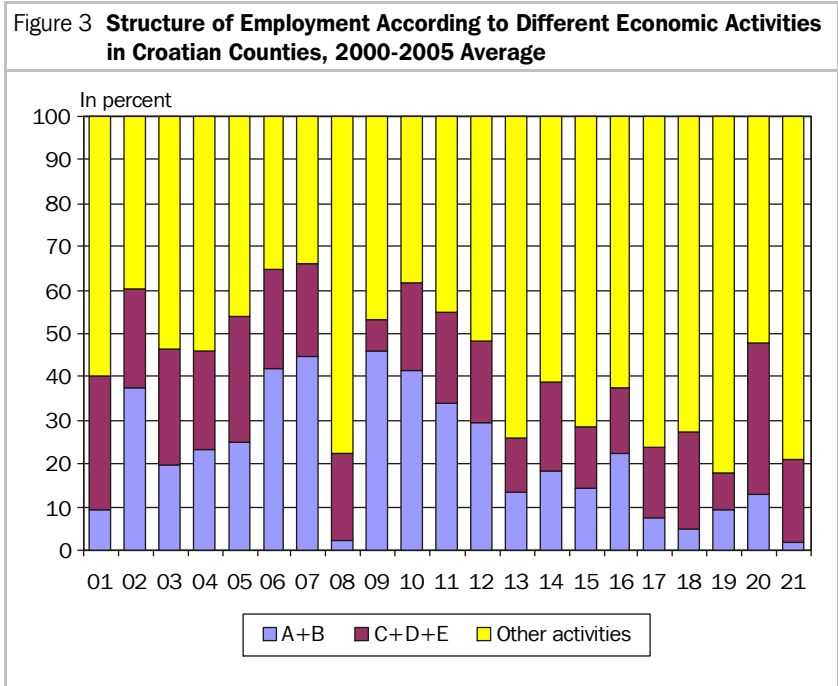
Education variable should have a strong impact on disparities in the county labour market performance. It can be noted that counties in Croatia differ strongly according to the education variable. Two counties have a strikingly better educated labour force, in comparison to the Croatian average. These are the City of Zagreb and Primorsko-goranska county. It goes without saying that the counties enjoying more human capital also offer university education.[3]

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[3] *The literature also confirms this link between the economic prosperity of the area and the location of knowledge-generating entities (see, fore example, van Geenhuizen, Rijckenberg and Nijkamp (1997)).*

The counties lagging behind in the number of schooling years are those in which agriculture is still relatively important.

It should also be noted that the transition economies are facing severe changes in the structure of demand for labour, as a consequence of structural changes in economy. The change for the other transition countries (NMS 10 - Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia) is well documented in Vidovic (2003), where a structural shift in employment towards the service sector is observed for most of the countries. However, even at the country level, an increase in employment in services was generally not sufficient to offset a decrease in employment in agriculture and industry. Translated into the regional level, predominately agricultural regions suffer from an increase in unemployment, while the service sector oriented regions are faced with increased labour supply, not fully absorbed by increased demand, and definitely suffering from a vocational mismatch in the short-run. The aggregate regional imbalances extend themselves even further to the national level, but the effect on the regional level is more pronounced.

To add more to this point, Figure 3 presents a structure of employment according to different economic activities in the Croatian counties.

The data presented in Figure 3 also stem from the Labour Force Survey data and they are not strictly related to the general structure of the economic activity in Croatia. To illustrate this point, we can contrast our sample data with officially published data. According to the Central Bureau of Statistics county GDP estimates for 2004 (published in February 2007), the share of the gross value added in total county gross value added is for some counties quite different than the employment share based on the LFS. The explanation is not only in different productivity in different counties, but also comes from the fact that the employed in the LFS Questionnaire do not have to be employed full time. The differences between the share in employment and gross value added are the smallest when it comes to C-D-E activities (mining and quarrying, manufacturing, electricity, gas and water supply), where it is not common to have household members as additional help, but rather full time

employment is a preferable mode of employment. When a form of employment varies more, which is characteristic to agriculture or the service sector, then the differences between employment and the gross value added structures are more pronounced.

Figure 3 **Structure of Employment According to Different Economic Activities in Croatian Counties, 2000-2005 Average**

Notwithstanding these methodological differences, if one compares Figures 2 and 3, it can be noticed that counties with the highest educational attainment (Primorsko-goranska and the City of Zagreb) have the highest share of employment in services.

The next question we wanted to address is more related to the characteristics of the unemployed than to general conditions on the labour market. Figure 4 presents the ratio of wages under which the unemployed will be willing to accept a job offer to the average wage of employed persons in the specific county.
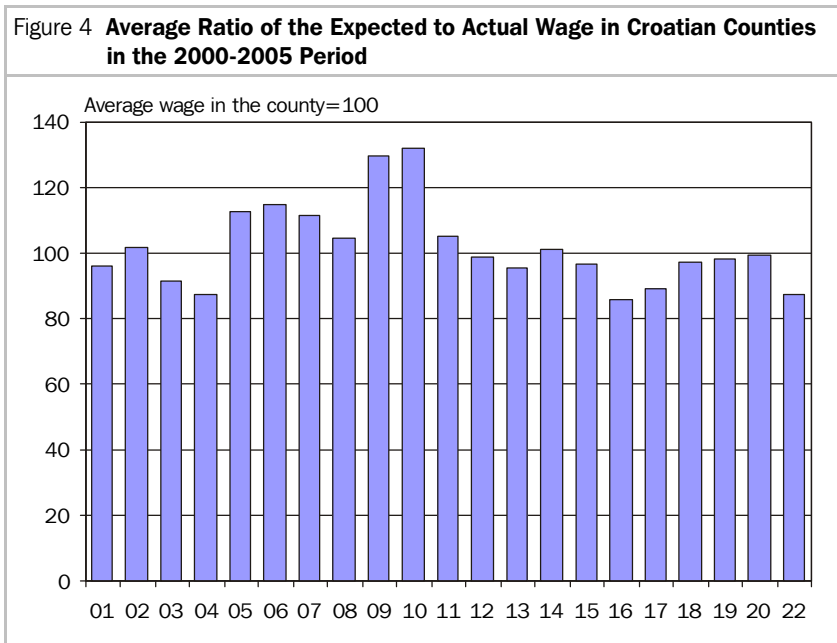
Figure 4 **Average Ratio of the Expected to Actual Wage in Croatian Counties in the 2000-2005 Period**

Notes: Counties are: 01 - Zagrebačka; 02 - Krapinsko-zagorska; 03 - Sisačko-moslavačka; 04 - Karlovačka; 05 – Varaždinska; 06 - Koprivničko-križevačka; 07 - Bjelovarsko-bilogorska; 08 – Primorsko-goranska; 09 - Ličko-senjska; 10 - Virovitičko-podravska; 11 - Požeško-slavonska; 12 - Brodsko-posavska; 13 - Zadarska; 14 - Osječko-baranjska; 15 - Šibensko-kninska; 16 - Vukovarsko-srijemska; 17 - Splitsko-dalmatinska; 18 – Istarska; 19 - Dubrovačko-neretvanska; 20 - Međimurska; 21 – City of Zagreb.
Source: Central Bureau of Statistics.

Figure 4 clearly shows how the unemployed perceive the situation on their local labour market. The data reveal strong differences across the Croatian counties. It seems that in Virovitičko-podravska and Ličko-senjska county the unemployed are on average willing to accept a job offer only if it will be more than 30 percent higher than the average wage. On the opposite side of the spectrum is Karlovačka county and the City of Zagreb, where the unemployed

will be willing to work for 87 percent of the average wage obtained by the employed in their area.

The persistence of regional unemployment rate differences can also be related to a relative geographical immobility of Croatian labour force. Bornhorst and Commander (2006) point to the mechanisms of adjustment on the labour market that differ in the US as compared to the European economies. In the US, adjustment to changes in regional labour demand is usually achieved through geographical labour mobility. In the European economies, on the other hand, it is usually achieved through changes in participation rates. Having in mind that Croatia is suffering from low activity rates (the latest Labour Force Survey data published by the Central Bureau of Statistics reveal that the activity rate for the population aged 15+ was only 48.7 percent in the second quarter of 2007), it can be argued that the indicators fit even too well to the European labour market story. Early retirement schemes, generously applied during the 1990s, only helped to promote inactivity as a favourable lifestyle, which is hard to change. Participation is also related to the segmentation of the labour market according to the education level. As Babić, Matković and Šošić (2007) reveal, the lowest participation rates in Croatia are recorded for those with primary education or less (26.4 percent in 2005), while the highest rates are for those with tertiary education (71.5 percent). Unemployment rates are, however, the highest for those with secondary education (15 percent in 2005), and the lowest for those with tertiary education (6.3 percent).

Figure 5 shows regional differences in willingness of the unemployed to accept a job outside their county of residence. As expected, the share of those willing to accept a job only within the county they live in is relatively high, thereby implying that the probability of decreasing regional labour market differences in Croatia through participation rates is higher than through increased mobility. One of the reasons for relative immobility of the Croatian labour force could be related to a high share of home-ownership.

Figure 5 **Unemployed and Their Willingness to Accept Work Only Inside Their Residence County in Comparison to Home-Ownership Percentage, Period Averages***
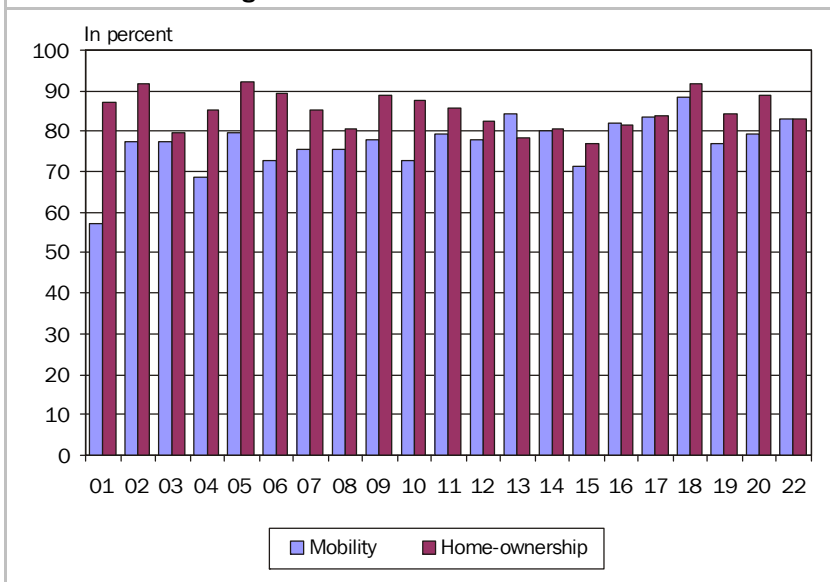
Notes: Counties are: 01 - Zagrebačka; 02 - Krapinsko-zagorska; 03 - Sisačko-moslavačka; 04 - Karlovačka; 05 – Varaždinska; 06 - Koprivničko-križevačka; 07 - Bjelovarsko-bilogorska; 08 - Primorsko-goranska; 09 - Ličko-senjska; 10 - Virovitičko-podravska; 11 - Požeško-slavonska; 12 - Brodsko-posavska; 13 – Zadarska; 14 - Osječko-baranjska; 15 - Šibensko-kninska; 16 - Vukovarsko-srijemska; 17 - Splitsko-dalmatinska; 18 - Istarska; 19 - Dubrovačko-neretvanska; 20 - Međimurska; 21 – City of Zagreb.
* Willingness to work outside the county is based on the 2000-2005 data, while home-ownership is based on the 2000-2004 data.
Source: Central Bureau of Statistics.

The data presented in Figure 5 indicates that the willingness of the unemployed to accept a job outside their county of residence is not always strictly related to the share of home-owners in the county. The closest relations are in the City of Zagreb, Vukovarsko-srijemska, Osječko-baranjska and Splitsko-dalmatinska county. In other counties, except Zadarska, the share of home-owners is higher than the share of those willing to accept a job only in the county they reside in. The evidence as to whether the high home-ownership share influences the decision-making process on the labour market is not straightforward. Generally, the correlation between the share of home-owners and the employed working within the county they reside in is relatively low – it amounts to 0.2.

The presented layout of the regional labour market characteristics serves to identify key factors in explaining regional differences in unemployment rates, as well as to provide additional explanation for the empirical results.

3   Estimation Strategy and Results

The empirical analysis was based on the annual 2000-2005 LFS data with the Croatian counties as cross-section units. With this data setting, the panel data method was applied. Although studies on regional labour markets usually concentrate on the size of commuting area, the limitations of available data prevent us from performing an analysis on the level of spatial aggregation. Due to the fact that regions differ in size, we also acknowledge that some estimation bias might occur.

The basic equation estimated in the paper is the following:

$$y_{i,t} = \alpha + \beta X_{i,t} + e_{i,t} \tag{1}$$

where y denotes a dependent variable, and X a set of regressors. Panel data method with fixed effects was applied, and variables in each specification were pre-tested for multicolinearity. The average county unemployment rate was a dependent variable, and the following set of regressors was considered (all of which are calculated from the Labour Force Survey data directly from the sample, without projections to the total population):

- **w_exp**: average wage expected by the unemployed as a percentage of the average wage received by the employed in the specific county;
- **unemob**: percentage of the unemployed in the county that would either accept a job only within their residing area or are willing to commute, but not to move (aiming to capture the potential geographical mobility of the unemployed);
- **edu**: average number of schooling years in the county (both by those employed and unemployed, aiming to capture the effect of available

human capital, which could influence employers' decisions to locate production in areas with a relative abundance of human capital);

- **qual**: percentage of the unemployed in the county that would accept a job beneath their qualification level;
- **financ**: percentage of persons in the county claiming they live in an unfavourable financial situation; aiming to capture a subjective evaluation of the financial status of the family. This indicator could be considered as revealing subjective sense of poverty. Some of the previous studies have indicated that poverty in Croatia is significantly different across different regions (Nestić and Vecchi, 2006), and disparities in poverty rates persist even after controlling for differences in education, labour market and other demographic factors;
- **ab_empl**: the share of the employed in agriculture, hunting, forestry and fishing in total employment in the county according to the LFS sample;
- **cde_empl**: the share of the employed in mining and quarrying, manufacturing, electricity, gas and water supply in the total employment in the county according to the LFS sample;
- **rest_empl**: the share of the employed in all the other activities in total employment in the county according to the LFS sample;
- **women_act**: the share of women in active population in the county.

When applying the panel data method, it is necessary to decide between the random effects and fixed effects specification. The procedure requires that both specifications are estimated. The two-way random effects specification requires that the number of coefficients for a between estimator is smaller than the number of cross-sections. As we have only 6 years of data, the maximum number of independent variables in our model can be 5.[4] When deciding which variables to include in the specification, we have based our choices on the most common set of variables in theoretical as well as empirical papers for other countries, as suggested in the introduction. Additional checks were made in order to avoid multicolinearity between independent variables. Some of the

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[4] *This partly addresses the reviewer's comments regarding the inclusion of additional variables in the model. The reviewer also suggested some other variables to be included, for which data were not available during the analysed time span. Even though these variables should be considered as serious candidates for explaining regional unemployment rates, their inclusion at this point would require restricting the time framework and consequently reducing the number of regressors.*

multicolinearity issues in the data were previously presented while discussing the characteristics of variables across the counties.

As we have indicated above, the counties vary in population size, and consequently the estimated results can be seriously affected by that bias (Baltagi, 2005). In order to avoid the inefficiency of our estimates, the GLS estimator was used. Even though the fixed effects specification seems appropriate when dealing with the aggregate regional data such as in this case, the formal tests were also applied to confirm this assumption. The Hausman test was not firmly conclusive, so the redundant fixed effect LR test was performed, which implied that the fixed effects specification is appropriate.

The estimation presented in Botrić (2007), where unemployment rates were estimated by using two alternative data sources (Croatian Employment Service and the Central Bureau of Statistics), served as a basic reference for the estimation strategy in this paper. Although different data sources influence the size of regional unemployment rates, the estimation results are not significantly affected. Repeating the same exercise with different regional unemployment rates resulted in coefficients of the same sign, and for some of the variables virtually the same estimated coefficient. A significant decrease in the estimated coefficient was recorded only for the "edu" variable, which decreased from previously estimated -7.6 (and was significant at 1 percent) to -2.3 (and was significant only at 10 percent).[5]

For the estimates presented below, we have chosen not to include the variables that were not significant in the specification with alternative regional unemployment rates. In addition, the original specification of results presented in Table 1 included the "edu" variable (instead of "rest_empl"), whose estimated coefficient decreased even more to -0.3 and turned out to be insignificant. After performing the redundant variable test, we have decided to exclude the "edu" variable from the estimation. The explanation behind this exclusion of education variable is that, although we do believe it is important for the overall labour market performance due to a short time framework in

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[5] *Since these results do not add more to the discussion, we do not report them here.*

this analysis, other variables (like the share of women in activity rates) exhibit more variation, and therefore capture more variation of the dependent variable – unemployment rate. Variations of the educational attainment variable are smaller, and consequently lose the power of explaining the variations in the dependent variable.

Other variables that can be used for explaining regional differences in unemployment rates are the share of women ("women_act"), the wage expected by the unemployed in comparison to the average wage in the county ("w_exp"), unwillingness of the unemployed to accept a job offer outside the county ("unemob") and the willingness of the unemployed to accept a job beneath their qualification level ("qual"). For the structure of the economic activity variable, variables representing the share of agriculture and industry were not significant. However, the share of employment in all other activities ("rest_empl") turned out to be significant. The estimation results, including such a specification, are presented in Table 1.

The results indicate that the county unemployment rate is negatively related to the wage expected by the unemployed. This is highly expected, since it seems that when the unemployed misperceive the situation on the local labour market, they tend to expect relatively higher wage than it is on the market, and consequently turn down possible job offers. This could also be related to the developed unofficial sector, which is also common for transition economies. Namely, unemployed persons work in the unofficial sector, and receive income on which they do not pay taxes. In that case, their reservation wage is higher than it would be if the unofficial economy was not so widespread, when they would accept job offers with lower wages. However, we are not able to precisely measure the size of the "unofficial sector employment" effect from the Labour Force Survey data.

Table 1 **Determinants of Regional Unemployment Rate**	
Variable	**Estimated coefficient**
constant	70.8*** (17.4)
w_exp	-0.1*** (-5.5)
unemob	-0.1*** (-3.1)
women_act	-0.9*** (-8.7)
qual	0.1** (2.2)
rest_empl	0.1*** (6.7)
R-squared adjusted (weighted)	0.83
R-squared (unweighted)	0.63
Redundant fixed effect – LR test (2-way) F statistics (p-value) Chi-square (p-value)	1.9 (0.0133) 51.4 (0.0014)

Notes: t-values are presented in brackets below the regression coefficients. Coefficients marked *** are significant at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.
The coefficient covariances are White heteroscedasticity consistent. Panel EGLS (cross-section weights) estimation method was applied. Fixed effects not reported here.
Residuals of the estimated equation were tested for the presence of autocorrelation and normality, and in both cases the test results were satisfactory.
Source: Author's calculation.

The next issue which can be analysed using the results presented in Table 1 is the willingness of the unemployed to seek a job outside their county of residence. It can be seen that when the county is resided by less geographically mobile people (larger percentage of those reluctant to accept a job outside the boundaries of their county) it is associated with a lower unemployment rate within the county. The share of those willing to accept a job outside the county they live in is not very high – which is probably related to the fact that 83 percent of the Croatian housing stock is owner-occupied, making it therefore relatively costly to move.[6] However, a stronger preference of the unemployed to seek a job only within the commuting areas is not associated with a higher regional unemployment rate. Therefore, even though a lack of geographical mobility can severely influence the persistence of unemployment

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[6] *According to the Census 2001, 96 percent of permanently occupied dwellings (1.4 million) are owned by private persons, and 83 percent are owner-occupied dwellings.*

in certain Croatian regions, the potential changes in preferences towards increased mobility might not influence regional unemployment rate differences.

The ineffectiveness of geographical mobility to influence regional disparities in the labour market in transition was already pointed out in this paper. Bornhorst and Commander (2006), who have conducted their analysis on 6 transition countries (Bulgaria, the Czech Republic, Hungary, Poland, Romania and Russia), also found that the internal migration has remained limited. They argue that those who migrate tend to move from relatively poor regions, or the regions with high unemployment rates, to those with relatively lower unemployment and higher incomes. For Croatia, these observations could also hold, as the population migrates towards areas with better employment opportunities.

In order to increase mobility, the Croatian Employment Service has conditioned some unemployment benefits. Namely, an unemployed person will cease receiving unemployment benefits if she/he does not accept a job offer within 50 kilometres of their home address, providing there is public transportation, the employer covers transportation costs and commuting does not last more than 2 hours a day.[7] The overall impact of these changes, although the assessment of policy measures is beyond the scope of this paper, has not been extensive. The main reason is that the share of the unemployed receiving benefits is not that large in Croatia (due to the high share of long-term unemployed combined with the fact that the benefits are received only during a limited time period), and that the conditions do not require the unemployed to change the location of their homes.

The share of women in active population is significant and is adversely related to the average unemployment rate in the county. It has to be said that, even though we are analysing a short time span, the year-to-year variation in the women activity rates within the same county are relatively high. This means

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[7] *More details on labour market conditions in Croatia, as well as an overview of some recent changes in the Labour Code, could be found in Crnković-Pozaić (2005).*

that women react relatively strong to the current situation on the labour market, and in cases when the unemployment rate in the county is high, they tend to withdraw from the labour market. This finding adds more to the conclusion that the Croatian labour market, like in other European countries, is more likely to react through changing participation rates than through geographical mobility.

The willingness to accept a job beneath the qualification level variable turned out to have a positive impact on the unemployment rate. This is rather surprising, as one would expect that it indicates a firm willingness of those unemployed to accept a job, and this should lower the unemployment rate. But, the fact is that in Croatia there is a large structural mismatch[8] between labour supply and demand that extends itself to the regional level as well. The restructuring process, immanent to the transition economies, implies that there are no jobs for the long-term unemployed, even though they would be willing to accept them. Combined with a relatively high return to education[9], this means that demand for the highly educated is strong and growing, while for the unemployed, who are usually low educated and skills-losing due to a prolonged period of not working, demand is low and decreasing.

The share of the employed in the service sector – actually those not working in agriculture and industry (activities A through E in the NACE classification of economic activities) - is positively associated with the unemployment rate in the county. This implies that the regions where the service sector employment was important did not have a lower unemployment rate. This confirms the previous results presented in Botrić, Rašić and Šišinački (2004) who, supplementing the Croatian regional unemployment rates data with those from other Central and East European countries (CEEC), found that higher

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[8] *Obadić (2004) explores regional mismatch functions for Croatia on the county level, and finds excess supply for some counties, for others excess demand, and for two counties both. Obadić (2006) extends the analysis to find out how Croatia compares to other transition countries, and concludes that both demand and supply surpluses on the regional level can be found in the Czech Republic, Croatia and Slovakia.*

[9] *Šošić (2004) estimates returns to education in the amount of 10.5 percent for the year 2001. Nestić (2004) makes another point – there are significant differences across the sectors of the economy. According to the latter estimates, it seems that graduate and post-graduate education is substantially more valued in the private sector, while secondary education pays off more in the public sector.*

regional employment in the service sector implies higher relative unemployment in the region compared to the average CEEC level. Consequently, restructuring towards a larger share of the service sector might not be strong enough or fast enough in order to offset employment shedding from the industry sector, which is a common feature of all transition economies. The other argument related to the small impact of service sector employment on the unemployment rate in Croatia is that it might be strongly seasonal in some activities (like tourism) and highly related to the unofficial sector (like trade). Furthermore, the service sector might be demanding the skills not previously developed in the labour market of transition economies, and the presence of a large service sector might indicate a structural mismatch between supply and demand.

To conclude, it is clear that specific arguments probably hold for specific segments of the labour market. This segmentation is manifold, and it depends not only on space, but also on the industry, workers qualifications, and firms' decisions[10] on spatial location. Labour markets that underperform by many criteria tend to underperform for a longer time period. This leads to the persistence and perpetuation of the problem that is not easily resolved in the short period of time.

4   Conclusions

In this paper, we analyse regional disparities in the Croatian labour market by exploring the 2000-2005 data from the Labour Force Survey. The empirical results indicate that unemployment rate differences can be explained with the wage expectations of those unemployed, their unwillingness of to seek work outside their immediate residing area, share of women in active population in the county, structure of economic activity in the county and propensity of the unemployed to accept a job offer beneath the level of qualification they have. All these characteristics explain variations in the unemployment rate quite

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[10] *This point is also emphasized by Karlsson and Haynes (2002).*

well. Regional unemployment rates in the estimated equation are adversely influenced by the following:

- expectation of the unemployed (who might misperceive the situation on the local market, or might be working in the unofficial sector);
- share of the unemployed willing to accept a job offer only in their county of residence;
- share of women in active population, where the two latter variables taken together imply that the adjustments of the labour market in Croatia are conducted through changes in the labour market participation.

Unemployment rate is positively related to the structure of economic activity and the qualification structure of the county labour force. Both are related to the process of restructuring, common to all the transition economies. The first variable refers to the inability of the growing service sector to absorb labour shedding from the previously overgrown industry sector. The latter variable is related to the qualification mismatch on the labour market. The influence of both variables will probably diminish through time, but for the analysed period they were significant.

The issue of mobility, or a relative lack of it, is addressed in this paper. Geographical mobility analysed in this paper is related to the underdeveloped housing market and a high propensity of the unemployed to seek a job within the immediate commuting area. However, an important issue of vertical mobility, related to the concept of life-long learning is a factor that we were not able to capture within the presented results.

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