
Regional Labour Market Differences in Serbia: Assessment and Policy Recommendations*

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Abstract

Creating effective employment policy to combat rising unemployment and widening regional labour market differences is a major task facing Serbian economic policy makers. In this paper we argue that the best results would be achieved if a differentiated approach to regional labour markets is adopted, resulting in regionally specific employment policies. Our paper presents an original methodology which uses relevant statistical data from various sources (altogether 21 indicators) in order to create compound indices which serve as means of a comprehensive regional labour market classification. The main composite indices contain indicators standardised and grouped so that they reveal multifaceted features of the regions. The first classification distinguishes between indicators depicting regional economic situation and development prospects, and the second between those of general economic conditions, labour market situation and restructuring dynamics. Finally, we suggest a simple two-dimensional taxonomy of regions with regard to their labour market situation and prospects. While regions with positive composite indices of both situation and prospects in general do not require additional intervention, regions in other three quadrants are recommended specific policy mix of employment policy measures and active labour market programmes tailored according to their characteristics revealed by the analysis.

JEL Classification: J21, P25, R23, R58, C80

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1. Introduction

It has been noted that regional labour market differences tend to deepen and persist during the process of economic transition, with typically the capital city and a few privileged regions experiencing fast growth and a tight labour market, while the rest of the country sinks into prolonged recession, becoming a zone of high unemployment and low wages (cf. World Bank, 2005). Serbia is no exception to this general rule. Job opportunities are scarce today throughout Serbia, but some regions are particularly vulnerable. In this paper we try to assess relative risks of unemployment in Serbian regions and to find out what are the driving forces behind the diverging labour market outcomes. Regions are defined at the level of 25 administrative districts of Serbia, roughly corresponding to NUTS 3 regions.

Creating effective employment policy to combat persistent and rising unemployment has been a major challenge for Serbian economic policy makers for many years. However, until recently little attention has been paid to the fact that labour force members face very different risks of unemployment across various regions of the country. It was only in 2004 that the issue of tackling regional labour

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market inequalities became one of the priority goals of National Employment Strategy of Serbia. This recognition has inspired a group of researchers to develop specific methodology for regional risk assessment on the Serbian labour market, and to draw regionally-specific employment policy recommendations¹.

Workers are quite immobile in Serbia due to low wages, shortage of affordable housing and reliance on kinship and social networks. Since these features are quite persistent and even intensifying in the times of crisis, the more promising way to capture regional unemployment differences is to create more jobs in the regions which need them most. But, for the regional employment policy intervention to really work, policymakers need more information on which regions are affected the most, and in what respects.

Therefore we have considered it to be a desirable and challenging task to design a methodology which would use all available relevant data in order to measure the relative labour market position for each of the regions in Serbia, as well as develop the criteria of classifying the regions according to their prevailing problems. Research results can be useful to policymakers at both central and local levels, in designing development priorities and regional aid programs. The resulting taxonomy can also be useful in tailoring active labour market programs, supporting program design and monitoring the performance of the National Employment Service, and in advertising investment opportunities for foreign firms. Equally important, our research has aimed at offering a useful analysis and action framework to local employment councils, composed of local employment authorities, trade unions, business organizations, employment services, schools and universities and non-governmental organizations.

The remaining parts of the paper are organized as follows. In Section 2 the features of regional labour market differences in transition economies are briefly discussed, while in Section 3 the main characteristics of labour market in Serbia are presented in general and in regional perspective. Section 4 elaborates the methodology for assessment of regional labour market differences we have developed for Serbia and the resulting taxonomy of regions. Section 5 offers a regionally differentiated set of recommendations for employment policy and active labour market programmes. Section 6 concludes.

2. Regional labour market differences in the transition economies

Pronounced differences in regional unemployment rates are a common feature of transition economies (León-Ledesma and McAdam, 2004; Huber, 2007). These differences emerged early in the transition process and have proven to be highly persistent over time. Since labour mobility remains very limited, in the regions with the highest unemployment, the employment creation is failing to pick up (Bornhorst and Commander, 2004). Further, it has been established that cross-regional labour mobility has also remained low and has played a minimal role in equilibrating regional disparities. Workers in depressed regions appear often to be

¹ Research entitled 'Mapping Serbian Labor Market', supported by USAID, was conducted in fall 2005 by the Foundation for Advancement of Economic Science (FREN) from Belgrade. It was followed by the book 'Mapping Serbia's Labor Market: Assessing Regional Risk and Potential', edited by M. Arandarenko and published in early 2006 by CEVES, Belgrade.

caught in a 'poverty-cum-liquidity trap' (ibid, p. 10), and their incomplete information about job opportunities elsewhere makes moving yet more difficult.

Especially countries experiencing strong growth of GDP seem to go through the widening of regional disparities (Marelli, 2007). There is also some evidence of a trade-off between the GDP and regional dispersion in recent studies analysing spread effects in the EU countries (Davies and Hallet, 2002; Marelli, 2007). The authors show that catching up does indeed tend to be driven by a small number of growth poles, while other regions lag behind, thus leading, almost inevitably, to an increase in regional disparities. This effect appears to be stronger in new EU members of Central and Eastern Europe, where levels of national GDP per capita are well below the EU-15 average. At the early stages of reconstruction and development, the largest share of public investment is usually deliberately focused on the most efficient projects, many of which tend to be located in the national growth poles. On the other hand, lack of investment capital in the depressed regions and fast restructuring of the economy, which produces additional unemployment, are adding to the problem of regional differences in transition economies.

Contrary to the theoretical argument that high wages should compensate for high unemployment, empirical results mostly show a different pattern, closer to wage curve hypothesis, that regions display persistent differences in both earnings and unemployment rates, so that in general regions which have high unemployment also tend to have low wages. Also with reference to other countries, Cameron and Muellbauer (2000) model regional earnings and unemployment in the ten regions of Great Britain and conclude that there is less persistence in British regional earnings differentials but greater persistence in regional unemployment rates. The empirical results are thus somewhat contradicting: there are different reasons for high unemployment in different regions, but there is a higher correlation of unemployment rate with the inherited problems than with the speed of restructuring.

A comprehensive review of the theoretical and empirical literature on regional unemployment during the transition in Central and Eastern Europe (Ferragina and Pastore, 2005) puts the spotlight on the Optimal Speed of Transition (OST) models. In the typical neoclassical model spatial differences essentially arise as a consequence of supply side constraints and institutional rigidities, so that the existence of slow-growth, high-unemployment regions, with backward economic structures constraints the mobility of factors and contribute to the persistency of differences.

However, the neoclassical explanations do not answer the question of how unemployment differences arise in the first place. Economic transition provides a testing ground to answer this question. Starting with the empirical evidence, the OST literature finds that in high unemployment regions the high degree of labour turnover is associated with a high rate of industrial restructuring and, consequently, that lower unemployment may be achieved by implementing transition more gradually. In addition, the success of capital cities in achieving low unemployment, compared to peripheral towns and rural areas, can be explained by international trade, FDI and various agglomeration factors.

Traistaru and Wolf (2004) used employment data at regional level for the period 1990-1999 and applied a shift-share analysis to explain regional employment growth differentials at sectoral level in three transition countries, namely Bulgaria, Romania and Hungary. Comparing examples of regional disparities of employment in different countries, it has been established that there are different patterns, but

that regional variance in employment growth can be explained mostly by region-specific factors. These findings suggest that in promoting regional growth there is no scope for an industrial policy to encourage a general industrial mix. Namely, this suggests the need for regional policy measures to increase employment opportunities and attractiveness in these regions, for instance by upgrading the infrastructure and human capital.

Policy-makers will therefore have to make complex decisions on the spatial allocation of funds and on the overall design of economic development strategies. Experiences from a number of EU countries suggest that facilitating stronger national growth by focusing public investment on growth poles could be advisable only in the early stages of catching up, but in later stages it would be much better to support a more dispersed pattern of economic development (Davies and Hallet, 2002). Although equity considerations may require some policy emphasis on equal regional development, policy-makers should be aware of potential trade-off between national and regional growth. Whenever more equal patterns of regional development are seen as desirable, either on efficiency or on equity grounds, a recommended option for policy-makers would be to direct public investment in basic infrastructure and human capital towards lagging regions. Such a policy should enhance the perspectives for private investment in these regions, by improving market access and productivity, thus advancing a greater dispersion of productive activities. However in practice such forms of intervention are usually reduced by pressures on policy-makers by highly organised lobbies to direct public investment funds to the fast growing regions, in order to reduce bottlenecks in transport infrastructure or lack of skilled labour. But clearly, more detailed studies of each individual case would be needed before any definite policy conclusions could be drawn.

Developing the Regional Development Platform Method (RDPM) as an organisational tool for regional innovation policy, Harmaakorpi and Pekkarinen (2003) emphasise the crucial importance of the individual assessment of each region in building regional innovation policies and strategies. No patent recipes or undisputed best practices for regions can be given due to their strong path dependency on the inherited economic situation. Regional development platforms can be defined as "regional resource configurations based on the past development trajectories but presenting the future potential to produce a competitive advantage existing in the defined resource configurations" (Harmaakorpi and Pekkarinen, 2003, p. 8). This method makes it possible to formulate business potential on which future competitive advantage of a region could be built. The dominating idea has been the importance of individual regional development paths in designing development strategies for regional innovation policy, based on the regional strengths and potentials.

3. Labour market in Serbia

High unemployment is very persistent in Serbia, partly as an inherited problem and partly induced by the prolonged and until 2000 highly irregular transition process. Even in the former Yugoslavia unemployment was a cause of economic emigration and Yugoslavia was the first communist country to allow free emigration in search for jobs since the late 1960s. But unemployment in Serbia rose especially in the last decade, due to disintegration of the country and restructuring of

the economy. Since the democratic changes of October 2000 it has further increased, and the regional differences have enlarged, despite a relatively significant recovery of the economy.

During the early 2000s Serbia has seen significant improvements in terms of political and macroeconomic stability and economic growth. The recent period (2001-2006) can be qualified as rather successful in terms of stable and robust growth. As could be seen from the top rows of Table 1, GDP grew on average over 5% annually in real terms and per capita GDP in euros nearly doubled between 2001 and 2006. High growth rates are also the consequence of low historic output and low starting base levels from the nineties. However, these generally favourable economic trends, although bringing higher wages and improved living standards to the general population, have somewhat surprisingly not translated into greater employment.

The decade of 1990s was characterized by delayed reforms, rather low labour productivity, and persistence of a large number of redundant workers in state and socially-owned companies. During that decade, labour market adjustment took place primarily through wage reductions, rather than layoffs. So the eventual shift in ownership structure that has taken place in recent years has brought significant growth in productivity, but at the cost of poor employment trends.

There are two basic sources of information on key labour market indicators – labour force survey, conducted annually by the Statistical Office, which is the main source of internationally comparable data on labour market status of the population; and administrative registration data, based on formal registration of employees and unemployed with the corresponding institutions. The administrative data imply higher unemployment and lower employment and participation rates than the data based on the survey of the actual economic activity of the population in working age. The difference comes from different definitions of employment, unemployment and participation. While according to economic classification, anyone who has worked for money for at least an hour during the reporting week is counted as employed, administrative classification requires that such person holds a formal job contract. Also, while economic classification requires that a person actively searches for job within the reporting period in order to be classified as unemployed, administrative criteria require only that a person is registered with the National Employment Service. These factors, alongside with some others, account for sharply different economic and administrative labour market indicators as presented in Table 1.

Table 1. GDP growth, economic and administrative labour market indicators in Serbia, 2001-2006

	2001	2002	2003	2004	2005	2006
GDP/capita (EUR at exchange rate)	1757	2242	2408	2643	2833	3424
GDP real growth	5.1	4.5	2.4	9.3	6.3	5.7
Population, 000, mid-year	7503.4	7500.0	7480.6	7463.2	7450	7440
LFS - employed persons, 000, October	3105.6	3000.2	2918.6	2930.8	2733.4	2700
LFS – unemployed, 000, October	432.7	459.6	500.3	665.4	719.9	692.0
LFS – unemployment rate in %, Oct.	12.2	13.3	14.6	18.5	21.8	21.6
Admin. unem. rate in %, end of period (excl. agricultural self-employment)	26.8	29.0	31.7	31.6	32.4	33.2
Admin. unem. rate in %, end of period (incl. agricultural self-employment)				26.4	27.1	28

Sources: EBRD, WIIW, Statistical Office of Serbia.

As expected for a country with sizeable informal employment and accessibility of various social benefits related to registration with the employment services, labour market indicators based on administrative statistics are more unfavourable than those based on economic statistics. Still, since around 2003 there is a trend of convergence of two types of labour market indicators. While administrative data are only slightly worsening, the labour force survey data indicate sharp deterioration of labour market conditions between 2003 and 2005. This is partly due to the adjustment of the LFS methodology in 2004, but also reflects significant job losses associated with the most difficult stage of economic transition.

However, our research on labour market differences across 25 administrative districts of Serbia has had to be based exclusively on administrative data, since LFS is, due to its limited sample size, representative only for three wider regions – Belgrade metropolitan area, Vojvodina and Central Serbia. Table 2 presents the district unemployment rates based on administrative data in the period 2001-2005, as well as these rates relative to corresponding national average yearly rates.

Table 2. Unemployment rates by districts in percentages, and relative to national average, based on administrative data, 2001-2005

	Year	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
	District	Unemployment rates, in %					% of average national unemployment rate				
1	City of Belgrade	20.3	24.7	22.9	21.1	18.9	67	72	63	61	56
2	Severno-bački	32.4	35.8	37.4	34.5	32.6	97	95	97	102	96
3	Srednje-banatski	33.6	38.2	41.6	40.2	38.5	110	112	114	112	115
4	Severno-banatski	33.4	38.6	40.8	36.7	32.4	110	113	112	100	97
5	Južno-banatski	35.3	38.8	39.6	38.0	34.7	116	114	109	108	103
6	Zapadno-bački	33.7	38.6	41.7	39.4	39.3	111	113	114	118	117
7	Južno-bački	30.2	32.1	32.7	28.5	28.2	99	94	90	89	84
8	Sremski	31.7	36.1	39.0	38.3	37.1	114	119	118	124	118
9	Mačvanski	36.8	42.4	45.8	44.3	43.0	121	124	126	134	128
10	Kolubarski	27.5	30.5	33.1	31.6	29.6	87	84	83	81	82
11	Podunavski	29.5	31.8	34.4	32.8	33.5	97	93	94	89	100
12	Braničevski	19.2	21.1	21.6	19.4	19.8	63	62	59	57	59
13	Šumadijski	26.4	30.6	33.0	31.2	30.3	87	90	91	85	90
14	Pomoravski	30.4	33.1	36.8	35.1	28.3	100	97	101	86	84
15	Borski	32.2	35.5	38.2	37.2	35.3	67	81	89	90	89
16	Zaječarski	23.4	27.8	30.8	32.0	32.1	77	82	85	96	94
17	Zlatiborski	35.5	40.3	43.1	41.3	40.3	106	107	106	112	114
18	Moravički	25.7	30.0	31.9	33.5	32.1	84	88	88	104	96
19	Raški	37.7	40.2	43.9	41.8	37.8	124	118	120	114	112
20	Rasinski	30.2	35.4	37.0	34.9	34.2	99	104	102	106	102
21	Nišavski	36.5	38.9	41.9	38.2	32.4	120	114	115	102	96
22	Toplički	35.7	37.7	42.4	41.4	42.9	117	111	116	109	128
23	Pirotski	28.9	29.3	30.4	31.6	31.6	95	86	83	85	94
24	Jablanički	40.0	42.9	43.5	44.0	42.1	131	126	119	124	125
25	Pčinjski	31.1	34.6	38.3	38.2	40.6	102	101	105	112	120

Source: own calculations based on Municipal Survey of Serbia, Statistical Office of Serbia

It can be noticed from Table 2 that unemployment is increasing in almost all the regions, but relatively more in those with higher unemployment level, so the regional differences have not been reduced and the order of regions by the level of unemployment has not changed much (correlation coefficient of regional unemployment rates in the years 2001 and 2005 is 0.818). However, the interval of variation (maximum minus minimum value) has increased somewhat in the observed years, rising from 67% in 2001 to 71% of the sample average in 2005.

Although, as mentioned, the unemployment levels based on the records of National Employment Service are significantly overestimated, the regional differences are found to be very high and widening by use of almost every economic indicator. Therefore, before suggesting the regionally differentiated approach to tackling the unemployment problem in Serbia, we have decided to create methodology which would take these differences into account, so that the advised therapy could depend on the individual diagnosis for each region.

4. Composite indicators for assessing regional labour market differences

Our methodology for the risk assessment of the labour market in Serbia is based on two main principles. First, when estimating labour market risks, it is necessary to take into account a large number of different characteristics. This is not only due to the very complex interrelationships between economic and non-economic factors that determine the labour market situation, but also because of the lack and imperfection of the relevant data in Serbian statistics and use of proxy variables. Second, it is important to compare different regions of the total labour market, taking into account their various characteristics jointly. Therefore, as an instrument of evaluating and ranking the regions using compound criteria, a convenient indicator should be developed, bearing in mind that these factors could have either positive or negative influence on the overall relative position of each region. Such an aggregate measure, that combines complex phenomena with an ability to simplify and merge multifaceted measurements, represents the composite index (CI).²

The relevant sample of observations consisted of 25 administrative regions, or counties, roughly comparable to NUTS 3 regions³. The relative position of each county is represented by a composite index, as a combined indicator of many different but relevant features in assessing labour market risks.

The procedure of CI construction consists of some ten steps.⁴ First, a theoretical framework should be developed to provide the basis for the selection and combination of single indicators (variables). There are basically three levels of indicator groupings: 1) *individual indicator*, as a separate indicator or statistics, 2) *thematic indicator*, when individual indicators are grouped together around a specific feature or theme, and 3) *composite indicator* (or index), when thematic indicators are compiled into a composite index and presented as a single composite measure⁵. We

² The main source for the methodology of constructing composite indices and the evidence of their different uses is the website of the Joint Research Centre of the European Commission and IPSC: http://farmweb.jrc.ec.europa.eu/ci/articles_books.htm

³ Similar analysis was also carried out with 160 municipalities, for which a somewhat different set of indicators was available: Arandarenko (ed.), 2005.

⁴ We are here following the methodology from: Nardo et al., 2005.

⁵ The composite indicator grouping is given as in: Freudenberg, 2003.

have started by defining different characteristics of observations that could be grouped into the following thematic indicators: the general economic situation of the region (A), condition of the labour market (B) and progress in economic restructuring and reforms (C).

Second, the data selection involves collecting individual indicators that correspond to the analytic framework. Their choice is based on their measurability, availability and relevance. Starting with the initial list of relevant labour-market determinants, for each of the theoretical indicators a matching statistical measure was found, depending on the availability of data. For instance, the level of economic activity is measured by GDP *per capita*, and the dynamics of activity by its growth rate. Practically, all available relevant data were used from various sources: Statistical Office, National Employment Service, Government agencies. The final list of indicators (given in Table 1 in the Appendix) included the most recent available data.

The third step is the multivariate – or exploratory - analysis of data, in order to investigate the general features of the indicators, and to check their underlying structure. For instance, there is a risk that certain performance aspects will be double weighted, if two or more indicators assess the same behaviour. As a remedy, indicators should be tested for correlation⁶. For this reason, we have eliminated several redundant measures in order to create a set of 'equally important' factors (for instance, in the presence of unemployment rate, unemployment rate for women appeared to be superfluous).⁷ Both the principle of parsimony (avoiding double counting) and exhaustiveness (including maximum of independent information) were employed.

We ended up with 21 indicators: GNP per capita in 2003 (in dinars); Index of GDP per capita, 2003/2001; Share of non-agricultural population; Diversification measure (% share of the main industry in total employment); Share of private sector in total GDP; Foreign direct investment by September 2005 per capita; Urban agglomeration index (share of county's in total urban population); Index of share of regional in total assets 2003/2001; Illiteracy rate; Share of youth (under 18) in total population; Unemployment rate in 2004; Index of unemployment 2004/2001; Participation rate in 2004; Average unemployment duration in 2004; Share of long term unemployment (over one year); Average wage in 2004 per employee (in dinars); Index of average wage 2004/2001; Ratio of job vacancies to unemployment in 2004; Share of the employed population in non-private sector; Share of labour force with completed higher education; Share of labour force with completed primary school or less. As would be expected, almost all the indicators are relative, but as seen from Table 1 in the Appendix, they still need standardisation.

In the fourth step, data should be corrected if necessary by imputing the missing values and by examining the extreme values in order to eliminate unintended benchmarks. In our case, it was important to decide which individual indicators should be summed up with a positive and which ones with a negative sign in the CI. Identifying the sign is a matter-of-fact activity, which is based both on previous experience and the current analysis of the available data set. Thus we made double checks, using the survey among the team members and the results of multivariate

⁶ According to Freudenber, 2003, §23, p. 10.

⁷ In the preliminary multivariate analysis we have used correlation and regression analyses, with the unemployment rate and per capita GDP as dependent variables, to examine the highest mutually dependent indicators and their individual importance to the general and labour market situation.

analysis. The signs and the grouping of individual indicators are given in Table 1 of the Appendix.

The fifth stage of the process deals with the normalisation of data in order to make them comparable. This is done either by ranking, standardisation, or rescaling the data. We have chosen to standardise all data (by dividing the difference from the sample mean by standard deviation). In that way, all the standardised indicators have the same (zero) mean and the same (unit) average variation around the mean. Moreover, any sum of such indicators will also have a zero average value in the sample. Thus any CI, containing any number of standardised indicators, can be easily interpreted as a positive or a negative discrepancy from the average value for the Republic.

The sixth phase consists of weighting and aggregating the individual indicators. In addition to the implicit weights introduced during scaling, explicit weights may be introduced during aggregation. The aim is for the weights to reflect the relative importance of each of the variables and/or components.⁸ However, the first option is to use equal weights.⁹ In choosing this option, two points were taken into account. First, in most of the empirical applications of weights, there exists an inconsistency between the theoretical meaning of weights and the meaning that is attributed to them by standard practice.¹⁰ Secondly, different numbers of individual indicators in each of the thematic indicators A, B, C (5, 9, 7) practically designate their supposed relative importance and their relative weights in the total CI, as shown in Table 2 of the Appendix. Table 3 of the Appendix shows the descriptive statistics of thematic indicators based on standardised variables. It is interesting to note that, of all thematic indicators, the indicator of reconstruction and reforms (C) shows the most uniform distribution among counties,¹¹ while the general (inherited) economic conditions (A) show the largest diversification (measured by average interval of variation).

In the seventh step, the analysis of the robustness and sensitivity of CI, we computed correlation coefficients of the thematic indicators and the total composite indicator (given in Table 4 in the Appendix). From the correlation coefficients, it appears that CI mostly mirrors the situation in the labour market (as was preferable), to a somewhat lesser degree it reflects the changes in the reforms, and finally the general economic state inherited from the past.

The next, eighth stage, usually requires that the calculated CI be validated externally, with respect to some other published indicator or assessment. In Table 5 in the Appendix, characteristics of our constructed CI are given, showing that a large number of variables have been used in its construction. In our study¹² we used SWOT analysis to compare estimates for six pilot counties and the equivalence of the results was quite satisfactory.

The ninth step should allow decomposition of the composite into individual parts. Composite indices should be made transparent and easily related to their

⁸ More on that in: Booyesen, 2002.

⁹ In linear additive aggregation technique, a necessary and sufficient condition for the existence of a proper composite indicator is preference independence, a condition rather difficult to meet in practice. The previous step partly serves to test its realisation. See: Nardo et al., 2005, p. 76.

¹⁰ This issue is discussed in: Munda and Nardo, 2006.

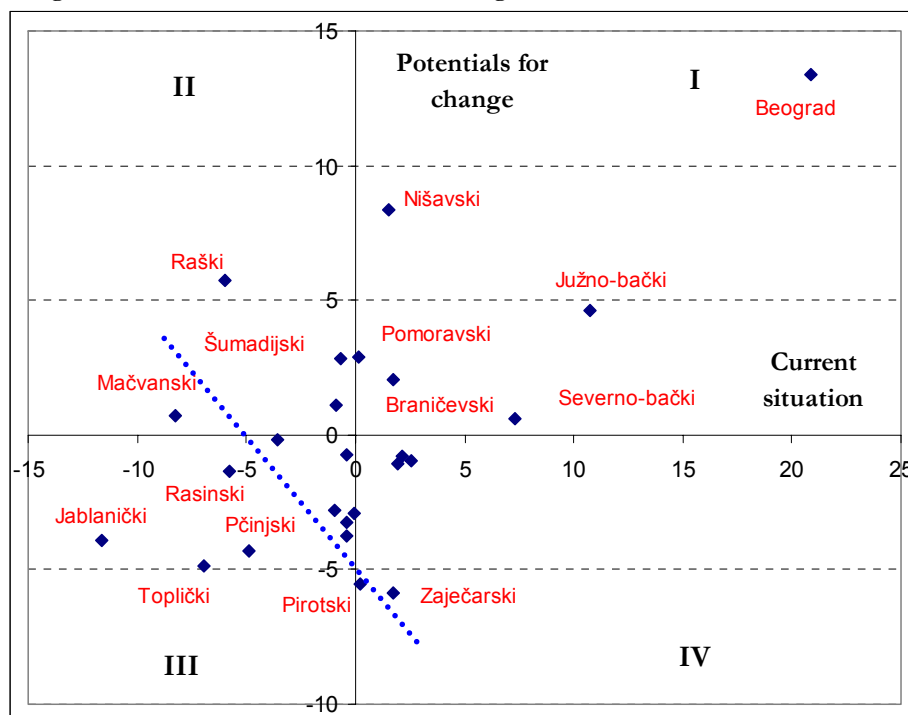
¹¹ According to the lowest coefficient of kurtosis (or absence of peakedness) in Table 3 of the Appendix.

¹² Arandarenko (ed.), 2005.

subcomponents (underlying indicators or values). For instance, a convenient decomposition of our constructed composite indicator for all 25 counties around the average value of 100 can be made in its three thematic indicators, as graphically presented by Figure 1 in the Appendix. In order to set the average value of CI equal to 100 (instead of zero), individual values for all the observations were linearly transformed by adding 33.333. Such a transformation does not change the structure of CI or the correlations of its components. From the figure it is obvious that there are 11 regions above and 14 regions below the average of the Republic. It is also apparent that all three thematic indicators are highly correlated and that the CI indicates the worst relative position for the regions: 24, 22, 25, 9, 20 and 23.

The final, tenth phase, of the procedure requires adequate presentation, or visualisation of the results, so that their interpretation and usage become easier. One way in which the CI and its components can be presented is shown in Figure 1A and Table 6A of the Appendix. Starting with the idea that, for the construction of the well-being index: "both present and future command over resources are relevant to current economic well-being",¹³ we have decided to present our CI estimates two-dimensionally. In Figure 1, the estimated relative positions for the 25 Serbian regions are displayed in a coordinate system where the axes represent the two components of the total composite indicator: X=group of the inherited and current situation conditions (consisting of 10 static variable factors), Y=group of potentials for positive change (consisting of 11 dynamic-condition variables).

Figure 1. Two-dimensional classification of regions



Legend: The first quadrant: positive both components (leading regions); the second: negative levels, but positive dynamic factors (catching up); the third: negative both components (falling further behind); the fourth: positive levels but negative dynamic indicators (losing momentum).

¹³ Osberg and Sharpe, 2006, p. 13

This type of presentation not only enables an easier comparison of the regions two-dimensionally, but also makes it possible to create a taxonomy of the regions. This allows us to define a typical set of policy recommendations for the established groups. Using current levels on one, and trends on the other axis, four groups of observations can be distinguished¹⁴, corresponding to the four quadrants: I: Moving ahead, II: Catching up, III: Falling further behind, IV: Losing momentum. Below the dotted line are six most vulnerable regions, the below-average observations for all negative CI values.

5. Principal results and policy implications

The primary policy objective of this research is to map out the situation and prospects of the Serbian regional labour markets and to provide more information to those in charge of employment and labour market policy creation and implementation. Furthermore, we wanted to set up a relatively simple monitoring instrument which could be maintained in the long run ideally by the analysts within the public service. We have created probably the most comprehensive labour market database on Serbian regions so far and tried to design the methodology that would utilize to the fullest possible extent any information available.

Our approach to causes of unemployment and regional labour market differences in general is multifaceted. Labour market is not a detached, autonomous section of economic life; rather, it reflects and impacts the structural and dynamic characteristics of an economy as a whole. Therefore, in trying to explain and monitor processes on the labour market in regional perspective, we look at the wide number of general economic factors and trends alongside with standard labour market indicators.

Consistent with the previous assumption, we look for a wide mix of policy remedies to the unemployment problem, accepting a wider framework of 'employment policy', of which 'labour market policy', and within it, 'active labour market policy' is only a part.

Employment policy encompasses all policy fields that directly or indirectly affect the employment of labour as a factor of production. It includes fiscal policy (taxes, subsidies, public investment), monetary policy (interest rates, money supply) and exchange-rate policy, wage policy and foreign trade policy, which are primarily regulative and macroeconomic spheres of economic policy. It also includes the sectoral policy spheres of education/training policy, social policy, industrial policy, agricultural policy, trade policy, as well as regional policy and the policies for small and medium enterprise promotion.

Labour market policy, on the other hand, comprises only labour market legislation, passive labour market policy and active labour market policy (Kausch, 2002). Labour market legislation sets the stage for the functioning of labour market; active labour market policy assists unemployed people to find new jobs; while passive measures support them during the unemployment spell. Since our main concern is alleviating regional labour markets differences, we focus our attention more on sectoral employment policy and, within it, on active labour market policy.

¹⁴ The terminology according to: Nardo et al., 2005, p. 30.

Active labour market programs are usually classified into three main categories:

1. Employment services fulfil brokerage functions, matching available jobs with job seekers. This assistance includes initial profiling interviews at employment offices, continuous counselling during an unemployment spell, job clubs, labour exchanges etc.
2. Labour Market Training is concerned with either developing basic job readiness or has specific vocational skill content.
3. Job creation programs are divided into three subcategories:
 - wage/employment subsidies,
 - public works, and
 - micro-enterprise development/self-employment assistance.

Wage/employment subsidies usually take the form of direct wage subsidies or social security payment offsets. These programs are typically targeted to the long-term unemployed, areas/sectors with high unemployment, and special groups of workers (e.g. youth). Public works (also known as temporary community programs, labour-intensive projects and workfare) are expected to alleviate unemployment or short term poverty by creating temporary jobs for disadvantaged, poor, and long-term unemployed workers to regain contact with the labour market. Finally, micro-enterprise development and self-employment assistance usually provide financial and advisory support for start-up, 'incubator' services, or subsidizing operating costs of small businesses (Betcherman, Olivas and Dar, 2004).

According to the results of our analysis of composite indices that combine indicators measuring the relative labour market situation, there are 17 districts with a negative composite index of group B: Labour market conditions, and only 8 with a positive (above average) value of this index. Counting the average of the negative indices, we receive, by ascending order, from the lowest (negative) index on, the following: Jablanički, Mačvanski, Rasinski, Toplički, Raški, Zlatiborski. These are, roughly, a quarter of districts with the worst indicators in the group of labour market conditions, thus undoubtedly in need of active labour market programs on a larger scale.

Turning to the causes of these symptoms, we can attempt to develop a set of remedies for each specific situation in practice, according to the primary objectives which are defined for the district, in view of its overall economic situation and its relative integration in the national economy.

Following a recent worldwide synthesis (Betcherman, Olivas and Dar, 2004), Table 3 summarizes objectives, symptoms and cures in various types of general economic and labour market deficiencies, and tries to find the 'closest fits' for the recommended measures and policy interventions among the regions analyzed in our survey. Given that the number of individual symptoms (limited only by the number of individual indicators available) and their potential economically meaningful groupings is quite large, the table below is clearly only an illustrative, non-exhaustive list.

Table 3. Tailoring employment policies and active labour market programs to objectives in regional perspective

<i>Objective</i>	<i>Symptoms</i>	<i>Cures</i>	<i>Sample regions</i>
Support investment in underdeveloped regions	Low GDP Lack of FDI	Infrastructure development; Create additional incentives to investors	Jablanički Pčinjski Raški Toplički
Moderate cyclical and transitional downturns	Significant worsening of dynamic indicators	Direct job creation; Wage subsidies; Training and retraining; Self-employment support; Support labour force mobility	Moravički Borski
Reduce structural labour market imbalances	High vacancy rate coupled with high unemployment	Revise school infrastructure and courses; Strengthen employment services; Training and retraining; Support labour force mobility	Zapadno-bački Severno-bački
Support disadvantaged or at-risk workers	Widespread long term unemployment; Higher concentration of Roma workers	Employment services (counselling, job search assistance); Wage subsidies; Public works	Raški Jablanički
Improve general labour market functioning	Below average labour market indicators	Employment services; Training (e.g. apprenticeship, school to work transition)	Jablanički Mačvanski
Enhance skills and productivity	Low educational level of labour force; Employment crowded in labour intensive sectors	Training and retraining	Braničevski Mačvanski
Improve demographic prospects	Low share of youth under 18 in total population	Improve educational infrastructure; Undertake area revitalisation projects	Zaječarski Pirotski

In view of the classification of the regions based on our research, we can basically distinguish between three types of labour market situation which need active policy measures in order to reduce the differences in labour market risk across the regions and to improve the overall labour market situation. All of these three groups of regions show different drawbacks, require differentiated approach to identification of their primary objectives, and thus the use of different specific sets of policy measures. A simplified regional approach to active labour market policy treatment, based on the established variety of labour market risks in Serbia, is presented by the Table 4 (regions are ordered by the level of their vulnerability).

Table 4. Tailoring employment policies and active labour market programs to objectives in regional perspective using the designed taxonomy of regions

<i>Objective</i>	<i>Symptoms</i>	<i>Cures (policy mix)</i>	<i>Sample regions</i>
Assist the regions hardest hit by transitional recession	Quadrant 2 regions: Negative or below average GDP growth combined with the above average unemployment rate growth	<ul style="list-style-type: none"> • Improve social services delivery • Strengthen employment assistance • Support SME and self-employment programs • Transform severance payments into re-employment incentives • Wage subsidies • Retraining programs • Public works • Temporary mobility programs 	Mačvanski Raški Sremski Šumadijski
Assist the regions lagging behind in economic restructuring	Quadrant 4 regions: position caused by low inflow of FDIs, high share of social ownership, below average wage growth and insufficient economic diversification	<ul style="list-style-type: none"> • Prioritize completion of restructuring and privatization • SME and self-employment programs • Transform severance payments into re-employment incentives • Strengthen employment services • Training and retraining programs • Strengthen educational network 	Zaječarski Pirotski Južno-banatski Borski
Assist the traditionally under-developed regions	Quadrant 3 regions: characterized by low GDP, high unemployment, low general educational level and poor demographic situation	<ul style="list-style-type: none"> • Invest in physical infrastructure • Build industrial parks • Support tourism development, crafts and healthy food production • Improve education coverage, establish new programs • Training programs • Adult literacy programs • Public works programs • Workfare programs 	Toplički Pčinjski Jablanički Rasinski

6. Conclusions

In this paper we argue that the optimal results in fighting unemployment in Serbia would be achieved if a differentiated approach to regional labour markets is adopted, resulting in regionally specific employment policies.

While there is a clear and expected geographical divide between (traditionally developed) predominantly northern and central-north regions concentrated in the first quadrant and (traditionally underdeveloped) mostly southern and eastern regions concentrated in the third quadrant, such a pattern cannot be established for the regions belonging to the second and fourth quadrants, labelled here as 'catching up' and 'losing momentum', respectively. The former finding seems to confirm the dominant role of 'inertia' factors if the regional differences are very pronounced; but

the latter also shows that performance during the transition can significantly improve a region's relative position.

We think that it is of crucial importance to simultaneously deal with both 'inertia' and 'transitional' sources of regional inequalities. Some recent Government's economic and labour market policy decisions appear to recognize this recommendation. 'Inertia' differences are being addressed by the positive discrimination of underdeveloped regions within a very ambitious National Investment Plan, aimed at large infrastructure projects, worth over 1.5 billion Euros, to be implemented in the forthcoming 4 years. 'Transitional' differences, on the other hand, are being addressed by the repeatedly declared political will to complete, by now unevenly regionally advanced, process of privatization of socially owned firms by the end of 2008. The real challenge, still, remains to tailor and sequence the completion of privatization in Serbia, large development projects and specific policy measures recommended above in a manner which would decisively contribute to reducing the regional labour market gaps.

Of course, the suggested regionally differentiated policy framework should be seen not as an exclusive set of measures, but rather as complementary to nation-wide employment policy and active labour market programs.

It should be noted at the end that we consider our framework for regional labour market analysis as an early work-in-progress. Tightening the methodology and enriching the database appears as a natural next step. A generalized analysis of the features of regional socio-economic development based on our methodology would be a more ambitious and perhaps more exciting endeavour.

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Appendix

Table 1A. The final list of individual indicators for counties in Serbia

Indicator	aspect	sign	group	mean	st.dev.
GNP per capita in 2003 (dinars, current prices)	1	plus	A	74579.32	26439.51
Share of non-agricultural population (in %)	1	plus	A	87.01	5.63
Illiteracy rate (%)	1	minus	A	4.38	2.16
Urban agglomeration measure (share of the county in total urban population, in %)	1	plus	A	4.00	5.73
Index of GDP <i>per capita</i> , 2003/2001 (%, current prices)	2	plus	A	140.22	31.41
Unemployment rate in 2004 (%)	1	minus	B	34.88	6.47
Participation rate in 2004 (%)	1	plus	B	53.59	5.58
Average unemployment duration in 2004, in months	1	minus	B	49.67	8.22
Share of long term (over one year) in total unemployment, in %	1	minus	B	70.24	5.74
Average wage 2004, per employed (dinars)	1	plus	B	12308.92	2282.01
Job vacancy to unemployed ratio in 2004	1	plus	B	0.52	0.22
Share of youth (under 18) in total population (%)	2	plus	B	19.67	1.98
Share of LF members with higher education (%)	2	plus	B	7.95	3.23
Share of LF with primary school or less (%)	2	minus	B	37.48	8.76
Diversification of production (share of main industry in total employment, %)	2	minus	C	36.67	9.35
Share of private sector in total GDP (%)	2	plus	C	53.66	12.99
Index of unemployment 2004/2001 (%)	2	minus	C	115.28	14.63
Index of average wage 2004/2001, current prices	2	plus	C	230.49	23.46
Index of share of regional in total assets, 2003/2001	2	plus	C	97.72	9.98
Foreign direct investment by September 2005, per capita, USD	2	plus	C	215.46	311.89
Share of employed in non-private sector (%)	2	minus	C	34.29	11.98

Table 2A. Relative weights of different thematic indicators in the total composite index

Groups of indicators	Number of variables	% share	Approximate share
general economic conditions (A)	5	24	1/4
labour market situation (B)	9	43	3/7
restructuring and reforms (C)	7	33	1/3
Total (CI)	21	100	1

Table 3A. Descriptive statistics of the composite index (CI) and its components

	CI	A	B	C	SITUATION	PROSPECTS
Mean	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Median	-0.6639	-0.2541	-0.5206	-0.2597	-0.3910	-0.5444
Maximum	34.4698	11.8890	16.5661	6.5856	20.8705	13.5994
Minimum	-15.5884	-4.2570	-7.9607	-6.3291	-11.6410	-6.1916
Std. Dev.	9.8165	3.3829	4.9191	3.1288	6.4144	4.6156
Skewness	1.7458	1.7946	1.6345	0.1361	1.2418	1.1547
Kurtosis	7.3687	7.2847	6.7733	2.7878	6.0087	4.3721
No. of var's	21	5	9	7	10	11
Jarque-Bera	32.5797	32.5428	25.9627	0.1241	15.8546	7.5164
Probability	0.0000	0.0000	0.0000	0.9398	0.0004	0.0233
Sum	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sum Sq. Dev.	2312.709	274.6535	580.7400	234.9477	987.4553	511.2844
Observations	25	25	25	25	25	25

Table 4A. Correlation matrix of the total composite indicator (TOTAL) and its components

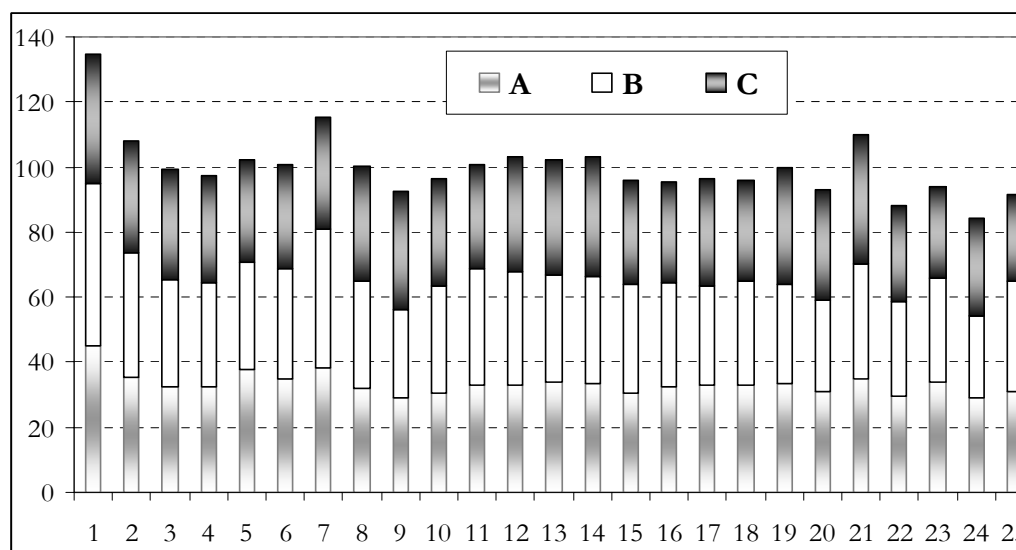
	TOTAL	SITUATION	PROSPECTS	GENERAL	LABMKT	REFORMS
TOTAL	1.0000	0.9227	0.8445	0.9155	0.9324	0.6817
SITUATION	0.9227	1.0000	0.5728	0.8966	0.9598	0.4166
PROSPECTS	0.8445	0.5728	1.0000	0.7010	0.6492	0.8709
GENERAL	0.9155	0.8966	0.7010	1.0000	0.8605	0.4382
LABMKT	0.9324	0.9598	0.6492	0.8605	1.0000	0.4229
REFORMS	0.6817	0.4166	0.8709	0.4382	0.4229	1.0000

Table 5A. Characteristics of the employed composite indicator*

Number of variables	Selection method	Scaling method	Weighting method	Aggregate format	Observation coverage
21	backward elimination	standardisation	equal weights	additive	25

* Characteristics defined according to Booyen, 2003.

Figure 1A. Decomposition of the composite indicator



Legend: component A=general economic condition; B=labour market conditions, C=reforms and reconstruction. For visualisation of the structure, all values were linearly transformed by adding 33.333. The average value of the composite index thus becomes 100 instead of 0.

Table 6A. Composite indices and their components for the 25 observations

		CI	SITUATION	PROSPECTS	A	B	C
1	City of Belgrade	34.4698	20.8705	13.5994	11.8890	16.5661	6.0147
2	Severno-bački	7.9185	7.2903	0.6282	2.0209	5.1006	0.7970
3	Sred.-banatski	-0.6639	-0.3910	-0.2729	-0.8852	-0.3636	0.5850
4	Sev.-banatski	-2.7162	-0.0693	-2.6469	-0.8143	-1.6422	-0.2597
5	Južno-banatski	2.0334	2.5779	-0.5444	4.6560	-0.5206	-2.1020
6	Žapadno-bački	0.7934	1.9165	-1.1231	1.3936	0.5326	-1.1327
7	Južno-bački	15.4836	10.7162	4.7674	4.7784	9.6276	1.0776
8	Sremski	0.1129	-0.9193	1.0322	-1.2477	-0.6311	1.9917
9	Mačvanski	-7.7123	-8.2744	0.5621	-4.1235	-6.1749	2.5860
10	Kolubarski	-3.5488	-0.4168	-3.1320	-2.9666	-0.3129	-0.2694
11	Podunavski	0.8112	2.1463	-1.3351	-0.5241	2.5255	-1.1902
12	Brańičevski	3.3806	1.7081	1.6725	-0.1700	1.4273	2.1233
13	Šumadijski	2.3073	-0.6607	2.9680	0.7937	-0.7885	2.3021
14	Pomoravski	2.9848	0.1609	2.8239	-0.0245	-0.4523	3.4617
15	Borski	-4.3083	-0.9747	-3.3337	-2.7449	-0.0658	-1.4977
16	Zaječarski	-4.4298	1.7618	-6.1916	-1.0789	-1.0772	-2.2738
17	Zlatiborski	-3.8108	-3.5445	-0.2663	-0.2541	-2.7825	-0.7741
18	Moravički	-4.1897	-0.4090	-3.7808	-0.1963	-1.3522	-2.6412
19	Raški	-0.1768	-6.0006	5.8238	0.0215	-2.9543	2.7560
20	Rasinski	-7.1660	-5.7620	-1.4039	-2.3625	-5.1842	0.3807
21	Nišavski	10.0712	1.5067	8.5645	1.3488	2.1368	6.5856
22	Toplički	-11.9325	-6.9565	-4.9761	-3.6166	-4.4083	-3.9076
23	Pirotski	-5.8544	0.2350	-6.0895	0.6457	-1.5868	-4.9133
24	Jablanički	-15.5884	-11.6410	-3.9474	-4.2570	-7.9607	-3.3707
25	Pčinjski	-8.2690	-4.8706	-3.3984	-2.2814	0.3415	-6.3291