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Possibilities of Monitoring Unemployment in the NES by using Unemployment Dynamics Measures

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Keywords: labour market indicators, activity rate, employment rate, unemployment rate, par measures.

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Possibilities of Monitoring Unemployment in the NES by using Unemployment Dynamics Measures

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Abstract- Employment and unemployment are important subjects that draw attention to participants in economic occurrences of all countries. Monitoring of their dynamics attracts particular attention of the public in transitional countries. Due to numerous particularities accompanying transition, labour market problems in Serbia will continue being the main concern of various economic analyses for a long time. Information on labour market movements is collected and published by the National Employment Service (NES) and the Statistical Office of the Republic of Serbia (SORS).

NES gathers and analyzes statistical data from the field of unemployment and employment. Statistical reports of the NES are one of the sources on which basis analysing and monitoring occurrences and tendencies/movements of unemployment and employment in the labour market, their interdependence and relation are performed. They also represent one of the bases for creation and guidance of the Active Employment Policy programme and improvement of unemployment reduction measures. At the same time, SORS gathers data and publishes the "Labour Force Survey", which is a research that provides the most comprehensive view on labour force characteristics and labour market occurrences. SORS studies are conducted by applying methodological solutions that are adjusted to recommendations and standards of the International Labour Organization – ILO and requirements of EUROSTAT (European Statistical Office), thus providing the most important source for international comparison of labour statistics data of the Republic of Serbia with other countries. Non-compliance of authority of those involved in gathering, analysing and publishing data from the labour market, as well as the scope, type and dynamics of research, points out to the need to apply a unified system solution at national level.

Analyses made by NES and SORS cover a wide range of labour market indicators (activity rate, employment rate, unemployment rate, average unemployment duration by socio-economic features and effects of active employment policy measures, participation of long-term unemployed, etc.) needed for implementation of EU Guidelines on Employment and showing state of the labour market in the period observed. These indicators, however, do not provide more precise answers to the questions related to structural changes on the labour market. Answers to such questions can be obtained by measuring unemployment dynamics, using, above all, PAR measures (population at risk unemployment rates).

This paper supports the idea to expand the scope of labour market dynamics indicators, since PAR measures have been followed up and analyzed in other countries' employment services for quite some time.

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Keywords: labour market indicators, activity rate, employment rate, unemployment rate, par measures.

I. Introduction

The last two decades led to great changes in the political circumstances in Europe, which resulted in creation of new economic terms in the countries involved in the process of transition. Unfortunately, the term transition is now being often used with negative connotations and related to the burden of unemployment as the biggest consequence of adjusting to new market conditions. The major part of Central and Eastern Europe countries has faced similar problems while going through transition from socialism to market economy and has experienced similar situations on the labour market.

At the beginning of the transitional process the private sector reacted slowly to newly arisen changes and it was likewise slow in creating new jobs. The labour force, therefore, changed its direction towards services with low level of productivity and agriculture for its own needs, which, together with accumulation of labour force within enterprises, acted like a shock-absorber to emerged shocks.

Other common characteristics of labour market performances in the countries of Central and Eastern Europe include: a) increase of unemployment which exceeds the rate of EU and OECD countries to a large extent; b) high percentage of long-term unemployment and constant increase of the average period of unemployment; c) high level of youth unemployment often combined with a lower level of youth participation; d) high unemployment rate of workers with secondary education degree or with lower level of education; and e) problem of great regional disparity in unemployment within each country.

Unemployment is one of the main features of the modern labour market, especially in the countries in transition. According to ILO definition, unemployment covers all persons older than the age limit determined to measure economically active population, which, during the reference period, were: a) without a job; b) available to work in any time; and c) searching for a job, i.e. undertaking certain steps with the aim to find a job.

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Unemployment is similarly defined in our country. Unemployed is a person between 15 and 65 years of age, capable and willing to start working immediately, who did not enter into employment or otherwise exercised his/her right to work and is entered into unemployment register and is actively seeking a job. Active job seeking means that the person: a) contacts NES within deadlines stipulated by the law, for the purpose of obtaining information on possibilities and terms of employment and mediation in employment; b) does not refuse offered jobs or additional education and training; c) responds to announced vacancy; and d) seeks employment through NES or Employment Agency or contacts employer directly for the job. Unemployed person is not a pupil, student, retired person, farmer engaged in agriculture, or a person with employment rights suspending (Law on Employment and Unemployment Insurance, the Official Gazette of the Republic of Serbia, no. 71/03 and no.84/04).

One of the priority tasks of the European economy is to fight unemployment and encourage economic growth of the EU in order to create possibilities for new jobs. This European strategic goal was established in the Lisbon Conference in 2000. In accordance with strategic orientation of our country towards EU integration, the Government of the Republic of Serbia adopted the National Employment Strategy for the period 2005-2010. based on the European Employment Strategy. The National Employment Strategy defines the need to increase employment, invest in human capital, reduce differences between regional labour markets, support gender equality and fight against discrimination in employment.

Measures and activities for implementation of the National Employment Strategy are set forth in the National Employment Action Plan (NEAP) for 2006-2008. Together with other strategic papers adopted by the Government, the NEAP forms part of a broader complementary strategy and action plan where the employment area is observed in the context of sustainable economic growth and development. NEAP helps in creation of conditions for a balanced approach to all issues related to labour market operation and giving priority to those most important in this domain. In this period the following activities are singled out as priorities: creation of a flexible and competitive labour market, creation of efficient programmes for employment of redundant workers, development of programmes for employment of vulnerable and sensitive groups, establishment of regional local employment councils and continuation of NES reform.

II. Unemployment Data Sources

Serbia has a relatively high unemployment, which appears in two basic forms: a) real unemployment represented by the number of job seekers registered with NES; and b) hidden unemployment, i.e. redundancy. Problem of analysing unemployment has several layers and covers different aspect of the analysis: a) collecting standard labour statistic data open to public; b) analysis of micro-data from detailed internal work reports aimed at measuring non-standard and marginal forms of unemployment; c) defining alternative forms of employment and unemployment.

Two data sources are used to observe real unemployment: a) NES, which registers unemployed people as job seekers and b) Labour Force Survey (LFS) conducted once a year by the Statistical Office of the Republic of Serbia (SORS). Both sources have their advantages and limitations.

NES keeps record on persons seeking a job by their unique personal identification number, in accordance with the Law on Record Keeping in the Field of Labour (Official Gazette of the Federal Republic of Yugoslavia, no. 46/96) and the Decision on unique methodological principles for record keeping in the field of labour and registration and report forms (Official Gazette of the FRY, no.40/97). Persons are personally registered by the place of residence or place of employment termination if having residence in that place.

Unemployed persons are not legally bound to contact NES for registration in case of their unemployment. If, however, persons are registered as unemployed, they are bound to contact this service personally within deadlines set forth by the law. Should they fail to perform their obligations towards NES they are deleted from the register (e.g. a person does not contact or does not answer the call from NES within time period set by the law, fails to submit evidence on active job seeking, etc.). Persons deleted from the register are entitled to reregistration upon termination of registration suspension (at least three months from the date of record keeping seizure).

When being reentered into the register, the time of waiting for employment is counted from the date of last entering. NES keeps records on the unemployed by their age, sex, level and type of educational qualification, occupation, work experience, place of residence, economic status, period of unemployment, working capability and reason for termination of employment, thus having available a big data base.

Advantages of this source are: simplicity, low costs of data collection and data availability. Limitations are that this service registers only the unemployed, but not the total labour force. Furthermore, some persons register not to seek a job but to achieve certain benefits (e.g. financial compensation, free of charge training), while others who meet all unemployment criteria are not registered with NES because they look for a job independently. Due to different regulations in certain countries this data often cannot be mutually compared,

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neither can data in one country from different periods due to regulation changes.

Labour Force Survey gathers data on unemployment at national level in accordance with ILO standards. The main advantage of this method is that data is gathered pursuant to the international standards, so it can be mutually compared. However, comparability is not always possible and complete due to different elements used in surveys and different setting out of criteria for job search activity. Main drawbacks of this way of data collection are technical, methodological and statistical problems of samples, reliability of respondents' response, difficulties in interpreting changes in the unemployment rate, etc. Besides, the procedure incurs large expenses, and data is available only in the moment of review.

Different sources of data on unemployment are used in different countries. Some countries pay more attention to data from the Labour Force Survey (Australia, Italy, Japan, Canada, Portugal, USA, Great Britain), others use only information from registers (Island, Luxemburg, Switzerland), while a great number of them uses data from both sources at the same time (Austria, Belgium, Ireland, Denmark, Finland, Greece, Netherlands, Germany, Spain, Turkey). Beside data from the register France also uses assessments, while Great Britain also uses unemployed compensation register.

Data from both sources are used in our country. The problem is that data on unemployment from these two sources are substantially different. These differences are particularly marked because of unstable conditions of the labour market and different determination of certain categories. For instance, the rate of registered unemployment for 2006. is much higher according to NES data (28.05%) than in LFS (21.6%) because of different definitions of employment and unemployment. Those with undeclared work are considered employed persons in LFS, while NES also enters into register those who register only to exercise certain rights.

These differences in data show, among other, the need to examine the register of job seekers with NES. Register needs particular analysis in terms of unemployment period of the unemployed and his/her interest in employment and professional training, especially of those unemployed who are registered with NES for more than two years. For instance, data show that adoption of the new Law on Health Insurance (Official Gazette of the RS, no. 107/05) and the Law on Health Protection (Official Gazette of the RS, no. 107/05), which envisage a new way of regulation documentation on health insurance, resulted in a decrease of the number of registered unemployed in Belgrade (from 140,283 registered at the end of January to 129,911 registered at the end of April 2007.). Regular registration of employment of seasonal workers and their deletion from the register during their employment also needs to be provided. In that case the number of unemployed should decrease in the period from May to October, as it is the case in other countries.

Gathering data on labour market and its analysis are aimed at increasing competitiveness and employability of the labour force, because modern economic conditions require constant development of the labour force that should enable dynamic and sustainable development of economy based on knowledge and research integration, entrepreneurship and life-long education and learning. Constant changes in the way of work and adoption of new technologies have affected labour market requirements for the workers to adopt new knowledge and skills, and to develop capabilities to adjust to constantly changing environment. These changes related to labour force's knowledge and skills impose the need for simultaneous change of work methodology in selection of candidates for announced jobs. Entry of unemployed persons into long-term unemployment would have great impact on the possibility of their reemployment, because instead of a selection by social or formal criteria what now is more and more required is the selection of workers by their knwoledge and skills needed for successful performance of tasks and activities, including also development of transferrable skills like team work, communication, problem solving, etc.

III. Unemployment Features in Serbia

Transition flow has so far been characterised by a constant increase of unemployment as a result of dismissing labour from social enterprises that went through the process of restructuring and privatisation. The basic characteristics of the labour market in Serbia are: a) low participation rate of young people (15-24 years of age) of 37.4%, in comparison to EU and OSCE member countries (around 50%); b) participation rate of elder (55-64 years of age) of 36.1%, which exceeds the participation rate of the same category of population in other countries in transition (around 30%); c) youth unemployment rate (15-24 years of age) is much higher than the total unemployment rate and amounts to 47.8%. According to LFS (Table 1) unemployment of people of 15-64 years of age amounted to 21.6% in October 2006. The structure of unemployed in 2006. was dominated by long-term unemployed and young people. The total unemployment is dominated by participation of persons of 15-24 years of age (24.4%), with a positive tendency to decrease participation of persons of 25-29 years of age from 17.9% in 2005. to 14.6% in 2006.

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Table 1 : Structure of unemployed by age

	Unemployed			Participation in unemployment		
	2004	2005	2006	2004	2005	2006
15-24	169,246	165,668	169,139	25.5%	23.0%	24.4%
25-54	459,192	514,878	488,450	69.2%	71.6%	70.6%
55-64	35,563	38,227	30,040	5.4%	5.3%	4.3%
Total	664,001	718,773	691,877			

Source : Ministry of Finance (March 2007.), Public finances bulletin, Republic of Serbia,data from SORS (LFS, according to ILO methodology principles)

Employment rate of women in Serbia is 18.6% lower than the same rate of men and amounted to 40.6% in 2006. At the same time, unemployment rate of women is 6.9% higher than the same rate of men in 2006. (Table 2).

Table 2 : Labour market indicators, population of 15-64 years of age

	2004			2005			2006		
	T	M	W	T	M	W	T	M	W
Participation rate	66.4	75.1	57.9	65.2	74.3	56.2	63.6	72.7	54.5
Employment rate	53.4	63.1	44.0	51.0	61.2	40.8	49.9	59.2	40.6
Unemployment rate	19.5	15.9	24.1	21.8	17.6	27.4	21.6	18.6	25.5
Long-term unemployment	77.5	75.7	79.0	79.0	78.4	79.6	80.6	76.7	84.3

Source : Ministry of Finance (March 2007.), Public finances bulletin, Republic of Serbia (data from SORS), abbreviations: T-total, M-men, W-women

Employment rate in 2006. was reduced for 1.1% in comparison to 2005., amounting to 49.9%. This labour market indicator is still unfavourable because it is much lower than the Lisbon standard of 70%. Labour force market in Serbia is characterised by a high participation of long-term unemployment which in 2006. reached 80.6% of the total number of unemployed. But taking into account main components of the hidden employment (on the basis of registered number of employed in construction, research on grey economy, LFS of unemployed in rural areas, etc.) it is estimated that the real unemployment indicator in Serbia is the rate of 14.3%.

Labour force supply is high in Serbia. According to NES data, 898,021 unemployed was registered in Serbia at the end of April 2007. In comparison to the previous month, the unemployment was reduced for 1.6%. Rate of the officially registered unemployment in April amounted to 27.9%. Compared to the demand structure, qualification structure of the unemployed is unfavourable. One third is formed of nonqualified workers. The highest number is of persons with secondary school degree (53.4%), of which 27% has the third grade of education and 26.4% the forth grade of education. Unemployed with higher education form 3.7% of the total number, and those with high education 3.6%.

Participation of people older than 30 in the structure of the unemployed has been increasing over the last years. Participation of people up to 30 years of age in the total number is in decrease and amounts to 29.5%. The most numerous categories are of 31-40 years of age (24.9%) and 50 and more years of age (22.7%). Also, the structure of unemployed is characterised by a high participation of women (53.7%) and persons waiting for employment for more than two years (55.7%).

The situation is even less favourable if the data is compared to EU countries. According to LFS data (October 2006.) the unemployment rate in Serbia was 21.6%, which far exceeds the average in developed countries (approx. 8%). The unemployment rate of men amounted to 17.9% and of women 24.7%. The unemployment rate of young people (15 to 24 years of age) was 47.8%, which is three times as high as in the EU countries (18.5%). According to data from 2006., the average period of waiting for employment is 44 months, while in the EU countries around 80% of registered unemployed find job within 6 months. Particularly big problem of the labour market in Serbia is the existence of long-term unemployment (Table 3).

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Table 3 : Unemployed by gender and period of waiting for employment, April 2007

Gender	Number	Period of waiting for employment		
		Participation of unemployed up to 1 year	Participation of unemployed for 1-2 years	Participation of unemployed for 2 and more years
women	481,892	20.54	20.16	59.30
men	416,129	26.08	22.43	51.49
Total	**898,021**	**23.11**	**21.21**	**55.68**

Source : Work material of NES, 2007

Although in our country all persons who wait for a job for more than two years are placed in the category of long-term unemployment, the situation of a person waiting for a job for about a year is considered alarming in the European Union countries. This is why the facts about 21.21% unemployed for one to two years, and about 55.68% of unemployed for more than two years are also alarming.

IV. Long-Term Unemployment

Restructuring of the economy and the public sector, and reduction of production and labour costs resulted in increased unemployment which is considered today to be one of the main problems of the labour market in Serbia. Participation of long-term unemployed in the total unemployment has been decreasing since 2000, but it still remains a big problem that mostly affects women, middle-aged and those with the lowest education degree. Entry into long-term unemployment causes a series of additional problems for the unemployed because of the possibility of their social exclusion that results in: loss of motivation and knowledge, inactivity of the unemployed, less possibilities of their employment and increased burden on the social funds. At the same time, reintegration of the long-term unemployed into the labour market is a very complex task primarily because of outdating of knowledge and skills, as well as loss of work habits due to being away from work. Structure of persons waiting for employment for two or more years is not favourable (Table 4).

Table 4 : Unemployment by line of work and period of waiting for employment

Line of work	No. of unemployed	Period of waiting for employment		
		Participation of unemployed up to 1 year	Participation of unemployed for 1-2 years	Participation of unemployed for 2 and more years
Agriculture, food production and processing	49,430	26.36	21.65	51.99
Forestry and wood processing	11,107	25.69	21.54	52.77
Geology, mining and metal industry	5,311	27.96	21.62	50.42
Machine engineering and metal processing	120,922	25.34	21.91	52.75
Electrical engineering	39,749	29.68	23.78	46.54
Chemistry, nonmetals and graphic art	27,333	23.93	19.83	56.24
Textile and leather industry	57,142	18.88	18.32	62.79
Utility, upholstering and painting services	5,136	24.01	20.95	55.04
Geodesy and construction	17,215	25.40	22.88	51.72
Transport	22,433	27.86	23.56	48.58
Trade, catering and tourism	82,848	24.04	21.19	54.77
Economics, law and administration	74,450	24.68	23.26	52.06

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Education	12,177	30.63	25.26	44.11
Social-humanist area	6,330	29.37	23.51	47.12
Natural-mathematic area	10,084	24.99	21.25	53.76
Culture, art and media	8,500	21.15	21.38	57.47
Health care, pharmacy and social welfare	20,291	28.13	29.56	42.30
Physical education and sport	503	39.17	23.46	37.38
Other (not allocated)	327,060	19.70	19.75	60.56
Total	**898,021**	**23.11**	**21.21**	**55.68**

Source : Work material of NES, 2007.

The biggest participation is of women (around 59%), nonqualified persons (with I and II educational degree) and persons with occupations that belong to the following lines of work: textile and leather industry, culture, art and media, chemistry, nonmetals and graphic art, utility, upholstering and painting services.

Long-term unemployment is marked above average with persons and groups with a higher risk of entering into social exclusion, such as persons without qualification, adults older than 50, persons with problems in social adaptation, certain ethnic groups (Roma in particular). Out of the total number of unemployed in April 2007, 55.68% waits for employment for more than two years (long-term unemployment), of which around 59% are women. The greatest number of unemployed can be found among nonqualified workers (Table 5).

Table 5 : Unemployment by education degree and period of waiting for employment, April 2007

Education degree	Number of unemployed	Period of waiting for employment		
		Participation of unemployed up to 1 year	Participation of unemployed up to 1 year	Participation of unemployed up to 1 year
I degree	291,969	19.42	19.49	61.09
II degree	49,610	19.85	18.42	61.73
III degree	242,699	24.69	21.36	53.95
IV degree	237,358	23.98	22.20	53.82
V degree	10,897	26.39	22.87	50.74
VI degree	32,966	28.55	25.33	46.12
VII1 degree	31,781	36.59	27.78	35.63
VII2 degree	692	29.91	33.53	36.56
VIII degree	49	36.73	26.53	36.73
I+II degree	**341,579**	**19.48**	**19.33**	**61.19**
III+VIII degree	**556,442**	**25.33**	**22.36**	**52.30**
Total	**898,021**	**23.11**	**21.21**	**55.68**

Source : Work material of NES, 2007.

Data given in Tables 3-5 show only a cross-section of the labour market by individual segments in one moment of time. However, each analysis of the labour market also requires a dynamic analysis of data on unemployment which can be obtained by using different transitional forms that monitor transfer of unemployed persons from one period to another and calculate probabilities of persons' transfer from one activity status to another. Similar analyses are also applied in processing data from LFS, where the panel aspect of LFS is used in longitudinal or dynamic analysis (Table 6).

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Table 6 : Probability of transition from unemployment

	2005		
2004	Employed	Out of labour force	Unemployed
Unemployed - total	27.6	19.7	52.6
Men	36.1	15.3	48.6
Women	20.5	23.4	56.1
Groups by level of education			
Less than primary school	28.3	23.9	47.8
Primary school	25.7	24.1	50.2
Vocational school	29.8	16.8	53.4
General secondary school	26.2	20.0	53.7
University or higher education	29.7	17.1	53.1
Age categories			
15-24	27.9	21.6	50.5
25-54	28.3	17.5	54.2
55-64	15.9	49.3	42.9

Source : World Bank, Serbia – labour market assessment, 2006.

Based on thus conducted analyses it has been established that women and older workers have the least probability to avoid unemployment and find a job. Besides, the lowest probability is that women and older workers will find employment in the period between the first and the second year, while, in comparison to men and younger workers, it is more probable for these groups to become unemployed.

Long-term unemployment appears because of an insufficient absorption ability of the growing private sector. At the same time, high initial unemployment Serbia entered with in the process of transition slows down the process of restructuring and privatisation due to workers' resistance. The Law clearly defines who is considered unemployed, but the real picture of unemployment and its dynamics is hard to obtain, not only because of the previously mentioned way of record keeping where in reentering into register the period of waiting for employment is counted as of the date of the last entry, but also because of the way of reporting - different methodologies and forms of reporting – published by NES and SORS.

V. Long-Term Unemployment Measures

Unemployment in different territories and in different periods of time is usually compared by using unemployment rate (proportion of the unemployed in the total number of active population). Measuring unemployment duration by using classical unemployment rates leads to the inevitable problem – insensitivity to changes in unemployment duration. Comparing unemployment in different areas, in different periods of time, as well as by different categories of unemployed persons (by gender, age, education, period of waiting for a job, etc.) means that similar groups of people are compared with similar groups.

However, using classical unemployment rate to analyse specific categories of the unemployed by how long they wait for a job becomes senseless because of several reasons: a) using the measure of long-term unemployment as a percentage of all unemployment (LAPU) makes the problem of long-term unemployment blur, because the denominator – total number of unemployed – also includes those who became

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unemployed in recent past, e.g. during last couple of months; b) it provides false information on the long-term unemployment, because when the total unemployment increases due to changes in socio-economic environment so does the number of short-term unemployed, thus making participation of long-term unemployed decrease although the real situation of the long-term unemployed has not improved at all; moreover, if unemployment reduces then it is the result of employing those persons who have finished their education or lost their job recently and not of the fact that long-term unemployed finally found a job.

Unemployment observed by groups of unemployed, which are grouped by the duration of the period the unemployed spend on the labour market, can be observed as a set of transitional matrices (matrix of changes) . Transitional matrices of unemployment are simpler than transitional matrices for the majority of variables related to the dynamics of the population, because there is no component of population migration. These matrices are also characterised by having only one entry point (when a person becomes unemployed and registers with NES) and only one exit point (when a person stops being registered with NES due to deletion from the register or to employment).

Impossibility to include unemployment duration in the calculation of the classical unemployment rate limits its use. Instead of LAPU measures, PAR measures (PAR-Population at risk) can be used. They monitor the number of unemployed from the previous observation period that still remain unemployed. PAR unemployment rates show the proportion of those persons who became unemployed in the previous observation period and are still unemployed. PAR exit unemployment rates show the proportion of those persons who were unemployed in the previous period but found a job during the observation period.

Application of PAR measures is simple if ways of collecting data and length of the period for data collection are standardised. Their application has several advantages in relation to the classic unemployment measure: a) when calculating certain unemployment rate the duration of unemployment is taken into account, b) mutual dependence of numerator and denominator is thus avoided, c) they can be broadly applied and have the possibility to data comparison.

These advantages of PAR measures in comparison to the classical measures enable their comparability through time, between different observation areas and for different categories of the unemployed (by gender, age, etc.). When making reports on unemployment movement as it is shown in the Table 7, it is possible to calculate unemployment rates of population at risk (PAR measures) which shows the relation between the labour force and unemployment.

Table 7 : Labour market inflow and outflow

State of the labour market	Entry to the labour market	State of the labour market							
		Duration of the period the unemployed person spends on the market							
		0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
t_1	y_t_1	$y_t_{1(0-3)}$							
t_2	y_t_2	$y_t_{2(0-3)}$	$y_t_{1(3-6)}$						
t_3	y_t_3	$y_t_{3(0-3)}$	$y_t_{2(3-6)}$	$y_t_{1(6-9)}$					
t_4	y_t_4	$y_t_{4(0-3)}$	$y_t_{3(3-6)}$	$y_t_{2(6-9)}$	$y_t_{1(9-12)}$				
t_5	y_t_5	$y_t_{5(0-3)}$	$y_t_{4(3-6)}$	$y_t_{3(6-9)}$	$y_t_{2(9-12)}$	$y_t_{1(12-15)}$			
t_6	y_t_6	$y_t_{6(0-3)}$	$y_t_{5(3-6)}$	$y_t_{4(6-9)}$	$y_t_{3(9-12)}$	$y_t_{2(12-15)}$	$y_t_{1(15-18)}$		
t_7	y_t_7	$y_t_{7(0-3)}$	$y_t_{6(3-6)}$	$y_t_{5(6-9)}$	$y_t_{4(9-12)}$	$y_t_{3(12-15)}$	$y_t_{2(15-18)}$	$y_t_{1(18-21)}$	
t_8	y_t_8	$y_t_{8(0-3)}$	$y_t_{7(3-6)}$	$y_t_{6(6-9)}$	$y_t_{5(9-12)}$	$y_t_{4(12-15)}$	$y_t_{3(15-18)}$	$y_t_{2(18-21)}$	$y_t_{1(21-24)}$

The state of the labour market can be monitored through time in the periods t1, t2,...tn which refer to monthly, quarterly, half-year averages of the labour market state, depending on technical possibilities of

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information bases of the service engaged in monitoring state of the labour market. If y_t1 is the entry of the unemployed persons into the labour market (newly registered) in the period t1, and y_t1(0-3) is the number of unemployed who have not found a job and were not deleted from the register during the following calculation period (in this case, three months), then the category of persons y_t1(21-24) is the number of persons who entered into the labour market in the period t1 and have not exited the register even after 24 months (by finding a job or by deletion from NES register due to one of the reasons for record keeping seizure established by the law) and who are now transferred to a special category of unemployed – hardly employable persons.If during the following three months (0-3) some registered unemployed from the period t1, find a job or are deleted from the register for other reasons (so called labour market outflow), then their number will be market with yl(0-3), and the number of remaining unemployed at the end of the third month will be:

$$y_t_{1(0-3)} = y_t_1 - y_{l(0-3)} \quad (1)$$

at the end of the period of (3-6) months:

$$y_t_{1(3-6)} = y_t_{1(0-3)} - y_{l(3-6)} \quad (2)$$

This calculation procedure is repeated until the last period observed (21-24), when y_t1(21-24) will remain from the group of unemployed who entered the labour market in the period t1:

$$y_t_{1(21-24)} = y_t_{1(18-21)} - y_{l(21-24)} \quad (3)$$

and in the following reporting period they will be transferred to the category of the unemployed who wait for a job for more than two years.

Obtained data is the absolute indicator of movements of unemployed people on the labour market by the reporting period of three months. Based on collected data presented as in the Table 7, we can also calculate relative indicators, so called unemployment rates of population at risk. They are obtained as the relation between the number of unemployed in one time interval who remain unemployed, and the number of unemployed from the previous period. For instance, after three months the rate of population at risk that belongs to the first calculation period t1, after three months, i.e. for the period (0-3), is:

$$p_t_{1(0-3)} = \frac{y_t_{1(0-3)}}{y_t_1} \quad (4)$$

rate of population at risk that belongs to the second calculation period t1, i.e. for the period (3-6), is:

$$p_t_{1(3-6)} = \frac{y_t_{1(3-6)}}{y_t_{1(0-3)}} \text{ , etc.} \quad (5)$$

At the same time, rates of exit unemployment of the population at risk can also be calculated. This labour market indicator shows participation of the unemployed who lose their unemployment status within the period of the group they belong to. So, the rate of exit unemployment for the unemployed persons from the period t1 in the calculation period (0-3) is:

$$p_t_{l(0-3)} = 1 - p_t_{1(0-3)} \quad (6)$$

in the period (3-6) is

$$p_t_{l(3-6)} = 1 - p_t_{1(3-6)} \text{ , etc.} \quad (7)$$

These are only some of the possible indicators that can be included in the existing system of the labour market movement indicators that can be monitored within the existing NES database without increasing costs and changing the information system itself. Their usage would result in the increase of analytical possibilities of the NES. Along with reports published in the Monthly Statistical Bulletin, work materials are also produced for NES purpose, in the form of monthly reports on unemployed inflow and outflow indicators and register state indicators, by the duration of persons' registration with NES, as well as indicators of their changes in relation to the previous reporting period, by all organisational units. Example of such a work report is given in the Table 8, and such form of reporting has been conducted in the NES since July 2006. If continuous collection of this data would be enabled for a longer period, it would be possible the very next year to establish a system of PAR measures calculations that would enable a more detailed analysis of dynamic changes on the labour market.

Table 8 : State and dynamics of the unemployed in the department Stari Grad – Beograd, February 2007

INDICATOR 1 NES register inflow (period of waiting)				INDICATOR 3-1 Increase / decrease of the inflow (period of waiting) in relation to January 2007.			
Newly registered	6 to 12 months	12 to 24 months	More than 24 months	Newly registered	6 to 12 months	12 to 24 months	More than 24 months
945	945	539	536	71.81	57.4	88.3	88.11
INDICATOR 2 NES register outflow				INDICATOR 3-2 Increase / decrease of the outflow in relation to January 2007.			
Up to 6	6 to 12	12 to 24	More than	Up to 6	6 to 12	12 to 24	More than

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months	months	months	24 months	months	months	months	24 months
590	590	265	341	103.69	106.43	112.91	109.76
INDICATOR 3 State in NES register				INDICATOR 3-1 Change of state in NES register in relation to January 2007.			
Up to 6 months	6 to 12 months	12 to 24 months	More than 24 months	Up to 6 months	6 to 12 months	12 to 24 months	More than 24 months
6667	6667	4157	6504	97,79	94,11	98,58	99,71

Source : Work material NES 2007.

All mentioned forms of reporting are undoubtedly very important for obtaining a picture about the state and changes on the labour market, but based on the existing information bases of the NES, and with small changes of processing requirements, new information obtained would significantly improve our knowledge on the changes of the labour market.

Classical unemployment rate that uses data on population, i.e. number of active population, provides information on unemployment as a social problem and represents a social and economic indicator. PAR measures tell us about the successfulness of solving the unemployment issue. Use of PAR measures in unemployment data analysis does not reduce the importance of the classical unemployment rate usage. They provide different kinds of information and have their place in interpreting movements on the labour market. Knowing both measures helps getting a clearer picture of the state and changes of the labour market.

VI. Conclusion

Analysing data on unemployment, its structure and dynamics of change within individual groups observed is aimed at providing information that will help both NES and relevant pollitical actors in planning activities to prevent long-term unemployment and social exclusion. Analysis of differences between certain groups in view of unemployment is one of the priority goals of NES operation, because information obtained is used to plan development of special programmes and manners of work that should enable involvement of persons with higher unemployment rate or risk to become long-term unemployed in the labour market. Unemployed persons are different from one another in terms of employment possibilities in relation to individual characteristics and demand for jobs by occupatins; therefore, they also differ from one another by the level of risk to become long-term unemployed. Detailed analysis of dynamics of the unemployed persons' transfer from one critical group to another conditions both kind and level of NES support. It should correspond to individual needs of persons, together with a more intesive help to the persons with higher risk of long-term unemployed due to inadequate qualifications or due to physical or socio-psychological factors of more difficult employability. A special attention should be paid to the needs of those groups with unemployment rate above the average, e.g. needs of young people. Activities in this area imply development of special teams and programmes for sloving unemployment problem and giving priority in using active employment policy programmes.Timely collection of data and its analysis enables prevention of the long-term unemployment of financial compensation or social aid beneficiaries, through reduction of dependence on the aid they receive based on unemployment or social status. Besides, funds they receive can be reallocated and other funds can be used for their employment or inclusion into employment subventions programmes. Such a model can also be applied to potential redundant with provision of appropriate kinds of services prior to their dismissal within the activities of transitional centres in the enterprises. Intensive forms of assistance to long-term unemployment are achieved through raising the level of employability or giving different subventions for employment to persons who are in an unfavourable position on the labour market. The assistance is provided to early school leavers, persons with lower qualifications or with harder employability factors, members of ethnic minorities, persons older than 50, potential redundant, young with marked unemployment rate. Provision of such assistance should enable integration of these persons into the labour market before they enter into long-term unemployment, as well as prevention of different forms of social exclusion.

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