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CHAPTER 6

ON THE NEW METHODOLOGY OF COST-BENEFIT ANALYSIS OF ALMP – THE CASE OF SERBIA[1]

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Abstract: *Active labour market policies are commonly used tool to fight unemployment. In the late 1970s in most developed countries of OECD government expenditures on those policies reached up to 1.5% of GDP. This created a need to evaluate the impact of such measures and perform cost-benefit analyses. Evaluations have in the previous 30 years been undertaken by using several methods: experimental and quasi-experimental, measurements and evaluations of processes performance, micro and macro analyses. In this paper we have presented and tested a modified approach of cost-benefit analysis of ALMP viewed as an investment made by a government. The goal was to determine whether by using such an approach it is possible to provide new information to policy makers and to deepen research and further develop a methodology which will be robust enough to serve as a proof of ALMP effectiveness. Initial results of the empirical research in Serbia show very positive results, indicating that especially in the period of recessions, active measures can significantly improve labour market conditions, thus create high levels of return to investments (taking ALMP as an investment). Using aggregate data on all persons being registered as unemployed at the beginning of 2008 and 2009, we have tested how the ALMP impact the potential growth of tax returns. Our findings say that in 2008 there has been a net gain of € 269 million and in 2009 € 166 million in tax returns collected.*

Key words*: Active policies, evaluation, unemployment*

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Introduction

One of the most discussed topics in the field of labour economics is and evaluation of the effects of the active labour market policies (ALMP). Although active policies are a set of policies formulated by the political representatives and implemented under the political consensus, the two basic functions of ALMPs are related to growth of economic and social welfare. In this paper we are analysing their impact on the economic welfare of the society.

As one of the definitions states that economics is a science on how to allocate scarce resources among alternative uses, in this paper we observe expenditure on active labour market policies as a government investment, and consider financial funds available to the government to be scarce. We are analysing whether those „investments", from the economic point of view, are beneficial to the Governments (and tax returns), while at the same time taking into account opportunity costs of such „investments". Just like the firm maximizes its profits by selecting the level of output, alternative technologies and deciding on how much input to introduce; like the government seeks to maximize its returns to investments in ALMPs along with minimizing the levels of unemployment. The returns in this paper are considered to be any type of tax (or similar) returns to the budget, created as a result of new employment created by the interventions in different types of ALMPs. In order to assess the returns from public expenditures, economists and other scientists have long relied on social cost-benefit analysis.

There is the process of creating Active labour market policies (ALMP) presented and based on the analysis of different approaches to evaluation of these policies conducted cost-benefit analysis on the case of Serbia. The paper consists of four parts: The first part will describe a brief history of active policies in the world and review the literature on evaluation methodology. The second part presents the methodology used in the research in Serbia. The third section presents aggregate data on trends in the allocation of active measures. In the fourth part, based on the presented methodology we evaluate the effects of active measures in Serbia. Finally, we provide conclusions and recommendations for further research.

History of ALMP and review of evaluations

Active Labour Market Policies in its original form were created in the early decades of the twentieth century. They represented an attempt by public institutions to open job vacancies by introducing public works. As a conse-

quence of World War I and great depression caused by the collapse of the New York stock exchange these measures were applied in two cycles of the so called "*New Deal*" in the U.S. Economic theorists of that time, led by Keynes were engaged in development of the (un)employment theory and the ways on how to cope with labour market trends. By using the theory of multipliers, firstly introduced by Kahn (1931), Keynes (1936) had managed to oppose the claim that public works and government spending cannot solve the problems in the labour market but that only cause inflation.

The active policies which are today called ALMPs were introduced for the first time after the Second World War and until today have gone through (at least) three development stages. The first stage begins after World War II, primarily in the Scandinavian countries, as an integral part of the model of economic and social change. At that time there was a need to set up systems that would reduce short-term inflationary impact of higher employment levels, and at the same time help solve problems fast-growing demand for labour (OECD, 1964, Barkin, 1967). Nickel et al (2001) showed that in the period from 1960 to 1980 there has been a significant shift to the right on the Beverage curve as a result of the initial measures, which resulted in better matching of vacancies with skills of unemployed persons. Similar analyses are presented in other papers (OECD 1993, Katz 1994, Calmfors 1994, etc.).

The second phase was initialized in France, Germany and the United States during the oil shock crisis in 1973-1975 by introduction of new programs targeting labour supply, specifically vulnerable groups. Estevao (2003) and Betcherman (2004) pointed out that the constant increase in the unemployment rate in the 1970s and 1980s assessed inter alia as a consequence of a mismatch in labour supply and demand. Unemployment level in OECD countries grew from 3% in 1973 to 7% in 1988 (Martin, 2000). At the same time there was a significant growth on the supply-side as a result of the emancipation of women and young people who have entered the labour market. New active policies were generated to increase labour demand by creating jobs; alongside passive measures such as early retirement. The effects of these measures were short-term and proved to be insufficient to curb rising unemployment in the long-run.

The third stage relates to the period of the 1990s when ALMPs have become an important policy to accompany structural changes in the EU. The goal was to encourage unemployed and inactive persons to enter into the labour market. Interventions were extensively used to facilitate adjustment of labour to market needs. During this period ALPM became a part of the employment

strategies in transition countries in the form of public works or training programs (OECD, 1990). Framework for the labour markets (OECD, 1990) claimed that structural defects were primarily on the supply side and that it was necessary to create medium and long term strategies to facilitate adjustment. It was also recommended to redirect spending from passive to active measures. During the transition period, these measures have advanced from state to market-oriented measures, but have not become part of a lasting solution to risk management in the labour market, especially in countries in transition.

According to Harrell et al (1996), there are four basic types of evaluation *performance monitoring, impact evaluation, cost-benefit analysis* and the *process evaluation*. Similarly Fay's defines evaluation as consisting of three steps (Fay 1996) - micro-evaluation, macro-evaluation and analysis on what is the best outcome that could be accomplished with available resources. Many other papers define methodological framework for the evaluation of the impact of ALMP (Dar and Tzannatos 1999, Daguerre, Etherington 2009, OECD 1993). For example, de Koning and Peers (2007) focus on assessing the net impact by using experiments or non-experimental models (matching and econometric methods).

Martin (2000) divides the evaluation of individual programs into two basic groups. The first group measures the impact program participation on employment and earnings after exit the program, by comparing participants' results with the results of the control group. The second measure the net effect on the aggregate employment, taking into account externalities such as deadweight, substitution and displacement effects. Martin and Grubb (2001) make addition to this division so that the first group use micro data to measure the impact of the program on employment and earnings of an individual, while the second use aggregate data to measure the net effects of programs on aggregate employment and unemployment.

Somewhat different division of the evaluations is offered by Spevacek (2009) and Fields (2007, p. 32). They identify six types of data analysis aimed at measuring and evaluations of the interventions in the labour market:

- Aggregate cross-sectional quantitative data analysis
- Cross-sectional study of micro data analysis
- Panel data analysis
- Cross-country time series analysis
- Experimental studies
- Qualitative data analysis

The first scientific papers on the evaluations, like Calmfors (1994) brought very confusing results. Development of information systems facilitated data analysis, and Lehman and Klueve (2010) claim that by improved research methodology, recent studies show that ALMPs do have the positive effect both on individual likelihood of exiting unemployment and on aggregate employment growth, especially in developed countries.

While the first papers on the development of evaluation methodology were written in the United States, over the past fifteen years significantly increased the number of papers among researchers in Europe. In the transition countries of Central and Eastern Europe during last ten years also emerged several high-quality studies on the impact of ALMPs. These studies have helped to better understanding of labour markets in the new economic environment (Lehmann, Klueve 2010). In transition countries, the available budgets for ALMP are very limited, and for that reason it is important that the effects are properly assessed in order to make the right distribution among different types of measures. Evaluations in transition countries include several papers (Lehman, Klueve 2010, Ognjenovic (2007), Bonin, Rinne (2006); Betcherman, Olivas, Dar (2004); Spevacek (2009) and many others).

Methodology in cost-benefit analysis

As presented in the literature review, cost-benefit analysis is one of the evaluation approaches used to estimate effects of implemented policies on the labour market. Most evaluations using cost-benefit analysis compare the cost of interventions on the labour market with the net gains of increased income of newly employed persons. Cost-benefit analysis estimates and aggregates the monetary equivalent of the present and future social costs and benefits, from the citizens' point of view, for the public investment projects, in order to decide if these are in the public interest (Monsteanu, Iacob 2008).

With the public investment in ALMP as a project, a government doesn't aim to maximize the profit, as is the case of private sector's investments, but to maximize the social welfare. According to Fields (2007, pg 41) the social rate of return to ALMP is found by subtracting the marginal social costs of ALMP from the marginal social benefits:

$$PV_{return} = PV_{benefits} - PV_{costs} \qquad (1)$$

with *PV* being marginal rate;

or

$$PV_{return} = (B_0 + \frac{B_1}{(1+r)} + \frac{B_2}{(1+r)^2} + ...) - (C_0 + \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + ...) \qquad (2)$$

where *Bt* and *Ct* are the social benefits and social costs in year t, and *r* internal rate of return.

However such investment projects need to have an efficient appraisal. Cost – benefit analysis allows allocating resources for a project entirely when we observe marginal social benefit as increased tax returns and the marginal social cost as the expenditure on ALMP increased for the opportunity cost.

In our model we equal the social opportunity costs as the value of the output that is not produced because it has been spent for ALMP. We also estimate this value as equal to returns on government bonds, which in the case of Serbia 2008 and 2009 was 9.61% and 10.34% respectively.

Hence, the equation 2 can be interpreted as:

$$PT_{return} = PT_{taxes} - (PT_{\exp enditure} * RR_{GB}) \qquad (3)$$

where PT_{return} are marginal tax returns, PT_{taxes} are tax returns gained from increased national income by persons employed through ALMP, $PT_{expenditure}$ are cost of ALMP and RR_{GB} is the rate of return on government bonds.

We assume that all persons, employed as a result of participation in any type of active labour market policy, are producing goods or services in the same amount as an average employee in the country. For that purpose we are using statistical data on Gross Value Added and number of employed persons.

$$GVA_{App} = GVA_{Ag} / PE \qquad (4)$$

where *app* stands for average per persons, *ag* for aggregate and PE for employed persons

Gross value added per person needs to be discounted for the amount of average rate of tax returns in national GVA (T_{art}) to obtain average tax returns per person employed. These figures in the case of Serbia are 44% in both 2008 and 2009. If that number is multiplied by the total number of persons em-

ployed as a result of participation in ALMP (PE_{almp}) we obtain the amount of tax returns received from the employed persons that participated in ALMP. Therefore our equation 3 may be expressed as:

$$PT_{return} = (GVA_{app} * T_{art} * PE_{almp}) - (PT_{\exp enditure} * RR_{GB}) \qquad (5)$$

Since the value of GVA is significantly different in an economy depending on the business sector, we should divide our sample according to NACE rev. 2 classification. Therefore equation 5 becomes:

$$PT_{return} = \sum_{i=1}^{21} (GVA^{i}{}_{app} * T_{art} * PE^{i}{}_{almp}) - (PT_{\exp enditure} * RR_{GB}) \qquad (6)$$

where *i* is the business sector ranged from 1 to 21, in accordance to NACE rev.2 classification (European Commission, 2008, p. 59)

There is also a difference in achieved results in number of employed persons depending on the type of ALMP used. For that reason there is a need to adapt our formula to:

$$PT_{return} = \sum_{j=2}^{7} \sum_{i=1}^{21} (GVA^{ij}{}_{app} * T_{art} * PE^{ij}{}_{almp}) - (PT_{\exp enditure} * RR_{GB}) \qquad (7)$$

in which *j* stands for type of LMP according to the official classification of the EC (European Commission 2009).

Data on ALMP

Consolidated data on expenditures on ALMP go back to 1985, which coincides with the end of the second development phase of active labour market policies. This can be attributed to the OECD "Framework for Labour Market Policy", which was the first institution which systematically recorded government expenditure on ALMP of its members. Table 1 shows the average amounts of allocations for active measures of OECD members in the period 1985-2008, where one may observe a growth trend until 1995 and slow decrease afterwards.

Table 1: Expenditure on ALMP in OECD countries (% of GDP)

	1985	1990	1995	2000	2005	2008
Unweighted average	0.66	0.66	0.80	0.71	0.64	0.57

Source: adapted on OECD (2011)

Economic reforms in countries with a centrally planned economy (transition economies) since the beginning of the nineties had significantly increased the level of open unemployment, and raised aggregate unemployment to above the EU-15 average. For that reason, funds allocated for labour market policies began to increase until the mid of the first decade of XXI century and slowly followed the diminishing trend of EU15 as of 2006, and then in average rapidly increased in 2009.

Table 2: Expenditure on LMP (1-7) in EU transition countries (% of GDP)

GEO/TIME	2005	2006	2007	2008	2009
EU 15	0.76	0.73	0.76	0.73	0.68
EU 10 transition countries*	0.27	0.27	0.24	0.23	0.37
Bulgaria	0.15	0.43	0.47	0.43	0.34
Czech Republic	0.30	0.26	0.25	0.26	0.25
Estonia	0.23	0.07	0.07	0.07	0.05
Latvia	0.07	0.26	0.22	0.26	0.17
Lithuania	0.13	0.27	0.22	0.27	0.32
Hungary	0.22	0.28	0.30	0.28	0.27
Poland	0.27	0.45	0.43	0.45	0.50
Romania	0.56	0.14	0.15	0.14	0.11
Slovenia	0.09	0.27	0.29	0.27	0.20
Slovakia	0.18	0.32	0.34	0.32	0.22
* unweighted average					

Source: Eurostat (2011)

As in other transition countries, Serbia faced similar trends in the labour market during its transition, and consequently increased spending on active labour market policies which is shown in table 3.

Table 3: Expenditure on ALMP in Serbia

	2005	2006	2007	2008	2009	2010	2011
million €	8.9	15.5	29.4	34.6	36.8	36.6	55.6
% of GDP	0.04%	0.07%	0.10%	0.11%	0.12%	0.12%	0.17%

Source: Own calculations based on MERR (2011)

In Serbia the active employment policy is regulated by the *Law on Employment and Insurance against Unemployment* that refers to a system of plans, programs and measures aimed at increasing employment and reducing unemployment. Active labour market policy is financed by the State budget, the budget of the territorial autonomy and local self-governments, donations, legacy, loans, as well as from the unemployment tax contributions and other sources. Budgetary funds are distributed to different types of measures, which are shown in Table 4.

Table 4: Distribution of allocated funds for ALMP by type of activity in Serbia (000 €)

Activity	2008	2009	2010	2011
Active job search	68.4	52.6	49.5	100.0
Training and education	92.0	15,736.8	20,742.6	18,900.0
Employment subsidies	17,643.7	7,368.4	8,910.9	13,000.0
Public works	8,160.9	13,684.2	6,930.7	7,000.0
Total	34,643.7	36,842.1	36,633.7	39,000.0

Source: MERR (2011)

Discussion on Empirical Findings in Serbia

Activities in Serbia are recorded and sorted according to the national classification, which is different from the EC methodology (EC 2006). Since data sets available from the National Employment Agency (NEA) are not comparable to the EC Methodology we have re-sorted data to comply with EC standards. For the rest of the research we have used resorted data.

The data on the number of persons included in different types of LM measures according to the EC Methodology for the period 2008-2010 are listed in table 5.

Table 5: Persons included in LMP measures

LMP Measures	2008	2009	2010
No LMP	*825,956*	*767,277*	*794,016*
With LMP	*24,438*	*27,241*	*23,262*
2.1-2.3	1,851	2,699	4,312
2.4	2,963	7,773	5,706
3	0	0	0
4	12,482	7,309	6,486
5	0	40	858
6	3,854	6,150	3,471
7	2,701	2,967	2,236
Combined*	587	303	193
Total	***850,394***	***794,518***	***817,278***
* Persons participating in over 1 measure			

Further on we have summed expenditures for the groups of persons listed in table 6, by types of LM policies which are shown in table 6.

Table 6: LMP expenditures (in €)

LMP Measures	2008	2009	2010
No LMP	*0*	*0*	*0*
With LMP	*15,555,102*	*25,685,579*	*23,958,642*
2.1-2.3	297,558	495,211	2,459,720
2.4	655,615	9,944,044	7,663,284
3	0	0	0
4	8,224,734	4,859,086	4,900,848
5	0	42,015	723,827
6	3,525,069	7,940,810	4,922,759
7	2,286,840	2,008,454	2,960,905
Combined	565,285	395,959	327,300
Total	**15,555,102**	**25,685,579**	**23,958,642**

Using methodology from the methodological section of this paper, we wanted to analyse the effectiveness of the funds spent for the LM measures. For that reason we have at first collected information on employment of people from our sample in two fold manner. For those who have not used any LM measure we searched for number of people who have been employed during respective year and the number of days that they worked. For persons who have participated in LMP, we have collected information on the number of people and days working over the period of 12 months after entrance into the measure. Results are presented in table 7.

Table 7: Employment by number of persons and working days

	2008		**2009**	
	Persons employed	**Days working**	**Persons employed**	**Days working**
No LMP	*110,063*	*19,694,841*	*72,591*	*12,460,764*
With LMP	*18,064*	*5,162,352*	*22,005*	*6,123,127*
2.1-2.3	663	131,108	611	98,488
2.4	1,944	561,328	7,592	2,363,666
3	0	0	0	0
4	10,841	3,561,978	6,895	2,287,067
5	0	0	15	2,076
6	3,651	606,593	6,051	1,087,727
7	509	150,542	559	196,223
Combined	456	150,803	282	87,880
Total	**128,127**	**24,857,193**	**94,596**	**18,583,891**

The following step was to distribute employed persons in business sectors according to NACE rev.2 classification. From the statistical office we have obtained data on the total number of employed persons in Serbia by those sectors. That was combined with the data on GVA by business sectors in the respective years. In that way we were able to obtain information about average daily GVA per person employed in different business sections. Those figures are presented in table 8.

Table 8: Gross value added and employed persons in Serbia

	GVA (€ mil)		Persons employed		Daily GVA per person (€)	
NACE rev 2. classification	2008	2009	2008	2009	2008	2009
A	2729.6	2156.2	705981	622735	10.6	9.5
B	378.3	359.4	32387	26814	32.0	36.7
C	4294.8	3647.9	471836	442504	24.9	22.6
D	796.4	850.8	33980	33726	64.2	69.1
E	307.5	285.4	43541	42173	19.4	18.5
F	1444.7	1102.4	177454	136779	22.3	22.1
G	3193.0	2532.8	407541	361560	21.5	19.2
H	1408.1	1249.3	134587	128187	28.7	26.7
I	294.4	273.8	83867	73173	9.6	10.3
J	1219.9	1129.9	54716	52221	61.1	59.3
K	895.6	842.3	56577	54804	43.4	42.1
L	29.7	29.5	5494	3470	14.8	23.3
M	1297.3	958.6	55431	55254	64.1	47.5
N	485.3	389.5	28872	29109	46.1	36.7
O	1053.3	895.6	135724	128792	21.3	19.1
P	1319.0	1182.2	122528	153162	29.5	21.1
Q	1659.1	1485.3	170102	169961	26.7	23.9
R	269.7	346.6	34856	34801	21.2	27.3
S	278.8	373.9	58450	59323	13.1	17.3
T	29.9	24.4	6646	6792	12.3	9.9
U	0.0	0.0	1153	1098	0.0	0.0
Total	**26320.5**	**23034.8**	**2821724**	**2616437**	**25.6**	**24.1**

Source: Own calculations on official Statistical data

Using the data on GVA from table 8 and on days working from table 8 we have calculated the gross value added for persons from our initial sample who have been employed in the observed period, as mentioned above, which is shown in table 9.

As seen in the above table creation of GVA exceeds the expenditures on LMP in average by 9 times in 2008 and by 6 times in 2009. As seen in tables 6 and 8, in 2008 only 13.3% and in 2009 only 9.4% of persons that have been registered by NEA and have not used any LMP in respective year have found any job. Compared to that 72.9% and 84.1% persons who have used some types of LMP have found job. Based on these results the research was continued

and certain causalities and correlations have been calculated which will be presented in a final report.

Table 9: GVA created by persons employed and LMP expenditures from initial sample (in €)

	2008		**2009**	
	GVA	PT (Costs)	GVA	PT (Costs)
No LMP	*516,857,812*	*0*	*293,799,727*	*0*
With LMP	*135,360,733*	*15,555,102*	*148,782,574*	*25,685,579*
2.1-2.3	3,842,014	297,558	2,339,061	495,211
2.4	20,315,424	655,615	82,728,073	9,944,044
3	0	0	0	0
4	105,054,996	8,224,734	67,549,250	4,859,086
5	0	0	47,868	42,015
6	16,223,994	3,525,069	28,321,547	7,940,810
7	5,604,580	2,286,840	4,183,297	2,008,454
Combined	4,843,740	565,285	2,428,750	395,959
Total	**730,131,315**	**15,555,102**	**547,681,261**	**25,685,579**

Finally by using the formula (7) we have obtained the following results, as shown in table 10.

Table 10: Estimated marginal change in tax returns (in €)

	2008		
	GVA*T*PE	PT_{exp}*RR	PT_{return}
No LMP	227,417,437	0	**227,417,437**
With LMP	59,558,723	17,049,947	**42,508,775**
Total	286,976,160	17,049,947	**269,926,212**
	2009		
	GVA*T*PE	PT_{exp}*RR	PT_{return}
No LMP	129,271,880	0	**129,271,880**
With LMP	65,464,333	28,153,963	**37,310,369**
Total	194,736,212	28,153,963	**166,582,249**

In table 10 we may see that estimate growth of marginal tax returns in years 2008 and 2009, which was derived as a result of employment of people from our initial sample, is in total around €270 million and €166 million. For those figure to be more representative and to enable comparison of the estimates between those treated vs. others, we give the figure per person in table 11.

Table 11: Estimated marginal change in tax returns per person (in €)

	2008	2009
No LMP	275.3	168.5
With LMP	2437.1	1369.6

Figures from table 11 prove that persons being treated by all types of ALMP provide very high net gains in tax returns on the yearly basis, which are 7-8 times higher compared to those being registered unemployed, but not treated by any type of ALMP.

Conclusion and recommendations

Active labour market policies are commonly used tool to fight unemployment, especially in the periods of economic crises. They alone cannot solve the problem of high unemployment – they need to be part of a comprehensive strategy to tackle unemployment. However it is necessary to evaluate their effectiveness both in terms of social and economic gains. In this paper we have presented a modified approach to cost-benefit analysis of ALMP as the investments made by a government.

Preliminary results of empirical research in Serbia show very positive results, indicating that especially in the period of crisis when there is very low number of job vacancies, active measures can significantly improve labour market conditions, thus create high levels of return to investments (taking ALMP as an investment). Directing more funds towards active measures would help mitigate the negative effects of the economic crisis.

In this paper we have used aggregate data on the whole sample of persons being registered as unemployed at the beginning of 2008 and 2009. We have not used econometrical models to validate our findings and prove causality of effects. For that reason this research will be continued by creation of valid control group and performing of propensity-score-matching test in order to determine what exact amounts of money governments may achieve by allocating its scarce funds to this purpose. It is also necessary to determine the

level of deadweight, substitution effects and displacement effects to make results more robust.

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