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## Beautiful Serbia

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December 2006

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## ABSTRACT

### Beautiful Serbia<sup>\*</sup>

The paper studies the causal impact of participation in an active labor market program – the ‘Beautiful Serbia’ program providing training and temporary work in the construction sector in Serbia and Montenegro – on measures of subjective well-being approximating individual welfare. According to our estimates, the positive impact of this particular program appears much stronger judged by subjective well-being than judged by the immediate labor market effect.

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# 1 Introduction

This paper studies the causal impact of participation in an active labor market program—the ‘Beautiful Serbia’ program providing training and temporary work in the construction sector in Serbia and Montenegro— on measures of subjective well-being approximating individual welfare. According to our estimates, the positive impact of this particular program appears much stronger judged by subjective well-being than judged by the immediate labor market effect.

Our study goes beyond the scope of traditional evaluation analysis which focuses on economic outcomes, i.e., judges the success of a labor market program by comparing the employment rates, unemployment rates, or wages of individuals who participate to the outcomes of comparable individuals who do not.<sup>1</sup> However, a program may be beneficial for participants even if it does not immediately improve their labor market situation. For example, it may reduce the psychic costs of being unemployed by strengthening participants’ self-confidence or social contacts, and thus improve the subjective level of well-being.

The focus on measures of subjective well-being is highly relevant from the perspective of a social planner implementing policies and seeking to improve individual welfare. In fact, one may argue that the conventional focus of the evaluation literature on economic performance is not intrinsically interesting as the relevance of economic performance is only that as a means to an end. In the words of Oswald (1997), one may say that ‘economic things matter only in so far as they make people

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<sup>1</sup>See Heckman *et al.* (1999) and Martin and Grubb (2001) for surveys of the recent literature.

happier.’ In the economic literature on *happiness*, measures of subjective well-being frequently serve as proxies for individual welfare.<sup>2</sup>

Nevertheless, so far the literature evaluating specific policies with respect to their impact on individual well-being is very scarce. Gruber and Mullainathan (2002) assess the impact of a higher tax on cigarettes on the happiness of smokers, Di Tella *et al.* (2003) look at the impact of changes in unemployment benefits, and Frey and Stutzer (2000) analyze the role of direct democracy for subjective well-being. To the best of our knowledge, our study is the first that incorporates subjective well-being into the evaluation of an active labor market program.

The study also contributes to the still relatively small literature analyzing the effectiveness of active labor market policies in transition economies. Papers evaluating active labor market policies in Eastern Europe, with rather mixed results, include Rodriguez-Planas and Benus (2006) focusing on Romania, Kluve *et al.* (1999) focusing on Poland, Lubyova and van Ours (1998) focusing on Slovakia, and O’Leary (1998) focusing on Hungary. Our paper provides the first evaluation of an active labor market program focusing on Serbia and Montenegro.

The remainder is organized as follows. Chapter 2 describes the background and design of the ‘Beautiful Serbia’ program. Chapter 3 discusses our data. After explaining the evaluation strategy in Chapter 4, program impacts on labor market outcomes and subjective well-being are quantified in chapter 5. Chapter 6 concludes.

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<sup>2</sup>Frey and Stutzer (2002), Clark *et al.* (2006), and Di Tella and MacCulloch (2006) review the literature on happiness. Hayo (2004) shows that most of the findings known from studies on the U.S. or Western Europe carry over to transition economies.

## 2 The Beautiful Serbia Program

The economy of Serbia and Montenegro is still considered to pass through a transitional phase. Although the country has initiated a package of economic reforms aimed at restructuring and liberalizing the economy and some positive results already materialized, the process of ongoing reforms is also associated with growing poverty and rising unemployment.

As seen in Table 1, while the economy of Serbia and Montenegro has been improving since 1999, this process is accompanied by an increasing unemployment rate. According to Arandarenko (2004), unemployment in Serbia and Montenegro was 73 percent higher in 2000 than in 1993. In 2003, on average more than 560,000 people, or 15.2 percent of the economically active population, were in search of employment. Among these, more than three quarters had already been unemployed for at least one year (SYSCG, 2004).

Therefore, the issue of active labor market programs as temporary measures to alleviate the unemployment impact of the reform and economic transition process is ranked high on the political agenda in Serbia and Montenegro, at least until the conditions of a rapid and sustained economic growth are established. The program under study — ‘Beautiful Serbia’ — represents one of the first policies implemented in the country for this purpose.

The Beautiful Serbia program operated in Serbia and Montenegro in 2004 and 2005. It was administered by the United Nations Development Program, UNDP. The program was implemented with the support of the Ministry of Labor, Employment

and Social Policy, MLESP, and fully incorporated into the National Employment Service of Serbia and Montenegro. Besides UNDP and MLESP, also the governments of Canada, the Netherlands, Austria and Greece, as well as city beneficiaries contributed to financing the program. Due to limited financial means, the program was run on a small scale. It first started operating only in the capital city of Belgrade. In a second stage, which took place mostly in 2005, the geographic focus of the program shifted to the major cities of Niš and Zrenjanin.

The basic design of the Beautiful Serbia program was intended to replicate the ‘Beautiful Bulgaria’ program, an active labor market and refurbishing program which had run on a nation-wide scale in Bulgaria. The apparent success of this earlier program led officials to the assumption that it could be adapted to successfully work also in Serbia and Montenegro.

The Beautiful Serbia program consists of two different components: (i) provision of vocational training for disadvantaged unemployed persons, and (ii) subsequent provision of temporary jobs restricted to the (any) disadvantaged unemployed. The two components of the program are basically independent. Participation in the vocational training stage is neither a necessary nor a sufficient condition for obtaining a job offer in the temporary employment stage.

To be specific, the vocational training measure of the Beautiful Serbia program lasts for three months and is full-time. It provides certified vocational training for the constructional sector as mason, carpenter or painter. Its intended target group consists of long-term and otherwise disadvantaged unemployed persons, identified



as such by the National Employment Service. No sanctions are applied if a person refuses to participate, and participation in the training measure can be considered as voluntary.

Participants in vocational training receive a compensation amounting to about 30 percent of the average national wage. As only a very small fraction of the job-searchers in Serbia and Montenegro are entitled to income support, this appears like a substantial incentive to take up the program.<sup>3</sup> Nevertheless it turned out difficult to attract individuals to the vocational training stage. One possible explanation is that participants supposedly face substantial opportunity costs in terms of forgone wage earnings. A large share of the unemployed in Serbia and Montenegro actually make their living from informal activities. As the vocational training in the Beautiful Serbia program is full-time, participation is difficult to reconcile with these activities. Hence we would expect that only those individuals expecting to recover the opportunity costs of their investment into human capital (self-)select into the training measure.

The second component of the Beautiful Serbia program is provision of temporary jobs in the construction sector. Typical for an economy at the early state of transition, construction still plays an important role in the Serbian and Montenegrin economy. The employment share of the sector has been relatively stable, though the share of construction in national GDP has markedly declined. Naturally, temporary project-based jobs show a high incidence in this sector.

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<sup>3</sup>The participants who were entitled to any kind of income support before the training received 110 percent of this amount during the period of training.

The Beautiful Serbia program creates additional demand for these jobs by financing refurbishment of selected public buildings and spaces. In the refurbishment projects, private firms are contracted under the condition that they employ a specified share (40-60 percent) of workers who are identified by the National Employment Service as previously unemployed and otherwise disadvantaged. Firms receive a fixed payment for conducting the refurbishment project. Projects are assigned to firms on a competitive basis, i.e. the firm offering the best quality-price ratio wins the tender. This procedure should guarantee that wages paid on the jobs in the temporary employment stage of the Beautiful Serbia program are competitive. In particular, firms do not receive a special wage subsidy for hiring the mandatory number of previously unemployed workers.

The contracted firms can select among the pool of people who meet the criteria of the National Employment Service. Individuals run through an ordinary application procedure. Hence one would expect that successful candidates are hired in accordance with the needs of the company, and represent the most competent and capable among the unemployed individuals firms can choose among. This means that it is neither necessarily the case that participants in the vocational training part of the Beautiful Serbia program later on work in the sponsored refurbishment projects, nor that the previously unemployed workers hired for these projects did participate in the training measure before.

In total, the Beautiful Serbia program provided vocational training to 252 unemployed individuals. The drop-out rate at this stage was very low. Almost 95 percent of the enrolled completed the training. In the 35 refurbishment projects

financed by the program, managed by 16 contracted private companies, 321 men found temporary employment.<sup>4</sup> Of these, about one half had participated in the vocational training measure before.

The next section describes the data available for evaluating the effects of the Beautiful Serbia program.

### 3 Data

Our data comes from a special survey of 363 individuals who were registered as unemployed at the National Employment Service when the program started (January 2004) and who either participated in at least one stage of the Beautiful Serbia program or did not participate at all. The interviews were conducted face-to-face by a professional survey agency, GfK Belgrade, shortly after the final refurbishment project of the program had been completed, during October and November 2005.

In principle, the survey was constructed such as to mimic an experimental design *ex post*. For each individual who participated in the Beautiful Serbia program, a matched partner with the same observable characteristics was drawn from the unemployment registry and scheduled for interview. The intention was to create a control group, which would resemble the treatment group as much as possible, with a limited number of interviews. Unfortunately, due to deficiencies of unemployment registries at the National Employment Service, only few individual characteristics were available to implement this strategy. In effect, the one-to-one pre-matching

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<sup>4</sup>In principle, the program was available for women, too, but actually none participated.

routine to create a control group was only based on the following individual characteristics: age, education, and place of residence (Belgrade, Niš, or Zrenjanin). In particular, the (un-)employment history which appears extremely relevant for the success of active labor market policies could not be controlled.<sup>5</sup>

In the accomplished survey, systematic drop outs may further reduce the effective quality of the matches between program participants and non-participants. A sizeable number of persons scheduled for interview — around 40 percent — could either not be found or refused to participate in the interviews. Thus, we observe data on only 168 of the about 440 participants, while the control group of non-participants consists of 195 individuals. After dropping records with missing values on key characteristics (employment history, unemployment duration), we are left with a sample of 288 individuals.<sup>6</sup>

Table 2 illustrates the distribution of the retained sample regarding participation in either of the two program stages. Among the 142 participants, about one in three was exposed to the Beautiful Serbia program only through the vocational training stage, whereas about one in five was exposed to the program only through the temporary employment stage. The ratio of participants to non-participants in our working sample is almost one.

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<sup>5</sup>Kluve *et al.* (1999) demonstrate that pre-unemployment labor market careers are extremely important when assessing active labor market policies also in transition economies, where variation in these histories tends to be smaller than in Western economies because they start from a situation of no formal unemployment.

<sup>6</sup>We also drop the observations on seven individuals in the potential control group who exit the labor market by turning into pensioners or students.

In Table 3, we present some descriptive statistics of the individuals subject to one of the three possible treatments — participation in the full program, participation in the vocational training stage only, and participation in the temporary employment stage only — and of the individuals not participating at all who are potential controls. Substantial differences between participants and non-participants arise in our sample.

In particular, across all treatments participants appear to be significantly younger than non-participants, better educated, more likely to belong to the ethnic group of Roma, and more likely to live in Belgrade. Furthermore, in January 2004 when the program started, the participants had experienced shorter spells of unemployment, had more frequently been employed in the past 36 months, and more often actively searched for a job than non-participants in our sample.

The substantial differences in observed characteristics indicate that the pre-matching procedure employed for constructing a suitable control group has not worked satisfactorily. One potential explanation would be that the selection of the control group was based on planned rather than on accomplished interviews. An alternative — probably more relevant — explanation would be that the probabilities to participate in the program were indeed affected by individual characteristics other than those few used by the matching routine, see above.

In any case, the observed characteristics of the program participants altogether appear to give them a comparative advantage, concerning potential labor market success, over the non-participants. Thus, one would expect that a comparison of

mean outcomes between the two groups overestimates the positive program effects. In order to avoid this bias, we need to rely on econometrics for constructing a control group that is truly comparable to the treatment group.

## 4 Evaluation Approach

We ideally would like to compare the outcomes for the individuals participating in the Beautiful Serbia program ( $Y^1$ ) with the outcomes for the same individuals if they had not participated ( $Y^0$ ). If  $D$  denotes participation, where  $D = 1$  if a person participates in the program and  $D = 0$  otherwise, the actual outcome for individual  $i$  can be written as:

$$Y_i = Y_i^1 \cdot D_i + Y_i^0 \cdot (1 - D_i) . \quad (1)$$

The individual treatment effect would be given by the difference  $\Delta_i = Y_i^1 - Y_i^0$ . However, it is impossible to calculate this difference because one of the outcomes is unobservable. Instead, the evaluation literature concentrates on population average gains from treatment. The average treatment effect on the treated (ATT or  $\Delta_{ATT}$ ) is formally given by:

$$\Delta_{ATT} = E(\Delta|D = 1) = E(Y^1|D = 1) - E(Y^0|D = 1) . \quad (2)$$

It is the principle task of any evaluation study to find a credible estimate for the second term on the right hand side of equation (2), which is unobservable.

If  $E(Y^0|D = 1) \neq E(Y^0|D = 0)$ , estimating the ATT by the difference between the subpopulation means of participants and non-participants will yield se-

lection bias. However, if treatment assignment is *strongly ignorable*, i.e., if selection is on observable characteristics  $X$  (unconfoundedness), and if observable characteristics of participants and non-participants overlap (common support), the matching estimator is an appealing choice to estimate the desired counterfactual. Under these conditions, the distribution of the counterfactual outcome  $Y^0$  for the participants is the same as the observed distribution of  $Y^0$  for the comparison group *conditional on  $X$* . Formally,

$$E(Y^0|X, D = 1) = E(Y^0|X, D = 0). \quad (3)$$

Entering this relation into (2) allows estimating the ATT.

Rosenbaum and Rubin (1983) show that if treatment assignment is strongly ignorable *given  $X$* , it is also strongly ignorable *given any balancing score* that is a function of  $X$ . One possible balancing score is the propensity score  $P(X)$ , i.e. the probability of participating in a given program.

There are several propensity score matching methods suggested in the literature.<sup>7</sup> Based on the characteristics of our data, we opt to apply nearest-neighbor matching with replacement. This matching method has the advantage of being the most straightforward matching estimator: a given participant is matched with a non-participant who is closest in terms of the estimated propensity score. As the participants and non-participants in our sample appear quite different, we allow matching with replacement to avoid bad matches between high-score participants and low-score non-participants. The disadvantage of this approach is that the vari-

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<sup>7</sup>See e.g. Caliendo and Kopeinig (2006) for an overview.

ance of the estimator increases as the constructed counterfactual outcome is based on less distinct non-participants (Smith and Todd, 2005).

For the variance of the estimated ATT, we apply the approximation suggested by Lechner (2001, 2002).<sup>8</sup> The following formula applies for nearest neighbor matching with replacement:

$$Var(\hat{\Delta}_{ATT}) = \frac{1}{N_1} \cdot Var(Y^1|D = 1) + \frac{(\sum_{j \in \{D=0\}} (w_j)^2)}{(N_1)^2} \cdot Var(Y^0|D = 0) , \quad (4)$$

where  $N_1$  is the number of matched treated individuals and  $w_j$  is the number of times individual  $j$  from the control group is used.

We estimate the probability of treatment in the Beautiful Serbia program conditional on observable characteristics —the propensity score— using binary probit models with participation as the dependent variable. The potential control group always consists of the individuals who did not participate in the program at all. Our preferred specifications of the propensity score include a full range of personal characteristics. We measure regional variation in program participation rates by including an index variable taking the value of one if an individual lives in Belgrade and zero otherwise. However, as all participants in Belgrade entered the program in 2004, and almost all participants outside Belgrade entered in 2005, this variable also captures the variation related to the timing of program entry.<sup>9</sup>

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<sup>8</sup>Bootstrapping procedures gave similar results for the variance of the estimated ATT.

<sup>9</sup>We have tried several specifications of the probit model. The results did not change qualitatively. For instance, including the number of (small) children living in the household does not change the predictions since all individuals in our sample are men for whom age and marital status already capture most of the effect possibly associated with children. Our preferred specifications



Table 4 depicts the marginal effects of the probit estimates underlying the propensity scores for the various treatments. The results basically confirm the impression from the descriptive statistics. It appears that individuals relatively close to the labor market, i.e. individuals of younger age, relatively short-term unemployed, recently employed or actively engaged in job search, had a higher chance to benefit from the Beautiful Serbia program.

The distributions of the propensity scores obtained from the probit estimates are on display in Figure 1. Comparison of participants and non-participants reveals that the latter tend to be endowed with characteristics that make them systematically less likely to be selected for participation in the Beautiful Serbia program. Among the individuals participating in both stages of the program, 4 have a higher propensity score than the individual with the highest estimated propensity score among the non-participants. Hence these individuals are off support and need to be excluded for the computation of the ATT. To achieve common support, we need to exclude 5 (3) observations when evaluating participation in the vocational training (temporary employment) stage only.

After forming the matched pairs, a suitable way to assess the matching quality is comparison of the standardized bias before matching,  $SB^b$ , to the standardized bias after matching,  $SB^a$ . The standardized biases are defined as

$$SB^b = \frac{(\bar{X}_1 - \bar{X}_0)}{\sqrt{0.5 \cdot (V_1(X) + V_0(X))}} ; SB^a = \frac{(\bar{X}_{1M} - \bar{X}_{0M})}{\sqrt{0.5 \cdot (V_{1M}(X) + V_{0M}(X))}} , \quad (5)$$

where  $X_1$  ( $V_1$ ) is the mean (variance) in the treated group before matching and  $X_0$

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appear to deliver the best overall predictions of program participation rates.

( $V_0$ ) the analogue for the comparison group.  $X_{1M}$  ( $V_{1M}$ ) and  $X_{0M}$  ( $V_{0M}$ ) are the corresponding values after matching (Rosenbaum and Rubin, 1985). Following the example of Sianesi (2004) we also re-estimate the propensity score on the matched sample to compute the pseudo- $R^2$  before and after matching.

These measures, see Table 5, suggest that the quality of our matching procedures is quite satisfactory. The standardized bias of the matched sample is markedly smaller than that of the unmatched sample. Likewise, the pseudo- $R^2$  after matching are fairly low and decrease substantially compared to before matching. This is what we should expect considering that after matching, there should not be any systematic differences in the distribution of covariates between participants and matched non-participants.

This test of the matching quality makes us confident to estimate meaningful treatment effects on the basis of nearest neighbor matching with replacement, despite of the rather small sample available for building matched pairs.

## 5 Treatment Effects

In the following we first adopt the conventional perspective on evaluation of active labor market programs and study the causal impact of Beautiful Serbia on labor market outcomes, namely unemployment and employment probabilities. In a second step, we will look at the subjective well-being variables at the core of our interest.

## 5.1 Labor Market Outcomes

The survey data do not trace individuals' employment histories. Hence our outcome variables are based on the labor market status at the time of the interview. In particular we look on four different labor market states: (i) unemployment, (ii) employment in a regular job including self-employment, (iii) employment in a seasonal job, and (iv) employment in another active labor market program implemented by the National Employment Service ('ALMP job'). Table 6 summarizes the estimated ATT for our four different labor market outcomes and the three possible treatments within the Beautiful Serbia program.

Our point estimates suggest that participation in both stages of the program reduces the probability of being unemployed at the survey date by about 13 percentage points, compared to not participating in the program. Participation in the training stage only reduces the unemployment rate by 7 percentage points, whereas participation in the temporary employment stage apparently has no effect on the propensity of being unemployed. The latter result is estimated on very few observations, however. In fact, none of the estimated ATT is statistically significant at conventional levels. In general, the small scale of the program and therefore small sample sizes will only yield significant ATT, if participants and non-participants exhibit very distinct outcomes.

Considering overall employment, the ATT basically mirror those concerning unemployment. Participation in the program is generally associated with a higher employment rate. However, some differences appear between the different treat-

ments concerning the type of employment.<sup>10</sup> Participation in the complete program mainly positively affects the chances of working in a regular job. In contrast, for participation in the training stage of the program only, the strongest program impact is on employment in a seasonal job. The effect on seasonal employment is even stronger than the overall employment effect: Participation in the training measure reduces the chance to become employed in another active labor market program. Finally, while participation in the temporary employment stage of the program only basically has no effect on the overall employment rate, it seems to impact on the type of employment. The treated appear to work more frequently in regular jobs, and less frequently in seasonal jobs.

In sum, our findings concerning the impacts of the Beautiful Serbia program on labor market outcomes suggest that both the vocational training and the temporary employment part (and therefore the program taken as a whole) exert a positive influence on the employment prospects of the participants. However, the positive effects are not sufficiently strong or clear-cut to be considered statistically significant.

## 5.2 Subjective Well-Being

Even if an active labor market program does not immediately raise employment probabilities of participants, a social planner may find it beneficial if it manages to improve the individual welfare of the target group. The survey data collected in connection with the Beautiful Serbia program provide us with the unique opportu-

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<sup>10</sup>The overall ATT concerning employment is the sum of the ATT regarding the three different types of employment.

nity to study program impacts also on various dimensions of life that may serve to approximate individual well-being or ‘happiness’.

In the literature, happiness is usually measured by the answer to a very broad question. For instance, the U.S. General Social Survey asks: ‘Taking things all together, how would you say you are these days – would you say you are very happy, pretty happy, or not too happy?’ The individuals in our data were not asked for such a global assessment of their whole sphere of life. Instead, we observe answers to a set of questions relating to items that give a reasonable picture of how their personal situation concerning various aspects of life has changed over time.

Individuals were requested to compare their situation at the time of the interview with that before the Beautiful Serbia program came into effect, and had to judge whether their situation has strongly or somewhat improved, has stayed more or less the same, or has strongly or somewhat deteriorated.<sup>11</sup> In detail, the survey requested a self-assessment of changes concerning self-confidence, the desire to find a job, social contacts, health status, the family income situation, personal qualification and skills, and the chances to find a regular job.

These items have been identified as determinants of personal happiness (Frey and Stutzer, 2002). However, the extent to which the different items are related to subjective well-being varies. For example, personal health ratings and happiness appear to be highly correlated, whereas changes in income are considered to have

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<sup>11</sup>Individuals from Belgrade where the program was introduced earlier were asked to compare their situation to that in the beginning of 2004, and individuals from in Niš and Zrenjanin where the program started later were asked to compare their situation to that in the beginning of 2005.

only temporary impacts on subjective well-being, probably due to the phenomenon of adaptation (Layard, 2006). The dimensions of ‘qualification and skills’ and ‘job chances’ contain information on *employability*, which is a more general concept than actual employment. An improvement of subjective employability probably reduces the psychic cost of being unemployed, and thus may put individuals higher on the happiness scale.

In our subsequent analysis, we apply our matching approach to the subjective data. As outcome variables, we define dummy variables that take the value of one if individuals report that their personal situation has strongly or somewhat improved, and take a value of zero otherwise. In this way, the ATT measure the change in the percentage share of individuals judging their personal as improved because of program participation. Table 7 summarizes our findings.

The general impression based on the point estimates is that program participation has improved the personal situation with regard to all aspects of life considered. In contrast to the impact on labor market outcomes, the program effects often appear so substantial that the estimated ATT are statistically significant despite the small sample sizes on which they are estimated.

For all treatments, the strongest program impact is on the subjective rating of qualification and skills, which means that the vocational training content of the program is viewed positively from the participants’ perspective even when it does not immediately raise the employment rate.

Among those individuals who participated in both stages of the Beautiful

Serbia program, the share with improved job desire and improved self-assessed health is significantly higher than among comparable individuals who were not affected by the program. Similar positive effects arise considering those participating only in the training stage, which furthermore appears to significantly improve self-confidence. A strong self-confidence effect also occurs for those participating in the temporary employment stage only. Personal relations established at the work or training place are probably responsible for the clear growth of social contacts (15-28 percent) achieved through the Beautiful Serbia program.

It is interesting to note that the program, though focused on the construction sector offering probably relatively poor working conditions, if anything positively impacts on subjective health status. Among the individuals participating in the whole program, the rate of those reporting an improvement in health compared to the pre-program situation is 18 percentage points larger than among non-participants, and the effect is statistically significant. The ATT concerning health status are much smaller for the other two treatments, but, judged by the point estimates, they are at least not negative.

Taken together, the positive program effects considering individuals' subjective assessment of conditions of life appear to be larger than the program impacts when considering their objective labor market status (or the family income situation, see Table 7). This suggests that the program improves subjective well-being through other channels than the labor market. The impacts we find are strong for all treatments considered. Even the subjective health rating — a key determinant of happiness — significantly increases for those going through the complete program.

## 6 Concluding Remarks

This paper evaluates the Beautiful Serbia program providing vocational training and temporary employment to disadvantaged unemployed. While using standard matching techniques to bring out causal average treatment effects on the treated, the analysis deviates from routine program evaluation by considering subjective measures of individual well-being as possible outcomes. Hence our paper is linked to the rising economic literature focused on the concept of happiness as an approximation for the individual welfare scale.

Given that the ultimate goal of social policies is improvement of individual welfare, subjective well-being clearly is a relevant dimension for a full impact assessment of an active labor market program. The evaluation results obtained from the Beautiful Serbia program indeed provide an example that the positive effects of a policy can appear stronger, if it is judged by subjective well-being rather than by labor market effects. The program probably impacted on individual welfare through other channels than the immediate economic status, notably by strengthening self-confidence, job desire and social inclusion of the participants.

Unfortunately, due to the small scale of the program and certain deficiencies in the accomplished survey, the treatment effects estimated for the Beautiful Serbia program overall allow only tentative conclusions. The systematic inclusion of subjective measures of well-being into the evaluation of a larger-scale program, as well as the inclusion of more direct measures of the individual happiness scale that are also tested for behavioral relevance, thus remain a challenge for future research.



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Table 1: Economic Indicators (1999–2004).

	1999	2000	2001	2002	2003	2004
GDP (1999=100)	100.0	105.2	110.5	115.5	118.3	129.4
Unemployment Rate	14.7%	12.6%	12.9%	13.8%	15.2%	

*Source:* Statistical Office of Serbia and Montenegro.

Table 2: Distribution of observations across participation statuses.

Participation in training?	Participation in temporary employment?		Total
	No	Yes	
No	146	28	174
Yes	48	66	114
Total	194	94	288

Table 3: Descriptive statistics (selected variables).

	CP	TR	TE	NP
Age	31.09 ( 9.84)	31.85 (10.20)	33.36 (10.60)	34.23 (11.79)
Married	.3182 (.4693)	.5000 (.5053)	.6786 (.4756)	.5822 (.4949)
Roma	.1061 (.3103)	.2083 (.4104)	.2143 (.4179)	.0822 (.2756)
Belgrade	.4848 (.5036)	.5000 (.5053)	.4285 (.5040)	.3151 (.4661)
Education: primary school or less	.3182 (.4693)	.4167 (.4982)	.3571 (.4880)	.2877 (.4542)
Education: vocational school (3 years)	.3333 (.4750)	.3333 (.4764)	.3571 (.4880)	.4110 (.4937)
Previous unemployment duration (in months)	31.33 (37.67)	36.83 (41.78)	42.68 (50.07)	60.05 (54.69)
Employed at all in last 3 years	.7424 (.4407)	.7292 (.4491)	.8214 (.3900)	.5685 (.4970)
Actively searching for a job	.8485 (.3613)	.8125 (.3944)	.8571 (.3563)	.6370 (.4825)
# observations	66	48	28	146

*Note:* Mean values of selected variables (standard deviation in brackets). CP indicates participation in both the vocational training and the temporary employment stage of the program, TR (TE) indicates participation in the training (temporary employment) stage of the program only, NP indicates non-participation.

Figure 1: Distribution of Propensity Scores, Common Support.

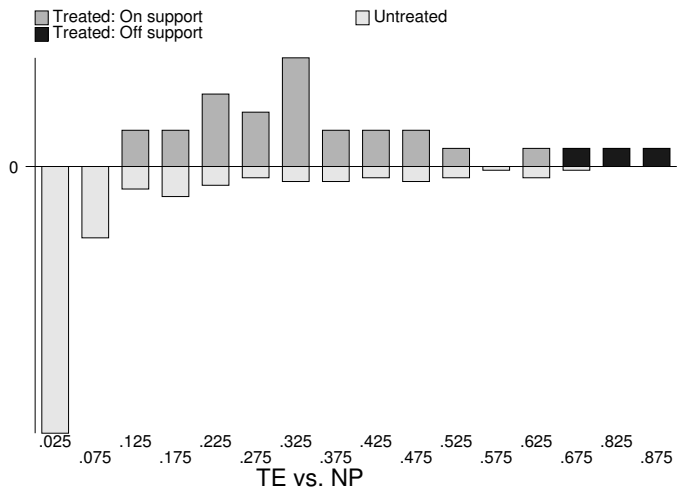
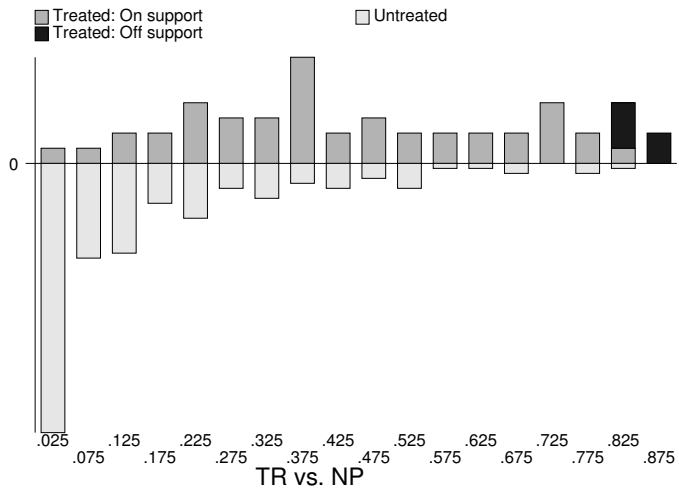
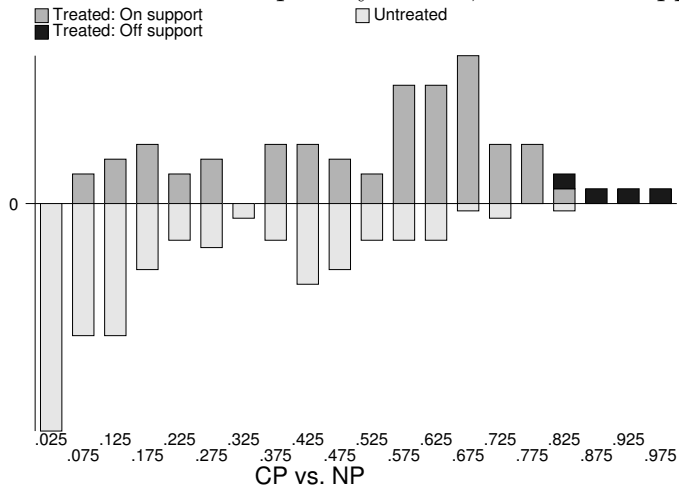


Table 4: Probit Estimates (Marginal Effects).

	CP vs. NP	TR vs. NP	TE vs. NP
ln(Age)	-98.8535*	-40.0550	7.4593
ln(Age) <sup>2</sup>	29.3678*	12.2453	-1.7225
ln(Age) <sup>3</sup>	-2.8845*	-1.2343	.1222
Married	-.2717***	-.1577*	.0331
Roma	.1607	.3182	.1851*
Belgrade	.0538	.1339*	.0658
Homeowner	.1540	.1931**	.4381***
Education: primary school or less	.1157	.1577*	.0442
Education: vocational school (3 years)	.0127	.1022	.0534
Disabled		-.0254	-.0046
Mobile	-.1169	-.1675**	-.0634
Unemployed $\leq$ 12 months	.4141***	.2587**	.3331***
Unemployed 13–24 months	.3749***	.3156***	.0178
Unemployed 25–36 months	.3165**	.4246**	.1222
Unemployed 37–48 months	.3712**	.1826	.1062
Employed at all in last 3 years	.0959	.0975	.2091***
Share of employment in last 3 years	-.1704	-.3355*	-.2510**
Other income	-.2669	-.2005	-.1196
Jobsearcher	.1971**	.1296*	.1061**
ALMP	-.2503**	-.1240	
Jobdesire	.1386	.0597	.0612
Jobchances	.0594	.2020**	-.0479
Jobchances $\times$ Jobdesire	.0551		
Jobchances $\times$ Employed at all in last 3 years	-.0381		
Jobchances $\times$ Roma	-.0246		
Roma $\times$ Belgrade	.5449	.0419	
Roma $\times$ Homeowner	-.2600	-.1661**	
Roma $\times$ Married		.0991	
Mobile $\times$ Education: primary school or less	-.2494		
Jobsearcher $\times$ Unemployed 25–36 months		-.1029	
Employed at all in last 3 years $\times$ Homeowner			-.1156**

*Note:* \*\*\* significant at 1%, \*\* significant at 5%; \* significant at 10%. CP indicates participation in both the vocational training and the temporary employment stage of the program, TR (TE) indicates participation in the training (temporary employment) stage of the program only, NP indicates non-participation.

Table 5: Matching Quality.

	CP vs. NP	TR vs. NP	TE vs. NP
# treated individuals	66	48	28
# treated individuals off support	4	5	3
# matched pairs	62	43	25
Mean SB before matching	0.1962	0.2467	0.1965
Mean SB after matching	0.0862	0.0882	0.1001
Pseudo- $R^2$ before matching	0.2573	0.2872	0.2890
Pseudo- $R^2$ after matching	0.1363	0.1688	0.1139

*Note:* The mean SB is calculated as the mean of the single characteristics' SB (in percent). CP indicates participation in both the vocational training and the temporary employment stage of the program, TR (TE) indicates participation in the training (temporary employment) stage of the program only, NP indicates non-participation.

Table 6: ATT labor market outcomes.

	CP vs. NP	TR vs. NP	TE vs. NP
Unemployment	-.1290	-.0698	.0000
Regular job	.1290	.0465	.1200
Seasonal job	-.0161	.0930	-.1600
ALMP job	.0323	-.0698	.0400
# matched pairs	62	43	25

*Note:* \*\*\* significant at 1%, \*\* significant at 5%; \* significant at 10%. CP indicates participation in both the vocational training and the temporary employment stage of the program, TR (TE) indicates participation in the training (temporary employment) stage of the program only, NP indicates non-participation.

Table 7: ATT indicators of subjective well-being.

	CP vs. NP	TR vs. NP	TE vs. NP
Self-confidence	.1129	.2093*	.2800**
Job desire	.2419**	.2558**	.1200
Social contacts	.1451	.1860	.2800**
Qualification and skills	.3387***	.5116***	.2400**
Health	.1774**	.0233	.0000
Job chances	.1129	.0698	.2400***
Family income situation	.0645	.1163	.1200
# matched pairs	62	43	25

*Note:* \*\*\* significant at 1%, \*\* significant at 5%; \* significant at 10%. CP indicates participation in both the vocational training and the temporary employment stage of the program, TR (TE) indicates participation in the training (temporary employment) stage of the program only, NP indicates non-participation.