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Does the Slovenian Public Work Program Increase Participants' Chances to Find a Job?

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Comments Welcome

DOES THE SLOVENIAN PUBLIC WORK PROGRAM INCREASE

PARTICIPANTS' CHANCES TO FIND A JOB?[1]

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Abstract

This paper analyzes the effects of Slovenian public works on employability of the participants during 1992-1996. It shows that immediately upon the completion, the program helps the participants to find a job, but in the longer run, the positive effect is dissipated and the impact becomes negative. Some of the exits to employment upon the completion of the program can be attributed to converting public jobs positions to permanent ones, and the longer term negative impact on finding a job could be related to stigmatization of the participants. The study also shows that public works reduce the exit rate to inactivity.

Journal of Economic Literature classification numbers: J24, J64, J68.

Non-Technical Summary

In 1998 the Slovenian government embarked on an ambitious reform of its labor market policies and programs. Under the proposed system, public works are to become the most important component of active labor market programs. The program consists of creating special jobs for the unemployed under the auspices of a public or non-profit organization. The jobs should render useful services to the public at large or to special groups that need additional social services. The jobs are strictly of limited duration, not to exceed one year.

By providing job opportunities, although in somewhat artificial environment, public works address equity considerations. But how helpful are they in increasing chances of the unemployed to obtain a regular job? To shed more light on the above controversy and to assist the Slovenian government in designing the increased public works program, this paper analyzes the impact of the Slovenian public works program during the years 1992-96 on participants' exit from unemployment. Using the quasi-experimental approach and correcting for the effects of unobserved heterogeneity in evaluating the impact of public works, the paper finds that the Slovenian public works program increased the chances of its participants finding a job immediately upon leaving the program, but reduced them in the longer-term. It also finds that positive effects on employability are particularly large for younger workers. Some of the exits to employment upon the completion of the program can be attributed to converting public jobs positions to permanent ones, and the longer term negative impact on finding a job could be related to stigmatization of the participants. The study also shows that public works reduce the exit rate to inactivity, perhaps by providing a moral support to the unemployed, and thus boost their workforce attachment. In comparison with public works programs in other transition economies, Slovenian program seemed to be more innovative. By shifting the focus from manual to intellectual work, it succeeded in attracting more educated and younger individuals.

To the extent that the positive effect found by this study is driven by the possibility of the conversion of public works jobs into regular ones, it may be driven by the particular circumstances that prevailed in the early phase of the transition, namely the underprovision of social services. The proposed 1998 reform of the active labor market programs, planning to put many more unemployed in the public works program and using public works as a filter for the receipt of unemployment insurance benefits, is thus likely to reduce the positive short-term impact of the program. Not only are market niches in the provision of services filled, but also the composition of participants may change.

The transition to market economy removed one of the key characteristics of the socialist system -- job security. The government gave up its role of a guardian and provider of jobs, and allowed enterprises to lay-off workers. Many of them lost their jobs when enterprises tried to increase their efficiency or were forced to declare bankruptcy. In addition to these workers, the ranks of unemployed were filled also by school leavers who could not find a job under the harsh labor market conditions. From the perspective of the national economy, unemployed workers are a necessary evil of the market economy -- as proved by developed Western economies, the evil which is more than paid off by the greater efficiency. However, from the perspective of the individual, the loss of a job and the ensuing unemployment is usually very painful. It brings not only the loss of a salary, but also the loss of the self-respect and sometimes even harmful effects on individual's health.

To become more effective in assisting the unemployed to find a job and to reduce the unemployment rate, in 1998 the Slovenian government embarked on an ambitious reform of its labor market policies and programs. In line with the recent changes in some OECD countries (notably, the U.S. and the U.K.) the proposed strategy aims at shifting resources from income support to programs which emphasize active participation of the unemployed in the process of finding a job. Under the proposed system, public works are to become the most important component of active labor market programs. By offering an opportunity to workers with a limited access to jobs to refresh and develop their skills, as well as to maintain their working habits, public works are hoped not only to offer moral support to

those individuals, but also to speed up their transitions from unemployment to regular employment.

By providing job opportunities, although in somewhat artificial environment, public works certainly address equity considerations. But how helpful are they in increasing chances of the unemployed to obtain a regular job? To the extent they contribute to the acquisition of human capital, their expected impact on job prospects of participants is indeed positive. But there is also a danger that public works participation stigmatize the participants, and the very fact that they participate in public works may worsen their chances to find a job. Evaluations of public works programs in other economies provides provide support to both of the above conjectures.

To shed more light on the above controversy and to assist the Slovenian government in designing the increased public works program, this paper analyzes the impact of the Slovenian public works program during the years 1992-96 on participants' exit from unemployment, in particular, on their job-finding success. Using the quasi-experimental approach, the paper finds that the Slovenian public works program increased the chances of its participants finding a job immediately upon leaving the program, but reduced them in the longer-term. It is also finds that positive effects on employability are particularly large for younger workers.

In continuation, I provide an institutional background by summarizing the working of the public works (section 1). I then describe the data used in the empirical analysis (section 2). Using the Heckman selectivity correction approach, I analyze the

determinants of exit from unemployment, focusing on the effects of the participation in public works (section 3). The paper finishes with concluding remarks (section 4).

1. DESCRIPTION OF THE PUBLIC WORKS PROGRAM

In response to the mounting unemployment in the early 1990s, Slovenia relied not only on income support programs, but has also introduced various labor market programs aimed at assisting the unemployed to find jobs, as well as preserving the existing jobs (so-called active labor market programs). In addition to traditional training programs, several new programs have been introduced, for example, job preservation subsidies, public works, and several programs to provide guidance and assistance for individuals considering self-employment.

The number of participants and expenditures for these programs for 1994-96 are presented in Table 1. As can be seen from the data, training has been the most important component of the active labor market programs. The weight of public works, however, increased both in terms of participants and program expenditures. For example, in 1996, the expenditures on training were 0.088 percent of GDP, and for public works only slightly below that, 0.075 percent.

(INSERT TABLE 1 ABOUT HERE)

One of the reasons for a heavier reliance on the public works has been a limited success of other programs, for example, of the capitalization program. The program promotes self-employment among the unemployed by converting the maximum amount of unemployment insurance benefits to which they are entitled to a lump-sum payment,

conditional on using the resources to start self-employment. In contrast to public works, it is the responsibility of the unemployed worker to create a suitable job opportunity. However, as Vodopivec (1998) shows, although participants of the capitalization program are carefully selected, the failure rate of their business is significantly higher than the one of independent entrepreneurs.

The working of the public works program

Public works were one of the new programs introduced in the early 1990s. Apart from the name, the program neither by the scope nor the form of participation resembles the one carried out by the new, socialist Yugoslav government immediately after WW II. The latter was a quasi-mandatory, labor intensive, and low efficiency program used predominantly in the construction of roads. Nonetheless, the newly introduced program has been associated with the old in the public and by prospective participants, although it seems that this association is becoming weaker and weaker.

The program consists of creating special jobs for the unemployed under the auspices of a public or non-profit organization. The jobs should render useful services to the public at large or to special groups that need additional social services. The jobs are strictly of limited duration, not to exceed one year. The exception are programs providing social protection services, where the limit is two years. In addition, the one year limit is also not binding for the unemployed over 50 years of age, and the handicapped.

Objectives. The primary incentive of the program is to assist the unemployed to maintain their workforce attachment. In addition to providing a material reward, the program has been thus designed to assist the unemployed to retain and develop their work habits, that

is, prevention of the dissipation of human capital, as well as to cope with the crisis of social exclusion associated with unemployment. In addition, of course, it is also hoped that the participation in public works would improve the prospects of obtain regular job in the same industry or elsewhere.

Provision and organization of public works. The supply of public works is generated through a tender organized by the National Employment Office, announcing the areas of public works and general conditions. The bidders to the tender are contractors (the implementing agencies), who, in collaboration with users of the public works, propose the plan of implementation of public works for a given period. The contractors of public works organize and carry out the public works, as well as provide mentoring and training to the participants, if needed. The contractors are either public agencies (for example, in the field of social protection, education, and culture) or private, non-profit organizations (NGOs). For example, in social protection, contractors include government-run Centers for Social Work, homes for elderly, association which organizes summer camps for youth, Work Safety Centers; in education and culture, elementary schools, libraries, regional archives and museums, tourist information centers; in the area of ecology and farming, firms providing municipal services, Extension services, Firms dealing with forests; and in the area of infrastructure, firms providing municipal services and local governments. The users of the public works determine the concrete work to be done, within the framework provided by the National Employment Service. It also partly finances the program). The users are usually local governments, but also other public agencies, and various associations and private, non-profit organizations.

Selection of participants. The Law on Employment and Unemployment Insurance (Official Gazette of Slovenia, No. 5/1991) stipulates that every unemployed, under equal conditions, is eligible to participate. However, given the limited number of vacancies, internal regulations of the NEO give priority to the following groups:

- long-term unemployed,

- low-skilled

- older

- individuals living in material hardship

- individuals with psychical difficulties

The incentive for participation can come from either the prospective participant or the counselor. The decision to participate is usually taken on consensual basis; in the past, the refusal to did not trigger the loss of unemployment benefits (which is the case in some other transition economies, for example, Estonia).

Material reward of participation. The participants receive the following material reward for participation in public works:

- remuneration in the amount of 70 percent of the going wage for similar type of work, as stipulated in the collective agreements (Table 2; see also below on the sources of financing)

- payment of the pension and health contributions

- reimbursement for travel and meals

- paid leave (if participation in public works lasts more than six months); a year-long participation entitles one to 18 days of leave.

(INSERT TABLE 2 ABOUT HERE)

Given the relatively compressed reward structure (emphasized by the presence of fixed elements like reimbursements for travel and meals), it seems low-skilled workers have more incentives to participate in the program than high-skilled ones.

Financing. The program is financed jointly by the National Employment Service, the users, and sometimes also the contractors. The NEO finances a part of remuneration which is equal for all participants, amounting to 80 percent of the so-called guarantee wage, for those participants who are not entitled to unemployment insurance benefit (participation in public works does not affect eligibility to unemployment benefit). The NEO also covers the other costs of associated with the organization and running of the public works, as well as costs of travel to work and costs of meals at work and training costs. Users (or sometimes contractors) pay only the incentive part of the participants' remuneration.

Areas of public works. Slovenian public works programs fall in four broad categories: social protection (for example, providing child care and assistance to the elderly); education and culture; environmental and rural programs; and municipal services. In 1993, there were 35 percent of participants in the area of social protection, 20 percent in education and culture, 17 percent in environmental and rural programs; and 28 percent in municipal services; in 1997, these shares were 38 percent, 30 percent, 11 percent, and 28 percent, respectively (National Employment Office of Slovenia, 1998). The intake of participants in the area of social protection and education and culture has thus strongly increased, and in the two other areas decreased. Note that this trend means that public works are shifting away from the use of physical labor toward the use of more intellectually demand labor.

In comparison with programs in other transition economies (the Czech Republic, Hungary, and Poland), Slovenian public works seem to attract significantly more educated participants, as well as younger ones (Table 3). For example, only 40 percent of Slovenian public works participants had low education (primary or less), compared to over 80 percent of such participants in the Czech Republic and Poland, and 67 percent in Hungary. This underscores the difference in the scope of the programs: while Slovenian public works provide jobs also for educated workers in areas such as education, culture, and care for elderly, the programs in other transition economies focus mainly on maintenance of public facilities and offer the vast majority of jobs for the unskilled workers. In searching for new ways to engage more educated in public works program, Slovenia seems to follow the German ABM program (Arbeitsbeschaffungsmassnahmen), which has also been successfully used in transition of the East Germany.

(INSERT TABLE 3 ABOUT HERE)

Another feature that, at least on the paper, distinguishes Slovenian public works program from the one in many other transition economies is the fact that non-acceptance of participation in public works does not lead to the denial of unemployment compensation payments (on the program rules in the Czech Republic, Hungary, and Poland, see Fretwell, Benus and O'Leary, 1998). However, since unemployment benefits in other economies seem to be less generous, and the rule also not so strictly obeyed, this difference may not be so important and probably is not responsible for a difference in the skills of public works participants between Slovenia in other countries.[2]

2. DATA DESCRIPTION

The above analysis uses three data sets, all administered by National Employment Office of Slovenia:

(1) **The data set on registered unemployment.** Each occurrence -- episode -- of unemployment is recorded as a separate observation with the following variables: personal identification number, registration number with the Employment Office, starting and ending date of unemployment, labor market status after leaving unemployment, date and reason for termination of preceding employment, personal and human capital characteristics, as well as number of dependents. The data set covers all unemployment spells (occurrences of unemployment) which were registered between January 1992 and May 1996. May 1996 is thus also a censoring date -- no information beyond this date (notably, on the exit from unemployment) is included in the data set.

(2) **The data set on the receipt of unemployment benefit.** It includes personal identification number, starting and ending date of the eligibility for the receipt of the unemployment benefit, and the type of the benefit. It covers the same period as the data set on registered unemployment.

(3) **The data set on participation in public works.** It includes personal identification number, starting and ending date of the participation in the public works program, and sector in which public works were carried out. It relates to the same period as the two data sets above. The coverage of the data is incomplete, because some of the country's 63 local employment offices did not maintain individual data sets on the

participants. There is no reason, however. to suspect that the data collected is not representative of the whole population.

The three data sets were merged based on personal identification numbers, and checked for consistency. In the analysis, I use all records of participation in public works (5,540 records), as well as 3.5 percent random sample of the unemployed - non-participants in the public works (11,544 records).

3. EMPIRICAL ANALYSIS: DO PUBLIC WORKS INCREASE CHANCES OF WORKERS TO FIND A JOB?

The empirical analysis below focuses on the evaluation of the impact of the Slovenian public works program on the prospects of participants to leave unemployment and either find a job or became inactive. I thus sidestep evaluation of other aspects of public works, such as how effectively they reduce social tensions, or contribute to macroeconomic stability. Moreover, I stop short of assessing the cost-effectiveness of the program, among others because of the difficulties in assessing the side-effects of the program, particularly the displacement effect (the fact that as the result of the program, individuals may "change the place in the waiting line for jobs," but the overall probability of the successful job match may remain unchanged).

As mentioned in the introduction, the theoretical predictions about the expected effects of public works participation are ambiguous. By providing job opportunities to individuals with particular difficulties in accessing jobs, public works may help the unemployed to develop new skills and regain their self-esteeming, and thus conceivably

increase their chances for employment. On the other hand, program participation may stigmatize the unemployed in the eyes of their prospective employers and thus worsen, rather than improve their chances to find a job (for the evidence on stigmatization, see, for example, Hamermesh, 1978).

3.1 The analytical approach

To analyze the effects of the participation in public works on probability of leaving unemployment, I constructed a variable $EXIT_{ni}$ which shows individual's labor market status after spending n months searching for a job, where n equals 0 (in fact, one week after the start of the search was taken into account), 3 months, 6 months, 12 months, and 24 months. For those who participated in the public works program, the start of the searching time was set to zero at the moment when they finished their participation in the public works program. For those who did not participate in public works, the start of the searching time coincided with the registration at the employment office. Note that time spent in unemployment for public works participants exceeds the time spent on job search, because the latter does not include period of participation in public works, nor the lapse between the registration with Employment Office and the entry into the program. The variable $EXIT_{ni}$ can take on three values: 0, if after n months individual is still unemployed; 1, if after n months individual is employed; and 2, if after n months individual is inactive (out of labor force). Means of this variable for the selected sample of Slovenian unemployed are presented in Table 4, separately for participants and for non-participants of public works.

(INSERT TABLE 4 ABOUT HERE)

To determine whether public works participation increases participants' prospects of obtaining a job, one can model individual's labor force status after n months of job search as:

$$EXIT_{ni} = X_i\beta_1 + PW_i\beta_2 + \varepsilon_1 \tag{1}$$

where X_i - is a vector of personal characteristics (gender, ethnicity, and age) and human capital characteristics (education, work experience, health condition), PW_i is a dummy representing past participation in public works ($PW_i = 1$ if an individual participated in public works, 0 otherwise), and β_1 and β_2 are parameters to be estimated. By assumption, $E(\varepsilon_i) = 0$ and $Var(\varepsilon_i) = \sigma_\varepsilon^2$.

The principal obstacle in obtaining unbiased estimates of the impact of public works on chances to find a job is the problem of selection. Individuals opting to participate in public works may differ from those opting not to in many aspects, some of which may be unobservable. If these unobservable characteristics also affect job prospects individual, the equation (1) is misspecified and the estimated coefficient β_2 biased.

The direction of the bias can not be determined in advance. It is possible, for example, that public works enroll mostly individuals with low self-esteem and motivation. Ceteris paribus, those individuals' chances to move from unemployment into work are lower than chances of other unemployed. Under those circumstances, the coefficient of the participation in public works in the estimation which does not account

for selectivity is biased downward -- that is, the effects of the public works underestimated. But it is also possible that public works attract more motivated and agile individuals, which produces an upward bias in the coefficient of participation in the estimation which does not correct for selectivity.

To rectify this selection bias, I employ a Heckman two-stage procedure: in the first stage, equation of participation in public works is estimated, with regressors derived from the process and circumstances described above. The outcome of that stage is a new variable (the inverse Mills ratio, λ), to be used as one of the regressors in the second stage -- that is, in the estimation of equation of exit from unemployment.

I thus first estimate the following probit equation of participation in public works by maximum likelihood method:

$$PW_i = X_i \gamma_1 + Z_i \gamma_2 + u_I \tag{2}$$

where X_i are personal and human capital variables, and Z_i, factors which capture criteria for selection for public works (number of dependents, for example). This estimation produces a new variable - inverse Mills ratio $\lambda_i = \phi(X_i \gamma_1 + Z_i \gamma_2)/\Phi(X_i \gamma_1 + Z_i \gamma_2)$, for participants of the public works, and $\lambda_i = - \phi(X_i \gamma_1 + Z_i \gamma_2)/(1 - \Phi(X_i \gamma_1 + Z_i \gamma_2))$, for non-participants, where $\phi(.)$ and $\Phi(.)$ are standard normal and cumulative standard normal distributions, respectively (see, for example, Greene, 1993).

In the second stage I estimate equation (1) using a multinomial logit model, with the selection correction variable generated in the first stage as one of the explanatory

variables. Assuming joint normality for distribution (ε_i, u_i) with the correlation ρ, it can be shown that, for participants,

$$E(EXIT_i \mid PW_i = 1) = X_i\beta_1 + \beta_2 + E(\varepsilon_i \mid PW_i = 1) = X_i\beta_1 + \beta_2 +$$

$$\rho\sigma_\varepsilon \{\phi(X_i\gamma_1 + Z_i\gamma_2)/\Phi(X_i\gamma_1 + Z_i\gamma_2)\},$$

and for non-participants:

$$E(EXIT_i \mid PW_i = 0) = X_i\beta_1 + E(\varepsilon_i \mid PW_i = 0) =$$

$$X_i\beta_1 + \rho\sigma_\varepsilon \{-\phi(X_i\gamma_1 + Z_i\gamma_2)/(1 - \Phi(X_i\gamma_1 + Z_i\gamma_2))\},$$

The difference in expected value of EXIT between the participants and non-participants is thus

$$E(EXIT_i \mid PW_i = 1) - E(EXIT_i \mid PW_i = 0) = \beta_2 +$$

$$+ \rho\sigma_\varepsilon \{\phi(X_i\gamma_1 + Z_i\gamma_2)/\Phi(X_i\gamma_1 + Z_i\gamma_2)(1 - \Phi(X_i\gamma_1 + Z_i\gamma_2))\}$$

(3)

By including the selectivity correction term in the estimation of equation (1), the bias presented by the second term of the right-hand-side of equation (3) is purged from the estimates. Programs selection rules described above produce a variable to be used as an instrument identifying the selection equation.

3.2 The results

I will first present the results of the selection into the public works model, and then the estimates of the exit from unemployment.

Selection into the Public Works Program

Reflecting the program rules, participants of the public works entered the program after being unemployed for some time. For the participants included in the study, the average time lapsed between the registration at the Employment Office and the enrollment in the program was 16.6 months. On average, their duration of participation in the program was 7.6 months.

Descriptive statistics, containing means of the variables used in the empirical analysis separately for participants and non-participants, are presented in Annex (Table A1). Descriptive statistics, as well as probit results of selection to the public works program presented in Table 4, allow the following conclusions about the differences between the two groups. In comparison to non-participants, fewer participants are married or Slovenian, but gender representation is similar. Not surprisingly, participants also tend to be older (particularly underrepresented is the group younger than 20 years) and less experienced. Interestingly, those with vocational education are the least likely to participate, and so we have the more-than-proportional representation of those with both low and high education (except 4 year university graduates). Moreover, labor market reentrants, those who quit their previous job, as well as those who ended a fixed-term appointment are also more likely to participate in public works. Because program

participation brings little financial reward for those receiving unemployment compensation, they are significantly less likely to participate; this is not true for the recipients of the income-tested unemployment assistance. (Regional data on participation in public works is most likely affected by the shortcomings of the data collection process mentioned above, so I do not report analytical results on regional effects.)

(INSERT TABLE 4 ABOUT HERE)

The above differences stem from both preferences of the unemployed as well as the program selection guidelines discussed above. One variable that falls in the latter group is the presence of dependents, since that directly affects the financial position of the individual. As follows from the program guidelines, individuals who have dependents are more likely to participate, because employment offices give them priority if the demand for participation exceeds the supply. Therefore, this variable is used as the instrumental variable identifying the selection correction procedure.

Exit from Unemployment

Before presenting the analytical results, let us summarize the evidence on the exit from unemployment for participants and non-participants presented in Table 5. Strikingly, the cumulative success rate in finding employment is higher for the group of public works participants at all "checkpoints", that is, for search times ranging from one week to 24 months. Particularly obvious is the advantage of public works participants at the beginning of the job-search time: 11.3 percent of the program participants obtained the job within a week following the completion of the program, compared to a mere 1.1

percent of non-participants who found jobs within one week of registration with the Employment Office. It should be remembered that the measure of search time used in this study ignores the time the participants in public works spend while in the program, as well as the time between the unemployment registration and enrollment in the program. Nonetheless, this observation suggest that many participants succeeded in converting their previous public works positions to regular employment. Indeed, according to official data, 10.8 percent of participants succeeded in doing so during 1993-96 (National Employment Office, 1998). This suggests that some employers may be using public works both as a employment subsidy program and/or as a screening device before committing to formal employment. As can also be observed from the table, the exit path to inactivity is similar for both participants and non-participants.

(INSERT TABLE 5 ABOUT HERE)

The results of the multinomial model of exit from unemployment to employment and inactivity are presented in Table 6. Each table contains estimates of both the model with and without the selectivity correction. According to the selectivity unadjusted model, the impact of public works on exit to employment is significantly positive throughout the job-search time span under investigation (from a week to 24 months). Selectivity correction, however, markedly changes such a positive picture of public works. The immediate impact of public works on the exit to unemployment -- within one week of job-search time -- remains significantly positive. However, although remaining positive, the impact becomes statistically insignificant at 3 and 6 months of search time. Moreover, the impact becomes negative, but statistically insignificant, at 12 months. and

negative and statistically significant at 24 months of job-search time. While confirming the positive immediate effects of the program on employment, this more sophisticated -- but also more credible -- approach points to the possible presence of stigmatization effects of public works that worsen the job prospects of participants of public works who do not succeed to find a job within a year of graduation from the program.[3]

(INSERT TABLE 6 ABOUT HERE)

It is also of interest to note that the selectivity correction variable (inverse Mills ratio) is significantly negative at the beginning of the job-search time span, and is significantly positive at the end of it (at 24 months). That means that at the beginning of the search period, unobserved characteristics work against the public works participants -- that is, unobservable characteristics of the participants worsen their job prospects in comparison to the prospects of other unemployed. This is in line with the expectation that, when compared with **entrants** to unemployment, public works participants are have lower job potential, holding observable characteristics constant. However, once the two groups are compared at the end of the job-search period under investigation (24 months), unobservable characteristics of the participants of public work are actually better than the characteristics of **those non-participants still unemployed after 24 months** of job search.

Interactions of dummy variable for public works participation with gender, education and age as regressors in the above model discern additional patterns of impact of the public works (Table 7). Negative employment effects of participation of women are confirmed after 6 and 12 months of job search. Among educational groups, the worst

employment effects of public works are detected among those with vocational education. Moreover, the effects of participation of younger workers are found to exceed those of older ones.

(INSERT TABLE 7 ABOUT HERE)

Other estimates of the parameters of the exit to employment model capture the effects of observable differences in demographics and human capital among the unemployed. Their primary role in the present context is to control for other effects on exit from unemployment, but they are also of interest for themselves. In line with those obtained in other studies of exit from unemployment, the results show that younger and more skilled workers (both more educated and more experienced) have better chances of finding a job. This result holds true throughout the job-search period under investigation (the only exception are the effects of work experience after one year of job-search). Women are found to have no less chances to find a job only up to three months of the job-search, and worse chances thereafter. Moreover, in comparison to labor market entrants, re-entrants, those who were laid off from the previous job, and previously self-employed individuals have lower chances to find a job.

The results on the impact of public works on the exit to inactivity show similar reversal of the effects of the program when selectivity is adjusted for. In the unadjusted model, the impact of public works on exit to inactivity is significantly positive at the beginning and end of the time span under investigation, the result which is reversed once the selectivity is corrected for. Public works thus reduce the exit rate to inactivity, perhaps by mitigating psychological consequences of unemployment.

How do the above results compare with evaluations of public works programs for other countries? Dar and Tzannatos (1998) report several studies that find a similar positive short-term impact that dissipates in the longer run (for Denmark and Finland). On the other hand, Fretwell, Benus and O'Leary (1998) report a black picture for the Czech Republic, Hungary and Poland. Using matched pair comparisons of participants and non-participants, they show that public works participation reduced chances for employment in all three economies. The only exception were public works operated by private contractors in Poland, which improved the chances of transition to employment. Puhani and Steiner (1997), who evaluate public works based both on labor market outcomes as well as perceptions of program participants, also concur with the negative effects of the Polish program..

O'Leary (1997, 1998) provides more details for the studies of Hungary and Poland, respectively. The above studies, however, ignore the unobservable differences between participants and non-participants, that is, the unobserved heterogeneity problem inherent to program evaluation.[4] The reported impacts thus cannot be attributed only to the impact of public works *per se*, but rather to the combined impact of public works and particular distribution non-observable characteristics of participants and non-participants, the distribution determined by the selection procedures used by the programs.

The study of Lubyova and Ours (1998) on Slovakia underscores the importance of the effects of unobserved heterogeneity in evaluating the impact of public works. When not adjusted for selectivity, the study finds a negative treatment effect of public works on exit to regular employment. In contrast, adjusted effects of public works are found to be

neutral in the short term and negative 6 months after the end of the program. The study also finds that workers with unobserved characteristics conducive to higher transition rates to regular employment are less likely to participate in public works program.

4. CONCLUDING REMARKS

This paper analyzed the effects of Slovenian public works on employability of the participants during 1992-1996. It shows that immediately upon the completion of the program, Slovenian public works help their participants to find a job. In the longer run, however, the positive effect is dissipated and after a year from the completion of the program, the impact of the program on exit to employment becomes negative. Some of the exits to employment upon the completion of the program can be attributed to converting public jobs positions to permanent ones, and the longer term negative impact on finding a job could be related to stigmatization of the participants. The study also shows that public works reduce the exit rate to inactivity, perhaps by providing a moral support to the unemployed, and thus boost their workforce attachment. In comparison with public works programs in other transition economies, Slovenian program seemed to be more innovative. By shifting the focus from manual to intellectual work, it succeeded in attracting more educated and younger individuals.

To the extent that the positive effect found by this study is driven by the possibility of the conversion of public works jobs into regular ones, it may be driven by the particular circumstances that prevailed in the early phase of the transition, namely the underprovision of social services. The proposed 1998 reform of the active labor market

programs, planning to put many more unemployed in the public works program and using public works as a filter for the receipt of unemployment insurance benefits, is thus likely to reduce the positive short-term impact of the program. Not only has been many market niches in the provision of services filled, but also the composition of participants may change in favor of less educated and less motivated individuals.

The study did not address some important aspects of Slovenian public works. Above all, it did not investigate how durable are jobs taken by the graduates of public works program, and how do their earnings compare with earnings of other workers. Since such data, in principle, could be obtained and merged with the data used in this analysis, these issues are worthwhile to explore in future research.

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Table 1: Participants and Expenditures on Active Labor Market Programs, 1994-

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	1994	1995	1996
Training			
Number of participants	10768	16456	18167
Expenditure (% of GDP)	0.044	0.071	0.088
Internship			
Number of participants	8423	5011	2230
Expenditure (% of GDP)	< 0.001	< 0.001	< 0.001
Public works			
Number of participants	4475	4272	4728
Expenditure (% of GDP)	0.045	0.053	0.075
Self-employment programs			
Number of participants	10231	11298	9870
Expenditure (% of GDP)	< 0.001	< 0.001	< 0.001
Capitalization program			
Number of participants	1208	1176	928
Expenditure (% of GDP)	0.036	0.041	0.036
Financial assistance to self-employed			
Number of participants	3316	2854	1971
Expenditure (% of GDP)	0.035	0.050	0.041
Employment programs for the handicapped			
Number of participants	4.798	5847	6208
Expenditure (% of GDP)	0.032	0.049	0.048
Reimbursement of SSC for hiring long-term unemployed and first-time job seekers			
Number of participants	359	559	799
Expenditure (% of GDP)	0.001	0.005	0.005
Reimbursement of SSC for hiring UI benefit claimants			

Number of participants	906	2214	1780
Expenditure (% of GDP)	0.003	0.011	0.010
Subsidies for redundant workers and job preservation			
Number of participants	4410	2250	2086
Expenditure (% of GDP)	0.008	0.009	0.007

Source: Annual Report of the National Employment Office for years 1995, 1996, and 1997, own

calculations.

Table 2: Material Reward of Participation in Public Works,

by Education of the Participant (June 1998)

Education of the participant	Reward paid by the user (in SIT)	Total net reward (in SIT)	Total net reward, in percent of the average net wage (June 1998)
Elementary or less	8,833	30,896	31.0
Vocational	11,334	33,397	33.5
High school	15,451	37,514	37.6
University (2 year degree)	22,312	44,375	44.5
University (4 year degree)	28,030	50,093	50.2

Source: National Employment Office of Slovenia, internal material.

Table 3: International Comparison of Characteristics of Participants of Public

Works

	Percent of Women	Average Age	Education Primary Secondary Above		
Slovenia	49	28	40	49	10
Czech Republic	37	34	88	10	1
Hungary	44	36	67	30	3
Poland	15	29	87	12	1

Source: for Slovenia. own computations; for transition economies, Fretwell, Benus, O'Leary (1998).

Table 4: Probit Analysis of Participation in Public Works

	Coefficient	t-ratio
Women	0.03	1.39
Married	-0.14	-4.87
Non-Slovenian	-0.24	-7.38
Ability to speak a foreign language	0.12	4.13
Bad health condition	0.04	0.61
Being pregnant	-0.14	-1.46
Being handicapped	0.14	2.06
Age (excluded category: age 20 to 30 years)		
Under 20 years of age	-0.15	-4.40
Age 30 to 40	0.10	2.43
Age 40 to 50	0.10	1.97
Over 50 years of age	-0.05	-0.58
Education (excluded category: unfinished elementary)		
Elementary education	-0.17	-4.14
Vocational education	-0.51	-12.20
High school	-0.14	-3.27
University (2 years)	0.05	0.81
University (4 years)	-0.33	-4.63
Work experience (excluded category: 2 to 10 years of experience)		
Work experience of less than 2 years	0.06	1.78

Work experience from 10 to 20 years	-0.01	-0.35
Work experience from 20 to 30 years	-0.27	-4.54
Work experience of more than 30 years	-0.61	-5.65
Source of unemployment (excluded category: labor market entrant)		
Re-entrant into the labor market	0.25	5.56
Quit the previous job	0.19	4.13
Disciplinary dismissed from the previous job	0.38	4.53
Was laid off from the previous job	-0.18	-3.30
Previous employed went bankrupt	-0.02	-0.34
Ended self-employment	0.02	0.28
Ended fixed-term employment	0.29	7.13
Ended internship	0.26	5.13
Other reason for ending previous employment	0.18	2.45
Having one or more dependents	0.08	2.77
Eligibility to unemployment compensation	-0.27	-7.56
Eligibility to unemployment assistance	-0.02	-0.59
Constant	-0.11	-1.92

Log Likelihood: - 9934.5

Restricted Log Likelihood: -10763.8

N: 17084

Table 5: Exit from Unemployment, by Participation in Public Works

| | Participants | | Non-participants | |
| | Exit to | | Exit to | |
	Employment	Inactivity	Employment	Inactivity
Exit from unemployment within a week	11.33	1.14	1.05	0.49
Exit from unemployment within 3 months	21.98	3.21	15.10	2.51
Exit from unemployment within 6 months	29.78	4.53	25.52	4.50
Exit from unemployment within 12 months	43.79	6.75	36.85	7.06
Exit from unemployment within 24 months	69.53	12.21	45.08	11.17

Table 6: Estimation of Exit from Unemployment, Without and With Selectivity Correction[a]

| | Exit to Employment | | | | Exit to Inactivity | | | |
| | Without corr. | | With corr. | | Without corr. | | With corr. | |
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio
After One Week of Search Time [1]								
Participation in public works	2.48	22.78	5.00	5.01	1.20	5.60	-0.16	-0.08
Mills ratio	n.a.	n.a.	-1.51	-2.54	n.a.	n.a.	0.81	0.67
After 3 Months of Search Time [2]								
Participation in public works	0.45	8.91	0.97	1.82	0.39	3.38	-1.55	-1.34
Mills ratio	n.a.	n.a.	-0.32	-0.98	n.a.	n.a.	1.17	1.69
After 6 Months of Search Time [3]								
Participation in public works	0.19	4.13	0.94	1.89	0.06	0.59	-2.53	-2.58
Mills ratio	n.a.	n.a.	-0.46	-1.51	n.a.	n.a.	1.57	2.66
After 12 Months of Search Time [4]								
Participation in public works	0.28	5.50	-0.90	-1.72	0.05	0.51	-4.52	-5.01
Mills ratio	n.a.	n.a.	0.72	2.26	n.a.	n.a.	2.78	5.12
After 24 Months of Search Time [5]								
Participation in public works	1.39	15.26	-4.78	-6.41	1.01	8.11	-8.19	-7.97
Mills ratio	n.a.	n.a.	3.84	8.32	n.a.	n.a.	5.69	9.06

[a] Included but not reported are the following control variables: gender, marital status, ethnicity, ability to speak a foreign language, age, education, work experience, source of unemployment, and region of residence.

(1) Log likelihood of the equation with selectivity correction: -2483.1; without: -2486.6 (15,553 observations)

(2) Log likelihood of the equation with selectivity correction: -7944.4; without: -7946.4 (14,958 observations)

(3) Log likelihood of the equation with selectivity correction: -9601.3; without: -9606.5 (14,148 observations)

(4) Log likelihood of the equation with selectivity correction: -9313.5; without: -9327.1 (11,926 observations)

(5) Log likelihood of the equation with selectivity correction: -6489.4; without: -6545.1 (7,989 observations)

Table 7: Employment Impact of Public Works by Subgroups[a]

(t-statistics in parenthesis)

	One week of job-search time	3 months of job-search time	6 months of job-search time	12 months of job-search time	24 months of job-search time
Effects associated with gender					
Women	.26	.06	-.21	-.40	-.16
	(1.21)	(0.64)	(-2.31)	(-4.03)	(-0.88)
Effects associated with education					
Elementary education	.08	.055	.02	-.29	-.41
	(0.138)	(0.25)	(0.11)	(-1.55)	(-1.44)
Vocational education	.12	-.28	-.44	-.92	-1.18
	(0.22)	(-1.28)	(-2.20)	(-4.55)	(-3.72)
High school	.66	-.001	-.37	-.68	-.56
	(1.19)	(-0.03)	(-1.92)	(-3.52)	(-1.78)
University (2 years)	.55	.53	.37	-.016	.21
	(0.88)	(1.98)	(1.51)	(-0.06)	(0.42)
University (4 years)	1.31	.83	.38	-.25	-.52
	(1.85)	(2.78)	(1.35)	(-0.80)	(-0.84)
Effects associated with age					

Under 20 years of age	.066	-.27	-.43	-.24	.14
	(0.19)	(-2.12)	(-3.71)	(-1.92)	(1.27)
Age 30 to 40	-.81	-.16	-.02	.24	-.63
	(-2.94)	(-1.21)	(-0.17)	(1.83)	(-5.59)
Age 40 to 50	-1.39	-.18	-.21	.17	-1.18
	(-4.11)	(-1.01)	(-1.24)	(1.01)	(-7.65)
Over 50 years of age	-.85	-.10	.08	-.15	-2.10
	(-1.12)	(-0.22)	(0.18)	(-0.33)	(-8.42)

[a]Differential effect when in addition to variables reported in table 6, interactions of public works with specific groups are added in the selectivity corrected regressions.

Annex: Table A1: Descriptive Statistics, by Participation in Public Works (means)

	Participants	Non-participants
Women	0.49	0.46
Married	0.34	0.43
Non-Slovenian	0.11	0.14
Ability to speak a foreign language	0.19	0.15
Bad health condition	0.03	0.04
Being pregnant	0.01	0.01
Being handicapped	0.02	0.02
Under 20 years of age	0.19	0.22
Age 20 to 30	0.45	0.37
Age 30 to 40	0.22	0.21
Age 40 to 50	0.12	0.15
Over 50 years of age	0.02	0.06
Unfinished elementary education	0.10	0.08
Elementary education	0.30	0.28
Vocational education	0.18	0.31
High school	0.31	0.26
University (2 years)	0.07	0.04
University (4 years)	0.03	0.03
Work experience of less than 2 years	0.51	0.44
Work experience from 2 to 10 years	0.22	0.20
Work experience from 10 to 20 years	0.19	0.19
Work experience from 20 to 30 years	0.08	0.14
Work experience of more than 30 years	0.01	0.04
Entrant into the labor market	0.25	0.24
Re-entrant into the labor market (after at least 1 year break)	0.13	0.08
Quit the previous job	0.11	0.09
Disciplinary dismissed from the previous job	0.02	0.01
Was laid off from the previous job	0.09	0.20
Previous employed went bankrupt	0.05	0.09

Ended self-employment	0.02	0.02
Ended fixed-term employment	0.22	0.17
Ended internship	0.08	0.07
Other reason for ending previous employment	0.03	0.02
Celje region	0.03	0.11
Koper region	0.06	0.06
Kranj region	0.11	0.09
Ljubljana region (the capital)	0.29	0.26
Maribor region	0.21	0.22
Murska Sobota region	0.05	0.07
Nova Gorica region	0.04	0.04
Novo mesto region	0.08	0.05
Velenje region	0.08	0.07
Sevnica region	0.06	0.04
Having one or more dependents	0.28	0.31
Eligibility to unemployment compensation	0.16	0.27
Eligibility to unemployment assistance	0.10	0.12
Number of observations	5540	11544

List of Symbols

$EXIT_{ni}$: individual's labor market status after spending n months searching for a job

X_i - is a vector of personal characteristics

PW_i is a dummy representing past participation in public works of individual i

Beta 1 (β_1)-- estimated parameter associated with the vector of personal characteristics, EXIT equation

Beta 2 (β_2)-- estimated parameter associated with public works participation, EXIT equation

Epsilon (ε_i) -- disturbance term in the EXIT equation

Sigma z (σ_ε^2)-- variance of the disturbance term ε_i.

Lambda (λ) -- the inverse Mills ratio

Z_i -- factors capturing criteria for selection in public works

Gamma 1 (γ_1)-- estimated parameter associated with the vector of personal characteristics, participation in public works equation

Gamma 2 (γ_2)-- estimated parameter associated with factors capturing criteria for selection in public works, participation in public works equation

u_i -- disturbance term in participation in public works equation

Phi -- $\phi(.)$ -- standard normal distribution

Psi -- $\Phi(.)$ -- cumulative standard normal distribution

Rho (ρ) -- correlation coefficient between ε_i and u_1

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[1] The author is grateful to the National Employment Office of Slovenia for providing the data used in the study, to Tito Boeri, Clara Else and Hartmut Lehmann for providing valuable comments, and to Robert Volcjak for excellent research assistance.

[2] I am grateful Tito Boeri and Hartmut Lehmann for this remark.

[3] The above results are thus consistent with the augmented matching function estimates of Barbo-Skerbinc and Vodopivec (1998), showing public works program did not increase the outflow from unemployment in Slovenia during 1994-96.

[4] O'Leary (1997) analysis neglects two other important issues. First, it focuses on the labor market status at particular date, ignoring the differences in job-search time between the various groups and thus putting the public works participants at disadvantage (indeed, some public works participants are dropped from the analysis because they did not finish the program by the survey date). Second, it ignores labor market outcomes that occurred after the end of program participation and the survey date.