Job Search and (Re)employment: Taking the Time-varying Nature of Job-search Intensity into Consideration

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The aim of this study was to test the hypothesis that job-search intensity has a pivotal role for (re)employment of unemployed individuals. In our study we tested a heuristic model that included sets of variables potentially influencing (re)employment. Those were: biographic characteristics, employment motivation factors, job search constraints, and job-search intensity. We expected job-search intensity to be the most important determinant of (re)employment, at the same time representing the mechanism through which other variables of the model affect (re)employment probability.

The model was tested on the data collected within a longitudinal multi-wave study on a large and heterogeneous sample of unemployed people from Croatia. Our results showed that, when its dynamic nature is taken in consideration, job-search intensity represents an important determinant of (re) employment, partially mediating effect of other predictor variables. However, more important predictors of (re)employment were biographic characteristics of the unemployed and their financial situation which influenced (re)employment directly, independently of job-search intensity.

Key words: unemployment, job-search intensity, (re)employment.

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INTRODUCTION

Negative effects of unemployment can be observed on societal and individual levels. On the societal level, the economic price of unemployment includes collective burden of benefits for the unemployed, other social welfare expenditures and lower tax revenues (Bjarnason & Sigurdardotirr, 2003). In addition, unemployment is considered to be the most important cause of poverty, frequently related with other social problems, such as outrage or right-wing extremism (Krueger & Pishke, 1997) and lower quality of life for all members of a society (Clarck, Knabe, & Ratzel, 2010). On the individual level, unemployment leads to decline in well-being. Unemployed individuals show strong deterioration of psychological health (McKee-Ryan, Song, Wanberg, & Kinicki, 2005), and report more frequent somatic complaints such as headaches and back pain (Paul, 2005). In addition, stigmatizing status of the unemployed often leads to impoverishment of social networks (Kelvin & Jarett, 1985), while loss of financial resources makes participation in social activities difficult, possibly even causing social exclusion (Gallie, Paugam, & Jacobs, 2003).

Negative consequences of unemployment for an individual are pervasive, and the most effective way of their elimination is (re)employment. Numerous studies have shown that in the large majority of cases, (re)employment improves psychological health and financial situation, and even eliminates perceived social isolation (Murphey & Athanasou, 1999; Galić & Šverko, 2008; Šverko, Galić, & Maslić Seršić, 2006). But, what determines (re)employment probability?

According to many authors studying psychosocial aspects of unemployment (e.g. Kanfer, Wanberg, & Kantrovitz, 2001; Wanberg, Watt, & Rumsey, 1996; Taris,

Heesnik, & Feej, 1995), job-search intensity should have a pivotal role in the (re)employment process. It involves different activities whose purpose is to find a job, including various behaviors such as responding to job advertisements in newspapers, directly contacting potential employers, asking friends and relatives about job vacancies, visiting state employment agencies (Holzer, 1988; Weber & Mahniger, 2008). Although they represent different activities, all these behaviors have a common goal – finding a job vacancy. Intensity with which these behaviors are initiated and executed should play a key role in obtaining employment.

The importance of job search for (re)employment had been tested in numerous studies. Contrary to expectations, the crucial role of job search for (re)employment was not always supported. For example, several studies conducted in the United States and Western Europe have shown that job-search intensity and re-employment probability are not related (e.g., Leana & Feldman, 1990; Taris, et al., 1995; Taris, 2002.; Vinokur & Schul, 2002. in JOBS study, Wanberg, et al., 1996). In addition, in studies where correlation between job search and re-employment was found, the obtained relations were weak. For example, in studies by Wanberg (1997), and Wanberg, Kanfer, & Rotundo, (1999), conducted on large and heterogeneous samples of the unemployed recruited at workforce centers, job-search intensity was significantly correlated with employment status three months after beginning of the study. However, correlation coefficients were 0.16 and 0.17, respectively. Finally, the strongest test of the role job search has in the (re)employment process represents the meta-analysis of job search and (re)employment predictors carried out by Kanfer et al. (2001). In this study, mathematically aggregated results of 21 studies encompass-

ing 5 818 participants showed mean correlation between job search intensity and employment status was 0.21. It suggested only that, on average, the relationship between job search and (re)employment is significant, but relatively weak. However, variability of individual correlations across studies was large, so even this analysis did not prove the importance of job-search intensity for (re)employment, and warrants further research.

The relatively weak relationship between job search and re-employment could be explained by the weakness in research designs of conducted studies. Most of them were very similar: job-search intensity and other predictor variables measured at the beginning of the study were related to the employment status after a certain time period (e.g., three or six months). Because of these research designs, the obtained relationship between job-search intensity and (re)employment could be underestimated. There is a need for studies that would measure job-search intensity and employment status on multiple occasions during the study, taking into consideration that job-search intensity changes during unemployment. This article describes one such study, within which a large sample of the unemployed was followed through a three year period.

The main characteristic of job search is that it completely depends on the unemployed individual who has to identify, initiate and perform different actions with the purpose of (re)employment. Therefore, from the psychological perspective, it represents a dynamic self-regulatory process (Kanfer et al., 2001) that starts with setting the goal of (re)employment, proceeds influenced by many determinants, and ends with the accomplishment or abandonment of the goal. It follows from this definition that job search is a behavior whose intensity changes depending on current circum-

stances of an unemployed individual. The dynamic aspects of job search are "almost unexplored" (Wanberg, Glomb, Song, & Sorenson, 2005:424), and rare studies that tested its dynamics showed systematic changes during unemployment. For example, Borgen and Amundson (1987) have shown that discouragement of the unemployed leads to a reduction in job-search intensity, but that job search intensifies as discouragement disappears. Systematic changes in job search were also observed in studies following student samples during job search period. For example, in a study by Barber, Daly, Giannantonio and Phillips (1994) students decreased intensity of job search between the start of search and graduation, but then made it more intensive again after they had graduated. Similarly, Saks and Ashfort (2000) observed that students who had not found employment in their final term prior to graduation intensified their search during the 4-month period.

Consequently, there is a possibility that the relationship between intensity of job search and probability of (re)employment is underestimated due to ignoring the time-varying nature of job search. Studies that relate multiple collections of data on job-search intensity and employment status would represent a stronger test of their relationship. The only research that partially resolved the above mentioned difficulties was conducted by Wanberg et al. (2005). In a longitudinal study with 10 measurements within a 20-week period, they examined job search motivation, job-search intensity, and their relationship with speed and probability of (re)employment. The data collected by means of a phone survey on a heterogeneous sample of unemployment insurance recipients showed that job search, as well as its motivational determinants, changed with unemployment duration. However, the study did not confirm that job search predicts (re)employment better

when, instead of job-search intensity from the beginning of the study, average search intensity during the whole course of the study is used. It has to be kept in mind, though, that the study was restricted to the relatively short time period of 20 weeks, and that it represents an initial test of taking time-varying job search into consideration, conducted in specific labor market circumstances (the United States).

Current study

Employment probability of an unemployed individual depends primarily on four sets of factors: job seeker's human and social capital, labor market characteristics, employers' recruitment behavior, and intensity of job search (Wanberg, Hough, & Song, 2002). Our study focuses on job search behavior, its predictors and effect(s). We propose a heuristic model of (re)employment predictors which includes four sets of variables: biographical characteristics, employment motivation factors, job search constraints, and job-search intensity. The heuristic model is shown in Figure 1.

Biographical characteristics include basic socio-demographic attributes of the unemployed individual – gender, age, level of education, unemployment duration and family responsibility.

Employment motivation includes several factors indicating attractiveness of (re)employment – work involvement, financial deprivation and psychological deprivation. Work involvement relates to nonmaterial work motivation, i. e., importance of work for the well-being of an individual (Šverko, 1989), while psychological and financial deprivation are well established consequences of unemployment that arise due to unsatisfied psychological (psychological deprivation, Jahoda, 1982) and financial needs (financial deprivation, Fryer, 1995). All three motivational factors indicate how unpleasant unemployment experience is for an individual, and therefore should stimulate job search. More precisely, we expected higher work involvement, and stronger psychological and financial deprivation to be related with more intensive job search.

Job search constraints include physical and psychological health of the unemployed individual. Active search for a job is a demanding and strenuous activity, so any health problem could limit the working capacity needed for this undertaking. Poorer psychological well-being, problems with adjustment to society and ordinary demands of life (psychological health) or existence of illness and physical symptoms of any kind (physical health) should reflect on

Figure 1.
Heuristic model of (re)employment predictors

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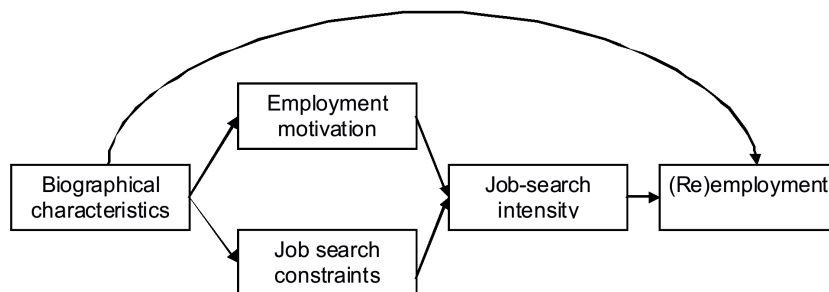
job-search intensity. In line with this reasoning, we expected both types of health to be positively related with job-search intensity, and, through it, with (re)employment.

According to our hypothetical model, biographical characteristics influence employment motivation and job search constraints. Motivational factors and job search constraints determine job-search intensity. From a theoretical point of view, job-search intensity is a product of a self-regulatory process and should be influenced by motivational and health variables (Kanfer et al., 2001). In addition, job-search intensity should be the variable that mediates relationship between these variables and (re) employment. We expect job search intensity to be positively related to (re)employment probability, because increase in job search intensity should increase the average number of job offers arriving within a given time interval (Bloemen, 2005; Saks & Ashfort, 2000). In addition to indirect relationship, biographical characteristics should directly determine the probability of employment of an unemployed individual because they influence employer's employment decisions serving as potential indicators of job seeker's future productivity (Behrenz, 2001). However, in line with the meta-analysis from Kanfer et al. (2001) which showed that age, gender, race and education, in comparison to other predictors, have relatively weak correlations with (re)employment probabilities, we expected job search to show stronger relationship to employment outcomes than biographical variables. Of course, we do not find our heuristic model to be comprehensive. It is focused only on one set of factors that determine (re)employment, job search intensity and its determinants. At the same time it completely ignores labor market demands, only indirectly tackling job seeker's human capital and employer's recruitment behavior, through assessment of

biographical characteristics of unemployed individuals.

Unlike most previous studies, we took into consideration the possibility that job search and its predictors change with unemployment duration. Hence, all potentially varying predictors from our heuristic model (psychological and financial deprivation, psychological and physical health, job-search intensity) were measured on multiple occasions during the course of the study. We expected to improve accuracy of employment prediction with repeated assessment of predictor variables, and to prove the importance of job search for finding a job.

Finally, most of the studies described earlier were conducted in developed, liberal market economies characterized by high employment rates and relatively easy success in job search. Rare studies conducted on different labor markets resulted with interesting findings. For example, a recent study by Song, Wanberg, Niu, & Yihzong (2005) in China showed that job-search intensity significantly predicted (re) employment. Surprisingly, the relationship between job-search intensity and employment status was negative – individuals that searched for a job more intensively had lower probability of re-employment nine months later. Job-search process and its determinants in labor markets like Croatian, with small number of vacancies, and long average unemployment duration represent an almost unexplored research area. According to the Labor Force Survey, at the time our study was launched (2003), the rate of unemployment in Croatia was 14.3%, and an average unemployed individual waited for a job for over a year. Compared to other transitional countries, at that time only Poland and Slovakia had higher unemployment rates (Katić, 2006). At the end of our study, the rate of unemployment was lower (11.8%, Croatian Bu-

reau of Statistics, 2006), but still indicating significant social problem.

In summary, job search intensity should represent main way through which un-employed individuals influence their (re) employment probabilities. However, its crucial role in (re)employment process has not been confirmed in earlier studies, prob-ably because they ignored that job search intensity changes in time. In this paper we describe the study the goal of which was to test the relationship between job search in-tensity and (re)employment, taking in con-sideration the dynamic nature of job search intensity and its determinants. We tested a heuristic model of (re)employment predic-tors observing a large and heterogeneous sample of unemployed people from Croa-tia on multiple occasions, following them during a three-year period.

METHODOLOGY

Procedure

This longitudinal study included four measurements: base-level study (T1) and three follow-ups (T2, T3 and T4). In the base-level study, the data were collected during face-to-face interviews and in fol-low-ups by mail survey. The base-level study took place in the summer 2003, and follow-up measurements in autumns 2004, 2005, and 2006. Relatively long time dis-tance between two measurements was chosen because we had in mind the fact that an average unemployed individual in Croatia searches for a job for more then a year (Katić, 2006). Shorter periods would be counterproductive for tests of models predicting (re)employment because of low variability in (re)employment variable.

The base-level study (T1) was conduct-ed between June and August 2003 in branch offices of the Croatian Employment Bureau in 19 out of 21 Croatian counties. The data

were collected by 28 psychology students who had been previously trained in con-ducting interviews. The pollsters randomly selected participants during their obligatory monthly reporting in branch offices of the Bureau. Out of the 1882 unemployed con-tacted, 1138 accepted to participate in the study (60.5%).

In October 2004, the second wave of our study took place. We contacted par-ticipants by phone and informed them that they would receive a questionnaire by mail. The return of questionnaires was stimulated with monetary rewards for participants who sent back completed surveys within a two-month period. A month after the question-naire was sent, the participants who had not responded received a reminder in which their importance for the study was empha-sized. In total, 601 questionnaires were re-turned, yielding the response rate of 52.8% participants from the base-level study.

In the third study wave (T3) we repeated the procedure from the first follow-up (T2). 452 questionnaires were returned, and thus the satisfactory rate after the period of more than two years was retained (39.7% of the original sample). The identical procedure was repeated for the last time (T4), in the autumn of 2006. The participants returned 427 questionnaires: 37.5% of participants from the original sample included in the base-level study were retained.

Participants

Characteristics of our sample are de-scribed in Table 1. In all study waves our sample adequately represented the popula-tion of the unemployed in Croatia regard-ing gender and unemployment duration. However, the participants in the study were somewhat younger and better educated than the overall population of the unemployed in Croatia. For example, while 54% of the

unemployed in Croatia were older then 35, in all our study waves less than 40% of the sample were of that age. Similarly, less than 15% of our sample were participants who had primary school education or lower, while in the population of the unemployed the share of this educational group is much higher (36%).

naire was shortened. It included only the items measuring variables that supposedly change with employment or duration of unemployment, supplemented with questions about employment status. The items that measured the same construct were identical in all measurements.

Table 1.
Sample description in four waves of the study

	Sample 2003 (N=1138)	Sample 2004 (N=601)	Sample 2005 (N=452)	Sample 2006 (N=427)
Gender				
% male	42%	37%	40%	38%
Age (years)				
M	33.1	33.2	33.2	33.8
(SD)	(11.63)	(11.71)	(11.64)	(11.89)
Education				
Primary school or lower	15%	14%	13%	14%
Secondary school	67%	69%	70%	68%
Bachelor or higher	17%	17%	17%	18%
Unemployment duration (in months)				
M	36.4	35.9	37.3	38.5
(SD)	(47.66)	(48.57)	(48.46)	(49.91)

Variables and their measurement

In the base-level study, the participants filled-in an extensive questionnaire which included different questions about their biographical characteristics, type and intensity of everyday activities, various attitudes related to work and unemployment, financial situation, psychological deprivation and perceived social support. In addition, the participants were asked about job-search behaviors, and estimated their psychological and physical health.

Due to the nature of measurement (mail survey), in follow-ups the question-

Biographical characteristics

In the base-level study, gender, age, education and duration of unemployment were measured with simple, direct questions. Gender was coded as 1 for male and 2 for female. Education was coded in nine categories, starting from "no school" (1) to "postgraduate study" (9).

Family responsibility measure was derived from information about the number of children younger than 15 years. The dichotomous variable was formed – all participants with children younger than 15 years were coded with 1 and others with 0.

Work involvement

Work involvement was measured with the Work Involvement Scale of Warr, Cook, & Wall (1979) which asks about general importance of work in the life of an individual, i.e., his/her nonmaterial work motivation. The scale consisted of six items with four-point response scales (1=completely disagree;…, 4=completely agree). Some examples of items are: "It is very important for me to have a job." and "The most important things that happen to me are related to work." Besides socio-demographic variables, work involvement was the only characteristic in our model measured only at the first time point. We based this decision on the meta-analysis of longitudinal data which showed that average test-retest correlation of work involvement is relatively high (r=0.59 for the average time period of 9.4 months, Paul & Moser, 2006), indicating a stable, trait-like construct. Cronbach α for this scale was 0.75.

Psychological deprivation

Psychological deprivation was examined with a scale intended to measure deprivation of psychological needs usually provided by employment (latent benefits, Jahoda, 1982). On the scale constructed for this study, participants had to rate the level to which: their typical day is filled with content and activities; their life is well organized and time structured; they meet other people and socialize; perceive themselves as useful members of society; perceive themselves as valuable and successful individuals. The participants responded on a four-point scale whereby 1 indicated low, and 4 strong psychological deprivation. Psychological deprivation was calculated as a sum of responses on the six questions.

Because we assumed that it changes with the change in employment status and duration of unemployment, psychological deprivation was measured at all time points. Internal consistency of the scale was satisfactory (between 0.75 and 0.81), and considering it was almost equal at all time points we concluded that the change in data collection mode (field vs. mail survey) did not influence the quality of collected data.

Financial deprivation

Financial deprivation was measured with indicators of objective and subjective financial situation. Both indicators were included in the study because they represent important and only moderately related indicators of financial situation (Ullah, 1990). Because of our need to keep the questionnaire short, both indicators were measured with one item only. Objective financial situation was measured with the question about total household income in the month before measurement and subjective financial situation with the frequency of financial worries in the same period ("During the last month, how often did you have serious financial worries?" Response scale: 1=never,…, 7=always). In further analyses the last item was recoded so that higher numbers indicate better financial situation. The decision to use one-item indicators was based on the study by Wanous, Reichers and Hudy (1997) according to which one-item measures might be appropriate when time or money constraints make longer measures inappropriate, and the constructs measured are not equivocal or complex.

Job-search intensity

Job-search intensity was measured with one general question about the frequency of job search (»How often do you actively search for a job?« Response scale: 1= not at all,…, 4= every day) and six questions related to the frequency of specific job-search behaviors. We asked participants how often, in the month preceding the

study, they: searched for and read job advertisements in newspapers; looked for job offers at the Employment Bureau; searched for a job over the Internet; contacted and/or visited potential employers; searched for informal connections and influential others that could help them find a job. Participants responded on a four-point scale ranging from 1=never to 4=every day. Considering that factor analysis indicated that one latent dimension lies beyond all seven items, job-search intensity was calculated as a simple sum of responses to all questions. Scale reliability, measured with internal consistency coefficient, was satisfactory in all study waves (between 0.82 and 0.84).

Psychological and physical health

Psychological and physical health were measured with SF-36 Health Survey (Ware, Kosinski & Gandek, 2003). The questionnaire consisted of eight scales: three measuring psychological health, three dealing with physical health, and two representing general health indicators. In this study we used scales measuring only psychological and physical health. Psychological health was measured with Mental Health, Social Functioning, and Role Emotional scales, and physical health with Physical Functioning, Bodily Pain and Role Physical scales. General psychological and physical health were calculated as an average result on the three corresponding subscales, previously transformed to unitary scale ranging from 0 to 100. Cronbach's alpha coefficients for psychological health scale in four measurement waves were between 0.79 and 0.91, and for physical health between 0.90 and 0.94.

Assessment of non-respondent differences

Before analyses, we tested for possible systematic differences between participants who dropped out and those who remained in the study. The groups were compared on T1 variables. Compared to those that participated in the first follow-up (T2: N=601), participants that dropped-out (N=537) were more often male (47.8% vs. 37.8%), less educated (M=4.8 vs. 5.0) and showed lower work involvement (M=19.4 vs. 20.0). In comparison to those that remained in the third study wave (T3: N=452), participants that left the study (N=686) had lower work involvement and searched for a job less intensively (M=15.0 vs. 15.6). In the fourth measurement the only significant difference between those who ceased to participate (N=711) and those that continued (N=427) was found on T1 job-search intensity (M=15.0 vs.15.7). Although statistically significant, all differences were rather small and, we assume, have not introduced systematic bias in our findings.

RESULTS

Dynamics of job-search intensity

Before testing our heuristic model, we checked whether job-search intensity changed during the course of our study. Only participants that were unemployed and, therefore, could be identified as job seekers, were included in this analysis. Those were all participants from the base-level study (N_{T1}=1138) and unemployed participants from the follow-ups (N_{T2}=394; N_{T3}=264; N_{T4}=212).

Table 2.
Descriptive statistics and correlations between job-search intensity in four study waves

Job-search intensity	M	SD	T2	T3	T4
T1 (N=1138)	14.5	4.73			
T2 (N=394)	13.4	4.72	0.46**		
T3 (N=264)	12.5	4.40	0.39**	0.63**	
T4 (N=212)	12.6	4.53	0.37**	0.49**	0.67**

*Note: *p<0.05; **p<0.01*

Descriptive statistics and correlations among job-search intensities are shown in Table 2. Several trends can be observed. First, all correlation coefficients between job-search intensities are significant and moderate in size. They show that there exists a certain stability of job-search intensity during unemployment period. Second, bivariate correlations between job-search intensities are the highest between adjacent measurement waves, indicating that stability decreases with time. Third, average job-search intensity shows a trend of decrease in later study waves. However, these data did not allow us to conclude that job-search intensity decreased with the duration of unemployment because descriptive statistics were calculated on different samples of participants. In order to better understand the dynamics of job search during the course of the study, hierarchical linear modeling was used.

Hierarchical linear modeling (HLM) is used for analyzing all kinds of data that are hierarchically structured with partial dependence between data on lower levels (Hox, 2002). Repeated measurements are considered to be only a specific type of hierarchical data whose structure can be observed on two levels: repeated measurement level (level 1) and individual level (level 2). It is especially useful for analyzing data that are highly unbalanced between study waves due to sample attrition or other systematic factors (like employment in our case), because it can incorporate responses from participants whose data are missing in some of study waves.

In order to describe the dynamics of job search during our study, two basic HLM models without covariates were used. The first was unconditional-means model which describes and partitions outcome variations into between-person and within-person variance. The model assumes that there is no within-person change in job-search intensity, but only between-person differences in average job search during the study. Mathematically, this model can be described with the following equations:

Level 1 (repeated measurements)

$Y_{ij}=\pi_{i0}+ \varepsilon_{ij}$; where Y_{ij} represents job search intensity of individual *i* at occasion *j*, π_{i0} individual *i*'s initial status and ε_{ij} portion of individual *i*'s outcome that is unpredicted at occasion *j*

Level 2 (individual)

$\pi_{i0}=\gamma_{00}+\zeta_{i0}$; where γ_{00} represent average initial status in the sample, and ζ_{i0} portion of individual status unexplained at level-2.

Testing of this model on our data (Table 2) showed that, in addition to significant between-person variance in average job search (σ_0^2=10.80; p<0.01), significant within-person variability in job-search intensity was also observed (σ_e^2=11.94;

p<0.01). This indicated that unemployed individuals changed the intensity of job search between the four waves of our study.

Second, we fitted the unconditional-growth model which we used to describe how job intensity changes during the study. In comparison to unconditional growth model, information about study wave was added into equation on level-1. This model can be described with the following equations:

Level 1 (repeated measurement)

$Y_{ij}=\pi_{i0}+$ time$_{ij}$ $\pi_{i1}+$ ε_{ij}; where time$_{ij}$ represents a temporal predictor (i. e., study's wave) and π_{i1} individual *i's* rate of change during the period under study.

Level 2 (individual)

$\pi_{0i}=\gamma_{00}+$ ζ_{i0}

$\pi_{1i}=\gamma_{10}+$ ζ_{i1} where γ_{10} represents average rate of change, and ζ_{i1} portion of rate of change unexplained at level-2 (for more detailed description see Singer and Willett, 2003).

As it can be seen from Table 3, both intercept and rate of change are significantly different from zero. The sign of change rate was negative, which indicates that the intensity of job search decreases during the study. Moreover, the decrease in within-person variance from 11.94 (unconditional-means model) to 9.19 (unconditional-growth model) shows that 23% of within-individual variability can be explained with measurement wave. All goodness-of-fit indices showed much better fit of the unconditional-growth model in comparison to the unconditional-means model.

Obviously, job-search intensity in our study showed systematic within-person change with time. These descriptive models of job-search intensity once again stressed the importance of taking its time-varying nature into consideration in predictions of (re)employment.

Prediction of (re)employment

In the first follow-up, 34.4% of participants (N=207 out of 601) were (re)employed. In the following study waves, the percentage of employed participants was

Table 3.
Results of fitting unconditional-means and unconditional-growth HLM models to job-search intensity data

	Parameter	Models	
		Unconditional means	Unconditional growth
Fixed effect	Intercept (γ_{00})	14.05**	14.46**
	Rate of change (γ_{10})	-	-0.73**
Variance components			
Level 1	Within-person (σ_e^2)	11.94**	9.19**
Level 2			
Variance components	In initial status σ_0^2	10.80**	13.13**
	In rate of change σ_1^2	-	1.36**
Goodness of fit indices	Deviance	11 578.83	11 486.13
	AIC	11 584.83	11 498.13
	BIC	11 601.84	11 531.70

*Note: *p<0.05; **p<0.01*

41.6 in T3 (188 out of 452), and 47.7 in T4 (204 out of 427).

In Table 4 Pearson's correlation coefficients between variables from our heuristic model and employment status in all three follow-ups are shown. In addition to correlations between predictors measured in T1 and employment status in follow-ups, for variables measured on multiple occasions correlations with employment status in the following study wave are shown. For example, in addition to the correlation between job-search intensity from T1 with employment status in the three follow-ups, we showed the relationship between search intensity in T2 and employment status in T3, and the correlation between the same predictor in T3 and employment status in T4.

Table 4.

Pearson's correlation coefficients between variables from the heuristic model of re-employment and employment status in the three follow-ups

	Employment status (unemployed=0; employed=1)		
	T2 (N=601)	T3 (N=452)	T4 (N=427)
Job search			
Job-search intensity[a]	0.17**	0.15** (0.13*)	0.11** (0.21**)
Biographical variables			
Gender	0.00	0.00	0.02
Age	-0.22**	-0.26**	-0.34**
Education level	0.28**	0.25**	0.29**
Unemployment duration	-0.27**	-0.23**	-0.22**
Family responsibility	0.01	0.02	-0.03
Employment motivation			
Work involvement	0.10*	0.04	0.11*
Objective financial situation[a]	0.16**	0.21** (0.34**)	0.22** (0.39**)
Subjective financial situation[a]	-0.06	-0.07 (-0.20**)	-0.13** (-0.30**)
Psychological deprivation[a]	-0.08*	-0.07 (-0.31**)	-0.06 (-0.23**)
Job-search constraints			
Psychological health [a]	0.15**	0.14** (0.21**)	0.16** (0.24**)
Physical health[a]	0.21**	0.17** (0.14**)	0.25** (0.26**)

Note:

[a] For predictor variables measured in all study waves two correlation coefficients are shown: the first indicates the relationship between predictor variables measured in T1 with employment status in repeated measurements. The second, shown in parentheses, indicates the relationship between predictors from T with employment status at T+1 measurement point (e. g., relationship between job search in T2 and employment status in T3). *p<0.05; **p<0.01.

As it may be seen from Table 4, job-search intensity had low, but significant relationship with employment status, regardless of whether it was measured only in T1 (r=0.11 to 0.17) or in the wave preceding the one in which the information about employment status is collected (r=0.13 to 0.21). Considering other predictors from our heuristic model, correlation coefficients between biographical variables and employment status indicated that age, education level and unemployment duration were significantly correlated with employment status in all follow-ups: individuals who were younger, better educated and unemployed for a shorter time found employment easier than those who were older, lower educated and unemployed for a longer time. The relationship between other predictor variables and employment status could be described with several trends. First, irrespective of how correlation coefficients were calculated, favorable objective financial situation, better psychological and physical health were significantly correlated with higher employment probability. Second, if a variable from study wave T is related with employment status in T+1, correlations were higher in comparison to those with T1 predictors. For example, in the case of time-varying predictors, psychological and financial deprivation showed consistent negative relationship with employment status. Similarly to work involvement, if measured only in the base-level study, they showed inconsistent relationship with (re)employment probability. The only exception was the correlation between physical health in T2 and employment status in T3, which was slightly lower when dynamic nature was taken into consideration. Finally, all correlations between predictor variables with the criterion variable are relatively low (r<0.31), except the relationship between objective financial situation and employment status, which is slightly higher.

Of course, analysis of simple correlations did not provide a clear answer to our research problems because we were confronted with several methodological difficulties. First, we had to define a criterion against which our heuristic model was being tested because we wanted to have one coefficient per each predictor, indicating its relationship with employment probability. Second, information about time-varying predictors should be adequately incorporated into the analysis, and, third, similarly to other multivariate research, we wanted to control for the possibly spurious correlation between predictors and criterion (e.g., the relationship between job search and (re)employment might be spurious because both are correlated with age).

In order to resolve the above mentioned issues, we conducted survival analysis which simultaneously examines probability and time of occurrence of an event (i.e., (re)employment) and allows testing of research models that include time-varying predictors (Singer & Willett, 1991). Since we did not know the exact time of re-employment for every individual in our sample but only their employment status in follow-ups, we used discrete-time survival analysis. This kind of analysis is done after transformation of the standard person-level data set (one-person has one record in data set) into the person-period data set (one-person has multiple period records, depending on his/her participation in the study). Survival analysis equations on these data are then calculated with logistic regressions (see Singer & Willett, 2003 for detailed description). Data of participants who did not get a job during the study (right-censored) were included in calculation of survival function. Considering that our heuristic model included unemployment duration at T1, adjustment for left truncation was not used. All individuals were followed only until they were employed for the first time.

Within survival analyses, we divided employment predictors into two categories. The first category included: participant's gender, age and education, unemployment duration at T1, family responsibility and work involvement. All these variables were measured only in the base-level study. Objective and subjective financial situation, psychological deprivation, psychological and physical health, and job-search intensity were included in the analyses as time-varying predictors. The only reasonable way to analyze the role of time-varying predictors was to link employment status in a follow-up (T) with predictor values from a preceding study wave (T-1). More precisely, our data were organized in such a way that predictors from T1 predicted employment status in T2, those from T2 status in T3, and those from T3 status in T4. In this analysis only the data from subjects participating in two adjacent study waves were included. The analysis was based on 1814 observations. The results of survival analyses are shown in Table 5.

Model A coefficients are estimates of basic employment hazard function which were calculated when the period of data collection was related to event occurrence. Considering that our event (i.e., employment) could happen between two study waves, time periods in our analysis were included as three dummy variables (Period 1= between T1 and T2, Period 2=between T2 and T3, Period 3= between T3 and T4). Size and direction of coefficients describe the shape of basic hazard function and tell us whether employment hazard increases, decreases or remains the same during the study. Odds ratios of 0.219 (T2), 0.158 (T3), and 0.188 (T4) indicated that probability of (re)employment was higher in T2 in comparison to T3, and T4. This means that from a sample of the unemployed participating in our study, a higher proportion found a job in earlier than in later study waves. Of course, considering that we had a stock sample of unemployed workers, these period effects are mixture between period effects and unemployment duration effect. In Model B, statistically significant predictors were age, education level, unemployment duration and family responsibility (all $p<0.01$). In comparison to basic hazard function this model showed better fit, i.e., prediction of the criterion ($\Delta\chi^2 = 194.7$; df=5; $p<0.01$). In Model C, in addition to work involvement measured in the base-level study, several time-varying predictors were introduced (objective and subjective financial situation, psychological deprivation, psychological and physical health). Statistically significant predictors of employment status were work involvement, objective financial situation (both $p<0.01$), and physical health ($p<0.05$). Compared to the previous model, further improvement of prediction was observed ($\Delta\chi^2 = 41.13$; df=6; $p<0.01$).

Finally, in Model D, we introduced the time-varying measure of job-search intensity which has shown to be a statistically significant predictor of employment. This result indicated that individuals from our sample who searched for a job more intensively had a higher probability of employment, even if we control for all other variables from our heuristic model. Within this model, family responsibility, work involvement and physical health ceased to be significant predictors, indicating that they affect employment through job-search intensity. However, it should be noted that these changes in coefficients were rather small, so this possible mediation effects should be taken with caution and tested in further studies. Other predictor variables that were significant in a previous model (age, education, employment duration, objective financial situation) remained significant, indicating that they attain its influence directly, independently of job-search intensity. The difference in deviation between this and the previous model was statistically significant ($\Delta\chi^2 = 46.24$; df=1, $p<0.01$).

Table 5.
Results of discrete time survival analysis predicting (re)employment

	Model A	Model B	Model C	Model D
		Exp(B)[a]		
Period 1	0.219**	0.119**	0.005**	0.003**
Period 2	0.158**	0.097**	0.004**	0.003**
Period 3	0.188**	0.125**	0.005**	0.003**
Gender		1.050	1.025	1.088
Age		0.968**	0.974**	0.978**
Education level[1]		1.376**	1.327**	1.310**
Unemployment duration		0.993**	0.994**	0.994**
Family responsibility		1.656**	1.230*	1.177
Work involvement			1.065**	1.045
Objective financial situation[b]			1.140**	1.139**
Subjective financial situation[b]			1.094	1.085
Psychological deprivation[b]			0.999	1.009
Physical health[b]			1.009*	1.008
Psychological health[b]			1.002	1.004
Job-search intensity[b]				1.040*
n parameters	3	8	14	15
Deviation	1632.55	1437.85	1396.72	1348.48
AIC	1638.55	1453.85	1424.72	1378.48
BIC	1649.68	1483.53	1476.66	1434.13

*Note: [a] The coefficients indicate the ratio of probability that a person got employment with the probability that (s)he did not get it. Therefore, coefficients lower than 1 indicate negative and those higher than 1 positive relationship with employment status. [b]time-varying predictors *p<0.05; **p<0.01.*

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[1] We tested for the possibility that effect of education on re-employment was non-linear. Considering that "dummy" coding of different educational groups did not change any of observed relationships continuous education variable was used in analysis.

In order to see whether the inclusion of time-varying predictors, especially job search, really improved prediction of (re) employment probability, we reran our model with all predictor variables measured only in T1. Within this analysis, blocks of predictors were entered in the same order as in analysis with time-varying covariates. However, the data base analyzed in this case was not the same as in previous analysis. Since inclusion of participants was not determined by their participation at two adjacent measurement points, this analysis was based on a larger number of observations (N = 2326). In almost all respects, the results mirrored those using time-varying predictors. Age, educational level, unemployment duration and family responsibility were significant predictors from the biographical variables block, while work involvement and objective financial situation (employment motivation block) significantly predicted employment status. The only difference in the results was observed for physical health, which was not significantly related to employment status in this case. This could probably be attributed to stronger capability of analysis with time-varying predictors in identifying significant effects. Finally, even in this analysis job-search intensity predicted probability and speed of (re)employment during the course of our study over and above other predictor variables.

Usefulness of the time-varying measure of job-search intensity in comparison to the one measured only in T1 could be assessed only indirectly, by looking at the changes in model fit indices when job search was introduced. Direct comparison of fit indices was not possible because analyses were calculated on different data sets. When job-search intensity was entered in survival analysis with predictors in T1, AIC improved by 4.55, and BIC by 0.71. On the other hand, when dynamic job-search intensity was introduced into analysis with time-varying predictors, changes in AIC and BIC fit indices were 46.24 and 42.53, respectively. Although there are no clear criteria for comparison of AIC and BIC change, Raferty (1995) stated that the evidence associated with a difference between models of 0-2 to be weak, 2-6 to be positive, 6-10 to be strong and over 10 to be very strong. These results indicated that improvement in prediction of (re)employment was relatively weak when job-search intensity was measured only in T1 while in the case of time-varying predictors the role of job search in prediction of (re)employment is unquestionable. Therefore, we concluded that our models benefited from the inclusion of time-varying indicators of job-search intensity.

Finally, since time discrete survival analysis did not allow us to estimate relative strength of specific sets of predictors, we conducted additional analyses in order to get rough estimates of relative importance of our heuristic model's parts. We conducted three logistic regression analyses predicting employment status in each of the follow-ups (T2 through T4). Predictors were entered into analyses so that their values from study wave T predict employment status in T+1. Of course, precision of the criterion in this kind of analysis is reduced, and, because of the smaller number of participants included, the statistical power of analyses is undermined. However, a general finding of all three analyses was that employment status is best predicted with biographical variables (Nagelkerke R^2 between 0.174 and 0.259), while the effect of other predictor variables was rather weak (between 0.016 and 0.061 for employment motivation and job search constraint factors, and between 0.015 and 0.031 for job-search intensity). Therefore, job-search intensity and other predictor variables did not add much to prediction of (re)employ-

ment once biographical variables were controlled for.

DISCUSSION

The aim of our study was to test the role of job search in prediction of (re)employment. The majority of studies done so far have shown a relatively weak relationship between job-search intensity and (re)employment, which could be explained with methodological weaknesses of research designs such as neglect of the job search dynamic nature (Wanberg et al., 2002). In our study, we took into consideration the dynamic nature of job search using several repeated measurements, constructed a precise outcome variable, and implemented sophisticated analytical procedures. We expected to find support for the idea that job-search intensity plays a crucial role in the (re)employment process. The results of our analyses offered several conclusions. First, job-search intensity shows meaningful within-person variability. Our study indicated that frequency of job search behaviors decreases with unemployment duration. Second, job-search intensity is a significant predictor of employment status, even if important biographical, motivational and health variables are controlled for. The importance of job search is further supported when its time-varying nature is taken into consideration. However, correlation and logistic analyses showed that biographical variables have a much stronger influence on (re)employment probability than job-search intensity.

Job-search intensity changes with unemployment duration and its time-varying nature should be taken into consideration in predictions of (re)employment. Our results are in agreement with previous studies that showed, regardless of whether they included two (e.g., Warr & Jackson, 1985) or more measurements (e.g., Wanberg et al.,

2005), that job-search intensity decreases with unemployment duration. There are at least two explanations for these results. According to the first, job-search intensity decreases with unemployment duration because unsuccessful search lowers motivation of the unemployed individual to persist in the job search process. For example, Wanberg et al. (2005) examined motivation for job search during unemployment. Their study showed that attitude towards job search becomes more negative with duration of unemployment. At the same time, perceived self-efficacy for conducting job search decreases. The decrease in job-search intensity can also be a result of a conscious desire of the unemployed person to reduce the level of experienced stress. Rare studies that explored the effects of job search on subjective well-being showed adverse effects of unsuccessful job search on psychological health of unemployed individuals. For example, Leana and Feldmen (1995) in the United States, and Lai and Chan (2002) in Hong Kong, showed that higher job-search intensity is related to lower psychological health. Adverse effects of job search on well-being are even more pronounced for those unemployed who persist in intensive job search, but are not successful (Warr, Jackson, & Banks, 1988).

Our research confirmed the importance of job search for (re)employment. More intensive job search enhances employment probability. The significance of job search for employment is understandable, because unemployed persons must search for a job if they want to find one and job search behavior is the only way through which they present themselves to employers and come into situations to get a job. This was also supported by earlier studies which showed that higher job search intensities result in more job interviews and a higher number of job offers (Saks & Ashfort, 2000).

Moreover, job search behavior represents an important mechanism through which motivational and health variables influence (re)employment. In accordance with our model expectations, several variables were shown to influence (re)employment probability through job-search intensity. Those were family responsibility, work involvement and physical health. Interestingly, the results for objective financial situation contradicted our hypotheses. We expected its negative correlation with (re)employment probability because unfavorable financial circumstances should be an incentive for more intensive job search which, in turn, makes (re)employment probability higher. However, objective financial situation was positively correlated with probability of (re)employment, independently of job-search intensity. This could be a consequence of the fact that better financial situation is related with a higher social status and stronger social networks, which are often crucial for getting a job (Wanberg, Kanfer, & Banas, 2000).

Although they supported the importance of job search for (re)employment, our findings just confirmed those from earlier studies. Job-search intensity was related with (re)employment probability, but the relationship is rather weak, despite improvements in research design. The weak relationship between job search and (re)employment could have at least two explanations. First, the obtained low correlation could be explained with specific socioeconomic circumstances in which our study was conducted. The situation in which the number of the unemployed on the labor market largely exceeds the number of job vacancies, and in which average unemployment duration is longer than a year (Katić, 2006), a large majority of people who search for job is going to be unsuccessful. Intensive job search does not pay off in high (re)employment probability

simply because the number of vacancies is too small. However, insignificant relationships between job search and (re)employment were found in the studies conducted in much more dynamic labor markets (e. g., in the USA: Leana & Feldman, 1990; Wanberg et al., 1999; in the Netherlands: Taris, 2002; Taris et al., 1995), and we do not consider the social context of our study to be the main determinant of the findings. Hence, we opt for the second explanation according to which the identified relationship between job search and (re)employment reflects the true relationship between the two variables.

Job search is probably weakly related with (re)employment because it is managed by unemployed individuals, and employment decisions are made by employers. Hence, job search and (re)employment are rather distant variables which could not be expected to show a strong correlation. Job search is just a prerequisite for a sequence of events that lead to (re)employment. According to Sax (2006), this sequence is as follows: more intensive job search leads to more job interviews, more job interviews cause higher number of job offers, and higher number of job offers results in higher employment probability. The element that the Sax's model did not include is that the probability of transition from one event in the sequence to another could be determined by job seeker's attributes. This could explain our finding that biographical characteristics of the unemployed are more important than the intensity of job search. They probably represent indicators of future performance that employers use for employee selection (Spence, 1973). If we want to understand the employment process better, the focus of future studies should be moved from testing the importance of job search for (re)employment to identifying the attributes of the unemployed that determine their employability.

Special attention should be devoted to the differentiation of characteristics that really predict future performance (e.g., type and level of education) from those that employers use for unjustified discrimination between applicants (e.g., age and gender).

The results of our study offer several practical implications. First, job-search intensity is obviously important for obtaining a job. So, our results once again support the importance of job search stimulation by specific government institutions, such as public employment services. Our results suggest that job search should be especially emphasized among those individuals who have been unemployed for a longer time, because the intensity of their job search decreases with duration of unemployment. However, we should be aware that stimulation of job search is not a panacea for the unemployment problem, especially in labor markets like Croatian that are characterized by a high proportion of the unskilled unemployed and long unemployment durations (Katić, 2006). Intensification of job search will probably not result in high employment rates because: (a) the number of job vacancies is too small; and (b) some characteristics of the unemployed probably make their employability low. Therefore, actions intended to solve the unemployment problem should also stimulate creation of new jobs, and enhance employability of unemployed individuals. Future studies should reveal relative importance of these interventions for the unemployment problem, and evaluate their costs and benefits.

Our study has several limitations and related suggestions for future research. First, in our study job-search intensity was conceptualized as a unitary construct. Since several studies have shown that success in job search depends on the selected search channel (e.g., Addison & Portugal, 2002; Weber & Mahringer, 2008), future research should focus only on particular job search behaviors, and their relationship with re-employment. Second, although we controlled for T1 unemployment, the dynamics of job search and its relationship with re-employment could be influenced by the fact that we included a large proportion of individuals who have been unemployed for a long time. Future studies should track unemployed individuals from the very start of their unemployment. Third, our participants were observed only on a yearly basis. This characteristic of our study could underestimate the obtained relationships, especially those between job-search intensity and (re)employment. Although the obtained correlation coefficients are in line with those reported in earlier studies (e.g., Wanberg et al., 1996, 1999; Kanfer et al., 2001), more frequent observations of job search would represent a stronger test of relationship between job-search intensity and re-employment. Next, as a measure of job search success, our study uses only information about employment status. Benefits of job-search intensity and its stimulation should take into consideration the quality of obtained jobs: as an anonymous reviewer observed, pressing the unemployed into (re)employment might be counterproductive if they are employed in precarious jobs. Finally, our study focuses on relationship between job seeker's characteristics and job search intensity with re-employment probability, ignoring other important influences that exist on labor market. As can be learned from the search and matching theory of unemployment by Diamond, Mortensen and Pissarides, 2010 winners of Nobel Prize for Economics, the labor market situation is determined with three interdependent processes: wages setting process, opening of job vacancies and matching of workers and jobs (The Royal Swedish Academy of Sciences, 2010). In addition to job search as an element of matching workers and jobs, oth-

er two processes from search and matching theory and factors that influence them, such as unemployment benefits, should be taken into consideration in future studies.

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Sažetak

TRAŽENJE POSLA I (PONOVNO) ZAPOŠLJAVANJE: ULOGA VREMENSKI PROMJENJIVOG INTENZITETA TRAŽENJA POSLA

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Cilj našeg istraživanja bio je testirati pretpostavku prema kojoj intenzitet traženja posla ima ključnu ulogu u zapošljavanju nezaposlenih osoba. U našem istraživanju testirali smo heuristički model koji je uključivao skupove varijabli koje potencijalno utječu na (ponovno) zapošljavanje. To su bile biografske karakteristike, čimbenici motivacije za zaposlenjem, ograničenja u traženju posla i intenzitet traženja posla. Očekivali smo da intenzitet traženja posla predstavlja najsnažniju odrednicu zapošljavanja te glavni mehanizam kojim ove varijable djeluju na vjerojatnost ponovnog zapošljavanja.

Rezultati upućuju da je, kada vodimo računa o njegovim promjenama tijekom nezaposlenosti, intenzitet traženja posla važan prediktor zapošljavanja te da se veza dijela prediktorskih varijabli sa zapošljavanjem odvija preko njega. Međutim, snažniju odrednicu zapošljavanja predstavljaju biografske karakteristike nezaposlene osobe i njena financijska situacija koje svoj utjecaj na zapošljavanje ostvaruju izravno, mimo traženja posla.

Ključne riječi: nezaposlenost, intenzitet traženja posla, zapošljavanje.