Choice and success of job search methods
Draft

Andrea Weber

Institute for Advanced Studies
Department of Economics and Finance

May, 2000

Abstract

In the search process jobseekers can influence the arrival rate of job offers by the choice of their search effort and the search methods they use. In the literature regarding the job search process it has been noticed that most attractive jobs are usually found through informal referrals from friends and relatives. Public employment services play a special role among search methods because they are a direct state intervention in the process which matches jobseekers and employers. This paper investigates the search behaviour of jobseekers in a survey of 500 successful job matches in Austria. The quality of the job matches in terms of wages and job durations are compared between different search methods. I find that there is an endogenous selection to the job matching methods. Persons with few social contacts and lower unobserved ability are more likely to be matched by the Austrian public employment service (AMS). This gives rise to the assumption that the unfavourable wage outcomes of AMS jobs are not so much due to bad quality of the service but to the composition of the AMS clientele.

1 Introduction

The classical partial job search model e.g. (Narenderathan and Nickell, 1985), which is used in the explanation of the variation of unemployment durations, assumes that job offers arrive at a given rate. Wage offers are draws from an exogenous wage distribution. The jobseeker decides to accept the offer or resume searching dependent on her reservation wage. The reservation wage is determined equating marginal costs of further search to marginal benefits from the job offer in terms of current and future utility. The assumption of an exogenous offer arrival rate, which cannot be influenced by the behaviour of the worker, seems rather arbitrary. The process by which offers arrive may as well be modeled as a function of worker behaviour and local labour market opportunities. (Burdett, 1979) introduces a job search model in which the jobseeker chooses search effort (e.g. time spent on job search) as well as the reservation wage. (Holzer, 1988) generalizes the model so that offer arrival rates depend on a worker's choice of 5 different job search methods which are allowed to vary in cost and productivity across individuals. The model predicts that individuals who balance relative productivities and costs choose search intensity and its allocation across methods.

Among the search methods investigated in this paper are methods using an informal intermediary like friends and relatives, a formal intermediary like public or private employment services or newspaper advertisements and the direct contact with the employer without intermediary. There is much variation in the use of different methods.

(Rees, 1966) finds that most jobs are obtained through information from friends and relatives. For workers this method is less costly and may be most productive in generating acceptable job offers and reliable information about the job. For employers to recruit through referrals from their existing workforce provides a cheap and useful screening device. The idea is that employees will refer to friends who are similar to themselves and they will avoid to make referrals to unsuitable applicants because this is a damage to their own reputation. The role of personal contacts in job finding stresses the importance of social networks in the analysis of unemployment (Granovetter, 1973; Hannan, 1999).

The counterpart to the successful search method via personal contacts is taken by the public employment services. In most industrialized countries the state provides a free service for jobseekers and employers and thus intervenes directly in the process by which workers and firms are matched. But most attractive jobs are often found by other search methods. In the empirical analysis of this paper I find that jobs procured by the Austrian public employment service (AMS) pay lower wages and have shorter durations than comparable jobs matched by other methods. This finding is consistent with many other studies as (Addison and Portugal, 1998) and (Osberg, 1993). Thus one can expect that the public employment service is usually used by jobseekers whose alternative options are relatively poor. The clients of the public employment service are people who were not successful with other methods, who have few social contacts or who lack experience in the labour market. This group is not a random sample of

all jobseekers and therefore can cause a selection bias in the comparison of jobs matched by the different search methods.

In their work (Osberg, 1993) and (Gregg and Wadsworth, 1996) find evidence for sample selectivity in the evaluation of the returns to public employment systems in Canada and Great Britain. Both include a sample selection correction term in the estimation of the probability of finding a job dependent on the job search method. Here I investigate wages and durations of jobs matched by the AMS in comparison to jobs matched by other methods. I find significant differences controlling for sample selectivity. If I model the selection to the job matching methods endogenously in the search process and correct for the different compositions of groups matched by the alternative methods no significant differences appear. I conclude that there is evidence that differences in wages and job durations are not so much due to the bad matching quality of AMS but to the composition of its clients.[1]

In the international comparison of studies the role of public employment service is seen very different. In Great Britain (Gregg and Wadsworth, 1996) the service is used by a large part of jobseekers and employers (70% of unemployed job seekers) and there is evidence on a high efficiency of the service (only direct contact to the employers raises the probability of finding a job more than the public employment service). The greatest beneficial impact is among the less skilled and long-term unemployed.

For Canada, (Osberg, 1993) finds a beneficial impact of the public employment service on the probability of finding a job in years of economic recession and especially for long-term unemployed. He argues that the cost benefit evaluation of the service is balanced over the business cycle.

For the Netherlands (Lindeboom et al., 1994) estimate a general model that allows for both sides of the labour market, employers and employees, to interact. The results indicate large differences in the effectiveness of the search channels. Advertisements and informal contacts are most effective in matching employed workers and vacancies. At the same time the public employment service is very ineffective in doing this. The public employment service is on the other hand very effective in matching unemployed workers and vacancies. For them advertisements are very ineffective.

(Holzer, 1988) reports a low market share of the public employment service and only a small positive impact of the service on the probability of getting a job offer for unemployed youth in the USA.

[1] Another point in the evaluation of the effectiveness of public employment services which can not be regarded in this paper is the cyclical variation of job method use. Studies using longitudinal data find that in times of recession the public employment service increases in importance. In a depressed labour market many of one's friends may themselves be unemployed or they work in firms which are laying off rather than hiring workers. Newspapers will advertise less vacancies, so unemployed will be more likely to increase the number of search methods they use and to add the public employment service to their search methods. (Gregg and Wadsworth, 1996) find that the use of the state employment service appears to be counter cyclical. The search intensity by unemployed, in terms of the number of search methods used, shows the same counter cyclical pattern. (Osberg, 1993) finds that the use and success rate of the public employment service was considerably higher in times of recession.

(Addison and Portugal, 1998) using the Portuguese Labour Force Survey report that the public employment service has a low success rate and leads to jobs that are instable and lower paying.

In Austria information on the market share of job search methods available in the Labour Force Survey were evaluated by (Frühstück et al., 1999). But there are no studies examining the influence of job finding methods on characteristics of the subsequent jobs.

Here I use information form interviews of successful job finders who report about their job search methods and about the job they found. First I am going to describe the various job search and job finding methods in terms of their market shares and successfulness in generating job matches. I find considerable variation in job finding methods among different groups of persons. Next the effects of job finding methods on wages of the generated jobs are discussed. I specify a model, which corrects for sample selectivity among the jobseekers and find that the negative bias of wages in jobs that were matched by AMS might be due to unobservable sample characteristics of the AMS clientele. In the last part I examine the durations of the job spells.

2 Job search and job finding methods

The empirical analysis of this paper is based on a sample of drawn from the national social security records. 500 persons who picked up employment during the year 1997 in Styria were interviewed in April 1999.[2]. The central part of the interview is the search process, which lead to the successful job match in 1997 Out of a large list of possible job search methods the participants reported all the methods they had used and the job finding method, which was finally successful. For reasons of small cell sizes and better differentiation I collapse the list to 5 search methods: asking friends and relatives, newspaper or media advertisements, public employment service (AMS), direct contact to the employer and a residual category of other methods (it includes private employment agencies, advertisements in schools and universities and the cases where the incentive came from the employer).

Table 1 gives an overview of search method use and the job finding success. The most frequently employed search methods in the survey were checking with friends and the use of the media. Both methods were used by about 60% of the participants. The public employment service, which is compulsory in Austria for unemployed receiving unemployment insurance benefits was reported half as often (35%). 30% used to contact a possible employer directly either by mail or by telephone. A share of 8% used no search methods at all. On average a jobseeker used 2 search methods at a time. Following (Holzer, 1988) I am going to take the number of search methods used as a measure for search intensity.

[2]The survey is part of the project "Vermittlungssituation am steirischen Arbeitsmarkt" which is conducted by the Austrian Institute of Economic Research together with Joanneum Research by the order of the public employment service Styria.

The differentiation among search methods increases if I look at the successful method to find the job. In nearly half of the cases it turns out that referrals from friends succeeded in a job match, whereas in the share of jobs matched by the public employment service lies around 8%.

The group of persons, who were successful with a particular job search method can be divided into two subgroups. There are persons who searched with the method and were then successful and others who did not search with that method but were nevertheless successful. The third column of table 1 gives the number of "successful searchers", the share of which is often referred to as the "hit rate". It turns out that the number of "successful non-searchers" exceeds the number of persons who reported no search at all (24% as opposed to 8%). Further this number is especially high for particular search methods like friends and relatives but also direct employer contact, whereas for AMS and the media the numbers of column 3 and column 2 are roughly equal. It seems to be the case that contacting friends is not always seen to be combined with search effort and that the job finding success appears to be a coincidence. Although job search increases the probability of finding a job it may not be an absolute requirement to find employment. A detailed analysis of this phenomenon is not included in this paper but could be addressed in future research.

In addition to the information on the search process the interview contains questions about personal characteristics (age, sex, qualification), the number of previous jobs, working experience the labour market status before taking up the job. 27% of the sample were unemployed, 11% had been temporarily out of the labour force and 35% are new participants in the labour market taking their first job. The rest of the sample was job-to-job movers. Detailed summary statistics of the variables used are given in table .

Persons who were recalled to their previous employer were excluded from the sample, as workers on temporary layoff exhibit a totally different search behaviour. Further jobs created by subsidized employment programs were excluded. Workers from all industries were included in the sample. Because of the small sample size the observations are weighted according to the proportion of the industries in the total number of persons employed.

As the sample only includes successful job searchers I cannot determine the probability of finding a job with a given method as opposed to finding no job. Therefore I have to confine myself to investigate the probability of finding a job with a method conditional on the fact that job search was successful. So rather than evaluating job finding probabilities I compare the conditional probabilities of finding a job by the different methods with each other. To do this I set up a multinomial logit model. I should further note that the sample of successful searchers might also be biased in a way that it excludes less successful searchers who got discouraged and left the labour force. This bias might not be of equal size for all groups of persons. Some like new entrants or young workers are more likely to leave the labour and market after some discouraging period of unsuccessful search. I will return to this issue in the following. The multinomial probit model is specified as follows: Denote X_i a

	search method use number of persons in percent	successful method	search method is successful "hit rate"
Media	305 60.9%	103 20.6%	101 20.2%
Direct Contact	154 30.7%	83 16.6%	58 11.6%
Friends	301 60.0%	234 46.7%	168 33.5%
AMS	177 35.3%	39 7.8%	38 7.6%
Other	56 11.2%	42 8.4%	15 3.0%
No Search No Search	42 8.0%		
Total Average number of methods used Observations	 1.98 501	100%	75.8%

NOTE: "hit rate" refers to the share of persons who report the method as their search method and successful method

Table 1: Search method use and job finding success

vector of personal characteristics, which influence the allocation of an individual to a job finding method. The multinomial logit model gives the probability P_{ij}, that an individual i found her job with method j, by

$$P_{ij} = \exp(X_i b_j)/[1 + \sum_{j=1}^{4} \exp(X_i b_j)] \tag{1}$$

where b_j $j = 0, ..., 4$ is a vector of coefficients determining the allocation to job finding method j and $b_0 = 0$ is taken as normalization. For the appropriate interpretation note that from (1) we may write

$$\partial \log(P_{ij}/P_{i0})/\partial X_i = b_j \text{ and } \partial \log(P_{ij}/P_{ik})/\partial X_i = b_j - b_k. \tag{2}$$

A positive coefficient increases the probability to be successful with method j relative to the reference method. To evaluate the impact of some variable on the probability ratio between two states, the difference between the coefficients is relevant.

Table 2 presents the results from the multinomial logit model[3]. The reference category refers to the method of job finding through friends and relatives. The results show that young workers are more likely to find their jobs through newspaper advertisements and direct contacts to employers. Also persons with more working experience find jobs easier through the media than with social networks. Workers with the lowest educational level, which is compulsory education, are most likely to be matched with the AMS as opposed to all other search methods. Prior labour market status influences the probability of a job finding method insofar as new labour market entrants have a low probability of being supported by AMS. This might be due to the bias in the sample, which includes only very ambitious new entrants in the labour market. Especially for new entrants there might be a high discosraging effect from unsuccessful search. But nevertheless it would be interesting to investigate if together with a relatively small share of young workers compared with the media and direct employer contacts this would be a possible field of increased AMS activity. Another surprising result is that unemployed seem to be more successful with other methods than with AMS, especially with newspaper advertisements. Job-to-job movers are most likely to find new employment through direct firm contact. Women are likely to benefit from the services of AMS in comparison to informal contacts, but for women with small children show the opposite shows. This may be a consequence of the relatively low share of part time jobs matched by AMS compared with all other search methods. The number of search methods used increases the success probability of all methods as opposed to friends and relatives, (except the residual category others which seems to be a very heterogeneous group). Graz, which is the only larger town in the region, as area of living has a higher number of job offers in newspapers and increases the probability of finding a job through the media. Persons who lost their last employment as a consequence of insolvency are more likely to find a new job through friends and relatives than with the help of AMS of media advertisements.

3 Wages by job finding method

So far I have analysed job matches by the methods with which the jobs were found. But I do not know how "successful" these job matches really are. More and better comparable information is contained in wages. Differences in wages for comparable jobs give a good impression which method matches attractive jobs.

For this purpose I estimate an augmented Mincer-type wage equation, which includes dummy variables for the successful job search methods. I find that the

[3] All estimations in this paper were performed in STATA 6.0 for PC.

only search channel, which affects wages significantly, is the public employment office. This means that regardless of education and working experience jobs matched by the AMS pay lower wages. How can this be explained?

I try to explain it by endogenous selection of workers to the successful search methods and by the role social networks play in the matching process. Suppose there is unobserved ability among the job seekers and "better" workers are able to find their jobs with other methods which leaves the public employment service in charge of the less favourably equipped group. If it is possible to find an instrument for the unobserved ability, I can correct of the bias and explain the wage differences. Suppose further that for all qualifications there are "good" jobs with interesting tasks and higher payment and "bad" jobs, which are not so well paid. It seems plausible that the "good" jobs are filled with the help of social networks rather than with more formal search channels. First social networks are quicker than other methods. They will be able to anticipate that a vacancy is going to be posted even before the employer gets active. Second social networks may be a good screening device, as they provide more information about the applicants and spare costly screening procedures by the employer. A consequence of this would be that jobseekers who are less integrated in social networks are disadvantaged and can only get the "bad" jobs, which the employer reports to the public employment office. In this case the underlying unobservable variable to be instrumented would be the amount of social contacts.

In the following I am going to set up a model, which assumes that the selection of jobseekers to successful search methods is not determined randomly but endogenously in the search problem, and I apply a two-step estimation procedure for wages.[4]

3.1 Method

Wages are estimated by an augmented Mincer-type equation. X_i denotes a vector of personal and industry specific characteristics which are supposed to determine the individual wage level y_i. Additionally the influence of AMS as matching institution is included into the equation via a dummy variable V_i.

$$y_i = V_i\alpha + X_i\beta + u_i \tag{3}$$

The coefficient α denotes the influence of AMS, β is a vector of coefficients determining the effects of the other characteristics.

In the survey wages are given in intervals. We have left and right censored wage data as well as wages in 30 intervals. This suggests to estimate the wage equation with an interval regression rather than OLS. Interval regression is a

[4]For a complete analysis comparing all methods with each other one would estimate a model that includes simultaneous self-selection of individuals for all 5 search methods. However this model becomes technically and computationally very complicated.

generalization of the Tobit estimator. The likelihood function includes parts for left- right- and interval-censored data.

To handle the problem of sample selection I expand the one equation model form above and create a model similar to (Maddala, 1983) (Model 5, p.120).

$$y_i = V_i\alpha + X_i\beta + u_i \tag{4}$$
$$V_i^* = Z_i\gamma + v_i \tag{5}$$

with

$$V_i = \begin{cases} 1 & \text{if } V_i^* < 0 \\ 0 & \text{else} \end{cases} \tag{6}$$

In this model V_i equals one if the underlying unobservable variable V_i^* exceeds a certain threshold. I assume that V_i^* measures the amount of social contacts and ability, which determines the matching search method.

For the estimation of the model I apply a two-step estimation procedure. In the first step I estimate the probability of finding a job with AMS with a probit model. The predicted value for V_i from this regression $\hat{V}_i^*$ is plugged in equation (4) for V_i. In the second step the modified equation (4) is estimated with the interval regression method.

$$y_i = \Phi(Z_i\hat{\gamma}) + X_i\beta + u_{1i} \tag{7}$$

The matrix of covariates Z in equation (5) contains all variables of X and instruments for social contacts and ability. The dummy variable "Graz" serves as an instrument for social contactst. "Graz" equals unity if the person lives in the only larger town in the region of the survey. The idea is that the place of residence does not influence wages directly but only in association with the search method. People living in rural areas may have smaller social networks and they are not so easily reached by advertisements in newspapers. Thus they are more dependent on public employment services than citizens of towns. The concept of the place of living instead of the place of work also makes a distinction from people travelling to work. Commuters coming form rural areas may benefit from the higher wage level in town as well as town residents, but they are cut off the informational networks that lead to job offers because of their place of living. As an instrument for ability I take the new labour market entry and age. I have argued above that due to the sampling design persons taking their first job might be biased towards higher ability.

3.2 Results

In the survey monthly gross wages including payment for regular overtime were recorded, as well as the annual frequency of payments. To correct for the differences in the number of annual payments I calculate a standardized monthly wage on basis of 14 annual payments (as this was the most common frequency). Most participants in the survey reported wages (95%). However, in the analysis I can only regard full time employees because it is impossible to calculate hourly wages from the information in the survey. This reduces the sample size to 341 persons.

The results of the wage estimation are displayed in table 3. The first column of 3 lists the results of estimating the wage equation (4). Without considering the sample selection problem wages of jobs matched by AMS pay significantly lower wages. The difference to job offers by other search methods is about 2200 ATS (14 times a year). This is about 13% of the mean monthly wage in the sample. Coefficients of the explanatory variables show a plausible behaviour. Men's wages are significantly higher than women's. I included a dummy variable for unemployment in the equation because a higher than average amount of persons matched by AMS had been unemployed and the negative signalling effect of unemployment might be reflected in the AMS coefficient. Experience enters the wage equation in a cubic function. Wages rise with the educational level. Additional knowledge in computer plays an important role in wage determination.

The probit regression, which performs the first step of the selection model estimation, resembles the results of the multinomial logit model with a different set of covariates. Estimation results are listed in the second column of table 3.

The last column contains estimation results of the second step of the selection model, equation (7). This time the coefficient in the row of Pr(AMS) is corresponding to influence of the predicted value of the individual being matched by AMS. This coefficient in contrast to the coefficient in the first column is positive but insignificantly different form zero. Taking account of sample selection I can not find an influence of the search method AMS on wages. The remaining coefficient estimates are similar to those in column 1. The interpretation of the findings would be that the amount of social contacts and ability determine the composition of the AMS clientele and can made responsible for the wage differentials.

To evaluate the quality of the model I perform a Hausman test on the endogeneity of the matching method AMS. For this test I include both variables AMS and Pr(AMS) on the right hand side of the wage equation and test the significance of the parameter of Pr(AMS). This parameter is significantly different form zero at least at the 10% level, which gives rise to an argument in favour of the selection model.

4 Job durations by job finding method

The survey was conducted in April 1999. That means the jobs can have a duration of at most 2,5 years which is not very long. But one could argue that a job which was dropped after a short time can not be the consequence of a very successful match. In the sample the average duration of no censored spells (jobs that were finished at the date of the interview) is about 11 month. The average duration of censored spells (ongoing jobs)is 22 month.

4.1 Method

I model durations in a proportional hazard specification, (see Kiefer, 1988).

The hazard rate $h(t)$ is the rate at which job spells will be completed at time t, given that they last until t. In the proportional hazard model the hazard rate is the product of a baseline hazard $h_0(t)$ depending on the duration t and a factor, which depends on a vector of explanatory variables and does not depend on the duration of the spell. The hazard rate for person i can be written as

$$h_i(t) = h_0(t)\lambda_i, \quad \text{with} \quad \lambda_i = \exp(X_i\beta_i) \tag{8}$$

where $h_0(t)$ is the baseline hazard, X_i is a vector of individual characteristics, and β is a vector of regression coefficients. In the proportional hazard model λ_i scales the baseline hazard by the same proportion at each value of t.

There are several possibilities of specifying the baseline hazard, either parametrically with given distributions placing certain restrictions on the form of the baseline hazard, or non-parametrically. Here I choose Cox's partial likelihood model which specifies fully flexible the baseline hazard.

The estimated equation includes dummy variables for the job finding methods and a vector of personal characteristics.

4.2 Results

Table 4 reports the estimates for the covariate k β_k. A negative sign of β_k signifies that the influence of the covariate decreases the probability of ending the job and increases the probability of longer job durations.

Media, AMS and personal contacts are likely to lead to shorter job durations compared to job matches from direct employer contacts and "other methods". This difference is significant especially for women, whereas for men no significant differences are detected.

As one would expect the likelihood of longer job durations increases with age. Also new labour market entrants face a higher probability of quitting the job. Previous unemployment reduces the job duration, especially for women. This

might be because unemployed face a certain pressure to take up a job they do not really like. A little puzzling is the result that lower qualifications increase probability of longer job durations. Persons who frequently change their jobs tend also to keep this job for a shorter time. Again this is not a linear relationship. Male blue-collar workers are likely to have shorter job spells. The next two variables are personal opinions about the job in comparison to the previous job. If workers report that their wage situation has improved and that they are overall more content with this job than with the last one they are likely to be in a stable job relationship. The last variable corrects for shorter job durations in industries where most jobs are seasonal employments. This are the construction industry and tourism industry.

5 Conclusion

In the paper I investigate the use of formal and informal methods of job search in the Austrian labour market and the effects of the choice of the search method on wages and job durations. Mainly I compare jobs matched by the public employment service with other job matches. The empirical analysis of the paper is based on a survey of successful job matches in Styria

The most commonly used search method and also the method, which generates most successful job offers is checking with friends and relatives. Newspaper advertisement are also a frequently used search method but not quite as successful in generating job matches. AMS is used by many jobseekers but its share in job matches is only 8%.

In the comparison of market shares of the different search methods it turns out that AMS could increase effort in their service for young people searching for their first job and providing part time job offers for mothers with children. AMS market share is also rather low in Graz, which could mean that the service in rural areas is better or that in town alternative search methods provide enough opportunities (e.g. newspaper advertisement reach more applicants in a densely populated area).

The Characteristics of clients of the different job search methods show considerable variation.

For the comparison of the quality of job matches in terms of wages it turns out that sample selection plays an important role. Although wages of jobs matched by AMS are significantly lower, a correction for the sample selection bias renders the differences insignificant. The wage profile of AMS clients seems to be generated by the composition of this group rather than by the bad quality of AMS job offers.

Further perspectives for this work would be the inclusion of information of exact search durations or durations of previous unemployment spells.

References

Addison, J. T. and Portugal, P. (1998). Job search methods and outcomes. *ZEW discussion paper*, (41).

Burdett, K. (1979). Search, leisure and individual labour supply. In Lippman, S. and McCall., J. J., editors, *Studies in the Economy of Search*, pages 157–170. North Holland.

Frühstück, E., Gregoritsch, P., Kalmar, M., Löffler, R., and Wagner-Pinter, M. (1999). Das Arbeitsmarktservice als Informationsträger bei der Bestzung von Vakanzen 1988. AMS Wien.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78:1360–1380.

Gregg, P. and Wadsworth, J. (1996). How effective are state employment agencies? Jobcentre use and job matching in Britain. *Oxford Bulletin of Economics and Statistic*, 58:443–467.

Hannan, C. (1999). 'beyond networks: "social cohesion" and unemployment exit rates. *University of Essex working paper*, (7).

Holzer, H. (1988). Search method use by unemployed youth. *Journal of Econometric Literature*, 26:1–20.

Lindeboom, M., van Ours, J., and Renes, G. (1994). Matching employers and workers: an empirical analysis on the effectiveness of search. *Oxford economic papers*, 46(1):45–67.

Maddala, G. (1983). *Limited dependent and qualitative variables in econometrics*. Cambridge University Press.

Narenderathan, W. and Nickell, S. (1985). Modelling the process of job search. *Journal of Econometrics*, 1:29–49.

Osberg, L. (1993). Fishing in different pools: job-search strategies and job-finding success in Canada in the early 1980s. *Journal of Labor Economics*, 11:348–386.

Rees, A. (1966). Information networks in labour markets. *American Economic Review*, 56:559–566.

Table 2: Multinomial Logit estimation of successful job search, comparison group are jobs found through personal contacts

	Media	Dir contact	AMS	Other Methods
Age	-0.04	-0.04	0.00	-0.01
	(1.94)	(1.70)	(0.01)	(0.24)
Experience	0.13	0.12	-0.07	0.10
	(1.85)	(1.44)	(0.61)	(0.98)
Experience2	0.00	0.00	0.00	0.00
	(1.32)	(1.24)	(0.72)	(0.74)
Education:				
Primary Level	0.15	0.05	1.95	-0.33
	(0.21)	(0.07)	(1.79)	(0.42)
Intermediate Level	0.67	0.23	1.18	-0.82
	(1.07)	(0.38)	(1.23)	(1.29)
Higher Level	0.11	-0.10	-1.34	-1.78
	(0.18)	(0.18)	(0.83)	(2.62)
First Job	1.05	1.63	-2.45	0.96
	(1.37)	(2.00)	(2.38)	(0.93)
Unemployed	0.94	0.18	-0.71	0.72
	(1.52)	(0.26)	(0.92)	(0.81)
Job-to-job Mover	0.83	1.50	-1.26	0.58
	(1.31)	(2.23)	(1.45)	(0.76)
Sex: female	0.38	0.02	0.97	-0.23
	(1.12)	(0.04)	(1.79)	(0.47)
Small Children	0.42	-0.98	0.65	-0.79
	(0.82)	(1.71)	(0.91)	(1.00)
Female+Small Children	-0.45	0.55	-1.83	0.01
	(0.67)	(0.76)	(1.78)	(0.01)
Search Intensity	0.36	0.41	0.72	-0.56
	(3.01)	(2.74)	(3.21)	(2.09)
Region Graz	0.67	-0.27	-0.84	0.03
	(2.21)	(0.71)	(1.74)	(0.07)
Insolvency	-1.22	0.22	-1.32	-0.17
	(2.03)	(0.36)	(1.67)	(0.24)
Layoff	-0.13	0.45	0.76	0.19
	(0.31)	(0.84)	(1.35)	(0.21)
White Collar Worker	0.24	-0.11	-1.02	0.66
	(0.63)	(0.30)	(1.53)	(1.38)
Part Time Worker	0.15	0.60	-1.36	-0.06
	(0.38)	(1.38)	(2.22)	(0.10)
Constant	-2.52	-2.52	-2.90	-1.00
	(2.26)	(2.03)	(1.45)	(0.75)
Mean log likelihood :	-577.18			
Number of observations :	500			
Pseudo R^2 :	0.17			

NOTE: Robust z-statistics in parentheses; dummy variables for 8 industries were included in the estimation;

Table 3: Wage estimation, results from 2 stage selection model

	first stage interval regr.	probit	second stage interval regr.
AMS	-2.19		
	(1.96)		
Pr(AMS)			5.26
			(1.18)
Region Graz		-0.54	
		(2.02)	
First Job		-1.18	
		(2.07)	
Age		0.02	
		(1.03)	
Unemployed	-2.28	0.70	-3.24
	(2.50)	(2.27)	(3.00)
Sex: Male	5.34	-0.16	5.58
	(7.21)	(0.59)	(7.13)
Experience	1.04	-0.26	1.03
	(4.47)	(1.95)	(4.43)
Experience2	-0.06	0.01	-0.06
	(3.09)	(1.48)	(2.92)
Experience3	0.00	0.00	0.00
	(2.77)	(1.13)	(2.53)
Education:			
Primary level	-5.97	1.60	-7.17
	(5.11)	(3.84)	(6.06)
Intermediate level	-0.68	1.04	-1.37
	(0.72)	(2.99)	(1.42)
Computer knowledge	1.43	0.06	1.38
	(1.94)	(0.22)	(1.88)
Constant	10.86	-1.88	10.94
	(9.38)	(2.49)	(9.56)
Observations	360	360	360
log likelihood	-882.67	-85.71	-883.69
pseudo R2		0.23	

NOTE: Standard errorRobust z-statistics in parentheses; dummy variables for 6 industries were included in the estimation;

Table 4: Job durations, estimation results from Cox regression

	Total	Women	Men
Media	0.54	0.70	0.44
	(2.49)	(2.13)	(1.43)
AMS	0.55	0.66	0.46
	(1.98)	(1.62)	(1.09)
Friends	0.37	0.49	0.32
	(2.03)	(1.70)	(1.23)
Age <25	1.24	1.50	1.02
	(3.75)	(2.90)	(2.25)
Age 25-35	0.51	0.70	0.37
	(1.76)	(1.50)	(0.90)
Age 35-45	0.10	0.26	-0.05
	(0.32)	(0.54)	(0.12)
First job	0.75	1.21	0.95
	(1.92)	(1.44)	(1.78)
Unemployed	0.30	0.55	0.20
	(1.67)	(1.89)	(0.79)
Children	0.24	0.34	0.11
	(1.27)	(1.07)	(0.41)
Education:			
Primary Level	-0.59	-0.70	-0.47
	(2.82)	(2.26)	(1.45)
Intermediate Level	-0.82	-0.75	-0.79
	(4.49)	(2.76)	(3.08)
Number of previous jobs	0.46	0.72	0.47
	(4.56)	(2.26)	(3.48)
Number of previous jobs2	-0.02	-0.05	-0.02
	(3.40)	(1.57)	(2.76)
Blue collar worker	0.31	0.18	0.43
	(1.87)	(0.74)	(1.74)
Wage situation	-0.72	-0.85	-0.66
	(4.82)	(3.61)	(3.13)
Improvement of job situation	-0.69	-0.62	-0.74
	(3.15)	(1.92)	(2.32)
Saisonal industries	0.41	0.36	0.33
	(2.32)	(1.30)	(1.34)
Number of observations	497	239	258
Number of failures	225	103	122
log likelihood	-1245.26	-490.84	-596.48

NOTE:Absolute z-statistics in parentheses; Wage situation is a daummy variable =1 if the wage increased compared to the last job; Improvement of job situation is a dummy variable comparing this job with the last one; Seasonal industries are construction and tourism;

Table 5: Summary Statistics, N=501

	Mean	Standard Deviation
Female	0.48	
Age	29.45	10.07
Children under 10 years	0.26	
Region (=1 if lives in Graz)	0.36	
Foreign Nationality	0.03	
Number of previous jobs	2.59	2.85
Experience (years)	7.95	9.27
Education:		
Primary Level	0.17	
Intermediate Level	0.50	
Higher Level	0.22	
University Degree	0.12	
Computer knowledge	0.50	
LM-status before starting the job:		
First job	0.35	
Unemployed	0.27	
Out of labour force	0.11	
Job-to-job mover	0.27	
Type of job:		
Blue collar worker	0.42	
White Collar worker	0.49	
Apprentice	0.08	
Part Time	0.24	
Search characteristics:		
Search intensity (number of methods used)	1.98	1.17
Search duration (months)	4.46	6.54
Job finishend	0.46	
Industries:		
Agriculture	0.05	
Construction	0.08	
Trade	0.08	
Tourism	0.08	
Banking	0.05	
Firm related services	0.11	
Public sector	0.07	
Personal services	0.15	

NOTE: Standard deviations are only given for non-dummy variables.