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Labour market status of job seekers in regional

matching processes

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Abstract

This study examines the matching of job seekers and vacancies, focusing on the role of job seekers' labour market status in the matching process. Job seekers are divided into four employability groups according to their labour market status: employed job seekers, job seekers out of the labour force, unemployed job seekers with a spell of unemployment shorter than a year, and long-term unemployed job seekers. The data set is temporally, spatially, and with respect to job seekers' labour market status highly disaggregated monthly data from 171 Local Labour Offices (LLOs) in Finland over 12 years. According to the results, the employability of job seekers differs, and therefore the composition of the pool of job seekers in a local labour market affects the ability of that market to form successful matches. An increase in the share of job seekers out of the labour force increases matches, while an increase in the share of long-term unemployed job seekers decreases matches. Since labour market conditions between neighbouring areas are positively spatially autocorrelated, spatial spillovers across borders do not improve local matching processes.

Keywords

matching, heterogeneity, labour market status, employability, spatial autocorrelation

1. Introduction

This study examines job matching in local labour markets focusing on the status of job seekers in the matching process, and on spatial autocorrelation in local labour market conditions. The matching function, which summarises the complicated trading process in the labour market by expressing the outcome of the investment of resources by firms and workers in the trading process as a function of the inputs (Pissarides 2000), is utilised as a modelling device.

There has been considerable debate about ranking in the labour market between different kinds of job seekers, and it has been shown that all job seekers are not all equally ranked in firms' recruitment processes. For their part job seekers are heterogeneous, which in turn leads to large variation in the search intensity and reservation wages of individuals. Search intensity is determined by search costs, the cost of unemployment, and the expected returns from employment (Petrongolo and Pissarides 2001). Higher expected returns from employment increase the opportunity cost of being unemployed and therefore also increase search intensity.

Burgess (1993) found that the competition for jobs between employed and unemployed job seekers is an important determinant of the outflow rate from unemployment. He also found that the more vacancies there were in the job market, the greater was the share of employed job seekers of all job seekers. Therefore, the crowding out effect of employed job seekers is connected with the number of open vacancies and cyclical variations. Anderson and Burgess (2000) utilised the same model, assuming the search process of employed workers to be endogenous. According to the results, when the economy is booming and the number of job offers increases, employed workers find it more profitable to spend time searching for new vacancies if they are not satisfied with their current ones.

According to Burgess and Turon (2003), more on-the-job search leads to a more stagnant pool of unemployed workers since on-the-job search lowers both the inflow to unemployment and outflow from it. In addition, the stock of vacancies is more, the unemployment outflow less, and the unemployment inflow more cyclically sensitive in markets with on-the-job search

than in those without it. On the level of unemployment Burgess and Turon (2003) did not, however, find on the-job-search to have any notable effect.

Pissarides (1994) found on-the-job search more likely to occur with short as opposed to long job tenure, owing to the accumulation of job-specific human capital in the case of the latter. Van Ours (1995) adds that there are differences between vacancies in how competition for jobs occurs. Vacancies for which many different recruitment channels are used tend to be those for which competition exists between employed and unemployed job seekers. Broersma and van Ours (1998) also argue that it is very important to account for the effect of non-unemployed job seekers in the matching process. Mumford and Smith (1999) divided job seekers into three groups – employed job seekers, unemployed job seekers, and job seekers outside the labour force – and found evidence that employers rank job seekers according to their labour market status.

In the case of long-term unemployment it is clear, from many previous studies, that long-term unemployment cause shifts in the aggregate matching function (e.g. Budd et al. 1988; Layard and Bean 1989; Pissarides 1992). This is associated on the unemployed side of the labour market with both a reduction in the search intensity of the long-term unemployed and a deterioration in human capital and on the firms' side with the reluctance of employers to hire them (Layard and Bean 1989). Pissarides (1992) argues that the question is one of thin market externality. After a negative shock many people lose their jobs. If their unemployment spells lengthen, they become less attractive to the employers. Fewer jobs come on the market in the next period, and even more unemployed persons become long-term unemployed. Because job seekers as a whole have less human capital, the job market becomes thin.

In his further study, Pissarides (1994) included employed job seekers in the model and found that the existence of on-the-job search influences the composition of jobs and creates congestion for unemployed workers. In practice, firms advertise relatively more jobs that are targeted at employed job seekers, which makes it more difficult for unemployed persons to find a suitable job. This leads to an outward shift in the Beveridge curve, since unemployment remains high despite the increase in vacancies.

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Thus, job competition and ranking both between employed and unemployed job seekers and between short-term and long-term unemployed job seekers takes place. Long-term unemployed job seekers are in the least competitive position and their search intensity is also lower than that of other job search groups. Blanchard and Diamond (1994) note, however, a difference between a tight and a depressed labour market. In a tight labour market, a long-term unemployed job seeker may be the only applicant for a given vacancy, whereas in a depressed labour market most vacancies attract many applicants.

In this paper, the data are temporally, spatially, and with respect to the labour market status of job seekers highly disaggregated. The data consist of monthly panel data from 171 Local Labour Offices (LLOs) in Finland over a period of 12 years. In addition to unemployed job seekers with an unemployment spell shorter than a year, three groups of job seekers with special labour market status are distinguished. These groups are long-term unemployed job seekers, employed job seekers, and job seekers out of the labour force. The data set is drawn from the registers of the Ministry of Labour. Therefore, it includes job seekers and vacancies registered at the public employment agency, which plays an important role in the labour market in Finland.[1]

The possibly different employability of heterogeneous job seekers variously positioned in the labour market, and the effect of this on successful matches in the area are included in the analysis. Spatial dependencies in the matching process are also taken into account by incorporating spatial spillover variables into the model, i.e. labour market conditions in neighbouring areas are allowed to affect matches in a given local area. Therefore, the modelling of spatial spillovers in this paper differs from that of Burgess and Profit (2001), Hynninen (2004), and Kangasharju et al. (2005b): here the focus is on labour market conditions in the neighbouring areas rather than directly on cross-border flows of job seekers.

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[1] The proportion of jobs mediated by LLOs in Finland is quite high. It varied between 49 and 71 per cent on th eperiod 1993-2002, being lowest in 1993 and highest in 1996 (Hämäläinen 2003). The mean is around 60 per cent. Public employers have a statutory duty to report an open vacancy, whereas for private firms this is optional. Despite this, the largest reported share of open vacancies is in the private sector (Räisänen 2004).

This paper is organised as follows. Chapter 2 describes the data, and Chapter 3 derives the matching models with the four categories of heterogeneous job seekers and spatial spillovers. Chapter 4 reports the results, which show that long-term unemployed job seekers have a negative effect and job seekers out of the labour force, a positive effect on matches. The results also indicate that labour market conditions are spatially autocorrelated. Therefore, spillovers across borders do not make local labour markets working better. Chapter 5 concludes.

2. Data description

The data set consists of monthly panel data from 171 Local Labour Offices (LLOs) in Finland over 12 years. It is temporally, spatially, and by the labour market status of job seekers highly disaggregate data drawn from the registers of the Ministry of Labour. Table 1 gives the descriptive statistics of the variables in the data set. The mean, minimum, and maximum values of the variables for 139 months are reported in the table. The dominant factor over the period is the low fraction of open vacancies to job seekers. On average (the mean value of 139 months from all LLOs) 3 500 job seekers were job-searching at the end of the month, while only 75 vacant jobs were on offer (Table 1)[2]. The average unemployment rate in the data is 17.5 %, which is high; this is explained by the deep recession experienced in Finland at the beginning of the 1990s, which considerably raises the average value over the whole period.

Figure 1 presents the average (average over 12 months for all areas) annual unemployment rate, i.e. unemployed job seekers/labour force. The figure shows variations in the mean rates from 10.3 % in 1991 to 22 % in 1994 and to 14.4 % in 2001[3]. By 2001, neither the unemployment rate nor the fraction of open vacancies to job seekers had recovered their 1991 levels. The curve for the share of long-term unemployed job seekers of all job seekers, in particular, clearly tells how serious the problem in the Finnish labour market has been: long-term unemployment increased dramatically during the recession and has remained at a very high

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[2] It should be noted that the flow of new vacancies during a month somewhat raises the fraction of real open vacancies to job seekers. Stock-flow models are not, however, discussed here.
[3] The values for 2002 are not included in the figure as observations are only available for eight months during this last year of the research period.

level afterwards. Long-term unemployment is also a structural problem in areas where the unemployment rate is otherwise relatively low (Tuomala 2002).

On average, about one-fifth of unemployed job seekers are long-term unemployed (Table 1). The average share of long-term unemployed of all job seekers, in turn, is 12.5 %. The share of employed job seekers is 22.1 % and that of job seekers out of the labour force 7.1 %. The cyclical variation discussed earlier can be seen in the share of employed job seekers. It was 23 % in 1991, decreasing during the following two years, and continuously increasing thereafter (Figure 1). The share of job seekers out of the labour force decreased slightly during the recession. Interestingly, it showed a notable increase after the recession. Thus, the importance of both groups of non-unemployed job seekers, employed job seekers and job seekers out of the labour force increased in the pool of all job seekers during the research period. Due both to their numerical significance and to their possible greater employability in the labour market, it is important to take these groups into account in the matching function analysis.

3. Matching models for heterogeneity of job seekers and spatial spillovers

Spatially, temporally, and by the labour market status of job seekers highly disaggregated data makes it possible to investigate matching issues more profoundly than in most of the previous matching function literature. The analysis includes both factors related to a labour market status of job seekers and the dependencies between LLOs in labour market conditions (spatial spillover variables). Moran's I test for global spatial autocorrelation (Rey and Montouri 1999; Pisati 2001) indicates a significant positive autocorrelation in the unemployment rate in each of the 139 months (Table 2). The test of Getis and Ord for the source of this dependence (Pisati 2001) indicates, especially, the high unemployment rates clustering between neighbouring areas. In the other variables statistically significant dependencies occur less often but every variable shows the existence of positive dependencies during some months.

Unemployed job seekers with a spell of unemployment shorter than a year form the main group of job seekers (48.9 % on average), and therefore they are assumed to form a "core" group of job seekers. Ranking issues are included in the model by adding long-term unem-

ployed job seekers (the continuous spell of unemployment longer than a year), employed job seekers, and job seekers out of the labour force into the model, and allowing each of these three groups the possibility of getting jobs different from those of the "core" group of job seekers. According to the previous studies discussed above, non-unemployed job seekers, especially employed job seekers are highest ranked when employers are choosing their new workers. Since the labour market status of job seekers affects their employability in the labour market, changes in the shares of different kinds of job seekers in the whole pool affects the rate at which successful matches are formed in the labour market.

The model is a Cobb-Douglas matching function with some transformations. The basic version is

$$M_{i,t} = A(S_{it-1})^{\alpha}(V_{i,t-1})^{\beta}, \tag{1.}$$

where $M_{i,t}$ denotes filled vacancies during a month t in LLO i, $S_{i,t-1}$ all job seekers in a LLO at the end of the previous month, and $V_{i,t-1}$ open vacancies in a LLO at the end of the previous month.

Heterogeneity of job seekers is added into the model assuming differently positioned job seekers to have different employability. Following Ibourk et al. (2004) and Kangasharju et al. (2005b) with some variations, $S_{i,t-1}$ is now replaced by the effective stock of job seekers

$ESS_{i,t-1} = [S_{i,t-1} + \delta(LONGU)_{i,t-1} + \gamma(EMP)_{i,t-1} + \lambda(OL)_{i,t-1}]$, where *LONGU* denotes the number of long-term unemployed job seekers, *EMP* employed job seekers, and *OL* job seekers out of the labour force. If the employability of long-term unemployed job seekers, employed job seekers, and job seekers out of the labour force differs from that of unemployed job seekers with the spell of unemployment shorter than a year, their coefficients, δ, γ, and λ will differ from zero.

To give an example, $\delta = (B/A) - 1$, where *A* denotes the employability of unemployed job seekers whose spell unemployment is less than a year and *B* the employability of long-term

unemployed job seekers. Since A is set at 1, B denotes the employability of long-term unemployed job seekers with respect to other unemployed. If $B = 1$, then $\delta = 0$ and the ability of the long-term unemployed to get a job does not differ from that of the other unemployed and neither the former have any deviant effect on successful matches in a LLO.[4] The same pattern in the model holds also for the groups of employed job seekers and job seekers out of the labour force. The employability coefficients can be interpreted as search intensity or the reservation wage of job seekers or as firms' ranking coefficients. Multiplying and dividing ESS by $S_{i,t-1}$ and then adding it into the matching function yields

$$M_{i,t} = A[S_{i,t-1}(1 + \delta(LONGU/S)_{i,t-1} + \gamma(EMP/S)_{i,t-1} + \lambda(OL/S)_{i,t-1})]^{\alpha}V_{i,t-1}^{\beta} \qquad (2.)$$

$LONGU/S_{i,t-1}$ is the ratio of long-term unemployed job seekers to all local job seekers, $EMP/S_{i,t-1}$ is the ratio of employed job seekers to all local job seekers, and $OL/S_{i,t-1}$ is a ratio of job seekers out of the labour force to all job seekers. As Ibourk et al. (2004) and Kangasharju et al. (2005b) by taking logarithms, and utilising Taylor approximation to assume that $ln(1 + \delta LONGU/S + \gamma EMP/S + \lambda OL/S) \approx \delta LONGU/S + \gamma EMP/S + \lambda OL/S$, and adding dummy variables and an error term, we obtain the following empirical model:

$ln\ M_{i,t} = \mu_i + \alpha lnS_{i,t-1} + \beta lnV_{i,t-1} + \alpha\delta(LONGU/S)_{i,t-1} + \alpha\gamma(EMP/S)_{i,t-1} + \alpha\lambda(OL/S)_{i,t-1} + yearly$
$dummies + monthly\ dummies + \varepsilon_{i,t}$ $\qquad (3.)$

where $\varepsilon_{i,t} = \rho\varepsilon_{i,t-1} + \eta_{i,t}$

The LLO-specific intercept is denoted by μ_i, and the error term is assumed to be autocorrelated AR(1). In the empirical analysis the share of the group of other job seekers $(OTHER/S)_{i,t-1}$ is also included in the model to ensure that the reference group whose employ-

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[4] $A*OTHERU + B*LONGU = ESS \rightarrow OTHERU + (B/A)LONGU = ESS/A \rightarrow OTHERU + LONGU + (B/A)LONGU - LONGU = ESS/A \rightarrow S + (B-1)LONGU = ESS$, since A is set to be 1 and S = OTHERU + LONGU (I am grateful to Jukka Lahtonen for showing me this.) The model is derived somewhat differently form Ibourk et al. (2004).

ability is 1, really is that of unemployed job seekers whose unemployment has lasted less than a year[5].

Concerning spatial spillovers, it is assumed here that changes in employment situation in the area of the job seeker's own LLO is the dominant factor when a job seeker makes a decision to widen her/his search radius to include neighbouring areas. The unemployment rate also says more about the overall economic situation in the area than e.g. the fraction of all job seekers of the labour force since the number of employed job seekers tends to increase in the good economic conditions rather than in the recessions (Burgess 1993). This phenomenon was seen earlier in the descriptive statistics Figure 1. A term for the spatial lag of the vacancy rate (open vacancies/labour force) is included in the model to control for conditions in neighbouring LLO areas on the vacancy side of the labour market.

Ilmakunnas and Pesola (2003) also use the unemployment rate and the vacancy rate as spatial spillover variables. In their analysis on Finland with more aggregate data and unemployment outflow as a dependent variable, a rise in unemployment rates in neighbouring areas was found to have a negative effect on unemployment outflow in a given local area due to local job seekers' worsened probability of getting a job. Neighbouring vacancy rates were found, in turn, to have positive effect on local unemployment outflow as they improved the possibilities for local job seekers. When using filled vacancies, instead of the unemployment outflow, as a dependent variable, the interpretations of the effects of neighbouring variables are different, since the focus is in the process of filling vacancies, not in the outflow from unemployment.

In the model with spatial spillovers, $(URATE)^*_{i,t-1}$ is a weighted average of the ratio of unemployed job seekers to the labour force and $(VARATE)^*_{i,t-1}$ that for vacancies to the labour force. The neighbourhood matrix is a simple row-standardised binary contiguity, so that the spillover variables (denoted by *) are weighted averages of the value of the ratios in the neighbouring LLOs (Anselin 1988). The model with both local heterogeneity variables and spatial spillovers takes the following form:

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[5] The Ministry of Labour in Finland registers the small groups of job seekers whose labour market status is different from those specified here. These groups are included in the group OTHER.

$ln\ M_{i,t} = \mu_i + \alpha ln S_{i,t-1} + \beta ln V_{i,t-1} + \alpha \delta LONGU/S_{i,t-1} + \alpha \gamma EMP/S_{i,t-1} + \alpha \lambda OL/S_{i,t-1} +$

$\varphi*(URATE)*_{i,t-1} + \sigma*(VARATE)*_{i,t-1} + yearly\ dummies + monthly\ dummies + \varepsilon_{i,t}$ (4.)

where $\varepsilon_{i,t} = \rho\varepsilon_{i,t-1} + \eta_{i,t}$

4. Results

The method of estimation is the Prais-Winsten regression with panel-corrected standard errors (see StataCorp. 2001). Disturbances are assumed to be heteroscedastic, i.e. each panel is allowed to have its own variance. It is also assumed that there is first-order autocorrelation within panels and that the coefficient of AR(1) process is common to all panels. The results without the assumptions of autocorrelation and heteroscedasticity are also reported for the basic specification. The Durbin-Watson coefficient 1.6 indicates, however, that its is useful to take autocorrelation into account, and the test for groupwise heteroscedasticity shows that it is extremely important to allow the panels to have their own variances (Table 3, Specification 1).

The results for the basic model for the whole country with LLO-specific fixed effects show that the coefficient for job seekers is lower than that for open vacancies, which is usually the case in matching models with filled vacancies as a dependent variable. The difference between the coefficients, however, is very wide and the matching process exhibits decreasing returns. Allowing each panel to have its own variance and assuming autocorrelation of the error terms AR(1), the coefficient for job seekers increases and that for vacancies decreases slightly (Specification 2). The value of the autocorrelation coefficient is 0.21.

Adding into the model variables controlling for the labour market status of local job seekers makes the coefficient for job seekers insignificantly different from zero (Specification 3); however it becomes significant in the model with spatial spillovers (Specification 4). As expected, an increase in the share of long-term unemployed job seekers of all job seekers has a negative effect on matches. On average, a percentage point increase in the share of long-term

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unemployed job seekers decreases successful matches by 0.67 per cent. Employers discriminate against long-term unemployed job seekers in the recruitment processes and/or the search intensity of the latter is so low that the matching process is disturbed owing to the relative increase in this group of job seekers. The coefficient for the share of job seekers out of the labour force of all job seekers is significantly positive but not that for employed job seekers. A percentage point increase in the share of job seekers out of the labour force increases matches by 1.9 percent but employed job seekers do not have any special effect.

Owing to the specification of the model, both matching elasticity and the employability of different groups together determine the effect of changes in the composition of job seekers on successful matches. Table 4 shows the employability of the three special groups of job seekers with respect to the core group of job seekers. For example, the employability coefficient B for long-term unemployed job seekers is $\alpha\delta/\alpha + 1$, where $\alpha\delta$ is the estimated coefficient for the share of that group in the regression model, α is the coefficient for all job seekers in the model, and $\delta = B\text{-}1$.

The employability coefficients calculated from Specification 4 show that the employability of long-term job seekers is much lower than that of other unemployed job seekers, –4.6. The employability of job seekers out of the labour force, in turn, is as high as 16.8. The coefficient for employed job seekers does not differ from that of the reference group. If we consider the effective stock of job seekers, which includes all groups of job seekers weighted by their employability coefficients, an increase in long-term unemployed job seekers by one person decreases the relevant stock of job seekers by 4.6, thereby decreasing the number of matches. The corresponding effect in the case of other unemployed or employed job seeker is to increase in the effective stock by 1 while that of a job seeker out of the labour force increases it by 16.8.

There are many alternative explanations for the improving effect of job seekers out of the labour force on successful matches in LLOs. Firstly, they may be preferable to other job seekers from the recruitment perspective. Their skills may be the most suitable for the vacancies in question or the signal they send to employers may make them preferable to other categories of job seekers. Secondly, their search effort may be greater than that of others, especially if they

are recent school-leavers. Thirdly, job seekers out of the labour force are probably the most flexible job seeker group and the most willing to accept e.g. part time jobs. This group includes students and parents caring for their children at home, for whom a part-time job would be the most attractive way to earn money.

The employability of employed job seekers does not differ from that of unemployed job seekers whose spell of unemployment is shorter than a year. Lindeboom et al. (1994) found employment offices to be the least efficient recruitment channel for employed workers compared to other channels in the Netherlands, since it is not designed for mediating jobs for already employed persons. They also argue that the sample of employed job seekers using employment offices may be a negative selection of the total sample of employed job seekers. These findings may be true in Finland as well.

The coefficient for the spillover of vacancy rate is positive. (Specification 4). An increase in the neighbouring vacancy rate may possibly mean that local job seekers have a better possibility of to finding jobs in neighbouring areas, which in turn might decrease congestion among local job seekers. The coefficient for the average neighbouring unemployment rate is, however, negative. One possible interpretation is that job seekers who widen their search radius to neighbouring areas owing to a decrease in the probability of finding a job in their home area do not reduce mismatch problems in the neighbouring markets but rather cause more congestion among job seekers there.

According to Moran's I analysis for global spatial autocorrelation reported earlier, especially the unemployment rate is positively spatially autocorrelated. The unemployment rate is a good proxy for the economic situation and the demand for labour. Since labour market conditions between neighbouring areas tend to follow the same pattern due to causes not observed in the analysis, spillovers across borders do not make local labour markets working better. It would call for disparities between neighbouring conditions that spillovers would generally improve the formation of successful matches.

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5. Conclusions

The results of this study show that the employability of job seekers with differing labour market status also differs, and therefore the composition of the pool of job seekers in a local labour market affects the ability of that market to form successful matches. According to the results, an increase in the share of job seekers out of the labour force increases successful matches, while an increase in the share of long-term unemployed job seekers weakens the ability of a labour market to form successful matches. There are reasons for this on both sides of the labour market. Employers rank job seekers in the recruitment process according to their labour market status, and search intensity differs between different kinds of job seekers. Job seekers out of the labour force are probably the most flexible group of job seekers in the Finnish local labour markets.

The results on spatial spillovers indicate that labour market conditions, especially unemployment rates, are spatially autocorrelated. Since labour market conditions between neighbouring LLOs tend to follow the same pattern owing to factors not observed in the analysis, spillovers across borders do not improve local matching processes. These factors might include both economic and regional administrative factors related to LLOs. By conclusion, it would call for disparities between neighbouring conditions that spillovers would generally improve the formation of successful matches.

Figures and tables

Table 1. Descriptive statistics

	Mean	Min/Max	Std.dev.
Number of all job seekers	3500	153/109 477	7 294
Number of open vacancies	75	0/6 390	267
Number of filled vacancies	97	0/7 359	302
Size of labour force	14 338	494/540 885	39 012
Unemployment rate (%)	17.5	1.1/40.3	6.4
Long-term unemployed job seekers/ unemployed job seekers (%)	20.2	0/48.6	10.2
Long-term unemployed job seekers/ all job seekers (%)	12.5	0/33	6.6
(All unemployed - long-term unemployed)/ all job seekers	48.9	19.9/82.4	8.8
Employed job seekers/all job seekers (%)	22.1	5.8/55.6	5.3
Job seekers out of the labour force/ all job seekers (%)	7.1	0/43.9	4.9
Number of open vacancies/ number of job seekers (%)	2.3	0/323.7	6

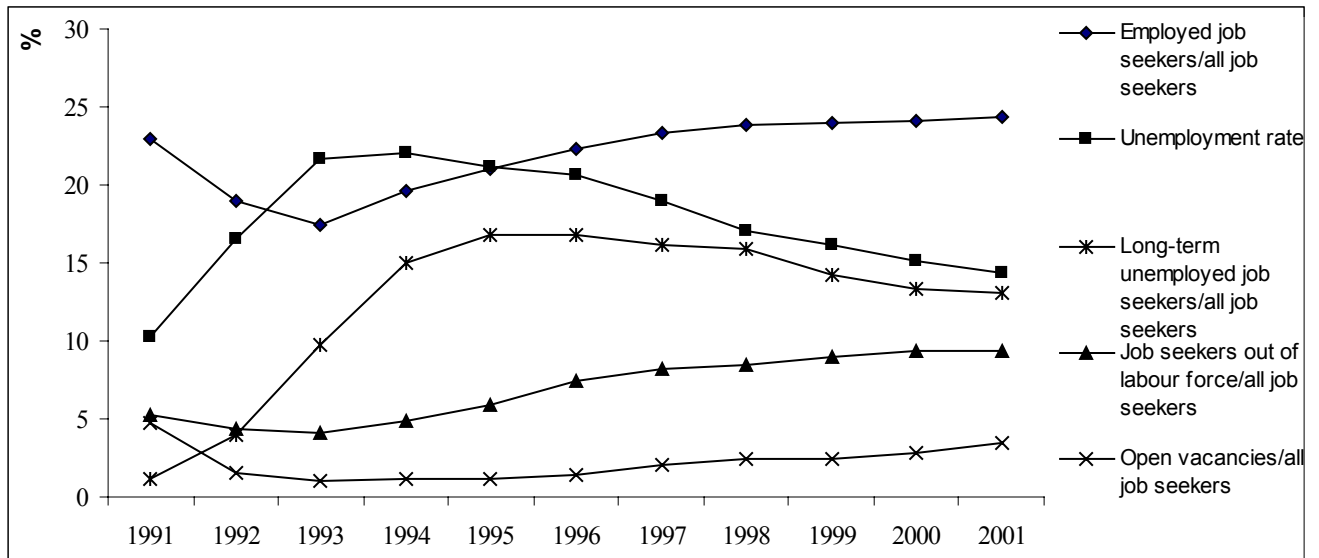**Figure 1. Labour market conditions in local labour markets. Average values by years from all LLOs.**

Table 2. Moran's I test for global spatial autocorrelation

Moran's I test for global spatial autocorrelation
Positive spatial autocorrelation
The number of statistically significant results ($p < 0.05$)

	Months (max 139)
Unemployment rate	139*
Vacancy rate	14
Open vacancies/all job seekers	17
Long-term unemployed/ all job seekers	107
Job seekers out of labour force/ all job seekers	73
Employed job seekers/ all job seekers	68

* According to Getis' and Ord's test for the source of positive dependence,
  especially high values are clustered together.

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Table 3. Results

Variables	Specification			
Dependent variable: $\ln M_t$	(1)	(2)	(3)	(4)
$\ln S_{t-1}$	0.07*(0.034)	0.09*(0.039)	0.04 (0.043)	0.12* (0.045)
$\ln V_{t-1}$	0.41***(0.005)	0.39***(0.005)	0.39***(0.005)	0.39***(0.005)
Local heterogeneity				
$(LONGU/S)_{t-1}$			-0.63***(0.186)	-0.67***(0.185)
$(EMP/S)_{t-1}$			0.35* (0.145)	0.03 (0.159)
$(OL/S)_{t-1}$			2.12***(0.155)	1.90***(0.16)
$(OTHER/S)_{t-1}$			1.50***(0.245)	1.26***(0.249)
Neighbouring LLO variables				
$(W \times URATE)_{t-1}$				-1.93***(0.382)
$(W \times VARATE)_{t-1}$				2.98***(0.594)
Autocorrelation coefficient		0.21	0.20	0.20
Returns to scale	0.48***	0.48***	0.39***	0.51***
R^2	0.71	0.75	0.76	0.76
Number of observations	23 769	23 769	23 769	23 769
LR-test for groupwise heteroskedasticity	33 438.37***			
Durbin-Watson statistic	1.6			

Note: All models include yearly and monthly dummies and LLO-specific fixed effects. Standard errors (in specifications 2-4 panel-corrected) are in parentheses. In specifications 2-4 error terms are assumed to be autocorrelated AR(1) with autocorrelation coefficient common to all panel. *** denote statistical significance at the 0.1% level, ** at the 1% level, and * at the 5% level. In tests for returns to scale, *** denote deviation from unity at the 0.1% level. W denotes a row-standardised simple binary contiguity matrix. Since the capital LLO Helsinki is notably larger than the others, all regressions were also run leaving it outside. The results did not alter, and therefore are not reported here.

Table 4. Employability of job seekers with differing labour market status

Group	Coefficient
Long-term unemployed job seekers	-4.6
Employed job seekers	1.0
Job seekers out of the labour force	16.8

Note: The employability coefficients of different groups with respect to unemployed job seekers with an unemployment spell shorter than a year are calculated in the following way: (estimated coefficient for the share of a particular group in the specification 4/coefficient for $\ln S_{i,t-1}$) + 1

Acknowledgements

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