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UNEMPLOYMENT
AND MIGRATION:
DOES MOVING
HELP?

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Abstract: This paper studies the migration behaviour of the unemployed in Finland, and analyses the causal effect of moving on individual employment status. In 1994 17 per cent of the labour force was unemployed and the unemployment rate exhibited a very slow decline in 1994-96. Over half of those who were unemployed at the end of 1994 were still unemployed two years later. The propensity to find a job is somewhat greater among migrants. However, the positive effect of moving diminishes once other personal characteristics are accounted for. Moreover, when endogenous migrant selectivity is controlled for, an insignificant or even a negative effect on employment status emerges. This indicates that the better "quality" of the migrants (e.g. age, education, human capital and unobserved ability), rather than the act of moving itself, causes an improvement in re-employability. Hence, migration alone may not be a very effective mechanism for alleviating individual unemployment.

Key words: Unemployment, migration, employment status, selection bias

JEL classification: J61, J64

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Tiivistelmä: Tämä tutkimus selvittää työttömien työntekijöiden muuttokäyttäytymistä Suomessa, ja analysoi muuton vaikutuksia yksilöiden työllistymismahdollisuuksiin. Vuonna 1994 jopa 17 prosenttia työvoimasta oli työttömänä ja työttömyys aleni varsin hitaasti. Yli puolet niistä jotka olivat olleet vähintään 4 kuukautta työttömänä vuoden 1994 lopussa olivat edelleen työttömyyskortistossa vuoden 1996 lopussa. Niillä, jotka muuttivat vuosina 1995 tai 1996, oli jonkin verran suurempi todennäköisyys työllistyä. Kun otetaan huomioon muuttajien muut positiiviset ominaisuudet (kuten nuori ikä, korkeampi koulutus ja muu inhimillinen pääoma) itse muuttamisen vaikutus jää melko vähäiseksi. Kun edelleen kontrolloidaan havaitsemattomia tekijöitä (kuten kyvykkyyttä ja asenteita) muuton merkitys työllistymiselle jää olemattomaksi tai kääntyy jopa negatiiviseksi. Tutkimuksen tulokset osoittavatkin, että muuttajien parempi "laatu" takaa heille paremmat työllistymismahdollisuudet, eikä niinkään muutto alueelta toiselle. Näin ollen muuttoliikettä ei voida pitää kovinkaan tehokkaana mekanismina yksilötason työttömyysongelman ratkaisemisessa.

Asiasanat: Työttömyys, muuttoliike, työmarkkina asema, selektiivisyys

Tiivistelmä

Tämä tutkimus selvittää muuttamisen vaikutuksia työttömien työllistymiseen. Havaitaan, että muuttaminen yksin ei auta työttömiä työllistymään, vaikka muuttajat työllistyvätkin muita helpommin. Parempi työllistyminen johtuu muuttajien hyvästä koulutuksesta, inhimillisestä pääomasta ja kyvykkyydestä.

Tutkimuksen tulokset osoittavat työttömien muuttavan muita useammin. Verrattaessa asuinkunnassaan pysyneitä ja sieltä pois muuttaneita työttömiä toisiinsa havaittiin, että muuttaneista pienempi osa jäi työttömiksi ja suurempi osa työllistyi. Muuttajien monet henkilö- ja perhekohtaiset ominaisuudet auttavat heidän työllistymistään. He ovat esimerkiksi koulutetumpia ja nuorempia kuin paikallaan pysyjät. Kun näiden muiden tekijöiden vaikutukset otettiin huomioon tutkimuksessa, itse muuttamisen positiivisen, työllistymistä auttavan merkityksen huomattiin pienenevän.

Mitattavissa olevien ominaisuuksien ohella vielä suuremman vaikutuksen työllistymiseen todettiin olevan muuttajien ei-näkyvillä ominaisuuksilla, henkilökohtaisilla kyvyillä. Pikemminkin kuin muuttamisen takia muuttajiksi valikoituvien mahdollisuudet työllistyä kasvavat näiden positiivisten ominaisuuksien vuoksi. Tulokset viittaavat jopa siihen, että muuttajat olisivat menestyneet ainakin lyhyellä aikavälillä paremmin lähtö- kuin tuloalueellaan.

Tutkimuksen johtopäätöksenä on, että talouden työttömyyttä ei voida ratkaista muuttoliikettä kiihdyttämällä. Muuttajat ovat monella tapaa valikoitunutta väestönosaa, joten tuloksia työllistymisen suhteen ei voida yleistää. Työttömyyden alueelliset erot voivat tasoittua työttömien muuttoliikkeen kautta, mutta vain kierrättämällä työttömiä alueelta toiselle.

Tutkimus perustuu lähes 60 000 työttömän henkilön ekonometriseen analyysiin. Käytetyt tiedot olivat peräisin Väestölaskennan pitkittäistiedostosta sekä työssäkäyntitilastoista ja työministeriön rekistereistä. Tutkimuksessa tarkasteltiin vuosina 1995 ja 1996 muuttaneita, joita oli noin 14 prosenttia kaikista vuonna 1994 vähintään neljä kuukautta työttöminä olleista.

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1. Introduction

Most European countries experienced a severe economic recession in the beginning of the 1990s. The effects of that recession were particularly severe in Finland: the unemployment rate jumped from around 3 per cent to almost 18 per cent.ⁱ Ten years after the recession began, the number of unemployed is still more than 300 000, representing 10 per cent of the labour force. During the recession period, 1990-93, the mobility of the labour force was at a very low level. There were fewer job openings, which reduced the incentives to move in search of a job. However, after the mid-1990s, inter-regional migration hit an all-time high and jobs have been abundant in the growth centres, and, in particular, the information technology industry. The present paper asks whether these jobs will be matched with the unemployed in other parts of the country. We examine the causal effect of migration on employment status: are movers more likely to escape from unemployment than those who stay? If unemployment provides the spur for migration in the first instance, and migration improves the prospects of employment in the second, labour migration is micro-efficient (Herzog et al. 1993).

In several studies, migration has emerged as a major adjustment mechanism in equalising regional labour market disparities at an aggregate level (Blanchard and Katz, 1992; Decressin and Fatas, 1995; Pekkala and Kangasharju, 2002). Countries in which migration rates are low, or where the manual labour force is immobile, have experienced persistent unemployment disparities (Faini et al., 1997; McCormick, 1997). However, these aggregate level findings do not necessarily imply that individuals readily migrate in search of a job. This question has aroused much interest, but the findings have been somewhat mixed so far. Some studies find that unemployed persons are not particularly willing to move (Antolin and Bover, 1997; Tervo, 2000a). Others find that the unemployed are more likely to move and, as a result, to find employment (Van Dijk et al., 1989; Herzog et al., 1993; Boehm et al., 1998; Westerlund, 1998; Mauro and Spilimbergo, 1999). Many studies, however, either fail to find any effect, or find a negative effect of migration on re-employment likelihood (Herzog and Schlottmann, 1984; Bailey, 1991; Shumway, 1991).

Preliminary Finnish studies have revealed that moving to a growth centre region is more likely for those who are highly educated, and as a result, their employment prospects are improved (Haapanen, 1998; Kauhanen and Tervo, 2002). Another study found no significant effect of migrating on employment (Tervo, 2000b). Migration was, however, shown to play an indirect role in enhancing employment prospects as it moved workers to more favourable labour markets with lower unemployment rates. Those studies did not address the problem that education, non-observable ability and employability are highly correlated at the individual level. Consequently, migrants are a self-selected

group and the estimates will be biased because of endogenous selection. Hämäläinen (1999) takes into account the selection bias, and finds that unemployed persons are not particularly willing to migrate. Moreover, he finds that selective unemployment measures further reduce the willingness to move.

To investigate these issues we use Finnish longitudinal population census data combined with information from the longitudinal employment file. These data are particularly well suited to the current analysis as they reveal each individual's labour market status at the end of the year, the change of residence and destination area. The data also include a multitude of other personal, family and labour market characteristics, some of which offer promising instruments for correcting the selectivity bias. We have drawn from the census file all the individuals who were unemployed at the end of 1994 and whose unemployment period had lasted at least 4 months.ⁱⁱ The migration response of those persons in 1995-96 and its effect on the individual's employment status in the end of 1996 is studied. During the post recession period, 1994-96, the labour market was starting to pick up and new jobs were being formed, particularly in Helsinki but also in the other growth centres (Oulu, Tampere and Turku). Hence, incentives to move out of high-unemployment regions to search for a job in other regions did exist.

Compared to many earlier studies on unemployment responses, our data proved to be of much better quality. Whereas most data sets on the unemployed are based on questionnaires, we observe the actual behaviour of each individual, and do not lose track of the individual in the case that he/she moves (i.e. no attrition problem arises). Moreover, some earlier studies have asked whether people's attitudes towards moving change with unemployment, but did not observe whether the actual mobility occurred (Ahn et al., 1999). Indeed, even though it may be interesting to study attitudes towards migrating, it is not very meaningful to study the effectiveness of those attitudes as a job-seeking mechanism.ⁱⁱⁱ And finally, in earlier research the problem of attrition has proven particularly severe in the migrant group, meaning that obtaining useful estimates on the causal effect of migration becomes extremely difficult. In that sense, the results of the present study provide a robustness check for earlier findings.

The results of the present study indicate that a larger share of movers manage to escape unemployment than stayers. However, after controlling for endogenous selectivity, we notice that the move itself does not improve employability. Conversely, it would seem that the most employable persons are also the most mobile, and therefore tend to use wider job search strategies. Hence, encouraging migration may not be a very effective strategy for improving the matching of jobs and job seekers. Migration appears to equilibrate regional unemployment differences purely by relocating unemployed individuals from regions of high unemployment rates to those with (somewhat) lower rates.

The rest of this paper is organised as follows. The second section reviews the current theory and empirical literature on migration as a method of spatial job search. The third section presents data of migrants and of non-migrants and provides a descriptive analysis of the individual responses to unemployment. Estimates of the employment status model are presented in the fourth section. And finally, section five concludes the paper.

2. Theory and findings on migration as spatial job search

Generally, macroeconomic theory considers migration an equilibrating factor in regional labour markets. In other words, job seekers are expected to move away from high-unemployment areas where they are unable to find a job. Conversely, they head towards low-unemployment regions where the prospects of finding employment are more favourable (Greenwood, 1975; Molho, 1986). Hence, at the individual level we should observe that an unemployed person is willing to move to another area if his/her perceived chances of finding a job there are higher than at his/her original location (DaVanzo, 1978; Schlottman and Herzog, 1981; Boehm et al., 1998).

For someone losing his/her job, there are, in general, three alternative strategies: remain unemployed in the original region and search for a new job, move to another area in search of a job (“speculative migration”) or as a result of finding a job there (“contracted migration”), or drop out of labour force. According to Greenwood (1997), the choice in such a situation will depend on several personal and family characteristics. For example, it may be that older and less educated persons or manual workers are more likely to drop out of labour force, since the opportunity cost of doing so is not very high. Family conditions (such as a working spouse, school-aged children or owning a house) also tend to discourage the worker from moving to another labour market area (Long, 1974; Sandell, 1977; Mincer, 1978; Graves and Linneman, 1979; Van Dijk et al., 1989). Conversely, younger and highly educated persons may more readily move in search of a new job, because the opportunity cost of remaining unemployed is relatively high (Plane, 1993; Greenwood, 1997).

The theory of migration as a means of spatial job search boils down to a simple two-equation framework. Assuming that each individual i is maximising his/her discounted future income or utility, we expect that choices are made according to the discounted future streams of benefits and costs. Hence, the job seeker makes his/her choice concerning migration (M_i) by calculating and comparing the net present values of moving and staying (Sjaastad, 1962). In our case, the outcome variable of interest is the employment status at the end of the period, E_i . In the first stage the migration status is determined according to:

$$M_i = \alpha'Z_i + \varepsilon, \quad (1)$$

where Z_i is a vector of relevant individual-, family- and region-specific covariates. In the second stage, conditional on migration decisions, the employment status is determined as:

$$E_i = \beta'X_i + \delta'M_i + u_i. \quad (2)$$

\mathbf{X}_i is the vector of covariates that affect the employment status of the individual, typically including human capital, other personal characteristics and local labour market information (Herzog et al., 1993; Boehm et al., 1998). The problem is to estimate the causal effect of migration on re-employment (i.e. coefficient δ) consistently. Theoretically, support is found for both a positive and a negative effect, yet the former case is more plausible (Bailey, 1991; Goss and White, 1994). However, as is well known, the migration coefficient tends to be biased due to endogenous selectivity: migration is selective of groups with inherently more favourable re-employment prospects. (Nakosteen and Zimmer, 1980; Herzog et al., 1993).

The selection bias occurs as individuals are not randomly selected into groups, but certain (possibly unobservable) factors determine why some expect to benefit from the move while others do not. This behavioural difference creates a correlation between the disturbance term and the migration variable. The problem can be technically resolved by estimating a selectivity-corrected model using either an instrumental variable (IV) approach with instruments for an endogenous migration dummy (Angrist, 2000) or a “treatment-effects” (FIML) model (Maddala, 1983; Stata Corporation, 2001). In this variant of the two-step Heckman procedure, i.e. calculating inverse Mills ratios, the selection is on an endogenous RHS-variable rather than on the LHS-variable. Migration can be considered as a “treatment” that some individuals are subject to, and the treatment status is endogenous. Recent literature has cast some doubts on the appropriateness of the Heckit-procedure in dealing with selectivity (Angrist, 2000; Deaton, 1997). In particular, it has been argued that the bias may be aggravated if the assumptions of normality and homoscedasticity are violated. Regardless of the approach, however, the central problem in correcting for the selectivity is to find suitable instruments for migration.

We argue that local house prices and owner-occupier status are the most plausible instruments in this case. We also test whether the number of children or other family variables could be used as instruments, once marital status is controlled for. Even though family status and size are related to labour force participation decisions (for women, in particular) (Greenwood, 1997), family size, conditional on belonging to the labour force, for example, may be uncorrelated with employment status. On the other hand, such factors are found to be important determinants of migration status (Long, 1974; Mincer, 1978; Van Dijk et al., 1989; Greenwood, 1997).

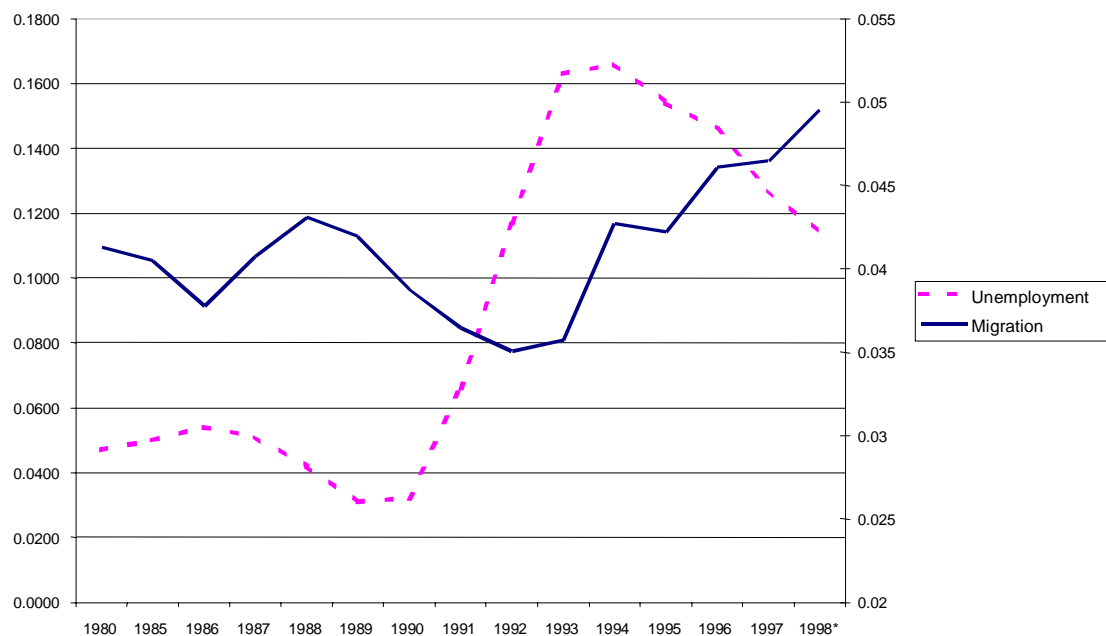
As the aim of this paper is to study the causal effect of migration on re-employment, we only analyse persons that have experienced a spell of unemployment. By doing so, we basically concentrate on analysing the effects of migration as a means of job search (Silvers, 1977; Molho, 1986). Moreover, the selection bias can be initially avoided (Heckman, 1979; Maddala, 1983; Deaton, 1997). It is arguably true that the sub-population of unemployed persons is (at

least partially) a self-selected one (Vijverberg, 1995). In principle, we ought to check for the degree of that selectivity, too. However, this “choice” is not actually the one modelled here. In the second stage where we study the causal effect of migration on employment status, it is necessary to correct for endogenous selectivity.

3. Data on movers and stayers

After a relatively steady period of low unemployment and economic growth in the 1980s, the Finnish labour market was hit by a recession in the beginning of the 1990s. The unemployment rate shot from 3 per cent in 1989 to 17 per cent in 1994. Meanwhile, regional migration rates were becoming more sluggish and hit a low of 3.4 per cent of the population in 1992. However, after the first signs of recovery started to show, inter-municipal migration rates rose steadily, reaching a 5 per cent level in 1998. The unemployment rate also fell as the recovery proceeded, and by 1998 unemployment had fallen to 11 per cent (Figure 1). The fast growth of migration and the fall of unemployment seem to coincide, starting in 1994.

Figure 1. Unemployment and migration in Finland, 1980-98



The present study uses a data set on unemployed persons in the Finnish longitudinal population census file in order to analyse the effects of moving on re-employment. We have drawn a sample of all persons who were unemployed at the end of 1994 and whose unemployment period had lasted at least 4 months. This gives us 57 740 individuals altogether, aged 17-64 in 1994. The description of variables used can be found in Appendix 1.

In the study, migration is defined as occurring when an unemployed person is resident in a different municipality in 1995 or 1996 as in 1994. A municipality

forms the lowest level of regional classification in Finland. In 1994, the number of municipalities was 455. Ideally, we would have liked to use data at the level of local labour markets, the number of which is about 200, but that information was not available for our data set. Part of the moves we register may be motivated by reasons other than labour market conditions, such as housing or family factors. In the case of unemployed persons, however, most movers probably are those applying for jobs.

Of all unemployed persons in the data, 4 457 (7.7 per cent) individuals moved from one municipality to another in 1995 and 3 800 (6.5 per cent) in 1996. Hence, migration propensity is higher among the unemployed than the population as a whole (the migration rate was 4.3 per cent in 1995 and 4.5 in 1996). We also find that 15 per cent of the persons in the initial group had exited the labour force by the end of 1996. Of those who stayed in the labour force, 3 314 (7.2 per cent) moved to another municipality in 1995 (2 920 persons, 6.1 per cent, in 1996). The seemingly high exit rate is due to the large number of unemployed youths starting formal education. Of those who exited the labour force, the share of students is more than one half. The idea of a “discouraged worker” does not apply to those who exited in order to obtain education, which is considered an investment that improves employability.

The distribution of the 1996 employment outcomes for movers and stayers is displayed in Table 1. The groups “student”, “armed services”, “retired”, “unemployment retirement” and “unknown” are categorised as exits from the labour force. Compared to those who have remained in their original region, a smaller share of migrants remained unemployed and a larger proportion found employment. Moreover, entering a labour market programme may serve as a substitute for migration for the unemployed (Westerlund, 1998; Hämäläinen, 1999). This means that the stayers are more likely to be influenced by selective unemployment measures (job placement offered by the state or municipality, wage subsidy for a private employer, labour market training, etc.). Hence, migrants are in fact performing noticeably well in finding real re-employment.

The above table indicates that unemployment is a persistent problem in certain groups of the population: over 50 per cent of those who were unemployed in 1994 were still unemployed two years later. Of course, our data only consists of those who had already experienced at least 4 months of unemployment at the end of 1994, meaning that the long-term unemployed are over-represented in the data set. This likely gives an overly pessimistic view of the employment possibilities in Finland. However, considering that between 1994 and 1996 the unemployment rate only dropped from 16.6 per cent to 14.6 per cent, the idea of the high rate of unemployment persistence is understandable. Interestingly, the mobility of unemployed persons seems somewhat irrational when plotting the labour market area^{iv} unemployment rate against the flow of unemployed (figures 2 and 3). There is a clear negative correlation between the unemployment rate and the

number of out-moving unemployed (divided per population), as expected. This indicates that unemployed are indeed moving out of the high unemployment regions. However, there is likewise a negative (if less pronounced) connection between unemployment rate and the in-flow of unemployed, indicating that migration is not determined solely by local labour market conditions. The likeness of correlation is understandable, as in- and out-migration rates are so heavily correlated (Tervo, 2001).^v

Table 1. Employment status outcomes in 1996 (unemployed persons at the end of 1994)

Employment status in 1996	ALL IN 1995 %		LABOUR FORCE IN 1995 %	
	<i>Movers</i>	<i>Stayers</i>	<i>Movers</i>	<i>Stayers</i>
Employed labour force	30.9	27.2	33.8	28.8
Unemployed labour force	45.9	55.0	50.3	59.1
Student	12.7	6.4	8.3	4.6
Armed services	0.2	0.1	0.2	0.1
Retired	0.6	1.4	0.2	0.4
Unemployment retirement	0.8	2.3	0.5	1.3
Unknown	8.9	7.6	6.8	5.6
Total	100 (N=7 272)	100 (N=50 195)	100 (N=5 802)	100 (N=43 029)

*Notes: "Movers" refer to those who have migrated in 1995 or 1996.

Figure 2. *Unemployment rate in the labour market area and out-migration of the unemployed, 1994-96*

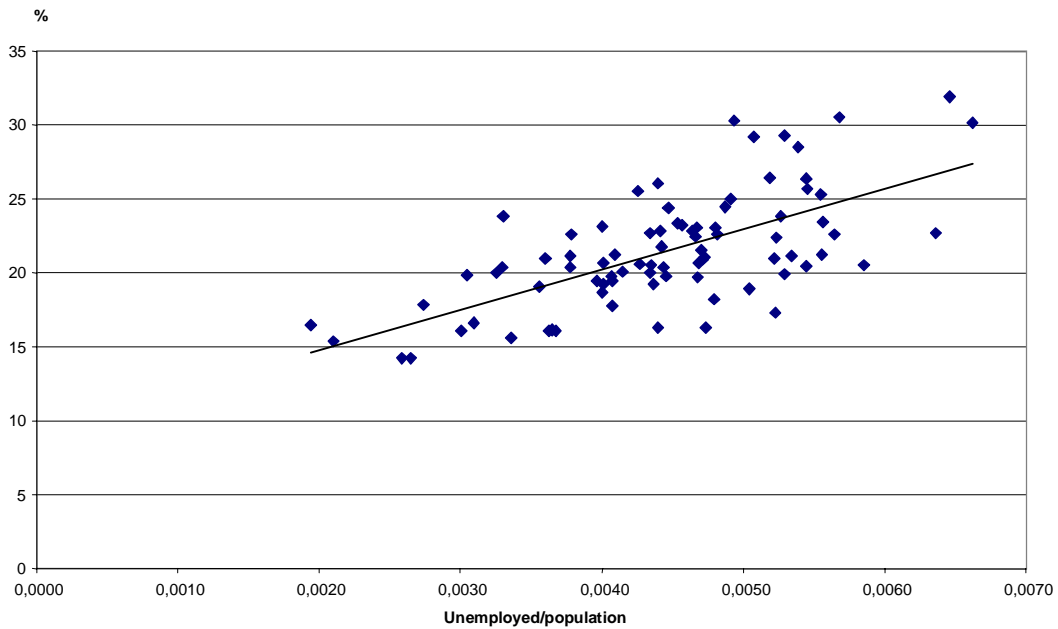
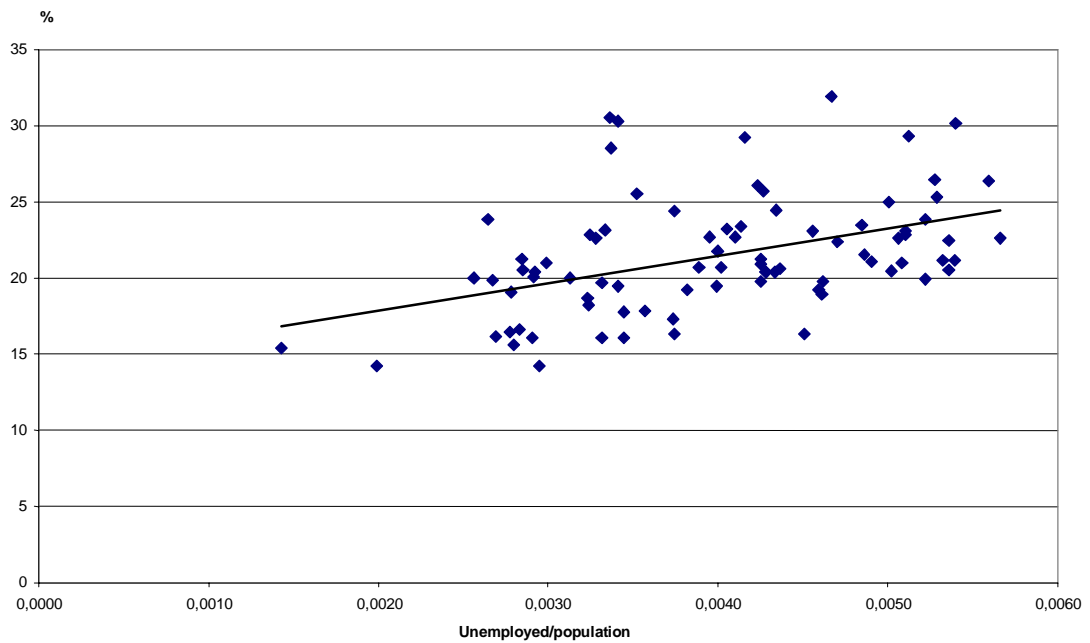


Figure 3. *Unemployment rate in the labour market area and in-migration of the unemployed, 1994-96*



4. Results for migration and employment status

To analyse the effect of migration on employment status we must take into account the selective nature of migrants. It is likely that those with the most favourable re-employment prospects decide to migrate in search of a job. The positive impact of migration may therefore reflect the better employability of those persons. To avoid the selectivity bias, plausible instruments for migration must be found. We argue that such instruments are provided especially by the local housing prices and owner-occupier status. Certain family status indicators that have no direct influence on the probability of re-employment might also be used. It is true that family size may affect the labour force participation decision, but once a person belongs to labour force (as indicated by being an unemployed job-seeker) and once controlling for marital status, his/her job search success may not be affected by the number of children, for example. More specifically, re-employment may not directly depend on having children, as all parents in Finland, regardless of their employment status, are guaranteed municipal day care for the children. Hence, the effect of children accrues purely via migration decision. Indeed, the instruments perform as expected: owner-occupiers are less likely to move, just as those who have children (Table 2). High regional housing prices also decrease mobility. The negative coefficient may be explained by the fact that housing prices reflect some (unobserved) regional amenities that are valued highly by house buyers. Over-identification tests support the choice of these instruments as do the high F-test values. Additional family-instruments were more disappointing. The over-identification tests did not support their validity and it turned out that they had a significant effect in the employment equation. Hence, only housing prices and owner-occupier status were used.

The effect of migration on re-employment is studied next. We consider two different cases in the binary logit models: employed vs. not employed and employed vs. unemployed (see Appendix 1 for definitions of the LHS-variables). Table 3 presents the simple two-outcome case (employed/not employed at the end of 1996) with and without selectivity correction. The first model only has migration as an explanatory variable. These results comply with the above descriptive statistics: moving increases the probability of re-employment. The second and third model controls for individual and family characteristics but not selectivity. Moving still has a positive and statistically significant effect on the chances of finding employment. The effect is smaller than in model 1, though. This indicates that migrants are equipped with certain characteristics that produce part of the employment boost observed.

Table 2. Results for the first stage migration regression (Probit: Migration in 1995-96)

INSTRUMENT	Coefficient	Standard error	F-value
Regional house price	-0.04**	0.01	87.53
<i>Ramsey reset test for exclusion:</i>	F(3, 58056) = 66.03		
+ Additional instruments:			
Owner-occupier	-0.16**	0.02	116.07
<i>Ramsey reset test for exclusion</i>	F(3, 58057) = 110.62		
<i>Over-identification test*</i>	Chi-sq.(1) = 2.109 (p-value = 0.147)		
+ Additional instruments:			
Number of children	-0.13**	0.01	357.33
Family income	0.33*	0.16	4.10
Married	-0.03	0.02	3.11
Employed spouse	-0.13**	0.02	56.87
Ramsey reset test for exclusion	F(3, 58061) = 24.03		
<i>Over-identification test*</i>	Chi-sq.(1) = 390.665 (p-value = 0.000)		
Pseudo R ² = 0.072			

Notes: One model was estimated, including the same RHS-variables as the employment equation. The full migration model is: $MIG9596 = a + \beta_1 \times Age + \beta_2 \times Education + \beta_3 \times Female + \beta_4 \times Foreign + \beta_5 \times Married + \beta_6 \times Empl. \ spouse + \beta_7 \times Family \ income + \beta_8 \times Children + \beta_9 \times Town + \beta_{10} \times House \ price + \beta_{11} \times Owner-occupier$. Ramsey reset tests refer to that model MINUS the variable(s) mentioned above. Over-identification tests refer to IV-models, where the instrument(s) in question were used together with any instruments mentioned ABOVE them. The null hypothesis in the over-identification test is that the instruments are valid. In the final estimations, only regional housing prices and owner-occupier status were used as instruments, as all family variables had a significant effect in many of the employment equations, and the tests for over-identification do not support those instruments. The test cannot reject the validity of regional housing prices and owner-occupier status.

Models 2-5 were estimated using 19 regional dummies as controls for the origin region. Uusimaa (the capital region) was used as the comparison group. The “origin-region-dummy models” are reported here, but the coefficients of the dummies are not included in the tables.^{vi} As expected, most dummies exerted a significant negative effect on employment compared to Uusimaa. The coefficients of other variables did not change when regional dummies were included. An indicator for a town-like municipality of residence was also included to obtain a more detailed account of the origin region, and that exerted a negative impact on re-employment prospects.

Table 3. Results for the binomial employment equation: Dependent variable Employment1 in 1996

	(1) Probit model (uncorrected)	(2) OLS (uncorrected)	(3) Probit model (uncorrected)	(4) IV	(5) Treatment -effect model
VARIABLE	Coeff. (S.E.)	Coeff. (S.E.)	Coeff. (S.E.)	Coeff. (S.E.)	Coeff. (S.E.)
Constant	-0.62 (0.01)**	0.06 (0.01)**	-1.51 (0.10)**	0.17 (0.02)**	0.07 (0.02)**
Migration 95-96	0.13 (0.02)**	0.01 (0.005)*	0.04 (0.02)*	-1.62 (0.20)**	-0.09 (0.02)**
Age 16-19	-	0.21 (0.01)**	0.89 (0.03)**	0.56 (0.05)**	0.21 (0.01)**
Age 20-29	-	0.25 (0.01)**	0.99 (0.03)**	0.52 (0.04)**	0.25 (0.01)**
Age 30-39	-	0.19 (0.01)**	0.80 (0.02)**	0.33 (0.02)**	0.19 (0.01)**
Age 40-49	-	0.14 (0.01)**	0.65 (0.03)**	0.19 (0.01)**	0.14 (0.01)**
Age 50-65	Reference				
Higher upp. / PhD	-	0.21 (0.02)**	0.59 (0.05)**	0.31 (0.03)**	0.21 (0.02)**
Lower upper	-	0.22 (0.02)**	0.62 (0.05)**	0.34 (0.03)**	0.22 (0.02)**
Lowest upper	-	0.18 (0.01)**	0.50 (0.03)**	0.25 (0.02)**	0.18 (0.01)**
Higher secondary	-	0.08 (0.01)**	0.23 (0.02)**	0.12 (0.01)**	0.08 (0.01)**
Lower sec. / less	Reference				
Female	-	-0.01 (0.004)*	-0.03 (0.01)*	-0.01 (0.01)	-0.01 (0.01)*
Foreign	-	-0.13 (0.02)**	-0.42 (0.08)**	-0.17 (0.04)**	-0.13 (0.02)**
Married	-	0.04 (0.01)**	0.13 (0.01)**	0.05 (0.00)**	0.04 (0.01)**
Employed spouse	-	0.12 (0.01)**	0.36 (0.01)**	0.08 (0.01)**	0.12 (0.01)**
Family income	-	0.04 (0.05)	0.11 (0.14)	0.16 (0.07)*	0.04 (0.05)
No. Of children	-	0.02 (0.00)**	0.04 (0.01)**	-0.03 (0.01)**	0.01 (0.00)**
Lives in town	-	-0.02 (0.00)**	-0.06 (0.01)**	-0.06 (0.01)**	-0.02 (0.00)**
N	58 094	58 094	58 094	58 094	58 094
Pseudo R ²	0.01	0.08	0.07	-	-
Lambda					0.06 (0.01)**
				Overid-test: Chi-sq = 2.11	LR-test (ρ=0): Chi-sq = 24.59

Notes: The LHS-variable Employment1 is as follows: a value of 1 is given if the individual is employed and 0 if not employed (if unemployed or has exited the labour force). Migration is instrumented by owner-occupier status and regional housing prices. All of the 2nd stage RHS-variables are also included in the first stage of the IV. The level of significance is as follows: **=5 per cent level, *=10 per cent level. All models (except the first one) include regional dummies as controls for the origin region. The LR-test rejects the hypothesis that the two error terms are uncorrelated, i.e. OLS is biased. The test for over-identifying restrictions supports the choice of instruments. Treatment effects model was estimated once without the instruments to see how much identification comes from functional form. Migration coefficient remained positive in that case, indication that functional form does not play a role.

As expected, age and education are significant determinants of employment status. Being highly educated and/or aged 20-49 improved the likelihood of finding a job compared to other groups. The pattern is consistent with the usual observation that unemployment is a low-skilled phenomenon (Murphy and Topel, 1991; Topel, 1994). Also, foreigners are less likely to find employment than the Finnish or Swedish speaking. All family characteristics, apart from income, displayed a significant positive connection with the re-employment likelihood. We should note that unobserved ability may bias some of the coefficients. Most likely to be correlated with ability are the education dummies. Due to ability bias, their impact may be somewhat overestimated and those results should be interpreted with due caution. Correcting for migrant selectivity did not change the significance of education variables, however.

In the next stage the possibility that migrants may be inherently more “employable” has been taken into account by correcting for endogenous selectivity (Model 4-5, Table 3). Firstly, we have used the instrumental variables (IV) approach. After correcting for selectivity, migrating exerts a significant negative effect on employability when comparing the employed to those not employed. When the labour force exits are dropped, the comparison is between the employed and the unemployed (Table 4), and the coefficient of migration becomes somewhat more negative. The so-called treatment-effect method (a one-stage variant of the Heckman model) also produces a negative coefficient, but a much smaller one (Model 5, Tables 3 and 4). The lambda indicates that selectivity is significant and positive. The LR-test shows that we cannot reject the null hypothesis that the error terms of migration and employment equation are correlated. All in all the selectivity-corrected results indicate that migrants possess characteristics, some of which are unobservable, that make them both more employable and more mobile. The improved re-employment observed earlier is thus rather due to positive selectivity than the act of moving.

Finally, as a robustness check, we limited the sample to only males and/or individuals over 20 years of age. All the main conclusions remain unchanged even when limiting the analysis in such a way.^{vii} Moving did not have a positive impact for any group, but was even significantly negative. This lends support to the reliability of the estimations.

Table 4. Results for the binomial employment equation: Dependent variable Employment2 in 1996

	(1) Probit model (uncorrected)	(2) OLS (uncorrected)	(3) Probit model (uncorrected)	(4) IV	(5) Treatment -effect model
VARIABLE	Coeff. (S.E.)	Coeff. (S.E.)	Coeff. (S.E.)	Coeff. (S.E.)	Coeff. (S.E.)
Constant	-0.44 (0.01)**	0.07 (0.01)**	-1.36 (0.03)**	0.21 (0.02)**	0.09 (0.01)**
Migration 95-96	0.19 (0.02)**	0.03 (0.01)**	0.10 (0.02)**	-1.77 (0.23)**	-0.11 (0.02)
Age 16-19	-	0.34 (0.01)**	1.12 (0.04)**	0.66 (0.05)**	0.34 (0.01)**
Age 20-29	-	0.31 (0.01)**	1.05 (0.03)**	0.59 (0.04)**	0.31 (0.01)**
Age 30-39	-	0.20 (0.01)**	0.74 (0.03)**	0.34 (0.02)**	0.20 (0.01)**
Age 40-49	-	0.14 (0.01)**	0.54 (0.03)**	0.18 (0.01)**	0.14 (0.01)**
Age 50-65	Reference				
Higher upp. / PhD	-	0.26 (0.02)**	0.71 (0.05)**	0.39 (0.03)**	0.26 (0.02)**
Lower upper	-	0.26 (0.02)**	0.71 (0.06)**	0.38 (0.04)**	0.26 (0.02)**
Lowest upper	-	0.20 (0.01)**	0.53 (0.03)**	0.29 (0.02)**	0.20 (0.01)**
Higher secondary	-	0.12 (0.01)**	0.34 (0.02)**	0.16 (0.01)**	0.12 (0.01)**
Lower sec. / less	Reference				
Female	-	0.03 (0.01)**	0.07 (0.01)**	0.03 (0.01)**	0.03 (0.01)**
Foreign	-	-0.13 (0.03)**	-0.39 (0.09)**	-0.13 (0.04)**	-0.13 (0.03)**
Married	-	0.05 (0.01)**	0.14 (0.02)**	0.06 (0.01)**	0.05 (0.01)**
Employed spouse	-	0.14 (0.01)**	0.40 (0.01)**	0.10 (0.01)**	0.14 (0.01)**
Family income	-	0.11 (0.06)*	0.31 (0.17)	0.26 (0.09)**	0.11 (0.06)*
N of children	-	0.02 (0.01)**	0.05 (0.01)**	-0.03 (0.01)**	0.02 (0.00)**
Lives in town	-	-0.02 (0.01)**	-0.06 (0.01)**	-0.07 (0.01)**	-0.02 (0.01)**
N	46 866	46 886	46 886	46 886	46 886
(Pseudo) R ²	0.01	0.11	0.11	-	-
Lambda					0.08 (0.01)**
				Overid-test: Chi-sq = 0.29	LR-test (ρ=0): Chi-sq = 28.97

*Notes: The LHS-variable Employment2 is as follows: a value of 1 is given if the individual is employed and 0 if unemployed. Exits from labour force are dropped from the data. Migration is instrumented by owner-occupier status and regional housing prices. All of the 2nd stage RHS-variables are also included in the first stage of the IV. The level of significance is as follows: **=5 per cent level, *=10 per cent level. All models (except the first one) include regional dummies as controls for the origin region. The LR-test rejects the hypothesis that the two error terms are uncorrelated, i.e. OLS is biased. The test for over-identifying restrictions supports the choice of instruments. Treatment effects model was estimated once without the instruments to see how much identification comes from functional form. Migration coefficient remained positive in that case, indication that functional form does not play a role.

5. Conclusions

The aim of this study was to analyse the migration behaviour of the unemployed, and estimate the effect of moving on their employment status. For that purpose we used data on unemployed persons in the longitudinal census file of the Finnish population and labour force statistics in 1994-1996. During that period the unemployment rate was slowly falling after a deep recession in the early 1990s. The growth of employment was fastest in the capital region and other growth centres. Hence, the unemployed in peripheral regions where unemployment rate was still high had an incentive to move in search of a job.

The general pattern shows that movers indeed manage to escape unemployment more often than stayers do. Unemployed individuals move out of regions with high unemployment, as expected, but do not necessarily move to regions with the lowest unemployment rates. After move migrants are more likely to find a job or begin to study. However, the basic probit approach would imply that it is partly the other characteristics of the migrants that improve their employability. Migration has only a small effect on employment. Many of the earlier studies have also reported small or insignificant effects (Van Dijk et al., 1989; Tervo, 2000b; Kultalahti, 2000). It should be noted that the estimates of the basic probit are biased due to endogenous sample selection, and correcting for that selectivity was a major aim of the present paper.

We used the IV-method and the treatment-effect approach to account for endogenous selection. When the self-selection into migrant and non-migrant groups is controlled for, moving becomes negative and significant. Hence, moving by itself does not improve the chances of re-employment, whereas the better observable and unobservable quality of migrants does. Such qualities include education, human capital and ability. In fact, our results suggest that movers might have been better off in their original region in the short term. This is usually called the “transitory negative effect of migrating” (Mincer, 1978). One reason for this may be that human capital is region-specific, i.e. more useful in the region where acquired than other regions. Our findings indicate that encouraging migration in general may not improve the geographical matching of jobs and the unemployed. Migration looks only partly rational, at least in the short term. However, it may be that migrants are not aware of the negative effect of moving, or they may be optimising in terms of their long-term employability that we do not observe.

The present study suggests that unemployment will be a difficult problem to influence. More than half of those unemployed at the end of 1994 were still looking for a job two years later. Moreover, migration only appears to level off regional unemployment disparities by shuffling around the unemployed persons, not by helping them find employment. Further research is needed to confirm the

causes behind the negative effect of migration, for example region-specific human capital. Moreover, the choice between moving and commuting as spatial job search strategies would also provide further insights into labour market adjustment.

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Appendix

Table A1. Variable descriptions and descriptive statistics

Variable name	Longer name, explanation	Mean (st.d.)	Max	Min
Employment1	Employment status 1, = 0 if not employed, =1 if employed at the end of 1996.	0.27 (0.45)	1	0
<i>Employment2</i>	Employment status 2, =0 if unemployed, = 1 if employed at the end of 1996.	0.34 (0.47)	1	0
<i>Migration</i>	Migration status in 1995-96, = 0 if not migrated, =1 if migrated.	0.13 (0.33)	1	0
<i>Regional house price</i>	Regional housing price, log (FIM/square meter), in the sub-region of origin in 1994.	7.05 (1.85)		
<i>Owner-occupier</i>	Owner-occupier status in 1994, = 0 if not the owner-occupier, = 1 if owner-occupier.	0.47 (0.50)	1	0
<i>Age 16-19</i>	Individual aged 16-19, dummy variable.	0.05 (0.22)	1	0
<i>Age 20-29</i>	Individual aged 20-29, dummy variable.	0.27 (0.44)	1	0
<i>Age 30-39</i>	Individual aged 30-49, dummy variable.	0.31 (0.46)	1	0
<i>Age 40-49</i>	Individual aged 40-49, dummy variable.	0.25 (0.43)	1	0
<i>Age 50-65</i>	Individual aged 50-65, dummy variable.	0.12 (0.21)	1	0
<i>Higher upper educ. Or PhD</i>	Higher upper education or PhD, dummy variable. Equivalent of 16 or more years of education.	0.01 (0.12)	1	0
<i>Lower upper</i>	Lower upper education, dummy variable. Equivalent of 14-15 years of education.	0.01 (0.10)	1	0
<i>Lowest upper</i>	Lowest upper education, dummy variable. Equivalent of 13-14 years of education.	0.03 (0.18)	1	0
<i>Higher secondary</i>	Higher secondary education, dummy variable. Equivalent of 11-12 years of education.	0.16 (0.36)	1	0
<i>Lower secondary or less</i>	Lower secondary education or less, dummy variable. Equivalent of no more than 9-10 years of education.	0.37 (0.48)	1	0
<i>Female</i>	Dummy variable, = 0 if male, =1 if female.	0.42 (0.49)	1	0
<i>Foreign</i>	Dummy variable, =0 if Finnish or Swedish speaking, =1 if other language.	0.01 (0.08)	1	0
<i>Lives in town</i>	The municipality of residence (1994) is a town or a city.	0.54 (0.49)	1	0
<i>Married</i>	Person was married in 1996, dummy variable.	0.35 (0.48)	1	0
<i>Employed spouse</i>	Person has a spouse who was employed in 1996, dummy variable.	0.31 (0.46)	1	0
<i>Family income</i>	Log of taxable family income in 1995.	2.29 (1.76)	9	0
<i>Number of children</i>	Number of children under 16 living at home in 1996.	0.99 (1.24)	8	0

Notes:

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i Statistics Finland reports that the unemployment rate, as measured according to the ILO criteria, jumped from 3.2 per cent in 1990 to 18.1 per cent in 1993. In 1999 the comparable figure was 10.2 per cent.

ii This choice rids the data set of most of the possible contracted migrants, that is those who have quit a job in order to start another job in another area (Greenwood, 1997). Including such cases would cause an upward bias in the effect of migration on re-employment.

iii Ahn et al. (1999) have asked whether, given a job, the unemployed persons would be willing to move to another area. This setting proves to be problematic for three reasons. Firstly, the presumption "given a job" is not a very meaningful one: it is likely to prompt too many positive answers and it neglects the status of migration as an actual job-seeking mechanism. Secondly, the effectiveness of migration as a job-seeking mechanism cannot be studied because migration is purely a hypothetical case. And thirdly, it is difficult to interpret the results on the effect of hypothetical migration on unemployment duration. In reality, both those with positive and negative attitudes towards migration may actually move – then it can be asked what a positive attitude tells us about the micro-effectiveness of migration in job seeking?

iv There are 83 (NUTS4-level) subregions in Finland.

v The correlation between subregional in- and out-migration is 0.60 on average, and 0.71 for the unemployed. We also tried plotting unemployment rate against the flow of unemployed per the number of unemployed in the region. In that case, in-migration appeared rational (negative correlation), but out-migration did not.

vi Coefficients for regional dummies are not reported here as they would take too much space. They are available upon request from the authors.

vii Results are available from the authors upon request.

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