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WHO MOVE TO DEPRESSED REGIONS?

– An Analysis of Migration Streams in Finland in the 1990s*

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Abstract. Depressed regions typically lose a large number of migrants, but simultaneously are destination regions for some migrants. This paper analyses those people who decided to move to depressed regions in Finland in 1993-96. The analysis is based on a one-percent sample drawn from the Finnish longitudinal census. The results show that migration into depressed regions is also a selective process. However, the more educated an individual is, the more likely (s)he is to move to a prosperous region. The process of concentration of human capital is reinforced by inter-regional migration.

1. Introduction

Micro level investigation of migration essentially relates to the processes underlying the decision by a potential migrant either to remain in the current residence or to migrate elsewhere (Stillwell and Congdon 1991). Numerous migration studies based on micro data have dealt with out-migration, by analysing the characteristics of out-migrants and regions of origin. Typically, these studies do not account for why a particular region is chosen as the destination region. The rest of the country is treated as the single destination of all migrants from the region of origin. In a sense, the lack of destination region information assumes that a migration decision is based on backward-looking (origin region) considerations, in spite of the fact that theoretical models generally indicate that the attractive pull from the destination region is equally important. Because information about destinations is potentially important in decisions to migrate, it merits inclusion in this equation. One problem, however, is that the decision as to which of the alternative destination regions is chosen is a very complex one and hard to model, especially if the number of destinations is large and the number of migrants small.

There are only a limited number of studies which integrate an analysis of the decision to migrate from a region with a study of the destination choices made by regional migrants (see Hughes and McCormick 1994; Molho 1987; Mueller 1982). Our paper deals with the question of destination choice, though from a limited viewpoint. We do not analyse the destination choice-process, but ask instead: what people decide to move to declining regions? Do they differ from the in-migrants of prosperous regions? In that respect, our analysis resembles Haapanen's (1998) study, which analysed those individuals who had a terminated spell of

unemployment, by modelling their migration behaviour between two destination alternatives, growth-centre regions and non-growth regions, as against the decision not to migrate.

As is well-known, the classical equilibrating theories of migration argue that workers move from depressed regions to prosperous regions. These models predict that interregional migration will help to bring about regional labour-market equilibrium. In reality, each region is always experiencing both in- and out-migration, although migration to prosperous regions is consistently denser. In consequence, there is always a large group of workers who move in the "wrong" direction, i.e. into depressed regions. The question of the reasons for these apparently perverse migration streams, as well as the question of their effects, is a largely neglected aspect of migration studies, especially from the point of view of the equilibrating process of regional labour markets.

In our analysis, we separate regions into different categories according to their unemployment level. We concentrate especially on analysing those who migrate to high-unemployment regions. Previous research has shown that the characteristics of and reasons for moving are rather similar with respect to the place of origin (e.g. Ritsilä and Tervo 1999), but are they different with respect to the destination? This is one of the main questions in our paper. Another question relates to the effects of migration on depressed regions. Presumably, these effects are highly dependent on its selectivity. A well-known fact is that the migration process is selective of the young and more educated part of the population, but is this also the case with the in-migrants of the depressed regions? If it is, i.e. that professional, managerial and skilled labour is also over-represented in the pool of in-migrants to depressed regions, the strangling effect of inter-regional migration is not that severe. If the in-migrants are as qualified as the out-migrants, the loss is quantitative rather than qualitative, the human capital loss mainly relating to the net migration loss.

Our analysis deals with migration streams of the working-age population in Finland in 1993-1996. Inter-regional migration has accelerated in Finland in the 1990s. The main migration flows have been directed to urban areas, mainly located in the South. In addition to the established trend that rural areas lose population, several small towns and middle-sized urban areas are now also declining.

The data set is a one-percent sample drawn from the Finnish longitudinal census containing data on population, economic activity, dwelling conditions and family background. The census file is maintained and updated by Statistics Finland. Our analysis concerns the long-distance migration of the population aged between 18 and 75 (in 1996), which is determined to have taken place if an individual of working age moves from one province (NUTS 3-level

regions, 19 in number) to another. In practice, a move is registered if the province of domicile in 1993 is different from that in 1996.

The rest of the paper is structured as follows. Section 2 analyses in- and out-migration streams and their relationships in Finland, stressing the existence of the phenomenon of "perverse" migration. In section 3, we examine whether the in-migrants of different regions differ from each other, especially with respect to educational level and other characteristics. In the modelling of a worker's decision to move into the depressed or prosperous regions as against the decision to not move, we exploit the multinomial logit method. In section 4, we analyse further the human capital content of in-migrants of depressed regions with a measure of educational level. Section 5 concludes the paper.

2. In-migration vis-á-vis out-migration

As each region is always experiencing both in- and out-migration, gross migration between regions far exceeds net migration, and a substantial amount of apparently perverse migration occurs. Many studies have even observed a strong positive relationship between out- and in-migration (e.g. Mueser and White 1989; Mueser 1997). In general, migration to declining areas follows from the fact that labour is not homogeneous. Individuals move between regions for a variety of reasons. Return migration may play an important role. Many may also move to depressed regions for individual advancement, as a part of a career plan or because of a company transfer policy.

The fact that each region is always experiencing both in- and out-migration can also easily be observed in Finland. Table 1 shows the out- and in-migration streams and rates between four categories of local labour market areas, as classified according to their unemployment rate. The regions (local labour market areas) are divided into quartiles by the level of unemployment. In these analyses, a person is registered as a migrant if her/his province of domicile in 1996 is different from that in 1993. We have used data which are a one-percent sample drawn from the Finnish longitudinal census file. Our data only include those individuals who were residents of Finland in both 1993 and 1996 and who were aged between 18 and 75 in 1996.[1]

[1] When analysing a comparatively long period as here (three years), there is the drawback that some movers may have migrated more than once. In our data, of the 1729 movers 84 (4.9%) have

Table 1 suggests that net-migration rates behave as expected with regard to unemployment, viz. net-migration is the greater, and out-migration is the smaller, the better is the unemployment situation in the region. These results confirm for their part the hypothesis that labour mobility is an important response mechanism with respect to regional unemployment disparities (Tervo 1997; Herzog et al. 1993; Pissarides and Wadsworth 1989; Herzog and Schlottman 1984).[2] Contrary to net- and out-migration rates, in-migration rates do not seem to behave consistently among our four regional categories, since in-migration to the second quartile of regions is higher than to the first quartile of regions. From our viewpoint, the most interesting finding relates, however, to the fact that even the most depressed regions are destination regions for some migrants. In fact, these regions simultaneously receive a large number of migrants, even though they lose a still larger number of residents and the net migration rate is negative. This fact has received only scant attention in empirical migration research.

migrated twice and 11 (0.6%) three times. In addition, 145 persons (0.4% of all persons included in the data) have moved back to the province where they lived in 1993. These cases are not counted as movers, since their domicile of province is the same both in 1993 and 1996.

[2] It should be noted that this result may be accounted for by both regional and personal unemployment (Tervo 1997).

Table 1. Out- and in-migration in four categories of regions classified according to their unemployment level

Regions	Number of migrants			Migration rates (%)		
with:	Out	In	Net	Out	In	Net
low unemployment	316	567	+251	3.0	5.3	+2.4
fairly low unemployment	305	368	+63	4.6	5.5	+0.9
fairly high unemployment	519	435	-84	5.4	4.6	-0.9
high unemployment	589	359	-230	5.9	3.6	-2.3
All retions	1729	1729	0	4.7	4.7	0.0

Note: The data is a 1 percent sample of those people aged between 18 and 75 (in 1996) who were living in Finland in both 1993 and 1996. Migration relates to the period 1993-96. The regional breakdown is based on travel-to-work areas, which are divided into four equal-sized categories according to their unemployment rates. The upper endpoints of the four categories were 18.1, 22.1, 24.2 and 35.1 in 1993 and 15.3, 19.9, 22.1 and 40.4 in 1996.

Related to this, it is important to take into account the role played by return migration in migration flows into different regions. Table 2 below presents return migration flows into different regions divided into four categories by the level of unemployment. These reported return migration flows deal with migrations where a person moves back to a province where (s)he lived before.[3] In our sample, the share of return migrants among all long-distance migrants is considerable, amounting to around one-third (29.9%). Of the migration to the most depressed regions, return migration explains 34%. The corresponding shares of return migration to other regions are smaller, the lowest share of return migration being 27% to a low unemployment area. Although the observed regional differences are statistically significant (p=.04), they are not very great.

[3] A migrant is defined as a return migrant, if (s)he moved in 1993-96 to a province where (s)he lived in one of the following years: 1970, 1975, 1980, 1985 or 1987-1992. In addition, a migrant is return migrant if (s)he moved to the province where (s)he was born.

Table 2. Out- and in-return migration in four categories of regions classified according to their unemployment level

Regions with	The share of return migration (%) Out	In
low unemployment	45.2	26.8
fairly low unemployment	31.1	32.8
fairly high unemployment	24.1	27.8
high unemployment	26.1	34.2
All regions	29.9	29.9
p-value	.000	.040

Notes: The data is a 1 percent sample of those people aged between 18 and 75 (in 1996) who were living in Finland in both 1993 and 1996. Migration relates to the period 1993-96. Educational level is measured in 1996. The regional break-down is based on travel-to-work areas, which are divided into four equal-sized categories according to their unemployment rates. The upper endpoints of the four categories were 18.1, 22.1, 24.2 and 35.1 in 1993 and 15.3, 19.9, 22.1 and 40.4 in 1996. p-values show the lowest significance level at which the null hypothesis of equal educational levels can be rejected (one-way variance analysis).

In contrast, inspection of out-migration flows reveals greater regional differences in the shares of return migration. Up to 45% of all out-migration from regions with low unemployment can be labelled as return migration. In other words, return migration takes place in nearly half of the migrations from prosperous, low unemployment regions. For all the other regional categories, return migration does not play as important a role in out-migration. The differences are highly statistically significant (p=.000). A typical return migrant moves back from a prosperous region to a depressed area. These people have perhaps failed to attach to their destination regions and move back, though unemployed, or they are retired people who want to go back to their native regions.

3. Do the in-migrants of depressed regions differ from other migrants? A multinomial analysis

The purpose of this section is to ascertain whether the in-migrants of the depressed regions statistically differ from the stayers or from the migrants to other regions. Thus, in essence, we are interested in the influence of personal characteristics, family situations, labour market conditions and the characteristics of the regions where migrants originally were living on the decision to choose a particular region. We are especially interested in the impact of education.

In the analysis, we use a categorisation of destination areas into depressed areas and others which is carried out according to the level of unemployment. We divided destination areas into those characterised by a high unemployment rate and into other areas (with lower unemployment). The regions characterised by high unemployment, i.e. depressed regions, constitute the fourth quartile in our regional breakdown (cf. Table1).

Modelling procedure

In the empirical analysis the decision to migrate to depressed or to other regions is modelled by the multinomial logit model. In our model, using the level of unemployment as the criterion for whether the destination area is depressed or not, we assume that the individual makes a choice from among the three following alternatives:

$Y_i = 0$ if the individual does not migrate,

$Y_i = 1$ if the individual migrates to a depressed region,

$Y_i = 2$ if the individual migrates to other region.

Thus the dependent variable in the model is Y_i and can take values from 0 to 2.

The estimation of the multinomial logit model provides a set of probabilities for these three different destination choices of an individual with characteristics x_i. These probabilities are given by :

$$\text{Prob}(y_i = j) = \exp(\beta_j' x_i) / (1 + \sum \exp(\beta_k' x_i)), \text{ for } j = 1,2,\ldots,J,$$

where β_j's are unknown parameter vectors.

The method of estimation for our multinomial logit is maximum likelihood. The maximum likelihood estimates for β_j's are difficult to interpret (Greene 916, 1997). Therefore rather than reporting the coefficients from the multinomial model we prefer to report the marginal effects of the regressors on the probabilities $\partial P_j / \partial x_i$. These marginal effects can be calculated as $\partial P_j / \partial x_i = P_{ij} [\beta_j - \Sigma P_{ik} \beta_j]$.

Our dependent variable is uneven in the sense that different migration categories have uneven number of observations. The greatest difference is between the non-migrant category, which acts as a reference group, and the other two groups. Only 4.7% of the individuals in our sample are registered as migrants. Of these migrants 20.7% had a high unemployment area as their destination region and, respectively, 79.2% a lower unemployment area. Small migration likelihood has an influence on the calculated marginal effects for groups 1 and 2, which are bound to be smaller.

In addition to reporting the marginal effects, we also calculate log-odds ratios based on the model: $\text{Ln}[P_{ij}/P_{ik}] = (\beta_j' - \beta_k')x_i$. By assumption, the odds ratios in the multinomial logit model are independent of the other alternatives. This property of P_j/P_k being independent of the remaining probabilities is called the independence of irrelevant alternatives (Greene 1997, 920). In the case of unbalanced data, log-odds are useful in the comparison of the odds of individuals with different characteristics. They provide perhaps more illustrative information on the migration probabilities of individuals with different characteristics than the marginal effects. With the help of log-odds we can, for example, compare the odds of an individual with higher education versus an individual with intermediate level education to move to depressed regions or, alternatively, to move to lower unemployment regions.

The employed explanatory variables can broadly be grouped into personal characteristics (age, sex, educational level), family and household characteristics (marital status, number of children under 18, home ownership), labour market characteristics (unemployed, student, pensioner) and regional characteristics of the area of origin (the local unemployment rate, number of residents). The following table (Table 3) presents brief descriptions of the explanatory variables, their sample means and standard deviations.

Table 3. Descriptive statistics: definition and sample means

Variable	Definition	Mean	Std. Deviation
Personal characteristics			
YOUNG	A dummy variable, which is assigned value 1 if individual is under 30 years in 1993 and 0 otherwise	0.25	0.43
MIDDLEAGE	A dummy variable, which is assigned value 1 if individual is of age between 30 and 45 years in 1993 and 0 otherwise	0.29	0.45
FEM	Female, a dummy variable, which captures value 1 if female and 0 if male	0.52	0.49
MIDLEV	A dummy variable which is assigned value 1 if individual has an intermediate level education (classes 3-4, see Table 6)	0.42	0.49
HIGHLEV	A dummy variable which is assigned value 1 if individual has a higher education (classes 5-9, see Table 6)	0.10	0.30
Family characteristics			
MAR	Marital status, a dummy variable, which is assigned value 1 if married or cohabiting and 0 otherwise	0.54	0.49
CHILD18	A dummy variable which is assigned value 1 if children under 18 years old (in 1995) and 0 otherwise	0.33	0.47
OWN	Home ownership, a dummy variable, which is assigned value 1 if one owns house or owns shares in a housing corporation, 0 otherwise	0.75	0.43
Labour market characteristics			
UNEMPLOYED	A dummy variable, which is assigned value 1 if unemployed and 0 otherwise	0.13	0.34
STUDENT	A dummy variable, which is assigned value 1 if individual is student and 0 otherwise	0.10	0.30
PENSIONER	A dummy variable, which is assigned value 1 if individual is pensioned and 0 otherwise	0.25	0.43
Regional characteristics			
UR	The local unemployment percentage in 1993	20.5	7.0
SIZE	Size of municipality (number of residents in 1000's)	9.85	15.68

Results

The marginal effects (expressed as percentages) calculated from the multinomial logit model and their significance levels are given in Table 4. For comparison, we also report results from a simple bivariate logit estimation (Table 5) where the category of migrants to other areas (0) acts as a reference group to those migrating to high unemployment areas (1). This provides us with a means to test whether the migrants to depressed regions differ statistically from other migrants. Otherwise, the results from the multinomial model are in accordance with those from the binomial model.

Table 4. Multinomial logit model, three choices

	Nonmigration (y=0)	Migration to depressed regions (y=1)	Migration to other regions (y=2)
Constant	10.38 (25.4)	-2.96 (-10.3)	-7.41 (-15.5)
FEM	-0.27 (0.4)	0.09 (1.4)	0.18 (1.7)
YOUNG	-4.24 (-16.8)	0.75 (5.1)	3.49 (11.3)
MIDDLEAGED	-1.99 (-8.4)	0.38 (2.9)	1.61 (6.7)
MIDLEV	-0.76 (-5.4)	0.09 (1.2)	0.66 (5.4)
HIGHLEV	-2.03 (-8.5)	0.20 (1.7)	1.80 (8.1)
MAR	-0.09 (-0.5)	0.04 (0.5)	0.04 (0.3)
CHILD18	1.90 (11.6)	-0.36 (-4.0)	-1.53 (-9.7)
OWN	1.29 (9.6)	-0.47 (-5.6)	-0.82(-6.7)
UNEMPLOYED	-0.87 (-4.9)	0.37 (3.8)	0.49 (3.2)
STUDENT	-2.03 (-10.7)	0.45 (4.0)	1.58 (9.3)
PENSIONER	1.34 (4.4)	-0.32 (-2.0)	-1.02 (-3.6)
OTHER	-1.28 (-5.1)	0.41 (3.0)	0.87 (3.9)
SIZE	0.06 (11.7)	-0.01 (-3.8)	-0.05 (-9.0)
Log-likelihood (lnL)	-6941.01		
Restricted log-likelihood (lnL_0)	-7981.69		
Likelihood ratio index	0.13		

Notes: t-values in brackets. Restricted log-likelihood (lnL_0) is the maximized value of the log-likelihood function computed with only the constant term lnL_0. Likelihood ratio index corresponds to R^2 in the normal regression and is calculated as LRI=1 - (lnL/lnL_0). Marginal effects are expressed as percentage shares.

Table 5. Binary logit model: migration to high unemployment area (1) vs. other area (0)

	Marginal effect	t-value
Constant	-12.80	-3.2
FEM	1.23	0.6
YOUNG	-10.50	-2.9
MIDDLEAGED	-3.94	-1.1
MIDLEV	-1.70	-0.8
HIGHLEV	-8.56	-2.2
MAR	-0.75	-0.3
CHILD18	2.82	1.1
OWN	-3.54	-1.7
UNEMPLOYED	4.82	1.8
STUDENT	-2.50	-0.9
PENSIONER	1.17	0.2
OTHER	3.65	0.9
SIZE	0.11	1.4
Log-likelihood (lnL)	-847.92	
Restricted log-likelihood (lnL_0)	-869.56	

Notes: t-values in brackets. Restricted log-likelihood (lnL_0) is the maximized value of the log-likelihood function computed with only the constant term lnL_0. Marginal effects expressed as percentage shares.

With regard to gender, the calculated marginal effects imply that women have a higher probability to migrate to both high unemployment areas and other areas than men do, but not at conventional significance levels. Continuing with personal characteristics, the impact of age was taken into account in our model by two dummies, one denoting whether a person is under 30 years (YOUNG) and the other denoting whether a person is aged between 30 and 45 (MIDDLEAGED). The results suggest, in line with other studies, that persons under 30 years have a higher propensity to migrate than those over 30 years. The reasons for the lower incentive to migrate as one gets older are, among other things, a shorter expected working life over which to realise the advantages of migration, the increased importance of family ties and job security (Cadwallader 1992). As regards the destination of migration, according to the calculated marginal effects, persons under 30 years have a 2.8 percentage points higher migration probability to other areas as compared with high unemployment regions and, respectively, the middle-aged have a 1.2 percentage points higher probability. The calculated odds[4] that a middle-aged person versus a young person will belong to migration category 1

[4] These odds are calculated as $Prob(y_j|middleaged=1)/Prob(y_j|young=1)$.

(y=1) are 0.53, which exceeds the corresponding odds of 0.35 that the same individual will belong to group 2 (y=2). This suggests that middle-aged persons have a higher tendency to move to depressed regions. The logit-results, which directly compare the possibility of moving to depressed regions as against moving to other regions, show that young people, especially, have a higher tendency to move to other than depressed regions. This result is statistically significant. The estimated coefficient on the variable MIDDLEAGED is also negative, but not significantly.

Typically, people with higher education tend to have a higher propensity to migrate. Our data also shows that this is the case, especially if the main direction of migration is towards other than depressed regions. There seem to be differences in the probabilities of choosing a certain destination for persons with divergent education. Our results indicate that the probability to migrate to other than unemployment regions is around 0.5 percentage points higher for those who have an intermediate level education and 1.6 percentage points higher for those who have higher education.

The calculated odds for a person with an intermediate level education versus a person with higher education to belong to migration category 1 (y=1) are 0.80. The corresponding odds to belong to a group 2 (y=2) are 0.53. Therefore, on the basis of these calculations, it would seem that those with less education have a higher tendency to move to high unemployment regions. The binomial logit results (Table 4) also confirm this result.

We evaluated the impact of children on the choice of migration destination by including in the model a dummy variable for a person to have children under 18 years old or not. The calculated marginal effects imply that under 18-year-old children are a greater deterrent for those moving to other than depressed regions. However, when comparing the calculated odds for a person with children under 18 with the odds for a person without children under 18 to migrate to depressed regions and, alternatively, the odds on these two individuals, respectively, moving to other regions, the differences between these two groups are rather small (0.54 vs. 0.42). The logit-results do not show statistically significant differences either. With regard to the effect of marital status, the calculated marginal effects are the same for groups 1 and 2, but not significantly. As verified by many previous studies (e.g. Tervo 1997), home ownership influences negatively the decision to migrate, and this is the case in our model. However, the negative influence exerted by home ownership is smaller when the individual's destination of migration is a high unemployment region.

In the model we also surveyed the effects of labour market status on the probability to migrate to depressed versus other regions. Our results indicate that if person is unemployed,

s(he) is encouraged to migrate. The logit-results suggest that the effect of personal unemployment is stronger in the cases of moves to depressed regions (p=.07). Further, according to the results, students have a one percentage point higher migration probability to move to other than high unemployment regions. This is perhaps because most student places are situated at the regional centres of those provinces which are not usually among the highest unemployment regions. If person is retired, this will have a negative effect on his/her propensity to migrate, but this negative impact is smaller where the migration is to high unemployment regions.

4. The human capital content of in-migration to depressed regions

Our results above confirmed the well-known fact that migration is selective of the more educated and skilled members of the labour force. The results indicated, however, that those moving to unemployment regions are less educated. Next we analyse more thoroughly the question of the human capital content of "perverse" migration, i.e. migration to depressed regions.

In the analysis of the educational level of migrants and non-migrants, we have exploited a measure based on the Finnish Standard Classification of Education by Statistics Finland which is a weighted average of the educational level of the people in question.[5] Educational level is measured in 1996 among those who migrated in 1993-96 as well as among those who stayed at their home regions. Theoretically, educational level measured in this way can range between 1.5 and 8. In practice, the variation is much smaller. In Finland, the educational level of the working-age population varied between 2.70 and 3.38 by provinces in 1996, averaging 3.05 in the country as a whole.

Table 6 shows the distributions of educational level among the migrants and stayers. The measure of educational level obtains the value of 3.81 among the migrants and the value of 3.02 among the non-migrants.[6] People with only basic education or the lower level of upper

[5] The formula for this measure is as follows:

$$X = \Sigma f_i x_i / \Sigma f_i$$

where f_i is the number of people and x_i is the level of education (from 1.5 to 8, see Table 6).

[6] The above migration concerns long-distance migration, i.e. migration from one province to another. It is interesting to note that among short-distance movers, i.e. among those who migrate between municipalities, but not to another province, the educational level is 3.36, which is lower than among long-distance movers but higher than among stayers.

secondary education (categories 1.5 and 3) clearly move less frequently than people with the upper level of upper secondary education or higher education (categories 4 to 8).

Table 6. Educational level of migrants and non-migrants

Level of education	Weight	Migrants %	Non-migrants %
Basic education (1-9 years)	1.5	20.3	39.4
Lower level of upper secondary education (about 10-11 years)	3	20.1	27.2
Upper level of upper secondary education (about 12 years)	4	34.6	19.9
Lowest level of higher education (about 13-14 years)	5	9.5	5.5
Undergraduate level of higher education (about 15 years)	6	4.8	2.7
Graduate level of higher education (about 16 years)	7	9.8	4.7
Post-graduate or equivalent education	8	0.8	0.6
Total		100	100
Weighted average of educational level		3.81	3.02

Note: The data is a 1 percent sample of those people aged between 18 and 75 (in 1996) who were living in Finland in both 1993 and 1996. Migration relates to the period 1993-96. Educational level is measured in 1996.

Table 7 shows the results as to the educational level of migrants in local labour market areas classified into categories according to their unemployment level. In this table, we exploit the same regional breakdown as above: travel-to-work regions are divided into four approximately equal-sized categories according to their unemployment rate so that, e.g., the first category includes those regions with the lowest unemployment rate and the fourth category those regions with the highest unemployment rate. The educational level of the people in these regions is measured among both in- and out-migrants as well as among stayers.

Table 7. Educational level of out- and in-migrants in four categories of regions classified according to their unemployment level

Regions	Stayers	Out-migrants	In-migrants		Indexes	
with:	A	B	C	B/A	C/A	C/B
low unemployment	3.27	3.63	4.03	111	123	111
fairly low unemployment	2.99	3.86	3.87	129	129	100
fairly high unemployment	2.95	3.92	3.78	133	128	96
high unemployment	2.80	3.77	3.43	135	123	91
All regions	3.02	3.81	3.81	126	126	100
p-value	.000	.083	.000			

Notes: The data is a 1 percent sample of those people aged between 18 and 75 (in 1996) who were living in Finland in both 1993 and 1996. Migration relates to the period 1993-96. Educational level is measured in 1996. The regional break-down is based on travel-to-work areas, which are divided into four equal-sized categories according to their unemployment rates. The upper endpoints of the four categories were 18.1, 22.1, 24.2 and 35.1 in 1993 and 15.3, 19.9, 22.1 and 40.4 in 1996. p-values show the lowest significance level at which the null hypothesis of equal educational levels can be rejected (one-way variance analysis).

Table 7 reveals at least three interesting facts. First, the educational level of in-migrants varies significantly across regions. Those migrating to low unemployment regions are clearly more educated than those migrating to high unemployment regions. In fact, the educational level of in-migrants is the lower, the higher the unemployment rate in the region. But if we compare the educational level of in-migrants with that of the stayers (index C/A) we observe only small differences between the four regional categories. This means that the educational level of in-migrants is, more or less, in proportion to the prevailing educational level in the region. In particular, the in-migrants of the low unemployment regions do not have an especially high educational level compared with the in-migrants of other regions, rather the contrary, even though the in-migrants of these regions are the highest educated.

Second, there also seems to be some regional variation in educational level among the out-migrants. This variation is not, however, as great as among the in-migrants. The differences between the educational level of out-migrants in the four regional categories are only indica-

tively statistically significant (p = .083). Perhaps surprisingly, the educational level of out-migrants is not highest in the low unemployment regions, but in the intermediary regions in which unemployment is neither especially low nor especially high. Related to this finding, the index describing the relationship between the educational level of out-migrants and stayers (index B/A) shows that the relative educational level of out-migrants is clearly lower in the low unemployment regions compared with all the other regions. The other regions do not differ very much from each other in this respect, even if the out-migrants of the most depressed regions are relatively highest educated (as compared with the population in the region of origin).

The third interesting finding concerns the relationship between the educational levels of in- and out-migrants (index C/B). This index shows that the educational level of in-migrants as compared with that of out-migrants is the higher, the lower the unemployment level. The disequilibrating nature of inter-regional migration is again observable here.

In all, these results show that the more educated an individual is, the more likely she/he is to move to low unemployment regions. The most depressed regions receive those migrants who, on an average, are less educated, even if more educated than the original inhabitants. These regions also deliver up highly educated migrants to other regions. This finding is further strengthened if the educational level of out-migrants is compared with the educational level of stayers or in-migrants to these regions. The process of concentration of human capital is clearly reinforced by inter-regional migration.

5. Conclusions

This paper analysed those people who decided to move to depressed regions in Finland in 1993-96. The number of these people is large, even though the number of out-migrants is still larger. A considerable proportion of this “perverse“ migration consists of return migration. The share of return migration is not, however, very much bigger among the in-migrants to depressed areas than among the in-migrants to other than depressed areas.

Our results showed that those moving to depressed areas differ in many respects from those staying in the region. In this sense, this migration is also selective. It is, however, worthy of note that the effect of education is not as clear as it is in the case of moves to more prosperous regions, although those moving to depressed areas are less educated. Actually, the more educated an individual is, the more likely (s)he is to move to a prosperous region. In addition, those moving to depressed areas are older and more often unemployed than those moving to other regions. Furthermore, the out-migrants of the depressed regions are highly educated compared to the population in the region of origin. The process of concentration of human capital is clearly reinforced by inter-regional migration. The exchange of population produced by inter-provincial migration weakens the development potential of depressed areas both quantitatively (decrease in population) and qualitatively (decrease in human capital).

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