

## Determinants of family migration: short moves vs. long moves

Satu Nivalainen

Pellervo Economic Research Institute (PTT), Eerikinkatu 28A, FIN-00180 Helsinki, Finland (Fax: +358-9-34 888 500; e-mail: satu.nivalainen@ptt.fi)

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**Abstract.** This paper examines factors underlying family migration. Based on a sample of stable Finnish families, both short- and long-distance migration is investigated. The empirical analysis carried out using multinomial logit modelling shows a strong negative association between the family life-cycle and migration. The findings indicate that migration takes place mainly due to the demands of the husband's career, resulting in the wives being tied migrants. Two-earner families are less migratory, and in that sense the husbands are tied stayers. Distance matters; several differences are noticed between short- and long-distance migrants.

**JEL-classification:** C31, J61, R23

**Key words:** Family migration, ties, distance

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### 1. Introduction

Migration can be defined as the movement of a population from one geographical area to another. In fact, mobility has always been one of the fundamental characteristics of the human species. However, while unattached people are free to move, family relations may restrict the mobility of family members. Hence, the factors underlying migration are likely to differ between attached and unattached people. Therefore, the present study examines the determinants of family out-migration in Finland. A family as defined here

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consists of two married or cohabiting adults of opposite sexes, with or without children. As the motives underlying different types of moves are likely to vary, a distinction is made between short- and long-distance migration. Short moves occur between municipalities but within a province, whereas long moves are made between provinces<sup>1</sup>.

During the last few years, the rate of migration in Finland has risen rapidly in conjunction with the continuing urbanisation of the country. As a consequence, increasing interest has been shown in migration research. In spite of this, micro-economic analyses of migration have been in short supply in Finland. Migration at the micro-economic level has recently been researched (see Tervo 1997; Laakso 1998; Ritsilä and Tervo 1999; Ritsilä 2001; Haapanen 2002; Pekkala 2002), but these studies have concentrated on individual persons or workers. Family migration has not been investigated, even though families account for about 80% of the Finnish population (Statistics Finland 1995b). Furthermore, earlier studies have mainly investigated long-distance migration, and have not dealt in particular with short moves.

Earlier Finnish research has shown that the most eager migrant is an unmarried, educated, young adult (Korkiasaari 1991; Tervo 1997; Laakso 1998; Ritsilä and Tervo 1999). It has been noted that family status and children affect migration propensities (Laakso 1998; Haapanen 1998), and that the likelihood of moving decreases with the size of the household (Tervo 1997; Ritsilä and Tervo 1999). Longer moves seem to take place mainly for job-related reasons, whereas housing and family matters are more important in shorter moves (Korkiasaari 1991).

Migration is directed towards a few large towns located mainly in southern Finland (Laakso 1998), and in-migration has become highly focused on urban areas, with even middle-sized towns experiencing negative net migration (Vartiainen 1997). Evidence shows that the migration process in Finland has the feature of cumulative causation (Tervo 1997; Ritsilä and Tervo 1999), which may lead to increasing disparities between areas. As in many European countries, the trend in Finland seems to be towards a greater concentration of the population and economic activity.

The aim of the present study is to answer two questions. First, what are the factors underlying family migration? Specifically, are the family life-cycle and family ties important in migration decisions? And second, are there any differences between the determinants of short- and long-distance migration? The study uses unique family data containing all the relevant characteristics of both spouses. The empirical analysis is carried out with multinomial logit models. The results show that, in Finland, young educated families are the most eager to move, and that there is a strong negative association between the family life-cycle and migration. The evidence indicates that more weight is given to the husband's career and, consequently, that wives are the tied parties in family migration. At the same time, two-earner families are less migratory, and in that sense the husbands of working wives are tied to certain locations. Moreover, there are differences between short- and long-distance migration, and these relate to both individual and regional characteristics.

The remainder of the paper is organised so that the second section introduces the theoretical background and provides a short review of earlier research relevant to the objectives of this study. The data, model and variables used are presented in Sect. 3. Section 4 discusses the empirical findings and Sect. 5 concludes the study.

## 2. Theoretical framework

The theory of family migration introduced here draws mainly on Mincer (1978), who uses Sjaastad's (1962) human capital framework as a starting point. The framework suggests that by devoting time to activities whose benefits accrue in the future, individuals are making investments in their human resources. Education and training are examples of such investments; migration can also be regarded as an investment in human capital.

As families aim at maximising their total lifetime utility, those facing a migration decision have to evaluate the profitability of this investment. In the human capital setting, this is done by comparing the difference in returns and costs that arise as a consequence of migration. The returns may include a higher income in the destination, or a more pleasant environment (social or physical), or some other non-monetary gains. In addition to the direct expenses of moving<sup>2</sup>, costs may derive from the psychological difficulties of changing one's environment and from uncertainty. Despite their potentially great importance to some migrants, the non-monetary components are, for simplicity, commonly excluded from the basic framework.

Thus, when a family is deciding whether to move or not, net family gain from moving from location  $i$  to  $j$  is assessed. That is, the family weighs up the present value of expected changes in future family income, net of the discounted migration costs. The net family gain from relocation is the sum of the personal net gains of the family members. Migration takes place only if this sum is greater than zero, i.e., if the family's utility increases as a result of moving. From the set of  $J$  possible locations, the family chooses the one that maximises the gains of the family as a whole.

The complexity of the migration decision becomes clear as soon as one realizes that net gains may differ between the spouses. Firstly, the signs may differ. If one spouse moves together with the other, even if s/he would be better off in the current location, s/he becomes a tied mover. Conversely, if one spouse's potential loss exceeds the potential gain of the other, the family will not move and the result is a family with one tied stayer. Secondly, even if both spouses stand to benefit from moving, the destination that maximizes the wife's gain need not to be the same as that one which maximizes the husband's. This may result in the family not moving, or moving to a destination where neither of the spouses' personal gains is maximized but where the sum of both is greatest. In this sense both spouses can be tied stayers or movers. However, in this case, too, one spouse can suffer more than the other.

### *2.1. The family life-cycle and other determinants of migration*

A variety of factors affect migration. Among these are individual-specific characteristics such as age, education, accumulated job skills, earnings, unemployment experience, and migration history (see Greenwood 1985, for a survey; see also DaVanzo 1978; Tervo 1997; Ritsilä and Tervo 1999). In addition, several studies have demonstrated the importance of family relations. According to Rossi (1955), migration that takes place due to life-cycle changes constitutes an important part of all geographic mobility. In addition, age variations in migration rates are shown to reflect the effect of both work careers and life-cycle stages (Carter and Glick 1970; Sandefur and Scott 1981).

The family life-cycle has conventionally been divided into several phases (see Grundy 1992), and the highest probability of moving is associated with the beginning of married life and the arrival of children. After a more stable phase, mobility again increases while the children are still at a pre-school age. There tends to be greater stability when the children are at school and the parents are consolidating their careers (Sandell 1977; Mincer 1978). Mobility often increases again when the children leave home and less living space is required (Cadwallader 1992).

With regard to family ties, a nearly unanimous finding is that families migrate in response to economic motivations on the part of the husband (Duncan and Perrucci 1976; Long 1974; Snaith 1990; Shihadeh 1991; Battu et al. 1998; Gardner et al. 2001), and that the wife's employment considerations are of minor importance in migration decisions (Bielby and Bielby 1992). On the other hand, families with working wives have been shown to be less migration-prone (Long 1974; Sandell 1977; Mincer 1978; Lichter 1980; Holmlund 1984).

The characteristics of the origin and destination regions, such as wage differentials, job opportunities, unemployment rates, the region's economic structure, conditions in housing markets and location-specific amenities (unpolluted environment, climate, landscape etc.) may also provide an incentive for moving (see Greenwood 1985, for a survey). Concerning the distance over which relocation occurs, stronger ties to the current location (children at school, contacts with friends and relatives, home-ownership etc.) have been shown to discourage long-distance migration (Holmlund 1984; Westerlund and Wyzan 1995; Antolin and Bover 1997; Gardner et al. 2001). Location-specific human capital (job experience) also tends to inhibit long moves, while a higher amount of general human capital (education) improves the ability to move over longer distances (see, for example, Holmlund 1984; Shields and Shields 1993; Westerlund 1993). Regional characteristics, in turn, seem to play a more important part in short moves. For example, the size and diversity of the current location, cost-of-living differentials, local unemployment and public sector attributes are evidenced to contribute to residential choices (Widerstedt 1998; Westerlund and Wyzan 1995; Dahlberg and Fredriksson 2001).

### **3. Data, model and variables**

#### *3.1. Data*

The data are from the longitudinal census file of Statistics Finland, which contains information collected in population and housing censuses, completed with information from various official registers. Consequently, the data offer rich information on the Finnish population, and cover the years 1970, 1975, 1980, 1985 and 1987–1996. This large data set contains information on individuals' characteristics (for example education, occupation, socioeconomic status, economic activity, income) as well as on individuals' family relations (for example type and size of family, number and ages of children). Of especial interest for the purposes of this study is that all the persons belonging to same family can be identified<sup>3</sup>. Another virtue is that all the characteristics of both spouses can be observed. A drawback, however, is that there is no information on the motives for migration or on its specific

destination. Moreover, the data only indicate the province of residence at the end of year, and whether or not the person moved between municipalities during the year. Hence, the specific timing of migration cannot be observed.

A basic sample<sup>4</sup> was drawn from the census file containing information on over 600 000 individuals. The data used in this study are a stratified subset of this sample. First, only adults belonging to two-adult families in 1990<sup>5</sup> were selected. Second, to obtain the family as an observation unit, men and women belonging to same family were merged. In order to focus on economically active families, the sample was restricted to families where the husband was in the labour force at the end of 1993. To avoid cases of elderly spouses unable to migrate for medical reasons, only families in which the husband was under 63 years of age in 1994 were selected.

As the interest here is in husband-wife migration, only 'permanent' two-adult families were selected, i.e., the sample was restricted to cases where the man and woman had been living together in the same household during each of the years 1990–1995. This means that every family in the data had been a family for at least three years before the move and remained a family for at least one year after the move<sup>6</sup>. In addition, families migrating from and to abroad were excluded from the analysis. After these restrictions the final sample consisted of 77 340 families<sup>7</sup> of whom 1 747 had moved during 1994.

As expected, the migration rates calculated from the data are below the actual figures<sup>8</sup> for the population as a whole. Firstly, we are investigating families, not individuals. Families in general are less prone to migrate than single individuals. Secondly, among families we are restricting ourselves to a subset with certain characteristics. Young families (i.e., those starting their married or cohabiting lives), who often are quite migration-prone, are not included in the data. Moreover, a particularly mobile group, students, constitutes only a small minority in the sample. Taking into account all these restrictions the small number of migrants is, in fact, quite reasonable.

### *3.2. Model and variables*

In the present study, the choice of the family relates to the question of whether to remain in the current location, migrate between municipalities inside the current province<sup>9</sup> (short-distance migration), or migrate to another province<sup>10</sup> (long-distance migration). Even though this distinction is not ideal, it is typical of empirical work on this topic (see, for example, Widerstedt 1998; Westerlund and Wyzan 1995; Shields and Shields 1993). Migration only refers to joint moves by the two spouses, and the rest of the province/country is treated as a single destination for migrants from a given municipality/province.

As Finnish provinces are comparatively large, long-distance migration most likely means a change of local labour market and a change of job<sup>11</sup>. With short-distance moves, the labour market usually does not change, and although a change of job is possible, short moves are more likely to be associated with housing needs and family reasons (for Finnish evidence, see Korkiasaari 1991; see also Lansing and Mueller 1967; Reitsma and Vergoosen 1988).

The probability of family migration is a function of family and regional variables, and the multinomial logit model<sup>12</sup> is utilized in exploring the effect of these variables on migration. The use of this model requires

the Independence of Irrelevant Alternatives (IIA) condition to hold, which means that the ratio of any two alternatives may not be influenced by any other alternative. This was checked with a test developed by Hausman and McFadden (1984), and the IIA condition was found to hold<sup>13</sup> (see Table 3). In addition, the appropriateness of the distinction between short- and long-distance migration was checked with a pooling test described in Cramer and Ridder (1991)<sup>14</sup>, according to which these two migration classes cannot be pooled (see Table 3).

Variables used in the analyses are described in Table 1 and categorical means are presented in Table 2. Except for the variables relating to age, children and migration history, all independent variables are measured in 1993 (i.e., before migration).

Family migration studies have traditionally only concentrated on the husband's age, which mainly reflects the effect of his work career on migration. However, the age of the wife is also important, as it is closely associated with stages in the life-cycle of the family. Therefore, the present study utilizes the average age of the spouses, and examines age in terms of age groups. Earlier studies have investigated the effect of school-aged children, but the present study goes a bit further as families are separated into several groups on the basis of children. These groups correspond to the stages in the family life-cycle.

In principle, at least five life-cycle stages can be identified. The first stage ends with the arrival of the first dependant. Stage 2 lasts until one dependant reaches school age. Stage 3 includes couples with two or more dependants, where the ages are mixed (i.e., pre-school age and school age children). Stage 4 includes couples with school-aged children only. The final stage begins when the last dependant living at home reaches the age of 18. Due to limitations of the data, the first and last stage could not be distinguished, thus 4 stages are actually used. Moreover, the existence and ages of children are, as an exception, measured in 1995, a year after the move<sup>15</sup>, but this is unlikely to affect the results.

Family ties are investigated through the variables describing education of the spouses and participation in the labour force of the wife. The remaining variables are selected on theoretical grounds and/or on the basis of their significance in earlier migration studies.

A number of empirical studies suggest that the determinants of migration differ with respect to the distance moved (see, for example, Holmlund 1984; Molho 1986; Reitsma and Vergoosen 1988; Widerstedt 1998). Expected effects of independent variables in short and long moves are shown in Table 1. As regards personal or family characteristics, higher education is expected to boost the likelihood of long moves. The process of schooling expands an individual's general human capital, which is easily transferable to distant locations. Moreover, those with higher education often have narrower career opportunities in certain locations and moving may be the only way to develop their career. In turn, specific human capital resulting from job experience and training is usually tied to a certain workplace. As this form of human capital tends to accumulate with age, older individuals should be more resistant to longer moves. The shorter time interval to enjoy the benefits together with higher costs of moving also tend to reduce older people's incentives for migration.

**Table 1.** Definitions of the variables and the expected effects of the independent variables

Variable	Expected effect		Definition
<b>Dependent variable</b>			
Migration			1 if the municipality changed during 1994 but the province remained the same, 2 if the province changed during 1994, 0 otherwise
<b>Independent variables</b>			
	Short dist.	Long dist.	
Age	-/-/-	--/--/--	Dummy variables designating the average age of the spouses in 1994: up to 35 (ref.); 35–44; 45–54; 55 upwards
Children	?/-/-	-/-/-	Dummy variables indicating the existence of children in 1995: no children under 18 (ref.); children under 7 years only; children 0–17 years; children 7–17 years only
Husband's education	+/+	+/++	Dummy variables indicating whether the husband has less than upper level of upper secondary education (ref.); upper level of upper secondary education; higher education
Wife's education	+	++	1 if the wife has higher than upper level of upper secondary education; otherwise 0
Wife's labour force participation	-	--	1 if the wife participates in the labour force; otherwise 0
Migration history 1990–1993	+	+	1 if the family changed municipalities at least once during 1990–1993; otherwise 0
In-migration in 1993	++	+	1 if the family moved into the province in 1993; otherwise 0
Home ownership	-	-	1 if the family owns their own home; otherwise 0
Family income	?	-	Husband's and wife's income subject to state taxation/FIM 1000
Commuting	++	+	1 if the husband and/or the wife were commuters in 1993; otherwise 0
Unemployment experience	+	++	1 if the husband and/or the wife were unemployed (over 2 weeks) during 1993; otherwise 0
Area unemployment rate	+	++	Unemployment rate in the travel-to-work area where the family lives
Size of municipality	?/?/+	?/?/-	Dummy variables indicating the number of inhabitants in the municipality: up to 15 000; 15–39 999; 40–69 999 (ref.); 70 000 and above
Share of agriculture	-	+	The share of employed labour force in agriculture and forestry (0–9.99% = 0, ..., 90–100% = 9)
Share of industry	?	+	The share of employed labour force in industry (0–9.99% = 0, ..., 90–100% = 9)

*Notes:* (1) all variables are measured in 1993 if not otherwise stated (2) + = positive effect, ++ = stronger positive effect, - = negative effect, -- = stronger negative effect, ? = positive or negative effect (3) (ref.) indicates the reference group (4) all regional variables refer to the region of origin.

**Table 2.** Means of the independent variables according to migration category

Variables	Stayers (mean)	Short-distance migrants (mean)	Long-distance migrants (mean)
<b>Family characteristics</b>			
Age			
–35 years	0.27	0.56	0.51
35–44	0.46	0.33	0.34
45–54	0.22	0.09	0.11
55–	0.05	0.02	0.04
Children			
no children under 18 years	0.30	0.24	0.24
all under 7 years	0.17	0.40	0.37
0–17 years	0.17	0.19	0.20
all 7–17 years	0.36	0.17	0.19
Husband's education			
lower than upp. lev. of upp. sec.	0.67	0.57	0.49
upper level of upper secondary	0.17	0.22	0.17
higher	0.16	0.21	0.34
Wife has higher education	0.16	0.19	0.22
Wife in the labour force	0.84	0.76	0.67
Migrated 1990–1993	0.07	0.26	0.30
Migrated into province 1993	0.01	0.04	0.08
Home owner	0.84	0.58	0.57
Family income/FIM 1000	217	215	202
Commuting	0.34	0.51	0.41
Unemployment experience	0.35	0.45	0.53
<b>Regional characteristics</b>			
Area unemployment rate	22.5	21.3	22.5
Size of municipality			
–15 000	0.40	0.28	0.35
15 000–39 999	0.26	0.27	0.23
40 000–69 999	0.06	0.04	0.09
70 000–	0.28	0.41	0.33
Share of agriculture	0.58	0.34	0.46
Share of industry	2.18	2.04	2.21
Number of observations	75 593	1 176	571

A negative association is expected between family income and long-distance migration: the lower the family income, the lower the opportunity costs of moving and the larger the number of attractive job offers. In short moves the effect of income is less evident, and could be positive or negative. A number of empirical studies show that personal (or family) unemployment augments migration (see, for example, DaVanzo 1978; Schlottmann and Herzog 1981; Van Dijk et al. 1989; Ritsilä and Tervo 1999). The unemployed, most likely, move for labour market reasons, and therefore the probability of long-distance migration should be higher for them.

Short moves are often related to life-cycle events: by moving, families adjust to their changing needs. Due to larger moving costs, families with children are generally less eager to move, but the need for a larger house or the prospective schooling of children might accelerate short-distance mobility



when the children are at preschool age<sup>16</sup>. When children are at school, locational ties are stronger, and migration is less likely to occur. Ties to the current locality are also stronger in families where both spouses work (see Mincer 1978; Lichter 1980; Holmlund 1984). Thus the wife's labour force participation is expected to deter migration, and this effect should be accentuated in long moves.

The distance to work influences migration decisions (see Clark and Burt 1980), and therefore commuters should be more prone to short moves. Prior mobility is also an important determinant of migration (Krumm and Kelly 1988; Widerstedt 1998; Böheim and Taylor 2000), and several studies have concluded that the longer is the distance of the original move, the higher is the likelihood of a subsequent (adjustment) move (see, for example, Davanzo 1983; Yezer and Thurston 1976). Hence the probability of short-distance mobility might be augmented shortly after the family has moved into the province, since the final municipality of residence is not necessarily chosen at the time of in-migration, but only after the location has become familiar enough.

With regard to regional characteristics, a high area unemployment rate is thought to reflect diminished labour market opportunities. Therefore, the likelihood of moving, especially over longer distances, is expected to increase with the unemployment rate. Inhabitation in larger cities with more varied economic structures and more opportunities for employment should prevent long-distance migration. However, at a certain stage of life families tend to prefer more peaceful neighbourhoods within a reasonable commuting distance (Green 1997). As the largest centres are surrounded by closely situated smaller municipalities with varying characteristics (differences in costs of living, tax rates, public services etc.), families living in the biggest towns are expected to have a higher likelihood of short moves. In the countryside, job opportunities are fewer, distances are longer and commuting between municipalities is relatively limited. Therefore, the higher the share of agriculture, the more likely long-distance migration should be in relation to short moves.

#### 4. Results

The results<sup>17</sup> of the basic model (model 1) are presented in Table 3. Since interpretation of the estimated parameters of the multinomial logit model would be difficult, marginal effects are reported. The parameter estimates and odds-ratios are presented in the Appendix (Table A1).

When using both macro- and micro-level variables in the study of micro-units, the random disturbances within groups may be correlated, and doubt has been cast on the reliability of such results (see Moulton 1990). To avoid this pitfall, the standard errors of the models were adjusted for the general correlation of disturbances<sup>18</sup>. Even though no large changes emerged in relation to the unadjusted models<sup>19</sup>, the results presented here refer to adjusted models.

In general, the results show that almost all the coefficients are statistically significant and have the expected signs, and are thus in accordance with the theory and earlier empirical findings. Looking at the figures one notices that the marginal effects are relatively small, which stems from the small number of migrants. Therefore, it is not so much the magnitude, but rather the signs that we are interested in.

**Table 3.** Determinants of family migration; marginal effects of the multinomial logit model (model 1)

Variables	Staying		Short-distance migration		Long-distance migration	
	Marginal effect	<i>t</i> -ratio	Marginal effect	<i>t</i> -ratio	Marginal effect	<i>t</i> -ratio
<i>Family characteristics</i>						
Age						
35–44	0.00571***	6.38	-0.00432***	-5.96	-0.00140***	-2.76
45–54	0.01286***	9.51	-0.01020***	-8.85	-0.00267***	-3.54
55–	0.01224***	5.41	-0.01053***	-5.39	-0.00171	-1.50
Children						
all under 7 years	-0.00054	-0.50	0.00024	0.28	0.00030	0.48
0–17 years	0.00549***	4.78	-0.00412***	-4.37	-0.00137**	-2.12
all 7–17 years	0.00888***	8.10	-0.00680***	-7.33	-0.00208***	-3.35
Husband's education						
upper lev. of upp. sec.	-0.00287***	-3.10	0.00160**	2.21	0.00127**	2.29
higher	-0.00589***	-5.92	0.00130	1.62	0.00459***	8.86
Wife has higher education						
Wife in the labour force	0.00465***	5.58	-0.00203***	-2.98	-0.00262***	-5.82
Migrated 1990–1993	-0.00975***	-10.04	0.00619***	8.26	0.00356***	6.54
Migrated into province 1993	-0.01178***	-5.80	0.00654***	3.96	0.00525***	5.62
Home owner	0.01290***	16.41	-0.00868***	-13.98	-0.00422***	-9.37
Family income	-6.2E-07	-0.19	3.8E-06**	2.18	-3.2E-06	-1.17
Commuting	-0.00820***	-10.82	0.00630***	10.44	0.00190***	4.31
Unemployment experience	-0.00611***	-8.42	0.00340***	5.89	0.00271***	6.49
<i>Regional characteristics</i>						
Area unemployment rate	0.00023**	2.35	-0.00034***	-4.28	0.00011**	2.02
Size of municipality						
–15 000	0.00108	0.58	0.00208	1.24	-0.00316***	-3.59
15 000–39 999	0.00029	0.17	0.00312**	2.01	-0.00341***	-4.34
70 000–	-0.00303*	-1.74	0.00456***	2.94	-0.00153**	-1.98
Share of agriculture	0.00104	1.58	-0.00131**	-2.41	0.00027	0.72
Share of industry	0.00004	0.09	-0.00067*	-1.72	0.00062**	2.48
Number of observations	77.340		Number of migrants		1 747	
Log likelihood	-8 435.14		Restricted log likelihood		-9 452.76	
Model: $\chi^2$ (44)	2 404.2		Likelihood ratio index		0.11	
Pooling: $\chi^2$ (22)	168.2 <sup>a</sup>		***** significant at the 10, 5, 1% level			
IIA: $\chi^2$ (23)	23.2 <sup>a</sup>		<sup>a</sup> test values refer to unadjusted model			

#### 4.1. *Determinants of family migration*

The family life-cycle influences migration. Children, in general, have an inhibiting effect (result not shown here), but families with only under 7-year-old children are as migration prone as those without children. The presence of school-aged children significantly reduces migration propensities (cf., Long 1974; Sandell 1977; Mincer 1978). On the other hand, there are differences in migration propensities between families with school-aged children, too: the older the children, the less likely the family to move.

As expected, the younger the spouses, the more prone they are to move. The difference between the youngest and oldest age group is insignificant in longer moves, though. In addition, the age variables become stronger when the children variables are removed from the analysis (result not shown here), which implies that the ages of parents also partly reflect the stages of the family life-cycle.

The probability of long-distance migration increases with the husband's education (cf., Sandell 1977; Mincer 1978), and short-distance migration is most likely to occur when the husband has completed the upper level of upper secondary education. Surprisingly, the wife's education appears to be an insignificant, although positive, determinant of family migration. This corroborates Lichter (1982) and Axelsson and Westerlund (1998), but differs from the findings of Holmlund (1984) and Shields and Shields (1993), who found the wife's education to significantly increase migration propensities.

Contradictory results in separate studies concerning the effect of the wife's education might reflect problems with collinearity, i.e., a correlation between spouses' education due to assortative mating. In our sample the correlation between the educational level of the spouses is about 0.4 (significant at the 0.01 level). In a sample this large, significance is not surprising. A closer inspection reveals that among long-distance migrants both spouses have a high educational level in 15% of the cases. In turn, the husband alone is highly educated in as many as 18% of long-distance migrant families, while the respective figure for the wives is only 7%. This compares with 10/11/9 for short-distance migrants and to 8/9/8 for non-migrants. Thus, while long-distance migrants are more often highly educated, the difference between spouses' education also tends to be much larger. In this sense, selective mating does not appear to be a major problem.

Hence, the result suggests that family migration is more often associated with the development of the husband's career. Even if this implication is consistent with many previous studies (see, for example, Long 1974; Shiha-deh 1991), it is a little surprising in Finland, where men and women are more equal and women even tend to be more highly educated<sup>20</sup> than men. On the other hand, a rationale underlying men's domination might be the gender wage gap: despite theoretical gender equality, Finnish men still earn more than women, and might have more weight in migration decisions due to their higher earnings capacity<sup>21</sup>.

To further examine the husband-wife relations in migration decisions, a measure of intra-family income dispersion was formed<sup>22</sup>. Model 1 was then re-run with this variable (and excluding the wife's characteristics). The income dispersion is positive in all moves, but significant only in long ones (see Appendix, Table A2). As the husband's income is higher in 75% of the

sample families, in practice this means that families with a larger husband/wife income ratio tend to be more inclined towards long-distance migration.

Participation of the wife in the labour force reduces the likelihood of moving. Hence two-earner families are less eager to move (cf., Long 1974; Sandell 1977; Mincer 1978; Lichter 1980). In addition, the deterrent effect of the wife's work increases with distance, with the odds for short and long moves (vs. staying) of 0.80 and 0.56, respectively. The negative association between the wife's participation in the labour force and family migration suggests that the husbands of working wives tend to be tied to certain locations.

As hypothesized, the experience of unemployment boosts long-distance migration (on Finland, see Ritsilä and Tervo 1999; see also DaVanzo 1978; Herzog and Schlottmann 1984; Hughes and McCormick 1989). On the other hand, the positive effect of personal unemployment on shorter moves differs somewhat from findings in other countries (cf., DaVanzo 1978; Westerlund 1993), and is most probably explained by the large size of Finnish provinces.

In line with earlier studies (Tervo 1997; Ritsilä and Tervo 1999; Widerstedt 1998), the variable indicating migration history is positive, and suggests that previous migration experience facilitates migration and encourages families to move again. Recent in-migration also increases migration probabilities, thus lending support to the existence of imperfect information and unpleasant surprises. Disappointment at the outcome of one move may become the cause of the next.

On the other hand, the effect of migration history may also reflect unobserved heterogeneity, which means that certain individuals are migrants because of their (unobserved) personal characteristics, and therefore move more often than others. This being the case, previous migration per se does not have any effect on subsequent migration propensities, but appears to be a significant determinant of migration simply because it serves as a proxy for the unmeasured variables. The literature often refers to "true state dependence" and to "spurious state dependence" (for further discussion see Heckman 1981; Hsiao 1986; Baltagi 1995).

Homeowners are less likely to move (cf., Haapanen 1998; Ritsilä 2001). They may have stronger locational ties, but the finding may also reflect higher transaction costs for owner-occupants; even though in 1994 Finland started to recover from the recession, considerable difficulties in selling properties at reasonable prices continued to exist. As expected, commuters are migration-prone. Family income seems to play no part in long-distance migration, but it is positively related to short moves. At a certain stage of life, families often want to move to more congenial neighbourhoods away from city centres.

Families living in middle-sized towns are the most eager to undertake long moves, and the likelihood of short moves is greatest in the biggest towns. The probability of long-distance migration increases with the share of labour force working in industry, which is in line with a recently observed development; one-sided industrial regions are losing population in Finland (see Vartiainen 1997; Laakso 1998). The effect on short moves is the opposite. As distinct from earlier Finnish findings (Tervo 1997; Ritsilä and Tervo 1999), the share of agriculture has no importance in long moves, but is negatively related to short-distance migration.

Higher area unemployment augments long-distance migration. This supports earlier Finnish findings (Tervo 1997; Ritsilä and Tervo 1999), but at the same time differs from results obtained in several other countries

(for example, Van Dijk et al. 1989; Hughes and McCormick 1989). Somewhat surprisingly, there is a negative association between unemployment rates and short moves. A family that migrates out of a municipality because of the bad unemployment situation is unlikely to move a short distance, as the circumstances will be the same in all the surrounding areas. Hence high unemployment rates reduce mobility inside a province, and increase migration between provinces.

#### *4.2. Short moves vs. long moves*

The basic model indicated that differences might exist between different moves. For example, the signs for family income and the characteristics of areas changed in short and long moves. To examine the differences more carefully, a multinomial logit model was run with short-distance migration as a basic category (model 2). The parameter estimates and odds-ratios are presented in the Appendix (Tables A1 and A2).

The estimates verify the differences suggested by the basic model. Long-distance migrants do indeed have lower incomes than short-distance migrants. Furthermore, the poorer the economic situation in the travel-to-work area, i.e., the higher the unemployment rate, the more probable the long-distance move (odds-ratio 1.51). There is also a clear relation between a region's economic structure and long-distance migration. That is, families who migrate out of municipalities dominated by agriculture or industry are likely to move across provincial borders (odds-ratios 1.22 and 1.23, respectively).

Against expectations, the older the spouses are, the more likely they are to move over longer distances. The odds on a long vs. short move are twice as high for those over 55 as for those under 35 years of age. This phenomenon may relate to return migration, but can also be caused by older people's relatively weak employment opportunities<sup>23</sup>. Those with experience of unemployment are inclined to move between provinces. Recent in-migrants also tend to move farther away. As hypothesized, the probability of long moves increases with the husband's education: those with higher qualifications are more than twice as likely to change province as those with the lowest ones (odds-ratio 2.41). In addition, larger intra-family income dispersion augments migration across provincial borders (odds-ratio 1.48).

As expected, migration to another province becomes less likely if there is a working wife or a commuter in the family (odds-ratios 0.69 and 0.78, respectively). Finally, the wife's education, ages of children and home ownership are non-significant factors in determining the migratory distance.

### **5. Summary and conclusions**

The aim of the present study was to investigate the factors affecting Finnish family migration, especially the effects of the family life-cycle and family ties. Furthermore, to explore the differences between different types of moves, a distinction was drawn between short- and long-distance migration. Unique family data were used, and empirical analysis was carried out using multinomial logit models.

In general, the findings are in line with those reported earlier; family migration seems to behave quite similarly around the world. The results show a strong negative association between the family life-cycle and migration. Childless couples and those with only pre-school-aged children are the most eager to move. When their children are at school, mothers are likely to work, which, in addition to children's ties to their schools and friends, creates stronger ties to current locations.

Rather surprisingly, the findings lend support to the existence of the traditional pattern of migration – the husband leads and the wife follows – in Finland as well. That is, families more likely migrate due to the demands of the husband's career, and their wives move along with them because of family ties<sup>24</sup>. As a result, wives may become unemployed, underemployed or exit the labour force at the destination. On the other hand, two-earner families are less migration-prone, and the deterrent effect of the wife's work status increases with distance. This implies that the tied stayer in the family is more often the husband. The restriction of the husband's mobility to short distances may reduce his opportunities for career advancement and increase the probability of job mismatch or even unemployment.

There are differences between short and long moves. Stronger ties to the current location counteract, and general human capital (of the husband) boosts inter-provincial migration. Larger income dispersion between the spouses increases the likelihood of long-distance migration. The unemployed also more likely move between provinces. In addition, the size and the economic structure of the existing region influence the distance of the move. Local economic conditions are also important: a high area unemployment rate augments long-distance migration, and has an inhibiting effect on short moves.

The findings lend support to Ritsilä and Tervo (1999), who suggested that in Finland both personal and area unemployment operate towards reducing regional unemployment differentials. However, at the same time, it is not only families with experience of unemployment who are moving out of high unemployment regions, but also other families. As young couples are the most eager to move, the demographic structure of depressed regions skews towards the older age groups. In addition to having a direct negative effect on population structure, migration also decreases population size through reduced birth rates. Provinces with high unemployment may lose their valuable human capital in the form of whole families. This in turn brings about even more unfavourable effects, eventually leading to a widening gap between successful and poor areas. Therefore, the effect of migration on the composition of regional population structure in the longer run is a topic deserving more attention in future research.

I also feel that our knowledge of family migration is far from complete. The use of estimation methods that utilize the panel nature of the data would allow family migration to be analyzed more closely. Despite the fact that the educational level, participation in the labour force and earning power of women have increased, and men and women have become more equal, the effect of family ties seems to have remained unchanged for decades; it continues to be the human capital of the husband that rules. Hence, the interaction between the wife's locational ties, her general human capital and family migration decisions is clearly an issue that merits further investigation. Moreover, both short- and long-term consequences of family migration deserve examination. Shedding light on these issues is the major challenge facing future research.

## Endnotes

- <sup>1</sup> In 1994, there were 19 provinces (“maakunta”) in Finland.
- <sup>2</sup> These include the actual moving costs, as well as a potential increase in living costs, transportation etc., necessitated by migration.
- <sup>3</sup> All persons belonging to the same family have identical household-dwelling unit codes and family numbers.
- <sup>4</sup> The basic sample is a 1% sample drawn from the longitudinal data, complemented with individuals belonging to same household dwelling unit as the sample individuals.
- <sup>5</sup> Families can be identified every fifth year (family number is given in 1990 and 1995). For the purposes of this study the most convenient year was 1990.
- <sup>6</sup> In families where both spouses move simultaneously, and also stay together after the move, the complexity of migration decision-making is most probably the greatest, and many compromises have to be made. It is, however, recognized that decision to move can result in family dissolution if the gain from being a couple is less than the cost of family ties (see Mincer 1978). Family dissolution can result in moving, too. These events, however, cannot be investigated with the data set at hand.
- <sup>7</sup> In 1994 there were nearly 1.2 million two-adult families in Finland, constituting 87% of all Finnish families (Statistics Finland 1995b).
- <sup>8</sup> In 1994 about 4.2% of the Finnish population migrated between municipalities (Statistics Finland 1995a). The corresponding figure in the sample was 2.3%.
- <sup>9</sup> The data set does not contain information on intra-municipality moves, and therefore those moving inside a municipality are not classified as migrants.
- <sup>10</sup> A minor shortcoming of the classification is that those moving between neighbouring provinces are categorised as long-distance migrants. However, the number of these moves is minimal, and the results are unlikely to be affected by this.
- <sup>11</sup> For example, Korkiasaari (1991), in the Finnish case, found that about 50% of all longer distance moves took place for job reasons. Similar evidence has also been obtained in other countries (see Harkman 1989).
- <sup>12</sup> For discussion of the multinomial logit model see Greene 1997.
- <sup>13</sup> The omitted category was short-distance migration. The test requires estimation of both the unrestricted and restricted (smaller choice set) model. For further details, see Hausman and McFadden 1984.
- <sup>14</sup> Pooling vs. non-pooling can be tested by the likelihood ratio test. To carry out the test, both the pooled and non-pooled model have to be estimated. For further details, see Cramer and Ridder 1991.
- <sup>15</sup> Information about children was available only from the years 1990 and 1995. Since the year of interest is 1994, the situation in 1995 gives the best available approximation of the ages of children.
- <sup>16</sup> Among children aged 0–17 years, those aged 0–6 years have the highest propensity to migrate from one municipality to another. In over 50% of children’s moves the moving distance is under 50 kilometres. (Kaartovaara and Sauli 2000)
- <sup>17</sup> All results referred to but not shown here are available from the author on request.
- <sup>18</sup> See STATA 7 manual for additional information.
- <sup>19</sup> The basic model was also estimated without the regional variables. The effects of family characteristics remained almost unchanged (no significant variable changed its sign or became insignificant), thus no major problems seem to exist.
- <sup>20</sup> Finnish women under 50 have a higher level of education than Finnish men, if the proportion of the population with at least an upper secondary education is used as a criterion (European Commission 1996).
- <sup>21</sup> Average earnings of Finnish women are about 80% of the average earnings of men.
- <sup>22</sup> Intra-family income dispersion is measured by the difference (in absolute value) between the husband’s and the wife’s income, divided by the sum of their income.
- <sup>23</sup> In 1994, 25.6% of those aged 55 or more and in the labour force were unemployed, while the average unemployment rate for all age groups was 18.4% (European Commission 1996).
- <sup>24</sup> Due to the sampling method, this result may be a feature of our data and not of the population as a whole, and the finding will be tested in subsequent studies.

## Appendix

**Table A1.** Determinants of family migration; coefficients of the two multinomial logit models (model 1 and 2) and the respective odds-ratios

Variables	Short-dist. migration vs. staying (model 1)		Long-distance migration vs. staying (model 1)		Long- vs. short-dist. migration (model 2)	
	Coefficient	Odds-ratio	Coefficient	Odds-ratio	Coefficient	Odds-ratio
Constant	-2.665***		-4.451***		-1.786***	
Family characteristics						
Age						
35–44	-0.469***	0.63	-0.316***	0.72	0.153	1.17
45–54	-1.107***	0.33	-0.604***	0.54	0.503**	1.65
55–	-1.142***	0.32	-0.392	0.66	0.750**	2.11
Children						
all under 7 years	0.026	1.03	0.067	1.06	0.041	1.04
0–17 years	-0.448***	0.64	-0.309**	0.73	0.139	1.15
all 7–17 years	-0.739***	0.48	-0.471***	0.62	0.268	1.31
Husband's education						
upper lev. of upp. sec.	0.175**	1.19	0.284**	1.33	0.109	1.12
higher	0.146	1.16	1.025***	2.79	0.879***	2.41
Wife has higher education	0.036	1.04	0.142	1.15	0.106	1.11
Wife in the labour force	-0.223***	0.80	-0.585***	0.56	-0.362***	0.69
Migrated 1990–1993	0.674***	1.96	0.801***	2.23	0.127	1.13
Migrated into province 1993	0.713***	2.04	1.176***	3.24	0.463*	1.59
Home owner	-0.944***	0.39	-0.949***	0.39	-0.005	0.99
Commuting	0.684***	1.98	0.432***	1.54	-0.252**	0.78
Unemployment experience	0.371***	1.45	0.607***	1.83	0.236**	1.27
Family income <sup>a</sup>	4.1E-04**	1.04	-7.1E-04	0.93	-1.1E-03*	0.89
Regional characteristics						
Area unemployment rate <sup>a</sup>	-0.036***	0.78	0.025**	1.19	0.062***	1.51
Size of municipality						
–15 000	0.221	1.24	-0.705***	0.49	-0.925***	0.39
15 000–39 999	0.333**	1.39	-0.760***	0.47	-1.093***	0.33
70 000–	0.491***	1.63	-0.337**	0.71	-0.828***	0.43
Share of agriculture <sup>a</sup>	-0.142**	0.87	0.057	1.06	0.199**	1.22
Share of industry <sup>a</sup>	-0.071*	0.93	0.137**	1.15	0.208***	1.23
Number of observations	77 340					

\*, \*\*, \*\*\* Significant at the 10, 5, 1% level.

<sup>a</sup> Odds-ratios for continuous variables are calculated at the values of the 25<sup>th</sup> and 75<sup>th</sup> percentiles.



**Table A2.** The effect of intra-family income dispersion on migration propensities

Variable	Short-dist. migration vs. staying		Long-distance migration vs. staying		Long- vs. short-dist. migration	
	Coefficient	Odds-ratio	Coefficient	Odds-ratio	Coefficient	Odds-ratio
Income dispersion	0.173	1.19	0.563***	1.76	0.390*	1.48

Note: Variables “Wife in the labour force” and “Wife has high education” are not included; other variables as in Table A1.

## References

- Antolin P, Bover O (1997) Regional Migration in Spain: The Effect of Personal Characteristics and of Unemployment, Wage and House Price Differentials Using Pooled Cross-Sections. *Oxford Bulletin of Economics and Statistics* 59(2):215–235
- Axelsson R, Westerlund O (1998) A Panel Study of Migration, Household Real Earnings and Self-Selection. *Journal of Population Economics* 11:113–126
- Baltagi B (1995) *Econometric Analysis of Panel Data*. Wiley, Chisester, UK
- Battu H, Seaman PT, Sloane PJ (1998) *Are Married Women Spatially Constrained? A Test of Gender Differentials in Labour Market Outcomes*. Paper presented at the European Regional Science Association Conference in Vienna in August 1998
- Bielby WT, Bielby DD (1992) I Will Follow Him: Family Ties, Gender-role Beliefs, and Reluctance to Relocate for a Better Job. *American Journal of Sociology* 97:1241–1267
- Böheim R, Taylor M (2000) Residential mobility, housing tenure and labour market in Britain. The Institute for Labour Research Discussion Paper Series 99/35
- Cadwallader M (1992) *Migration and Residential Mobility*. The University of Wisconsin Press, Wisconsin
- Carter H, Glick PC (1970) *Marriage and Divorce: A Social and Economic Study*. Harvard University Press, Cambridge MA
- Clark WAV, Burt JE (1980) The Impact of Workplace on Residential Relocation. *Annals of the Association of American Geographers* 70:59–67
- Cramer JS, Ridder G (1991) Pooling States in the Multinomial Logit Model. *Journal of Econometrics* 47:267–272
- Dahlberg M, Fredriksson P (2001) Migration and Local Public Services. Uppsala University Working Papers 2001:12, Uppsala
- DaVanzo J (1978) Does Unemployment Affect Migration? Evidence from Micro Data. *The Review of Economics and Statistics* 60:504–514
- DaVanzo J (1983) Repeat Migration in the United States: Who Moves Back and Who Moves On? *The Review of Economics and Statistics* 65:552–559
- Duncan RP, Perrucci CC (1976) Dual Occupation Families and Migration. *American Sociological Review* 41:252–261
- European Commission (1996) *Labour Market Studies, Finland*. Luxembourg
- Gardner J, Pierre G, Oswald AJ (2001) *Moving for Job Reasons*. (<http://www.warwick.ac.uk/fac/soc/Economics/oswald/GPOeconomica01.pdf>)
- Green AE (1997) A Question of Compromise? Case Study Evidence on the Location and Mobility Strategies of Dual Career Households. *Regional Studies* 31(7):641–657
- Greene W (1997) *Econometric Analysis*, 3rd ed. Prentice-Hall Inc, New Jersey
- Greenwood MJ (1985) Human Migration: Theory, Models and Empirical Studies. *Journal of Regional Science* 25:521–544
- Grundy E (1992) The Household Dimension in Migration Research. In: Champion T, Fielding T (eds) *Migration Processes & Patterns, Vol 1, Research Progress & Prospects*. Belhaven, London, 165–174
- Haapanen M (1998) *Internal Migration and Labour Market Transitions of Unemployed Workers*. Government Institute for Economic Research, Helsinki

- Haapanen M (2002) Labour Migration and Wages. University of Jyväskylä, Reports from the School of Business and Economics N:o 29/2002 (licentiate thesis). Jyväskylä
- Harkman A (1989) Migration Behaviour Among the Unemployed and the Role of Unemployment Benefits. *Papers of Regional Science Association* 66:143–150
- Hausman J, McFadden D (1984) Specification Tests for the Multinomial Logit Model. *Econometrica* 52:1219–1240
- Heckman J (1981) Heterogeneity and State Dependence. In: Rosen S (ed) *Studies in Labour Markets*. University of Chicago Press, 91–139
- Herzog HW Jr, Schlottmann AM (1984) Labour Force Mobility in the United States: Migration, Unemployment and Remigration. *International Regional Science Review* 9:43–58
- Holmlund B (1984) *Labour Mobility: Studies of Labour Turnover and Migration in the Swedish Labour Market*. The Industrial Institute for Economic and Social Research, Stockholm
- Hsiao C (1986) *Analysis of Panel Data*. Cambridge, UK, Cambridge University Press
- Hughes G, McCormick B (1989) Does Migration Reduce Differentials in Regional Unemployment Rates? In: Van Dijk J, Folmer H, Herzog HW Jr, Schlottmann AM (eds) *Migration and Labour Market Adjustment*. Kluwer Academic, Dordrecht, 85–108
- Kaartovaara L, Sauli H (2000) *Finnish Child*. Statistics Finland, Väestö 2000:1
- Korkiasaari J (1991) *Mobility and Structural Change*. Työministeriö, Työpoliittinen tutkimus 11, Helsinki (in Finnish)
- Krumm RJ, Kelly A (1988) Multiperiod Migration Patterns: The Timing and Frequency of Household Response. *Journal of Regional Science* 28:255–270
- Laakso S (1998) *Inter-regional Migration in Finland*. City of Helsinki Urban Facts, Research Series 4 (in Finnish, Abstract in English)
- Lansing JB, Mueller E (1967) *The Geographic Mobility of Labor*. Michigan Survey Research Center, Ann Arbor
- Lichter D (1980) Household Migration and the Labour Market Position of Married Women. *Social Science Research* 9:83–97
- Lichter D (1982) The Migration of Dual-Worker Families: Does the Wife's Job Matter? *Social Science Quarterly* 63:48–57
- Long LH (1974) Women's Labour Force Participation and the Residential Mobility of Families. *Social Forces* 52:342–348
- Mincer J (1978) Family Migration Decisions. *Journal of Political Economy* 86:749–773
- Molho I (1986) Theories of Migration: a Review. *Scottish Journal of Political Economy* 33:396–419
- Moulton BJ (1990) An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units. *The Review of Economics and Statistics* 72:334–338
- Pekkala S (2002) Migration and Individual Earnings in Finland: A Regional Perspective. *Regional Studies* 36(1):13–24
- Reitsma RF, Vergoosen D (1988) A causal typology of migration: the role of commuting. *Regional Studies* 22:331–340
- Ritsilä J, Tervo H (1999) Regional Differences in the Role of Migration in Labour Market Adjustment: The Case of Finland. In: Crampton G (ed) *Regional Unemployment, Job Matching and Migration, Series on European Research in Regional Science*. Pion, London, 166–182
- Ritsilä J (2001) *Studies on the Spatial Concentration of Human Capital*. Jyväskylä Studies in Business and Economics, Doctoral Dissertation, University of Jyväskylä
- Rossi PH (1955) *Why Families Move*. Glencoe, Illinois
- Sandefur GD, Scott WJ (1981) A Dynamic Analysis of Migration: An Assessment of the Effects of Age, Family and Career Variables. *Demography* 18:355–368
- Sandell SH (1977) Women and the Economics of Family Migration. *The Review of Economics and Statistics* 59:406–414
- Schlottmann AM, Herzog HW Jr (1981) Employment Status and the Decision to Migrate. *Review of Economics and Statistics* 63:590–598
- Shields MP, Shields GM (1993) A Theoretical and Empirical Analysis of Family Migration and Household Production: U.S. 1980–1985. *Southern Economic Journal* 59:768–782
- Shihadeh ES (1991) The Prevalence of Husband-Centered Migration: Employment Consequences for Married Mothers. *Journal of Marriage and the Family* 53:432–444

- Sjaastad LA (1962) The Costs and Returns of Human Migration. *Journal of Political Economy* 70:80–93
- Snaith J (1990) Migration and Dual Career Households. In: Johnson J, Salt J (eds) *Labour Migration*. David Fulton, London, 155–171
- Stata Reference Manual Release 7 (2001) College Station, Texas, Stata Corporation
- Statistics Finland (1995a) *Vital Statistics by Municipality 1994*. Väestö 1995:10
- Statistics Finland (1995b) *Families 1994*. Väestö 1995:14
- Tervo H (1997) *Long-Distance Migration and Labour Market Adjustment: Empirical Evidence from Finland 1970–1990*. University of Jyväskylä, Working Paper 168, Jyväskylä
- Van Dijk J, Folmer H, Herzog HW Jr, Schlottmann AM (1989) Labour Market Institutions and the Efficiency of Interregional Migration: a Cross-nation Comparison. In: Van Dijk J, Folmer H, Herzog HW Jr, Schlottmann AM (eds) *Migration and Labour Market Adjustment*. Kluwer Academic, Dordrecht, 61–83
- Vartiainen P (1997) *Muuttoliikkeen uusi kuva*. Sisäasiainministeriö, Aluekehitys-osaston julkaisu 4 (in Finnish)
- Westerlund O (1993) *Internal Migration in Sweden – The Role of Fiscal Variables and Labour Market Conditions*. Umeå Economic Studies No. 293, University of Umeå
- Westerlund O, Wyzan ML (1995) Household Migration and the Local Public Sector: Evidence from Sweden, 1981–1984. *Regional Studies* 29(2):145–157
- Widerstedt B (1998) *Moving or Staying? Job Mobility as a Sorting Process*. Umeå Economic Studies No. 464, University of Umeå
- Yezer AM, Thurston L (1976) Migration Patterns and Income Change: Implications for the Human Capital Approach to Migration. *Southern Economic Journal* 42:693–702