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# Interregional labour mobility through regional vacancy chains: a comparative international approach

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# **INTERREGIONAL LABOUR MARKET MOBILITY THROUGH REGIONAL VACANCY CHAINS: A COMPARATIVE INTERNATIONAL APPROACH**

by

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**ABSTRACT.** *Most interregional migration in the Nordic countries stagnated during the 1970s and 1980s. The expansion of the public service sector, decentralisation of higher education and relatively high labour market participation in all regions some of the common explanations. The first half of the 1990s has changed the national scenes in different directions. In Sweden, the national budget crisis has forced the government to cutbacks in the welfare system. Structural change has introduced lasting high levels of unemployment in most regions. In Finland the radical change in the export market has led to a still more severe situation at the regional labour markets. In Norway, the oil industry has created a unique basis for both the public and the private economy and the current unemployment rates are among the lowest in Europe.*

*In light of unequal economical development, higher mobility, flexibility and specialisation with subsequently increasing segmentation in and between the regional labour markets, this paper discusses and compares regional migration processes in Finland, Norway and Sweden with special emphasis on the relationship between regional migration and changes in regional labour markets. To this end the project group has introduced a regional labour market indicator, a so-called "vacancy-account", analysing the relationship between the level of geographical mobility and regional labour market mobility through regional vacancy chains. The use of turnover rates in regional labour markets, expressed as formations and filling in of vacancies, are expected to rise new information how the regional migration processes function generally, and how different regional matching possibilities give rise to different geographical mobility patterns especially.*

*The current stage analyses regional migration by using gross-stream-data, analysing the migration patterns decomposed by the persons' labour market statuses. Considering the economic development each country has chosen two periods of investigation to cover the migration processes under rising and downward tendencies in the national business cycles respectively.*

*The international comparative approach on "vacancy-account" basis opens up for a deeper understanding of the institutional contexts for differing mobility patterns. Hence, the paper also contains a preliminary evaluation of vacancy accounting as a tool in integrated spatial planning and policy reformulation.*

## **1. Introduction\***

The initial stage of this Nordic research project included descriptive analyses of employed and unemployed migrants and their employment adjustments (supply-side adjustments) in the regional labour markets. The current stage involves gross-stream analyses of geographical mobility and labour market mobility especially connected to the demand side in the regional labour markets, defined as employment changes, leaving of previous employment and employment recruitment in different sectors and segments (see Stambøl et al. 1999).

The purpose of this paper is to explore the structure of gross labour mobility, i.e. its composition in terms of local labour market mobility and interregional migration, its functioning in different phases of the business cycle, its relation to the structure of the regional economies and its variation between segments of the labour force. The purpose of the international comparison is to set the stage for a forthcoming analysis of how institutional differences - in labour market, education and regional industrial policy - influence labour market mobility and performance in the three countries.

One main target in the current stage of this project has thus been to establish new mechanisms for measuring regional labour market change. The project goes beyond traditional means of measuring

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\* This paper presents excerpts from a research project involving Finland, Norway and Sweden. The Research Department of Statistics Norway has served as secretariat for the project, which is directed by Lasse Sigbjørn Stambøl. Sweden is represented by the Nordic Centre for Spatial Development (Nordregio) in Stockholm and the Swedish Institute for Regional Research (SIR) in Östersund, represented by Lars Olof Persson and Mats Johansson respectively. In Finland work has been carried out by Elli Heikkilä at the Institute of Migration in Turku - formerly at the University of Oulu/Research and Development Centre of Kajaani. (See e.g. Stambøl et al. 1996, Johansson et al. 1997, Stambøl et al. 1997, Stambøl, 1999)

the employment and unemployment change by using gross-stream analyses both of the supply side and for uncovering different possibilities on the demand side. Putting these measures together should give some new information as to how the supply-and-demand mechanisms are functioning in the regional labour markets generally, and how the matching possibilities give rise to different geographical mobility patterns specifically.

This analysis continues the use of gross-stream data, following the individuals included through different periods. This has enabled the investigation of gross streams in and out of different sectors and segments, and to what extent and in which way vacancies are opened up and filled in the regional labour markets, i.e. a so-called "vacancy-account". Another important aspect was analysing the transition from education to employment. Individuals who are already employed, unemployed or individuals not presently included in the labour force fill vacancies in the regional labour markets. In the latter group, the major contribution is expected to derive from individuals completing their education and then applying for a job. The leaving processes of the regional labour markets, i.e. the vacancy chain, must also be taken into consideration. In part this is a consequence of geographical mobility, i.e. resulting when employed move and leave behind vacancies in the labour markets, but the regional employment leaving also differs and is connected to unequal employment changes in different sectors and segments as well as different leaving through the demographic processes.

Emphasis is placed on comparative approaches discussing the results generated by the investigations in each country. Finland, Norway and Sweden have experienced different economic development during the recent decade. National budget crises forced the Finnish and Swedish governments to cut back in their welfare systems during the 1990s. Structural changes introduced high levels of unemployment in most regions, which have proved to be persistent. In Norway, a boom in the economy in the middle of 1980s was replaced by downward tendencies in the national economy lasting until the first years of the 1990s. Later, slow wage increases, low inflation and an expanding oil industry have formed the basis for a new growth in the economy. Currently, unemployment rates in Norway are among the lowest in Europe. On the basis of these different developments, the project group has made their empirical investigations of the geographical mobility and regional labour market mobility within each country.

In section two these analyses are set into a broader theoretical, hypothetical and historical framework. In section three we present the variable definitions and the use of data and methods in this investigation, and discuss their international comparability. In the fourth section the results are in part presented and compared at a general regional level, with most regional figures aggregated to represent national averages. Each country's analysis also covers the process at a more detailed regional level. Two periods of investigation were chosen in each country to cover the migration process under upswings and downturns in the national economic cycle. The final section outlines the main findings and some approaches relevant for an enlarged international research project on this topic.

## **2. Theoretical and hypothetical perspectives**

### **2.1. Labour market imbalances, higher education and long distance migration**

In general, long distance migration of labour has been considered as a 'necessary evil' in all the Nordic countries. Labour market policies have gently advocated the importance of intersectoral

mobility, hence indirectly encouraging geographical mobility. Regional policies, however, have given incentives to private firms locating in regions with shortage of jobs. The concepts of 'regional balance' (often used in Sweden) and 'consolidation of the settlement pattern' (in Norway) have been widely accepted political statements, usually meaning that there should be a net balance of labour mobility between all regions.

This balance has, however, never been fully reached. In Finland, Norway and Sweden the general trend of population growth in a few metropolitan regions and a number of regional centres and a corresponding decline in peripheral regions has dominated for a long time. Only for short periods there has been a turnaround of this mobility pattern.

In theory, most long distance migration is considered to be associated with regional differences in supply and demand of labour. Through rational decisions, labour is supposed to move from regions with a limited number of well paid jobs, high unemployment and an overrepresentation of decreasing industrial branches, to expansive regions with a surplus of modern jobs. The rate of migration is moderated by demographic factors: migration is dominated by younger persons and especially with higher education. These are considered to benefit more from migrating, since their investments in education have to be paid off as soon as possible. Furthermore, their investments in housing and real estate as well as in social networks in a given locality are generally less than for older persons. Individuals, which have not yet formed a family of their own, have less personal restrictions to move to another region (for a discussion and an overview of these processes, see e.g. Stark, 1991, Champion and Fielding, 1992).

There is no doubt that, in a historical perspective, the mobility patterns in the Nordic countries have largely reflected the course of structural change of the regional labour markets. The industrialisation process led to a rapid urbanisation, which is still active especially in Finland and in the northern parts of Sweden and Norway. However, it now seems that the rational adjustment through mobility to different growth rates between regional labour markets is getting distorted by specific institutional features in the Nordic countries. For instance, unlike many other countries, the expansion of the service sector since the 1960s did not primarily add to the increase of the rate of migration to larger cities. The main reason was the relatively strong influence of the public sector in service production, such as health care and social services (Bengtsson and Johansson, 1995). The political programs stipulated that most public services should be provided at reasonably similar standards in all regions and municipalities. Finally, in some regions this led to a strong presence of the public sector, providing up to 45 per cent of the jobs in some labour markets.

There are also some other features of the Nordic countries, which have led to a less obvious response to structural change on the mobility pattern. The mechanism for equalisation of living conditions through the taxation system and the welfare state has led to a comparatively strong equalisation also between regions in terms of disposable income. The Nordic countries are among the European countries, which show the largest cohesion (Vogel, 1997). In addition, there has also been a tradition by strong labour unions to demand the same wage for the same job in each region. This has resulted in a situation where the wage differences have been downgraded as a motive for mobility and then especially mobility in connection with long-distance migration (Johansson and Persson, 1999).

Interrelated to the expansion of the public services, labour market participation among female labour has increased to among the highest in Europe. Hence, for most families migration leads to a necessary search for two jobs in the region of destination.

Even if there are some obvious differences and lags between each of the Nordic countries in these respects, it is likely that such institutional and other features have led to a reduction of the importance of geographical job distribution on migration in all Nordic countries. The same factors have contributed to a relatively low and in some countries decreasing migration rate in the Nordic countries.

There were some observations a few years ago indicating that other factors play an increasingly important role in migration decisions in the Nordic countries. Individual housing preferences especially among affluent middle class households are among such factors. Increasing individual mobility, due to improved road infrastructure, widespread car ownership and improved public transportation, has led to the substantial geographical enlargement of most local labour markets/commuting areas. The same phenomenon seems to be valid with regard to the development of the housing market. Some studies indicate that a shortage in the housing market hampers in-migration and stimulates commuting (Greenwood, 1985). In Sweden, these things hampered the in-migration to the metro areas during the economic upswing during the 1980s. One of the consequences was an accentuated labour shortage in these areas – especially the Stockholm region - with rising wages and inflation as a result. It is also estimated that in Sweden the numbers of functional labour market areas have been reduced by more than 30 per cent since 1970. For labour with higher education, which generally accept longer commuting distances, the number of functional labour market areas there are still some 30 per cent lower (Kullenberg and Persson, 1997). What is important here, is that expansion of the travel-to-work-areas has reduced the incentives to interregional migration (with regard to labour mobility and/or commuting in Sweden, see Eliasson, Lindgren and Westerlund, 1998).

Another factor contributing to the limitation of long distance migration is the development of the systems for higher education. In Finland, Norway and Sweden, there have been similar policies in order to locate universities and university colleges in several regional centres. The primary aim is to improve accessibility to higher education in all regions, but the consequence has in most cases also been a growth of the demand for higher educated labour in these regional centres. Hence, it seems that there is a tendency for a new mobility of qualified jobs to locations with a continuous supply of labour with modern education.

The present situation on the labour markets in Sweden and Finland, with several consequent years of extraordinarily high unemployment in most regions, is likely to have significant impact on the outlined, relatively stable mobility pattern. Furthermore the state budget restrictions and cutbacks in the public sector in especially Sweden and Finland, but also in Norway, will lead to changing roles of this sector both as an employer and as a welfare provider in all regions. The rationality of migration to another region in order to increase the search area for a job will probably change. It is likely that reduction of the public intervention in many sectors will lead, among other things, to increasing regional differences in wages as well as disposable income. We hypothesise that several of these recent changes will also change the impact of geographical imbalances in the labour market on long distance mobility.

## **2.2. Labour force migration and business cycles**

It is generally accepted that economic upswings stimulate long-distance migration, while downswings have the opposite effect. The causes for this can primarily be found in the increased mobility of the labour force during good times, when “pull“ factors are especially pronounced. In worse times people are likely to place more interest in those jobs which exist and are less likely to move without fixed plans. In these times it is primarily “push“ factors which dominate the migration decisions, or at least those decisions which can be seen as economic in nature. These cyclical factors seem, however, to be more relevant in explaining patterns existing in the industrial society than in the post-industrial one. It can be mentioned, by the way, that the migration increased in Sweden concurrently with the deep labour market crisis during the 1990s. During the crisis years of the 1990s – at least in Sweden – the possibilities to find a job by moving to other areas has been reduced. It seems better to stay at home both for people with jobs and unemployed people – at least in the short run - if the motive behind the migration is to find a job or a better job (Johansson and Persson, 1999). These observations say, however, nothing about future incomes or career possibilities.

## **2.3. Segmented labour markets, mobility and regional polarisation**

Matching problems have always existed in the labour market. In earlier times, these problems were primarily a result of structural change in the economy at the branch or sector level. Some branches declined while others expanded, and this was seen as no great problem as it was a natural result of structural change. This process is usually associated with transfers of resources between different companies, branches, and sectors. Where a transfer of resources has occurred from low productivity sectors to high productivity sectors, transfer gains have been experienced. Until the early 1970s the type of labour which moved away from the rural areas generally had no problem finding work once having arrived at the destination. Manufacturing required labour of low educational level with "standardised competence", that is, labour which could be directly placed in simple, repetitive tasks. The problem was merely to channel the newly unemployed to those branches and sectors, which needed workers. This process was - and still is - a conspicuous feature of the migration patterns in the industrial society.

Today's matching problem is of a different kind. The problem today is the existence of both shortages and surpluses of labour within the same companies, branches, and commuting regions. The reason for this is that the labour market has become more and more segmented regarding competence levels. A segmented labour market consists of a number of sub-markets, which are more or less separated from one another by various obstacles, resulting in a heterogeneous and unsubstitutable labour force. These sub-markets have their own supply and demand situations, their own wage structures and their own surpluses or shortages of labour. Mobility between segments is low, while it is high within individual segments.

Segmentation of the labour force with regard to the supply side corresponds to its segmentation with regard to the demand side. The maladjustment or the mismatch on the labour market seems also to have been accentuated during the structural transformation during the past decades (for an mismatch overview during the 1970s and 1980s, see Padoa Schioppa, 1990). Different regions have differently composed labour markets. The labour required by urban labour market in the post-industrial society is also different from that of the industrial phase. The division of labour has more and more been a regional division of labour, with an accentuated regional polarisation as one result (Massey, 1995, Johansson, 1996). "Rural push" has declined as an activating force, and it seems

that "urban pull" has come to dominate migration from old factory towns or rural areas to metropolitan areas and regional service centres. However, despite some signs of counter-urbanisation (see e.g. Cross, 1990, Westlund and Eriksson, 1998), the switch in demand signifies that a gap has developed between the type of labour in rural and old industrial areas and the type needed in expansive cities and regional service hubs.

There is thus interdependence between the labour force and the structural transformation of the economy with the labour force being complementary to the new technology. This interdependence seems also to have been accentuated during the transfer from the industrial to the post-industrial society. This implies that the decreasing substitutability between different kinds of labour and that the structure of the economy regulates the types of labour demanded in a given branch or region. This phenomenon is also valid with regard to the relations between different regions (Massey, 1995, Johansson, 1996). The result of these processes has thus been a further regional segmentation and polarisation of the labour force, a development, which has hampered migration from rural and old industrial areas to more expansive and dynamic ones.

#### **2.4. Exits and entries**

Mobility is not only associated with migratory movements. Instead most of the mobility in the labour market is a consequence of the fact that people change jobs without any geographical mobility. Here, we usually differ between labour-force mobility – that is the same as moving in or out with regard to the labour force and differing types of job mobility. All kinds of mobility are, however, dependent of the labour market situation and the transformation of this. The same is valid to the unemployment situation.

The UV- or the Beveridge-curve can illustrate 'mismatch' on the labour market, where the relation between vacancies and unemployment is illustrated. There is some sort of equilibrium where the numbers of vacancies are equal with the numbers of unemployed. Changes in the economic situation can be illustrated as movements along the curves and shifts in these. When the UV-curve has changed out from origo there will be an increased 'mismatch' on the labour market. If, on the other hand, the relation between U and V returns to its original level this gives an indication that the increased unemployment was a result of ordinary variations in the business cycle (for a discussion of the structural and the deficient-demand unemployment, see e.g. Lipsey, 1965).

### **3. Data and definitions**

One important aim of this project is to establish more homogeneous criteria concerning approaches, data, regional classifications, socio-economic divisions and the periods of the different empirical investigations.

In this analysis the regional classification follows the county level, which divides Finland and Norway into 19 regions and Sweden into 24 regions. Earlier investigations of geographical mobility have shown that the labour markets and education have a tendency to become increasingly important factors in explaining migration at a higher geographical level (see e.g. Stambøl, 1991,1994, Stambøl et al. 1998). A particular aspect of the migration analyses is the classification of individuals according to their labour market status; e.g. employed, unemployed, under education and outside the labour force. In earlier migration analyses this division was used on cross-sectional data (see Stambøl, 1995a,b), and on gross-flow data analysing supply-side adjustments (Johansson et al. 1997,



Stambøl et al. 1997). The aim is now primarily to analyse the change of labour market status, sector and segment connected to the migrants and the migration processes. An important aspect of the investigation is to compare the changes of labour market status and sector among migrants with corresponding changes among the non-migrants. Necessary data for all individuals of working age are therefore established. The data, which cover the whole population, are collected from register-based data sources in Statistics Finland, Statistics Norway and Statistics Sweden.

Migrants are defined as individuals living in different regions in the first and second year of each period. Definitions of changes of labour market statuses and sectors follow similar patterns, where the data show the labour market status and the sector of each individual in the first and second year of each period. A definition of socio-economic and socio-demographic groups includes the variables gender, age and education. Individuals of working age are in Finland defined as persons 15-74 years, in Norway 16-74 years and in Sweden 16-64 years. Education is divided into three categories; low (primary school), intermediate (secondary school) and higher education (post secondary).

Owing to different economic development, the periods used in the analyses for each country vary. While the years 1988-89 represent a rising business cycle in Finland, this period represent a clear cyclical downturn in the Norwegian economy. On the other hand the period 1991-92 represents an economic downturn in Finland and the years 1994-95 a period of economic upturn in Norway. In Sweden the period 1992-93 represents an economic recession, while 1994-95 was a time of initial economic growth. Essential for the comparison of the migration analyses, the results are based on changes during two two-year periods in each country.

The labour market status groups are basically divided into employed, unemployed, under education and other persons not in the labour force. The Norwegian data cover basically, in addition to the four categories mentioned above, a fifth status group comprising both employed and unemployed. This is due to the definition of employment and unemployment, where the data cover employed and unemployed during the whole year, thus including individuals who were partly unemployed and partly employed during the same year. The Finnish and Swedish data measure these statuses as the stock at one certain point of time. Making the status groups most internationally comparable, the group employed/unemployed in Norway is distributed on employed and unemployed according to the length of their unemployment period. However, it is difficult to obtain data covering the exact date of migration.

The marginal status groups immigrants - emigrants/dead persons appear only in the Norwegian and Swedish data. These are individuals only obtainable the first or the second year in each investigation period. The first group consists mainly of employed who have emigrated from the first to the second year of each period, but comprises as well employed who died or left the working age. The majority of the second group consists of individuals who have immigrated and obtained a job in the second year of each period, but comprises as well a minor group of young individuals entering the working age in the second year of each period as employed.

The labour market mobility is defined as changes of status to and from employment, mobility among employed between nine economic sectors and one unspecified sector and/or migration between regions. The Norwegian and Swedish definition comprises in addition international migration, ageing

and death. A definition of only nine economic sectors certainly underestimates the labour market mobility. On the other hand, a more disaggregated division would, however, be more vulnerable of statistical misplacements of employed between sectors. The variables used in the analyses in each country are broadly shown in figure 3.1.

Traditional labour market statistics operates with the number of employed, unemployed and individuals outside the labour force, where the annual differences express the net change of all gross-streams at the labour market. Consequently full knowledge of the gross-streams will also give full knowledge of the net change, while the opposite is obviously not the case (Aaberge, 1988). One basic aspect of this analysis is then to establish a regional labour market indicator illuminating the annually gross-flows between the statuses. Figure 3.2 illustrates how this regional labour market indicator is measured in a so-called "vacancy account".

*Figure 3.1. Variables used in the comparative analyses - a survey.*

|   | Finland       | Norway        | Sweden        |
|---|---------------|---------------|---------------|
| <b>Periods:</b>                                     |               |               |               |
| Rising business cycle                               | 1988-1989     | 1994-1995     | 1994-1995     |
| Downward business cycle                             | 1991-1992     | 1988-1989     | 1992-1993     |
| <b>Labour market statuses:</b>                      |               |               |               |
| Employed  | X             | X             | X             |
| Unemployed  | X             | X             | X             |
| Under education                                     | X             | X             | X             |
| Outside the labour force                            | X             | X             | X             |
| "Immigration - Emigration/death"                    |               | X             | X             |
| Length of unemployment                              |               | X*            |               |
| <b>Socio-economic and socio-demographic groups:</b> |               |               |               |
| Gender  | X             | X             | X             |
| Age   | X             | X             | X             |
| Education   | X             | X             | X             |
| <b>Economic sectors:</b>                            |               |               |               |
| 1. Primary  | X             | X             | X             |
| 2. Manufacturing                                    | X             | X             | X             |
| 3. Energy   | X             | X             | X             |
| 4. Construction                                     | X             | X             | X             |
| 5. Commerce   | X             | X             | X             |
| 6. Transport  | X             | X             | X             |
| 7. Finance  | X             | X             | X             |
| 8. Public services                                  | X             | X             | X             |
| 9. Other services                                   | X             | X             | X             |
| (10. Unspecified sector)                            | X             | X             | X             |
| <b>Regions</b>                                      | Counties (19) | Counties (19) | Counties (24) |

\* Only used for distributions between the status groups

*Figure 3.2. A "vacancy-account" for gross-stream analyses in regional labour markets*

|  |                                  |
|--|----------------------------------|
| <b>A. Entering stock:</b> The number of employed in sector <i>s</i> in region <i>r</i> in year <i>t</i>    |                                  |
| <b>Employment leave:</b>   |                                  |
| - To other employment  |                                  |
| - To unemployment  | (1) Out-migrated from the region |
| - Out of the labour force  | (2) Not migrated from the region |
| ( <i>Education</i> )   |                                  |
| ( <i>Retirement - Age</i> )  |                                  |
| ( <i>Other insurance</i> )   |                                  |
| ( <i>Emigration</i> )  |                                  |
| ( <i>Dead</i> )  |                                  |
| <hr/>  |                                  |
| = Total employment leave   |                                  |
| <hr/>  |                                  |
| <b>Employment recruitment:</b>   |                                  |
| - From other employment  | (1) In-migrated to the region    |
| - From unemployment  |                                  |
| - From education   | (2) Living in the region         |
| - From outside the labour force  |                                  |
| <hr/>  |                                  |
| = Total employment recruitment (represents the filled in vacancies from year <i>t</i> to year <i>t</i> +1) |                                  |
| <hr/>  |                                  |
| <b>B. Outgoing stock:</b> The number of employed in sector <i>s</i> in region <i>r</i> in year <i>t</i> +1 |                                  |

In the analysis, we deal only with migration which is associated with changes in labour market status. Thus we exclude migration of individuals which are not economically active any of the two years studied, i.e. in education, permanently unemployed or depending on social benefits.

## 4. Labour market mobility results

### 4.1. Total labour market mobility

An introducing target of these analyses was to measure how much the employment transition gives rise to employment possibilities or requirements in the regional labour markets. There were put forward hypotheses expecting that a clear majority of vacancies in the regional labour markets is more frequently appearing as a result of the labour market mobility than from annually net changes in the number of working places. Thus the employment leaving processes are expected to be of crucial importance for the vacancy potentiality (e.g. through vacancy chains). On the other hand the analyses should give a measure of how much the geographical labour market mobility (the migration process) contributes both to the formation and the filling in of vacancies. The overall labour market mobility is expected to increase in times of economic upswings, due to higher job-to-job mobility, higher migration propensities and an increasing contingent of total number of job possibilities. From the same reasons the labour market mobility is expected to decrease in periods of recession, although the transition rate from employment to non-employment is expected to increase.

The results show that there was a significant mobility in the regional labour markets in Finland, Norway and Sweden both during periods of economic downturns and upswings. Taking as point of departure mobility from, between and into nine economic sectors and one unspecified sector, as well as between regions, in Norway and Sweden employment leaving amounted to about 23 per cent during the downturn period, while employment leaving was somewhat lower in Finland (see table 4.1). During the economic upswing, employment leaving was clearly reduced in Norway, and even

more so in Sweden, while Finland somewhat surprisingly had about the same employment leaving during the upswing period as during the downturn. Overall employment recruiting was rather stronger in Finland during the upswing period towards the end of the 1980s than under the corresponding upswing period in Norway and Sweden. An important reason for this can be found in the significant employment leaving which took place in Finland towards the end of the 1980s, which then made room for considerable new recruiting during a period with an increase in employment.

All results reveal the fact that the total labour market mobility was remarkable higher than the total net changes of employment. This was true even under the strong recession periods in Finland and Sweden both considering employment recruiting but mostly then for employment leaving.

There were very visible differences between the countries with respect to how large a portion of the employment leaving and employment entering can be attributed to out-migration from and in-migration to employment and how much can be attributed to labour market mobility in the local labour markets. The geographical labour market mobility was visibly greater in Norway, both with respect to out-migration from employment and in-migration to employment during both investigation periods. Finland clearly had the lowest geographical mobility linked to out-migration from employment during the downturn period, while Sweden had a somewhat lower geographical mobility linked to recruitment to employment. During the upswing period, Sweden had the lowest geographical mobility, both with respect to out-migration from and recruitment to employment. An important factor in explaining the difference between the countries can be found in the varying strength of the economic cycles.

*Table 4.1. Employment leaving and recruitment decomposed by migrants and non-migrants in periods of economic boom and recession in Finland, Norway and Sweden. Per cent. Differences in per cent point*

| Period and country     | Employment in year t     | Employment leaving |               |                              | Employment recruitment |               |                         | Net changes     |               |                         | Employment in year t+1 |
|------------------------|--------------------------|--------------------|---------------|------------------------------|------------------------|---------------|-------------------------|-----------------|---------------|-------------------------|------------------------|
|                        | Total employment leaving | Changes due to:    |               | Total employment recruitment | Changes due to:        |               | Total employment change | Changes due to: |               | Total employment change |                        |
|                        |                          | Out-migration      | Non-migration |                              | In-migration           | Non-migration |                         | Migration       | Non-migration |                         |                        |
| <b>Boom:</b>           |                          |                    |               |                              |                        |               |                         |                 |               |                         |                        |
| Finland                | 100                      | 21.0               | 2.1           | 18.9                         | 21.6                   | 2.1           | 19.5                    | 0,6             | 0.0           | 0.6                     | 100.6                  |
| Norway                 | 100                      | 18.6               | 2.8           | 15.8                         | 20.7                   | 3.0           | 17.7                    | 2.1             | 0.2           | 1.9                     | 102.1                  |
| Sweden                 | 100                      | 16.0               | 1.9           | 14.1                         | 17.3                   | 1.9           | 15.4                    | 1.3             | 0.0           | 1.3                     | 101.3                  |
| <b>Recession:</b>      |                          |                    |               |                              |                        |               |                         |                 |               |                         |                        |
| Finland                | 100                      | 21.1               | 1.5           | 19.6                         | 13.9                   | 1.4           | 12.5                    | -7.2            | -0.1          | -7.1                    | 92.8                   |
| Norway                 | 100                      | 23.0               | 3.1           | 19.9                         | 19.0                   | 3.0           | 16.0                    | -4.0            | -0.1          | -3.9                    | 96.0                   |
| Sweden                 | 100                      | 23.3               | 1.8           | 21.5                         | 15.3                   | 1.3           | 14.0                    | -8.0            | -0.5          | -7.5                    | 92.0                   |
| <b>Differences</b>     |                          |                    |               |                              |                        |               |                         |                 |               |                         |                        |
| <b>Boom-recession:</b> |                          |                    |               |                              |                        |               |                         |                 |               |                         |                        |
| Finland                | -                        | -0.1               | 0.6           | -0.7                         | 7.7                    | 0.7           | 7.0                     | 7.8             | 0.1           | 7.7                     | 7,8                    |

|        |   |      |      |      |     |     |     |     |     |     |     |
|--------|---|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| Norway | - | -4.4 | -0.3 | -4.1 | 1.7 | 0.0 | 1.7 | 6.1 | 0.3 | 5.8 | 6,1 |
| Sweden | - | -7.3 | 0.1  | -7.4 | 2.0 | 0.6 | 1.4 | 9.3 | 0.5 | 8.8 | 9,3 |

#### 4.2. Labour market mobility in nine economic sectors

Obviously there are reasons to expect different labour market mobility in the economic sectors. This might be due to different compositions of the employment staff concerning gender, age and the educational level of the employed, but also different employment change and regional location patterns might have impact on the level of local and geographical labour market mobility. In our investigations there has been essential to analyse the level of geographical labour market mobility in and out of employment in different sectors. Further there has been essential to investigate to what extent the level of out-migration from and in-migration to employment corresponds to the total labour market mobility in and out of each sector. Is the geographical labour market mobility higher or lower than could be expected from the total gross-flows in the regional labour markets? In this sense it has been important to compare the geographical labour market mobility in and out of each sector with corresponding employment leaving and recruiting in the local labour markets.

To analyse these topics and to make international comparisons gross-flows in the regional labour market obtained from the regional vacancy account in each country are collected for each sector and period as presented in the tables 4.2 - 4.5. The tables show the level of gross migration and the total labour market flows in and out of each sector, expressed as relative proportions in relation to the average flows of all sectors correspondingly (the two first columns for each country). The third column for each country shows the relationship between the relative gross migration and the relative total labour market mobility in each sector. While the columns I and II express the range of variations of migration and the total labour market transition in the sectors, the column III gives an expression of the relationship between the level of gross migration and the level of the total labour market mobility in each sector. The optimal value in the third column should be 1 or as close to 1 as possible for each sector, thus revealing a full correspondence between the level of gross migration and the level of total labour market mobility. Values above 1 indicate a higher migration level than the total labour market mobility suggested, and vice-versa values below 1 indicate a lower than "expected" level of migration correspondingly. The last row in each table expresses the average value deviation from 1 for all sectors in each of the columns. In column I and II the average value deviation from 1 expresses the range of variations of migration and labour market mobility for all sectors within each country. In the third column the average value deviation from 1 expresses the total relationship between gross migration and labour market mobility for all sectors in each country. The average value deviation from 1 in the third column is thus essential for international comparisons showing the adjustment between the level of gross migration and the level of gross labour market mobility for all sectors within each country.

The results showed there were distinct variations between economic sectors, both with respect to the leaving and recruitment to the employment. Some of these differences were connected with different employment development, but the total changes in employment, however, comprised only a small number when compared with the total gross streams in and out of the sectors. In all countries the building and construction sectors, commerce, finance and other services showed considerable employment leaving during both the downturn and upswing periods (see tables 4.2 and 4.3). These sectors were, however, also characterised by considerable employment recruitment, especially during the upswing periods (see tables 4.4 and 4.5).

Public sector services in all countries were characterised by a lower than average employment leaving (tables 4.2 and 4.3), while employment recruiting was somewhat stronger during the downturn periods than during the upswing periods (tables 4.4. and 4.5). This underlines the tendency to make use of the public sector in counter-cyclical policy response to downturn periods to reduce the decrease in employment and serve as a buffer against increasing unemployment. Opportunities for carrying out such policy appear, however, to have been considerably greater in Norway than in Finland and Sweden in these periods.

The results indicate that there was a fairly good correspondence between the level of gross streams in the labour market and the level of out-migration from and in-migration to employment in most of the economic sectors. The correspondence appears, however, to have been somewhat better in Norway and especially in Sweden than in Finland. Some individual sectors, however, showed considerable deviation from this pattern. The greatest discrepancy was found in primary industries, building and construction activities and public sector services, with the two former showing clearly lower geographical mobility than would be expected on the basis of the employment leaving and recruiting streams, while the situation was clearly the opposite in public sector services. In the primary industry this is partly due to the ageing processes where the employment leaving to a minor degree ends up in migration, and the recruitment is normally locally based. As the building and construction sector is heavily vulnerable to cyclical changes, low geographical mobility might increase the local unemployment in periods of recession as well as hamper the necessary recruitment in periods of economic upswings. Low migration propensity in this sector might, however, be somewhat compensated by special arrangements of long distance commuting. In the public sector services the higher than average migration is mainly due to high proportion of employed with higher education and a decentralised location pattern. More detailed results obtained from the Norwegian analyses showed, however, that a large part of the labour market mobility and a major part of the geographical mobility in the public sector services was due to job-to-job mobility within this sector. A tendency to increased job-to-job mobility between the regions also within manufacturing industries and private services might indicate an increased tendency to use migration as a tool in career-mobility within multi-regional localised companies.

*Table 4.2. Relationships between relative gross out-migration and employment leaving by sector in the periods of recession in Finland, Norway and Sweden. All regions. Average = 1*

| Sectors         | Finland                            |                                       |      | Norway                             |                                       |      | Sweden                             |                                       |      |
|-----------------|------------------------------------|---------------------------------------|------|------------------------------------|---------------------------------------|------|------------------------------------|---------------------------------------|------|
|                 | I<br>Relative<br>out-<br>migration | II<br>Relative<br>employment<br>leave | III  | I<br>Relative<br>out-<br>migration | II<br>Relative<br>employment<br>leave | III  | I<br>Relative<br>out-<br>migration | II<br>Relative<br>employment<br>leave | III  |
| Primary         | 0.33                               | 0.74                                  | 0.45 | 0.61                               | 0.82                                  | 0.75 | 0.72                               | 1.08                                  | 0.67 |
| Manufacturing   | 0.67                               | 0.89                                  | 0.75 | 0.74                               | 0.84                                  | 0.88 | 0.89                               | 0.85                                  | 1.04 |
| Energy          | 0.53                               | 0.60                                  | 0.88 | 0.55                               | 0.47                                  | 1.16 | 0.61                               | 0.85                                  | 1.07 |
| Construction    | 0.67                               | 1.67                                  | 0.40 | 0.77                               | 1.04                                  | 0.74 | 0.67                               | 1.18                                  | 0.57 |
| Commerce        | 1.07                               | 1.09                                  | 0.98 | 1.03                               | 1.11                                  | 0.93 | 1.22                               | 1.13                                  | 1.08 |
| Transport       | 0.60                               | 0.68                                  | 0.88 | 1.00                               | 0.79                                  | 1.26 | 0.94                               | 0.96                                  | 0.99 |
| Finance         | 0.93                               | 1.01                                  | 0.92 | 1.32                               | 0.98                                  | 1.35 | 1.00                               | 1.17                                  | 0.86 |
| Public services | 1.47                               | 0.85                                  | 1.73 | 1.19                               | 0.93                                  | 1.28 | 1.06                               | 0.84                                  | 1.26 |
| Other services  | 1.60                               | 0.98                                  | 1.63 | 1.07                               | 1.19                                  | 0.90 | 1.17                               | 2.04                                  | 0.57 |
| Average         | 1.00                               | 1.00                                  | 0.96 | 1.00                               | 1.00                                  | 1.03 | 1.00                               | 1.00                                  | 0.90 |

|                                   |      |      |      |      |      |      |      |      |      |
|-----------------------------------|------|------|------|------|------|------|------|------|------|
| Average value<br>deviation from 1 | 0.38 | 0.23 | 0.34 | 0.22 | 0.17 | 0.21 | 0.18 | 0.26 | 0.20 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|

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*Table 4.3. Relationships between relative gross out-migration and employment leaving by sector in the periods of boom in Finland, Norway and Sweden. All regions. Average = 1*

| Sectors                           | Finland                            |                                       |      | Norway                             |                                       |      | Sweden                             |                                       |      |
|-----------------------------------|------------------------------------|---------------------------------------|------|------------------------------------|---------------------------------------|------|------------------------------------|---------------------------------------|------|
|                                   | I<br>Relative<br>out-<br>migration | II<br>Relative<br>employment<br>leave | III  | I<br>Relative<br>out-<br>migration | II<br>Relative<br>employment<br>leave | III  | I<br>Relative<br>out-<br>migration | II<br>Relative<br>employment<br>leave | III  |
| Primary                           | 0.29                               | 0.67                                  | 0.43 | 0.61                               | 1.18                                  | 0.52 | 0.63                               | 1.19                                  | 0.53 |
| Manufacturing                     | 0.86                               | 0.90                                  | 0.96 | 0.71                               | 0.83                                  | 0.86 | 0.89                               | 0.74                                  | 1.20 |
| Energy                            | 0.57                               | 0.88                                  | 0.65 | 0.46                               | 0.58                                  | 0.79 | 0.68                               | 0.70                                  | 0.97 |
| Construction                      | 0.86                               | 1.09                                  | 0.79 | 0.61                               | 0.98                                  | 0.62 | 0.63                               | 1.06                                  | 0.59 |
| Commerce                          | 1.10                               | 1.01                                  | 1.09 | 1.04                               | 1.18                                  | 0.88 | 1.26                               | 1.28                                  | 0.98 |
| Transport                         | 0.62                               | 0.82                                  | 0.76 | 0.93                               | 0.98                                  | 0.95 | 0.95                               | 0.90                                  | 1.06 |
| Finance                           | 1.14                               | 1.01                                  | 1.13 | 1.29                               | 1.14                                  | 1.13 | 1.11                               | 1.21                                  | 0.92 |
| Public services                   | 1.29                               | 0.98                                  | 1.32 | 1.14                               | 0.76                                  | 1.50 | 1.00                               | 0.91                                  | 1.10 |
| Other services                    | 1.43                               | 1.10                                  | 1.30 | 1.00                               | 1.33                                  | 0.75 | 1.26                               | 1.34                                  | 0.94 |
| Average                           | 1.00                               | 1.00                                  | 0.94 | 1.00                               | 1.00                                  | 0.89 | 1.00                               | 1.00                                  | 0.92 |
| Average value<br>deviation from 1 | 0.31                               | 0.11                                  | 0.25 | 0.24                               | 0.19                                  | 0.25 | 0.21                               | 0.20                                  | 0.16 |

*Table 4.4. Relationships between relative gross in-migration and employment recruitment by sector in the periods of recession in Finland, Norway and Sweden. All regions. Average = 1*

| Sectors                           | Finland                           |   |      | Norway                            |   |      | Sweden                            |   |      |
|-----------------------------------|-----------------------------------|---|------|-----------------------------------|---|------|-----------------------------------|---|------|
|                                   | I<br>Relative<br>in-<br>migration | II<br>Relative<br>employment<br>recruitment | III  | I<br>Relative<br>in-<br>migration | II<br>Relative<br>employment<br>recruitment | III  | I<br>Relative<br>in-<br>migration | II<br>Relative<br>employment<br>recruitment | III  |
| Primary                           | 0.36                              | 0.65  | 0.55 | 0.40                              | 0.91  | 0.44 | 0.69                              | 1.12  | 0.62 |
| Manufacturing                     | 0.64                              | 0.68  | 0.94 | 0.80                              | 0.76  | 1.05 | 0.85                              | 0.65  | 1.31 |
| Energy                            | 0.57                              | 0.73  | 0.78 | 0.63                              | 0.84  | 0.75 | 0.54                              | 0.56  | 0.96 |
| Construction                      | 0.57                              | 1.06  | 0.54 | 0.63                              | 0.97  | 0.65 | 0.54                              | 0.93  | 0.58 |
| Commerce                          | 1.07                              | 0.96  | 1.11 | 1.20                              | 1.26  | 0.95 | 1.38                              | 1.36  | 1.01 |
| Transport                         | 0.57                              | 0.58  | 0.98 | 0.93                              | 0.76  | 1.22 | 0.85                              | 0.65  | 1.31 |
| Finance                           | 0.93                              | 0.99  | 0.94 | 1.23                              | 0.96  | 1.28 | 1.31                              | 1.95  | 0.67 |
| Public services                   | 1.57                              | 1.13  | 1.39 | 1.33                              | 1.07  | 1.24 | 1.00                              | 0.69  | 1.45 |
| Other services                    | 1.64                              | 1.31  | 1.25 | 1.20                              | 1.44  | 0.83 | 1.15                              | 1.52  | 0.76 |
| Average                           | 1.00                              | 1.00  | 0.94 | 1.00                              | 1.00  | 0.93 | 1.00                              | 1.00  | 0.96 |
| Average value<br>deviation from 1 | 0.40                              | 0.21  | 0.22 | 0.26                              | 0.17  | 0.24 | 0.26                              | 0.39  | 0.28 |



*Table 4.5. Relationships between relative gross in-migration and employment recruitment by sector in the periods of boom in Finland, Norway and Sweden. All regions. Average = 1*

| Sectors                           | Finland                           |   |      | Norway                            |   |      | Sweden                            |   |      |
|-----------------------------------|-----------------------------------|---|------|-----------------------------------|---|------|-----------------------------------|---|------|
|                                   | I<br>Relative<br>in-<br>migration | II<br>Relative<br>employment<br>recruitment | III  | I<br>Relative<br>in-<br>migration | II<br>Relative<br>employment<br>recruitment | III  | I<br>Relative<br>in-<br>migration | II<br>Relative<br>employment<br>recruitment | III  |
| Primary                           | 0.33                              | 0.52  | 0.63 | 0.50                              | 0.99  | 0.51 | 0.58                              | 0.98  | 0.59 |
| Manufacturing                     | 0.86                              | 0.76  | 1.13 | 0.87                              | 0.86  | 1.01 | 0.95                              | 0.94  | 1.01 |
| Energy                            | 0.57                              | 0.76  | 0.75 | 0.50                              | 0.51  | 0.98 | 0.58                              | 0.49  | 1.18 |
| Construction                      | 0.90                              | 1.32  | 0.68 | 0.63                              | 1.12  | 0.56 | 0.53                              | 1.01  | 0.52 |
| Commerce                          | 1.14                              | 1.06  | 1.08 | 1.07                              | 1.15  | 0.93 | 1.26                              | 1.31  | 0.96 |
| Transport                         | 0.67                              | 0.86  | 0.78 | 0.90                              | 0.93  | 0.97 | 0.89                              | 1.01  | 0.88 |
| Finance                           | 1.24                              | 1.24  | 1.00 | 1.30                              | 1.08  | 1.20 | 1.26                              | 1.28  | 0.98 |
| Public services                   | 1.19                              | 0.84  | 1.42 | 1.10                              | 0.74  | 1.49 | 0.89                              | 0.62  | 1.43 |
| Other services                    | 1.52                              | 1.28  | 1.19 | 1.07                              | 1.29  | 0.83 | 1.26                              | 1.34  | 0.94 |
| Average                           | 1.00                              | 1.00  | 0.96 | 1.00                              | 1.00  | 0.94 | 1.00                              | 1.00  | 0.94 |
| Average value<br>deviation from 1 | 0.31                              | 0.24  | 0.22 | 0.24                              | 0.18  | 0.21 | 0.26                              | 0.21  | 0.19 |

### **4.3. Net effects of the labour market mobility**

At the level of these relatively broad economic sectors, there was a fairly good correspondence between the net effect of migrations and the direction of changes in employment, with some exceptions, though. The migration process contributed less to employment recruitment than to employment leaving during the downturn period in all the countries (table 4.6). Finland was distinguished, however, by a relatively low net out-migration from employment in relation to the considerable drop in employment, which was observed during this period. Viewed in relation to Sweden, which had a similarly strong drop in employment during the downturn period, it was first and foremost lower out-migration from employment which contributed to the relatively lower net effects of the migration process.

It was only in Norway that the migration process contributed to growth in total employment during the economic upswing (table 4.7). In both Finland and Sweden out-migration from employment contributed just as much as in-migration to employment, with the result that the migration process as a whole contributed to zero growth in employment.

*Table 4.6. Net changes in employment decomposed by migrants and non-migrants by sector in the periods of recession in Finland, Norway and Sweden. All regions. Per cent*

| Sectors         | Finland          |              |              | Norway           |              |              | Sweden           |              |              |
|-----------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|
|                 | Net in-migration | Non-migrants | Total change | Net in-migration | Non-migrants | Total change | Net in-migration | Non-migrants | Total change |
| Primary         | 0.0              | -6.7         | -6.7         | -0.8             | -3.5         | -4.3         | -0.4             | -7.7         | -8.1         |
| Manufacturing   | -0.1             | -9.2         | -9.3         | 0.1              | -5.9         | -5.8         | -0.5             | -9.5         | -10.0        |
| Energy          | 0.0              | -2.6         | -2.6         | 0.2              | 2.6          | 2.8          | -0.4             | -4.4         | -4.8         |
| Construction    | -0.3             | -20.3        | -20.5        | -0.5             | -7.3         | -7.8         | -0.5             | -12.7        | -13.2        |
| Commerce        | -0.1             | -9.5         | -9.6         | 0.4              | -2.1         | -1.7         | -0.4             | -5.2         | -5.6         |
| Transport       | -0.1             | -6.3         | -6.4         | -0.3             | -5.5         | -5.8         | -0.6             | -11.8        | -12.4        |
| Finance         | -0.1             | -7.6         | -7.7         | -0.4             | -4.9         | -5.3         | -0.1             | 2.8          | 2.7          |
| Public services | 0.0              | -2.4         | -2.4         | 0.3              | 4.4          | 4.7          | -0.6             | -8.6         | -9.2         |
| Other services  | -0.1             | -7.6         | -7.7         | 0.3              | -5.3         | -5.0         | -0.6             | -23.7        | -24.3        |
| Total           | -0.1             | -7.1         | -7.2         | -0.1             | -3.8         | -3.9         | -0.5             | -7.5         | -8.0         |

*Table 4.7. Net changes in employment decomposed by migrants and non-migrants by sector in the periods of boom in Finland, Norway and Sweden. All regions. Per cent*

| Sectors         | Finland          |              |              | Norway           |              |              | Sweden           |              |              |
|-----------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|
|                 | Net in-migration | Non-migrants | Total change | Net in-migration | Non-migrants | Total change | Net in-migration | Non-migrants | Total change |
| Primary         | 0.1              | -2.9         | -2.8         | -0.3             | -1.2         | -1.5         | -0.1             | -2.1         | -2.2         |
| Manufacturing   | 0.0              | -2.2         | -2.2         | 0.6              | 1.6          | 2.2          | 0.1              | 4.3          | 4.4          |
| Energy          | 0.0              | -2.1         | -2.1         | 0.1              | -0.3         | -0.2         | -0.2             | -2.4         | -2.6         |
| Construction    | 0.1              | 5.7          | 5.8          | 0.2              | 4.8          | 5.0          | -0.2             | 0.7          | 0.5          |
| Commerce        | 0.1              | 1.5          | 1.6          | 0.2              | 1.8          | 2.0          | 0.0              | 2.2          | 2.2          |
| Transport       | 0.0              | 1.2          | 1.2          | 0.1              | 0.8          | 0.9          | -0.1             | 2.9          | 2.8          |
| Finance         | 0.2              | 5.3          | 5.5          | 0.3              | 1.0          | 1.3          | 0.3              | 2.3          | 2.6          |
| Public services | -0.2             | -2.3         | -2.5         | 0.1              | 1.0          | 1.1          | -0.2             | -3.6         | -3.8         |
| Other services  | 0.2              | 4.3          | 4.5          | 0.4              | 1.7          | 2.1          | 0.0              | 1.5          | 1.5          |
| Total           | 0.0              | 0.6          | 0.6          | 0.2              | 1.8          | 2.0          | 0.0              | 1.2          | 1.2          |

#### **4.4. Labour market mobility in different segments**

With respect to the labour market segments, there were significant variations between various groups of individuals during the upswing periods (see table 4.8). On the average, there was a marked excess of migration among men and women with higher education in all the countries as compared with the gross streams in the labour market, while there was a clear deficit of migration among persons with lower education. The middle educational group was characterised in Finland by a slight excess of migration, while this educational group showed a deficit of migration, both with respect to in-migration to and out-migration from employment in Norway and Sweden. With respect to the labour market balances, there was in average good connection between in- and out-migration for lower educated persons in Finland, while there was a remarkable excess of in-migration to employment for this group in Norway and Sweden. In the intermediate educational group, there was in average excess of out-migration from employment with an exception for females in Finland. Among higher educated persons there was in average an excess of in-migration to employment in Finland and Sweden, but a slight deficit in Norway correspondingly. Considering the age groups, the excess of migration was mostly in reverse ratio to the level of age. The average value deviation from 1 (the last row) is considerably higher than observed in tables 4.2 - 4.5, indicating a weaker connection

between the level of migration and the level of the labour market mobility in the segmented groups compared with the aggregated economic sectors analysed above. This gives some indications of the complexity we are faced with in dealing with the Nordic labour markets. It is also important to be aware that the segments differ considerably in size.

*Table 4.8. Relationships between relative gross in-migration and employment recruitment and relative gross out-migration and employment leaving by gender, age and education in periods of economic upswings in Finland, Norway and Sweden. All regions*

|                                |   |   | Finland                               |                                    |       | Norway                                |                                    |       | Sweden                                |                                    |       |
|--------------------------------|---|---|---------------------------------------|------------------------------------|-------|---------------------------------------|------------------------------------|-------|---------------------------------------|------------------------------------|-------|
|                                |   |   | I                                     | II                                 | I-II  | I                                     | II                                 | I-II  | I                                     | II                                 | I-II  |
|                                |   |   | Relative in-migration/<br>recruitment | Relative out-migration/<br>leaving |       | Relative in-migration/<br>recruitment | Relative out-migration/<br>leaving |       | Relative in-migration/<br>recruitment | Relative out-migration/<br>leaving |       |
| G                              | A | E |                                       |                                    |       |                                       |                                    |       |                                       |                                    |       |
| 1                              | 1 | 1 | 0.32                                  | 0.47                               | -0.15 | 1.38                                  | 0.35                               | 1.03  | 1.20                                  | 0.74                               | 0.46  |
| 1                              | 1 | 2 | 0.90                                  | 1.05                               | -0.15 | 0.53                                  | 0.64                               | -0.11 | 0.80                                  | 0.86                               | -0.06 |
| 1                              | 1 | 3 | 3.33                                  | 5.19                               | -1.86 | 1.33                                  | 1.50                               | -0.17 | 1.78                                  | 1.45                               | 0.33  |
| 1                              | 2 | 1 | 0.70                                  | 0.70                               | 0.00  | 0.61                                  | 0.71                               | -0.10 | 1.15                                  | 0.73                               | 0.42  |
| 1                              | 2 | 2 | 1.28                                  | 1.26                               | 0.02  | 0.93                                  | 1.02                               | -0.09 | 0.82                                  | 0.91                               | -0.09 |
| 1                              | 2 | 3 | 2.64                                  | 2.67                               | -0.03 | 2.07                                  | 2.25                               | -0.18 | 2.23                                  | 1.99                               | 0.24  |
| 1                              | 3 | 1 | 0.26                                  | 0.16                               | 0.10  | 0.25                                  | 0.61                               | -0.36 | 0.39                                  | 0.63                               | -0.24 |
| 1                              | 3 | 2 | 0.46                                  | 0.39                               | 0.07  | 0.44                                  | 0.69                               | -0.25 | 0.39                                  | 0.78                               | -0.39 |
| 1                              | 3 | 3 | 0.92                                  | 0.72                               | 0.20  | 0.91                                  | 1.14                               | -0.23 | 0.79                                  | 1.30                               | -0.51 |
| 1                              | 4 | 1 | 0.43                                  | 0.43                               | 0.00  | 0.84                                  | 0.59                               | 0.25  | 0.82                                  | 0.69                               | 0.13  |
| 1                              | 4 | 2 | 1.06                                  | 1.10                               | -0.04 | 0.71                                  | 0.85                               | -0.14 | 0.73                                  | 0.86                               | -0.13 |
| 1                              | 4 | 3 | 2.32                                  | 2.24                               | 0.08  | 1.76                                  | 1.89                               | -0.13 | 1.75                                  | 1.72                               | 0.03  |
| 2                              | 1 | 1 | 0.39                                  | 0.55                               | -0.16 | 1.05                                  | 0.45                               | 0.60  | 1.21                                  | 0.78                               | 0.43  |
| 2                              | 1 | 2 | 1.41                                  | 1.50                               | -0.09 | 0.91                                  | 0.99                               | -0.08 | 1.16                                  | 1.15                               | 0.01  |
| 2                              | 1 | 3 | 4.11                                  | 5.00                               | -0.89 | 1.41                                  | 1.43                               | -0.02 | 2.27                                  | 1.67                               | 0.60  |
| 2                              | 2 | 1 | 0.57                                  | 0.52                               | 0.05  | 0.40                                  | 0.51                               | -0.11 | 0.87                                  | 0.58                               | 0.29  |
| 2                              | 2 | 2 | 1.10                                  | 1.14                               | -0.04 | 0.87                                  | 0.98                               | -0.11 | 0.78                                  | 0.75                               | 0.03  |
| 2                              | 2 | 3 | 2.28                                  | 2.21                               | 0.07  | 1.99                                  | 2.09                               | -0.10 | 1.91                                  | 1.52                               | 0.39  |
| 2                              | 3 | 1 | 0.32                                  | 0.17                               | 0.15  | 0.26                                  | 0.46                               | -0.20 | 0.29                                  | 0.49                               | -0.20 |
| 2                              | 3 | 2 | 0.55                                  | 0.36                               | 0.19  | 0.45                                  | 0.61                               | -0.16 | 0.31                                  | 0.65                               | -0.34 |
| 2                              | 3 | 3 | 0.69                                  | 0.57                               | 0.12  | 1.16                                  | 1.17                               | -0.01 | 0.65                                  | 1.34                               | -0.69 |
| 2                              | 4 | 1 | 0.41                                  | 0.41                               | 0.00  | 0.69                                  | 0.47                               | 0.22  | 0.73                                  | 0.58                               | 0.15  |
| 2                              | 4 | 2 | 1.21                                  | 1.16                               | 0.10  | 0.83                                  | 0.92                               | -0.09 | 0.79                                  | 0.90                               | -0.11 |
| 2                              | 4 | 3 | 2.08                                  | 1.93                               | 0.15  | 1.81                                  | 1.84                               | -0.03 | 1.58                                  | 1.53                               | 0.05  |
| Average                        |   |   | 1.24                                  | 1.37                               | -0.13 | 0.89                                  | 0.98                               | -0.04 | 1.06                                  | 1.02                               | 0.04  |
| Average value deviation from 1 |   |   | 0.78                                  | 0.97                               | -     | 0.45                                  | 0.42                               | -     | 0.49                                  | 0.36                               | -     |

G: 1 = men, 2 = women

A: 1 = 16-24 years (In Finland 15-24 years), 2 = 25-44 years, 3 = 45-74 years (In Sweden 45-64 years)

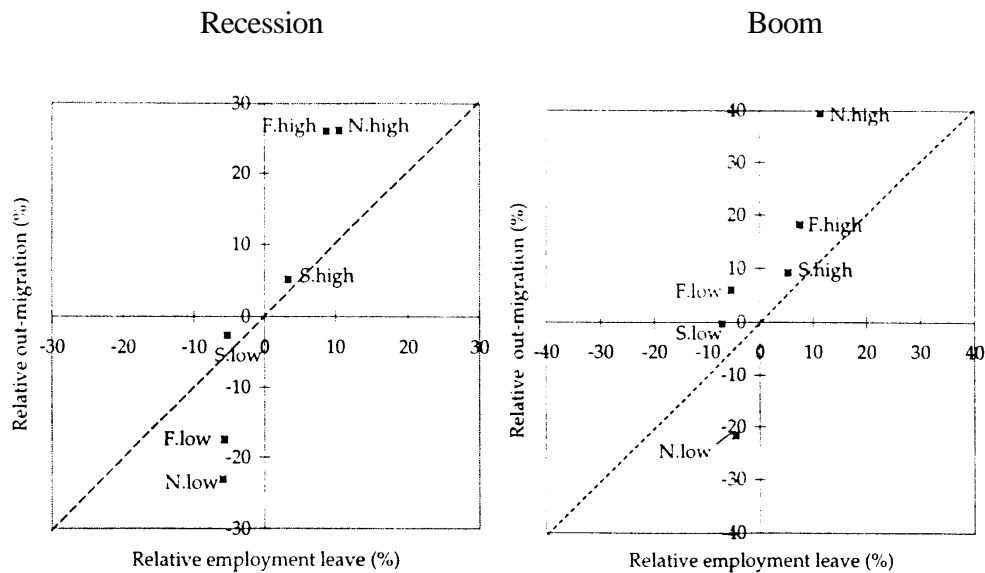
E: 1 = Lower education, 2 = Intermediate education, 3 = Higher education

#### **4.5. Labour market mobility between regions**

In this final section with empirical results, we have roughly compared the level of gross migration to and from employment in the regional labour markets and the corresponding total labour market mobility in the regions. The comparisons are made for total labour market flows without any further division by sector or segment. Considering regional labour market policy, the most "ideal" correspondence should be obtained by geographical labour market mobility revealing the level of total employment leaving and employment recruiting in each region. The results are presented in the figures 4.1 and 4.2. The figures are formed as a x- and y-diagram, where the x-axis represents the level of the total labour market flows in the regions and the y-axis represents the level of gross migration. Regions with higher than average labour market mobility in each country are collected in one group (high), while all regions with lower than average labour market mobility are collected in another group (low). The average level of labour market mobility in each group represents the relative labour market mobility along the x-axis respectively. There are used unweighted averages among the regions. The corresponding level of geographical mobility is marked along the y-axis as an average for each of the two groups (high and low). When the scale in the x- and y-axis is standardised, a most fairly correspondence between the level of the regional labour market mobility and the corresponding level of gross migration is obtained by values along the 45-degree diagonal showed in the figures. Each separate figure shows two values (high and low) for each of the three countries.

In the recession periods the regions in all countries showed in average a positive relationship between the level of employment leave and the level of out-migration from employment (figure 4.1). Finland and Norway did, however, clearly distinguish from Sweden with a larger range of variation between the regions both with respect to the employment leaving and the out-migration. In Finland and Norway regions with higher than average employment leave showed, however, higher out-migration from employment than the total employment leave suggested, and correspondingly lower than expected out-migration from employment from regions with lower than average employment leave. On the other hand, the regions of Sweden showed in average a remarkably good correspondence between the employment leaving and out-migration in the recession period.

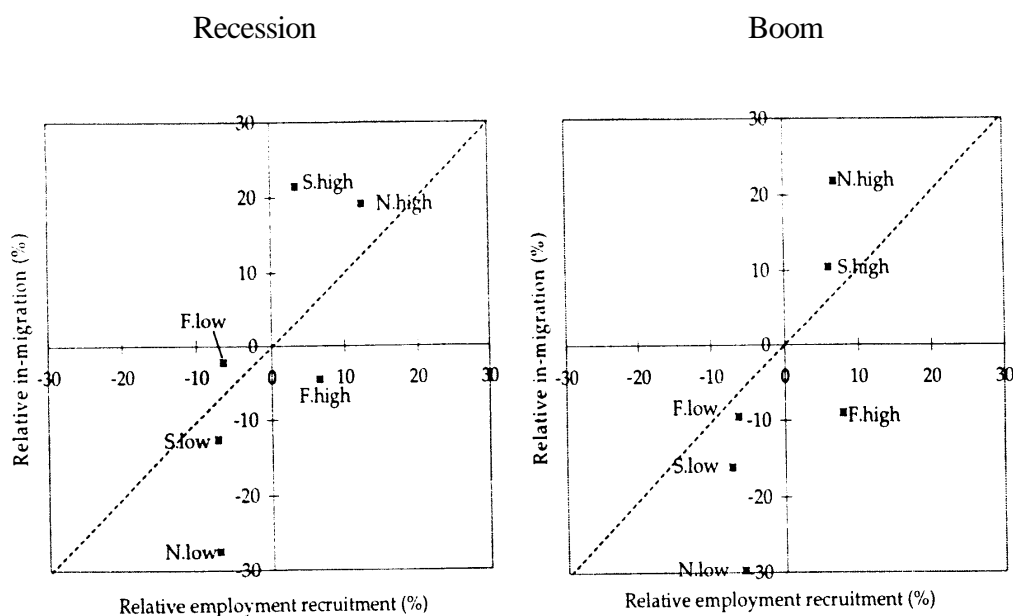
Figure 4.1. Relationships between the level of total employment leave and the level of gross out-migration in counties in Finland, Norway and Sweden with above (high) and below (low) average employment leave. In recession and boom periods. Per cent



During the periods of economic upswings all regions with higher than average employment leave showed a positive relationship between the level of employment leaving and out-migration. These regions in Norway showed, however, much higher out-migration from employment than the total employment leave suggested, while the situation in Finland and Sweden was more as expected. Among the regions with lower than average employment leave the Finnish regions distinguished clearly from the corresponding Norwegian and Swedish regions, showing negative relationship between the level of employment leaving and out-migration.

Norway was clearly distinguished from Finland with a somewhat larger range of variation in recruitment to employment between regions, while Sweden showed the least differences in employment recruitment between counties during the downturn period (figure 4.2). The relationship between the level of recruitment to employment and in-migration was as might be expected for regions with lower than average employment entering, although Finland was distinguished by a lower than average in-migration to the areas with higher than average employment recruitment.

Figure 4.2. Relationships between the level of total employment recruitment and the level of gross in-migration in counties in Finland, Norway and Sweden with above (high) and below (low) average employment recruitment. In recession and boom periods. Per cent



With respect to the relationship between employment recruitment and in-migration to regions during upswing periods, the differences in range of variation in employment recruitment between regions in the three countries were relatively small. There was a significant relationship between employment recruitment and in-migration to regions with lower than average employment recruitment in all countries. For regions with above average employment recruitment, the average level of in-migration was as expected in Norway and Sweden, while on the other hand, areas of Finland showed clearly lower in-migration than might be expected during this period.

With respect to the balance of migration between regions, there were clear differences in how much was contributed by employment recruitment through in-migration as compared with employment leaving through out-migration. During the upswing period in Finland, migration contributed to more than the total employment growth in some central counties in Southern Finland. During the clear downturn of the 1990s, migration still contributed to employment growth in these counties, and thus contributed to increasing local unemployment in a period with significant decrease in employment.

Some central regions in Southern Norway showed clearly greater recruitment through in-migration than leaving through out-migration during the downturn period towards the end of the 1980s, which contributed to increasing local unemployment in these regions in a period when all the counties experienced a decrease in employment. During the upswing period it was the Oslo region which had the largest growth in employment through the migration process, and the net effect of recruitment through migration accounted for about 50 per cent of the total employment growth in these counties. At the other end of the scale were the counties of Northern Norway, where the migration process alone accounted for 15-25 per cent of the total decrease in employment during the downturn period, and thereby contributed to reducing the local employment turnover with a buffering effect on the increase in local unemployment.

In Sweden out-migration from employment contributed somewhat more than in-migration to employment in 23 of 24 counties during the downturn period at the beginning of the 1990s. During the upswing period a number of counties experienced greater employment recruitment through migration than they lost through out-migration from employment. The migration process had then the largest positive effect in the Stockholm region, where the net effect of geographical labour market mobility contributed to about half of the entire employment growth.

## **5. Main findings and further challenges**

Taking as point of departure mobility from, between and into nine economic sectors and one unspecified sector, as well as between regions, all results reveal the fact that the total labour market mobility was remarkable higher than the total net changes of employment.

In Norway and especially in Sweden, it was a remarkable change in the employment leaving between the economic boom and recession, while in Finland the employment recruiting represented the main variable in the labour market mobility change between these periods.

There were very visible differences between the countries with respect to how large a portion of the employment leaving and employment entering can be attributed to out-migration from and in-migration to employment and how much can be attributed to labour market mobility in the local labour markets. The geographical labour market mobility was visibly greater in Norway.

There were distinct variations between economic sectors, both with respect to the leaving and recruitment to the employment as well as through geographical mobility in and out of the sectors.

There were in a number of contexts significant correspondences between the level of geographical labour market mobility and the level of turnover rate in the regional labour markets. The correspondence appears, however, to have been somewhat better in Norway and Sweden than in Finland.

In Norway and Sweden there were in average a positive relationship between the level of gross-streams in the regional labour markets and geographical mobility between the regions, while in Finland there were some deviations from this pattern. The migration process did, however, contribute to a certain displacement of labour between the regions. Especially in the boom periods this indicated a decrease of imbalances between regional labour markets.

Despite revealing significant excess and deficit of migration in some sectors of the economy the correspondence between gross streams in the labour market and geographical mobility appears to have been better when the regional labour markets were evaluated as a whole and divided by aggregated economic sectors, than when the labour market was broken down by different segments. This gives some indications of the complexity we are faced with in dealing with the Nordic labour markets.

On the whole, the results showed that it was useful to link analyses of migration flows between regions to gross mobility on the labour market. To acquire more in-depth knowledge of these processes, it is necessary to undertake even more detailed investigations than the one presented in

this paper. Analyses made with the help of gross-streams, to reveal vacancies in the regional labour markets appear, however, to be an important tool for further analyses of balances and imbalances in the regional labour markets. Among questions, which remain to be answered, is, for instance, to what degree changes in the various vacancies possibilities are involved in affecting changes in the regional migration behaviour? To be able to answer such questions demands the establishment of time series with similar gross-stream data, which were used for level analyses in this stage of the Nordic research project.

Challenges of this type etc. will be analysed in an extended Nordic research project examining education strategies for territorial competitiveness. In this sense the project group will further extend the number of participants in this project, taking into consideration researchers in some countries outside the Nordic boundaries. The purpose is twofold. First to develop a network on the field of migration and regional labour market mobility research using gross-stream analyses, and second to develop common approaches for making comparative analyses between an extended number of countries.

Gross flows of labour are result from a series of competitive actions. Firstly, in order to be competitive, the labour force improves its qualification through formal training and work experience. Secondly, firms and branches compete in order to attract the most qualified labour. Thirdly, regional actors implement local policy in order to attract inward investments, labour and public institutions, such as higher education facilities.

It is obvious that regions are differently able to benefit from this competition. Regions with rich supply of education facilities are likely to continuously provide local population as well as in-migrants with modern education. Regions with a large number of growth industrial branches are likely to attract labour with relevant education and through processes of cumulative causation further increase their competitiveness. Regions with governance favouring both a positive business climate and attractive living conditions for high-income earners are expected to attract both new workplaces and qualified labour.

We expect the gross flows of different segments of labour between and within specific types of labour market areas to reflect the outcome of these types of competition. The next phase of this project aims at analysing and comparing the national and regional contexts which are reflected in patterns of labour market mobility and migration. The forthcoming work will focus on both patterns of mobility, which are associated with improved performance of the regional economy and mobility patterns revealing malfunctions of the local labour market.

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