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Conference Paper

Local labour market performance through different activation rates, input and economic returns to human capital

41st Congress of the European Regional Science Association: "European Regional Development Issues in the New Millennium and their Impact on Economic Policy", 29 August - 1 September 2001, Zagreb, Croatia

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Stambol, Lasse Sigbjorn (2001) : Local labour market performance through different activation rates, input and economic returns to human capital, 41st Congress of the European Regional Science Association: "European Regional Development Issues in the New Millennium and their Impact on Economic Policy", 29 August - 1 September 2001, Zagreb, Croatia, European Regional Science Association (ERSA), Louvain-la-Neuve

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LOCAL LABOUR MARKET PERFORMANCE THROUGH DIFFERENT ACTIVATION RATES, INPUT AND ECONOMIC RETURNS TO HUMAN CAPITAL

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Abstract

Efficient and instant matching of demand and supply of competent labour is one of the most important elements in territorial competitiveness. Well-functioning regions are expected to become net receivers of labour from other regions. In addition these regions are also expected to attract the most qualified labour and thus be the winners in the competition of the best human capital. On the other hand the most qualified labour expect to achieve as much returns to their human capital investments as possible, searching their careers in direction of those regions and sectors which actually gives the best return. The performance of local labour markets is thus analysed as the ability to increase the input of and the returns to human capital investments by using changes in average educational level and changes in incomes.

The performance of regional labour markets is further analysed through activation rates to employment by different status groups. In a well functioning and strong growing regional labour market there may be room for a high activation from most groups. In reality the situation may be different, where several of the included activation rates may be in competition with each other. In many regions high net in-migration to jobs may function as an obstacle to high transition from local unemployment to job or from local education to job, while in other regions the situation may be opposite. In the end we thus include an analysis comparing the local activation to jobs in the local labour markets with activation through net in-migration to jobs.

The purpose is to explore, describe and analyse the gross-flows of labour within and between a sample of Norwegian local labour markets, which represents different categories according to size and structure of the regional economy. The analysis is broken down on two periods representing recession and economic upswing respectively. Labour market mobility is analysed by measuring regional labour market change by using gross-flows in and out of different regions, sectors and segments, and to what extent and in which way vacancies are opened up and filled in the regional labour markets, by a concise regional vacancy-account.

**Paper presented at the 41th European Congress of the Regional Science Association,
Zagreb, Croatia, 29. August - 1. September 2001**

1. Introduction

In the knowledge-based economy, efficient and instant matching of demand and supply of competent labour is one of the most important elements in territorial competitiveness. In this paper, we analyse structural change and differing performance of local labour markets in Norway in the 1990s broken down on two periods representing recession and economic upswing respectively. The purpose is to explore, describe and to some extent analyse the gross- flows of labour within and between a sample of local labour market areas.

The performance of regional labour markets is basically analysed as follows: First the performance is investigated through the ability of the local labour market to adapt to and facilitate structural change in the local economy by use of some specified labour market mobility measures. Second the ability to increase the input of and the returns to human capital investments in different regions is analysed by using changes in average educational level and changes in incomes. Finally we discuss how the local labour markets perform through different activation rates to employment both from gross movements within the local labour markets as well as through job recruitment from net internal migration. Most local labour market mobility measures are compared with the corresponding national average measures.

This analysis comprises labour market mobility in a sample of nine Norwegian labour market regions. The regions are divided into three categories representing different local labour markets within the nation according to size and structure of the regional economy. The three regions in each of the three main categories show some structural similarities. The three categories of regions consist of (1), the three main conurbation regions of the nation (Oslo, Bergen and Trondheim), (2), three main regional centres including higher educational facilities as well as research institutes (Stavanger, Kristiansand and Tromsø), and finally (3), three regional centres in smaller regions (Ålesund, Kongsvinger and Mo i Rana). The basic hypothesis is that there should exist some similarities in the labour market performance between regions showing a certain extent of structural conformity in size and diversification of production, while the labour market performance in this respect is expected to diverge across more heterogeneous regions.

Labour market mobility is analysed by using recent established mechanisms for measuring regional labour market change (see e.g. Stambøl et al. (1999)). The analysis goes beyond traditional means of measuring employment changes by using gross-flow analysis both for the supply side and for uncovering different possibilities on the demand side. 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".

The second section rises some political statements and hypotheses to be illuminated in the analyses. The third section gives an overview of data, definitions and methods used in the analyses, while some empirical results are documented in the fourth section followed by some concluding remarks in the final section.

2. Background and approaches

Long distance migration of labour has for a long time been considered as a necessity. For several years labour market policies have encouraged the unemployed to search for jobs outside their local labour markets. Labour market policies have as well gently advocated the

importance of intersectional mobility, hence indirectly encouraging geographical mobility. The expectation is that higher geographical mobility of the labour force should increase the general level of employment. Moreover, increased total labour mobility is seen as a tool for reaching the goals of the labour market policy, employing as large as possible part of the labour force into ordinary employment. Furthermore high mobility is expected to satisfy the employer's claim of filling in the vacancies with suitable labour as quickly as possible in a flexible labour market in continually structural change. Regional policies have, however, given incentives to private firms locating in regions with shortage of jobs and established mechanisms for regional equalisation of living conditions through the taxation system. The concepts of 'consolidation of the settlement pattern' have been widely accepted political statement in Norway, usually meaning that there should be a net balance of labour mobility between all regions. This balance has, however, never been fully reached.

In theory, most long distance migration is considered to be associated with regional imbalances between supply and demand of labour (see e.g. Greenwood 1985). 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 jobs. The rate of migration is partly decided by demographic factors: migration is dominated by younger persons and especially with higher education (see e.g. Stambøl et al. (1998)). These are considered to benefit more from migrating, since their investments in education have to be paid off. 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 an overview of these processes, see e.g. Milne, 1991, Stark, 1991, Champion and Fielding, 1992).

The mechanisms for equalisation of living conditions through the taxation system and the growth of the welfare state have, however, led to a comparatively strong equalisation 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 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)).

Another factor contributing to a limitation of long distance migration is the development of the systems for higher education. In Norway it has been a policy in order to locate universities and high schools 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.

It is generally accepted that economic upswings stimulate long-distance migration, while downswings have the opposite effect (e.g. Pissarides and Wadsworth, 1989, Milne, 1991). 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.

The matching problem in regional labour markets is of a different kind compared with the situation some years ago. 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 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. This implies that the supply curves for the different segments are not the same and that similar migration stimuli can have different effects on different groups. This phenomenon has been a central ingredient in the segmented labour market theory since the early 1970s (see e.g. Bluestone, 1970, Doeringer and Piore, 1971, Vietoritz and Harrison, 1973).

Segmentation of the labour force with regard to the supply side corresponds to its segmentation with regard to the demand side. The mismatch on the labour market seems to have been accentuated during the structural transformation in the past decades (for a mismatch overview during the 1970s and 1980s, see Padoa Schioppa, 1990). Different regions have differently composed labour markets. The labour required by the urban labour market today is also different from the last decades. The regional division of labour has been more important, 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. 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 also seems 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 kinds 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.

Mobility is, however, 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 different kinds of job mobility. All kinds of mobility are, however, dependent of the labour market situation and the transformation of this.

Against this background the purpose of this paper is mainly to explore and compare the extent and structure of gross labour mobility. For example its composition in terms of local labour market mobility and interregional migration, its functioning in different phases of the business cycle and its variation between segments of the labour force. On behalf of statements in the

regional and labour market policy, this investigation illuminates approaches as follows: (1) How extensive is the total regional labour mobility, the job-to-job mobility and the regional self-sufficiency of labour? (2) Are there any differences in the intra- and interregional labour mobility due to the qualification level of the employed? (3) How is the rise of income between local mobile and non-mobile employed, as well as among employed migrants? (4) Does the rise of income reveal the differences in education level? (5) How is the regional performance with regard to activation of labour from different segments within the local labour markets? and (6) Does net migration to job reveals the local labour market performance of job recruitment?

3. Data, definitions and methods

One main target of this analysis has been to establish suitable mechanisms for measuring regional labour market change. The analysis goes beyond traditional means of measuring net employment change by using gross-flow data covering the whole population of working age. The use of gross-stream analysis is, however, not a new phenomenon in the migration and labour market mobility research (see e.g. Hägerstrand, 1970, Greenwood, 1985, Molho, 1986, Greenwood et al., 1991). The richness, extent and quality of the data sources used in this analysis, and the organisation of data in concise regional "vacancy-accounts" made operative for comparable investigations within and across regions should, however, give some contributions to the literature on this field.

The analysis is mainly based on a sample of nine Norwegian regions (see introduction), which mostly correspond to a classification of economic regions used by Statistics Norway (see Hustoft et al.(1999)). The regions are basically classified by commuting figures, and should thus represent functional local labour markets. Earlier investigations of geographical mobility have shown that the labour market and the level of 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 this analysis is the classification of individuals according to their labour market status. In earlier migration analyses we have used such division on cross-sectional data (Stambøl 1995), and on gross-flow data analysing supply-side adjustments and demand-side considerations in a Nordic context (see e.g. Johansson et al.1997, Heikkilä et al. 1999, Heikkilä and Stambøl 1999, Stambøl et al. 1997,1999, Stambøl 1999,2000 and Edvardsson et.al.(2000)). In this analysis the aim is primarily to analyse the change of labour market status and segment connected to the migrants and the mobile persons within different and similar local labour markets. Necessary data covering the whole population of working age are therefore established. The data are collected from register-based data sources at Statistics Norway. These registers are acknowledged as very good data sources for research with possibilities to link different kinds of information, and are thus among the best covering registers on this field in Europe.

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 has then been to establish a regional labour market indicator illuminating the annually gross-flows to, from and between the status of employment. Figure 3.1 illustrates how this regional labour market indicator is measured in a concise regional "vacancy account" from year t to year $t+1$.

Figure 3.1. A "vacancy-account" for gross-stream analyses in regional labour markets

A. Entering stock: The number of employed in sector s in region r in year t	
EX. Employment exits:	
- To other employment (job-to-job mobility)	
- To unemployment	(1) Out-migrated from the region (geographical mobile)
- Out of the labour force	
<i>(Further education)</i>	(2) Not migrated from the region (local mobile)
<i>(Retirement - Age)</i>	
<i>(Other insurance)</i>	
<i>(Emigration)</i>	
<i>(Dead)</i>	
<hr/>	
= Total employment exits	
<hr/>	
V. Employment entries:	
- From other employment (job-to-job mobility)	(1) In-migrated to the region (geographical mobile)
- From unemployment	
- From education	(2) Living in the region (local mobile)
- From others outside the labour force	
<hr/>	
= Total employment entries (represents in this analysis the filled in vacancies from year t to year t+1)	
<hr/>	
B. Outgoing stock: The number of employed in sector s in region r in year t+1	
<hr/>	

The vacancy account is basically established as an ordinary account, showing individuals leaving and entering employment between two periods of time. When we have full knowledge of the level of employment and the employment status of each individual person in each region both in year t and year t+1, we can measure each individual movement at the labour market between these two periods of time. The number of filled in vacancies (V) in each region, sector and segment appears as follows:

$$V = B - A + EX$$

Where B is the number of employed in year t+1, A is the number of employed in year t and EX is the number of employed in year t that left a job before year t+1. In upswing periods B is normally higher than A, and the number of vacancies that has to be filled in appears from the total number of those who left a job (EX) plus the net rise of employment from year t (A) to year t+1 (B). In recession periods B is expected to be lower than A, and the number of vacancies that has to be filled in is thus less than EX. The number of vacancies accounted in this way is definitely much more comprehensive than the average number of not filled in vacancies which is often used to represent the concept of vacancies in regional labour market studies. Concerning the "vacancy accounting", we thus deal with the filled in vacancies in the regional labour markets, which means that the average stock of not filled in vacancies is not directly taken into consideration in this stage of the project.

In this analysis we only deal with local mobility and migration that is associated with employment. Thus we exclude mobility and migration of individuals which are not economically active in any of the two years studied, i. e. in education, permanently unemployed or depending on social benefits, and other persons outside the labour force. 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 follow similar patterns as for migrants, where the data show the labour market status of each individual in the first and second year of each period. Individuals of working age are defined as persons in age 16-64 years.

Education is divided into three categories; low (primary school), middle (secondary school) and higher education (post secondary school). A concept of average educational level is, however, introduced, calculating the average level of education in regions and among mobile and non-mobile employed on the basis of the educational level in the Standard Classification of Education (one-digit-level). Following the classification of education each individual employed is given a "weight" for the educational level as follows: Compulsory education = 2 points; Upper secondary school (1 year) = 3 points; Upper secondary school (3 years) = 4 points; Post secondary education (1-2 years) = 5 points; Post secondary education (3-4 years) = 6 points; Post secondary education (5 years and more) = 7 points; and Post secondary education (Doctoral degree) = 8 points. This means that the points are given in accordance with the educational level in the standard classification at one-digit-level. Making aggregations of the points for all kinds of groups divided by the number of employed in each group makes the average educational level for that group.

Labour market mobility is defined as changes of status to and from employment, mobility among employed between twenty-one economic sectors and one unspecified sector and/or migration between regions. A definition of twenty-one economic sectors does certainly underestimate the job-to-job mobility. On the other hand, a more disaggregated division would, however, be more vulnerable regarding statistical replacements and even misplacements of employed between sectors.

The end of the 1980s and the first years of the 1990s represented a clear cyclical downturn in the Norwegian economy, while the nation experienced a recovery during 1993 followed by strong economic growth in the period 1994-1998. In the analyses the comparison of the inter- and intra-regional labour market transition is based on changes during two periods, where 1990-91 represents a recession period and 1996-97 represents a period with strong growth in the national economy.

4. Empirical analyses of labour market mobility

The performance of regional labour markets has been the main approach of this analysis. First the performance is investigated through the ability of the local labour market to adapt to and facilitate structural change in the local economy by use of some specified labour market mobility measures. Second the ability to increase the input of and the returns to human capital investments in different sectors of the regional economy is analysed by using changes in average educational level and changes in incomes. Finally we discuss how the local labour markets perform through different activation rates to employment both from gross streams within the local labour markets as well as through job recruitment from net migration.

4.1 Adaptability to structural change

A high labour mobility may be of importance for reaching the targets of the labour market policy, employing as large part of the labour force as possible into ordinary employment. Furthermore high mobility is expected to satisfy the employers' claim of filling in the vacancies with suitable labour as quickly as possible in a flexible labour market in continually structural change. On the other hand the regional policy clearly state the necessity that these processes must be governed in a way not disturbing the regional balances. Hypotheses are raised expecting an increase in the labour market mobility when turning from economic recession to more affluent years with steady economic growth. In the sections below we illustrate some regional performances of labour mobility by a selection of mobility concepts.

4.1.1. Vacancy filling

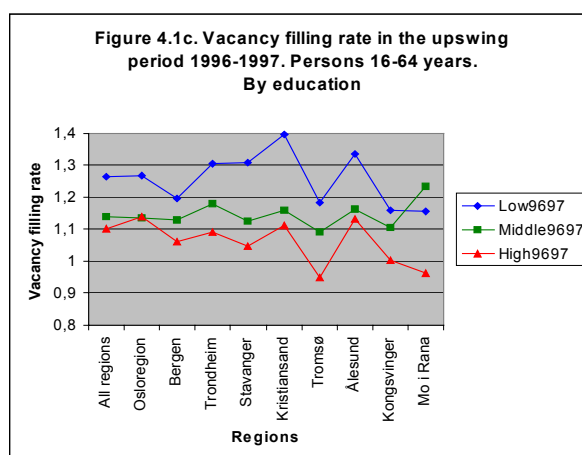
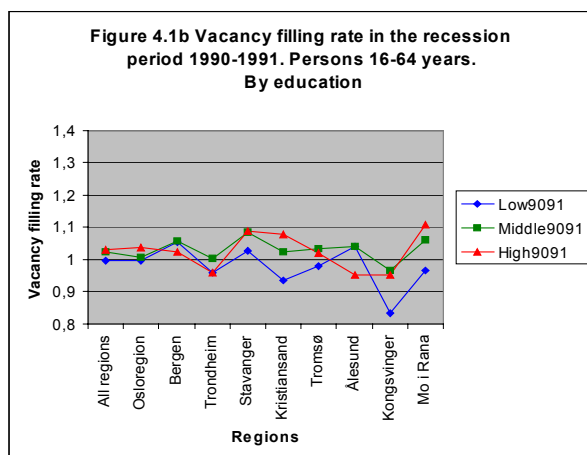
As documented by earlier analyses, e.g. Stambøl et al. (1999), the necessary recruitment to jobs is to a certain extent a function of the leaving processes in the regional labour markets. A large part of the recruitment is thus a replacement of employed leaving a job mostly due to transitions to other jobs in the same local labour markets, but also because of out-migration from jobs and employed changing their status in the labour market. As illustrated in the vacancy account in section 3, these replacement processes is corrected for the annual growth or decline of employment in each local labour market.

In figure 4.1a total exits and entries in the regional labour markets are shown in per cent of total stock of employed the first year in each of the time periods 1990-91 (recession) and 1996-97 (economic upswing). The figures surely confirm the hypothesis expecting higher labour mobility in an economic upswing compared with a period of recession. This is generally true both concerning total exits as well as total entries. In the period of recession the highest labour mobility was observed in the capital region of Oslo and in the northernmost region of Tromsø, both showing a slightly increase of employment. In spite of showing the highest growth of employment in this period the Stavanger region experienced below average labour mobility, mostly due to low exits from employment. In a recession period also affecting the most central labour markets, the region of Oslo showed slightly higher exits from and entries to jobs than the regional average suggested. The smaller region of Kongsvinger was most affected by the recession, showing far below average entries to jobs.



In the period of economic upswing the need for recruitment increased remarkably in all regions. Highest percentage of entries was observed in the regions of Stavanger and Oslo, both showing above average exits from employment, which had to be more than replaced. Strongest net employment growth took, however, place in the regions of Ålesund, Oslo and Kristiansand. Due to higher exits from employment in the capital region, the need for new entries were somewhat higher compared with the two other regions. Like in the recession period, the smaller region of Kongsvinger also experienced the lowest percentage of entries to jobs in the economic upswing. This was partly due to low exits from jobs and low employment growth.

In figures 4.1b and 4.1c the total labour mobility is broken down by educational level. The mobility is measured by a vacancy filling rate, where the number of entries (gross recruitment in the local labour markets plus in-migration to job) are seen in relation to total exits from employment (employed leaving a job in the local labour market plus out-migration from job).



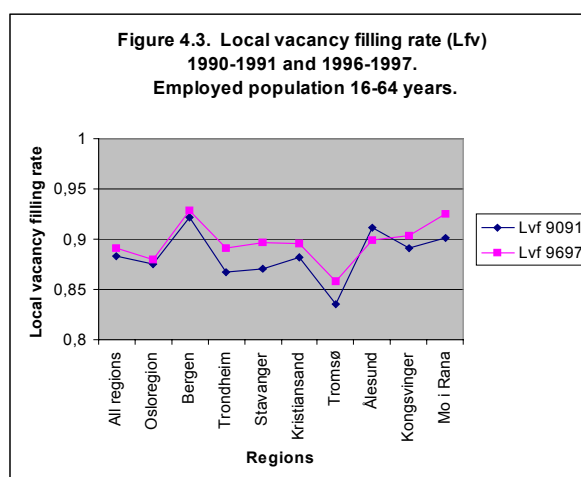
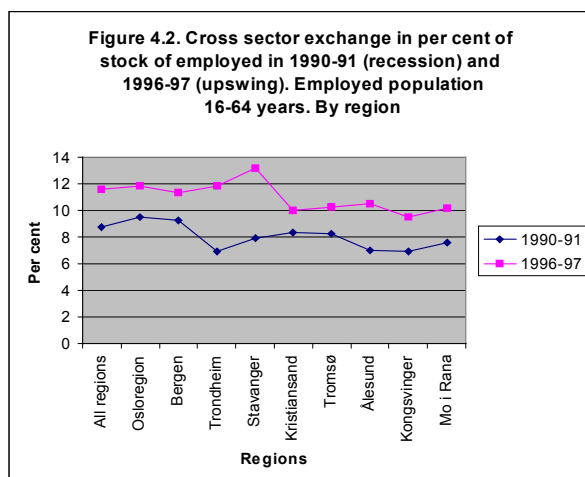
The recession years in the beginning of the 1990s mostly affected the low educated part of the employment. This was most remarkable in the smaller region of Kongsvinger, where the entries to jobs by low educated persons were about 17 per cent below the exits from jobs. The regions of Bergen and Ålesund differed, however, from the other regions with a labour market recession mostly affecting the high educated employed. During the economic upswing almost generally the employment increase was strongest for low educated persons. The smaller region of Mo i Rana was the only one deviating from this pattern, showing higher excess of entries to jobs among middle educated persons. An explanation of the well developing labour markets for low educated was to be found in the fact that this group was generally most affected in the recession years earlier in the 1990s, re-entering the labour markets as employed in the second half of the 1990s. These results may as well reveal a remarkable high labour market participation, forcing the employers to search for employed from more marginal part of the labour force. On the other hand, it is, however, important to notice the weak performance of higher educated in the northernmost regions of Tromsø and Mo i Rana during the economic upswing period. The change in employment by education may also partly be explained by changes in the structure of production, which clearly vary across the regions.

4.1.2. Cross sector exchange

The local job-to-job mobility between sectors is expected to comprise a large part of the total labour mobility. Like for total mobility hypotheses are raised expecting an increase also in the cross sector exchange when turning from periods of economic recession to periods with economic growth. Figure 4.2 illustrates how the level of local cross sector exchange differed between the regions in the two investigation periods. The local cross sector exchange is measured by a rate, showing the number of employed changing sector in the local labour markets in relation to the total stock of employed. Compared with the total labour market mobility in figure 4.1 above, the local cross sector exchanges comprises slightly below half of the total mobility in and out of employment. Figure 4.2 shows a general increase in the local cross sector exchange when turning from economic recession to a period with economic upswing. There were, however, some regional differences in the change of sectors, and the mobility was considerable higher in the larger regions, especially during the upswing period.

4.1.3. Level of self-sufficiency in local labour markets

A well functioning regional labour market is dependent on a sufficient local labour force to fill in the continually emerging vacancies. On the other hand, such regions will also be



attractive for in-migrants and function as a buffer for out-migration. To examine this the level of self-sufficiency in the local labour markets are measured by a local vacancy filling rate, defined as the local recruitment to jobs in relation to the total recruitment to jobs in each region. Figure 4.3 shows the level of self-sufficiency both in the recession and economic up-swing period. The general trend is a somewhat higher level of self-sufficiency in the boom period compared with the recession years. This is somewhat surprising, expecting higher migration to jobs in a boom period. Recent investigations, e.g. Stambøl et al. (1997, 1999) and in the chapter 4.2 below, reveals, however, the fact that migrants are very competitive in the labour markets. This effect is thus expected to be even stronger in a recession period, when the competition for jobs among suppliers is increasing. Although the migration to jobs increase from a recession to a boom period, the competition at the labour market is gradually shifting from the supply side to the demand side, rising the possibility and also the necessity for other parts of the labour force to become employed. The different level of self-sufficiency between the time periods may reflect these differences in labour market behaviour, thus favouring the relative position of migrants in periods of recession.

Not surprisingly, the regions normally showing the highest gross-migration figures also show the lowest level of self-sufficiency of labour. The regions of Oslo and Tromsø generally have high supply of in-migrants, which in competition with the local labour force results in high shares of in-migrants to jobs. On the other hand, the smaller regions of Ålesund, Kongsvinger and Mo i Rana, all showed rather high level of self-sufficiency in their local labour markets. Due to relatively low in-migration to jobs these regions are very dependent on their own labour force in filling in the emerging vacancies. Somewhat more surprisingly the same tendency was to be found in the larger region of Bergen.

4.2 Input and economic returns to human capital investments

In section 4.1 above we have analysed the quantitative aspects of the regional labour mobility measuring the gross-flows by the number of persons. In this section we examine the "qualitative" impacts of labour mobility between regions. Well-functioning regions are expected to become net receivers of labour from other regions. In addition these regions are also expected to attract the most qualified labour and thus be the winners in the competition of the best human capital. On the other hand the most qualified labour expect to achieve as much returns to their human capital investments as possible, searching their careers in direction of those regions which actually gives the best return. This section is thus stressing two main

aspects of these topics, first analysing the regional competitiveness for the most qualified labour, and second, analysing the return of human capital by changes in income.

4.2.1. Changes of educational level. "Brain-drain" or "brain-gain"?

For an examination of the two concepts "brain-drain" (a relative loss of qualified persons) and "brain-gain" (a relative gain of qualified persons) we have introduced a concept of average education (see section 3 above). In this section we examine which groups of employed contribute most to the rise of the educational level in each region. In Figure 4.4a the average educational level of employed migrants and local mobile and non-mobile employed are shown during the recession years. It was a clear tendency that local mobile employed had a somewhat higher educational level than local employed non-mobile. On the other hand employed in- and out-migrants showed a remarkably higher educational level compared with the other groups. This shows that the migration streams of employed includes a very high qualification level in addition to the number they represent. This indicates that the regional competition for employed migrants becomes even more important. Analysing the "brain-gain/brain-drain" through regional migration, it is noteworthy to recognise that the capital region of Oslo experienced a "brain-drain" of employed through the migration processes in this period, showing higher educational level among employed out-migrants than among employed in-migrants. The recession hit the capital region and other central regions as much as other regions, while the smaller regions of Kongsvinger and Mo i Rana experienced a "brain-gain" of employed migrants in these years.

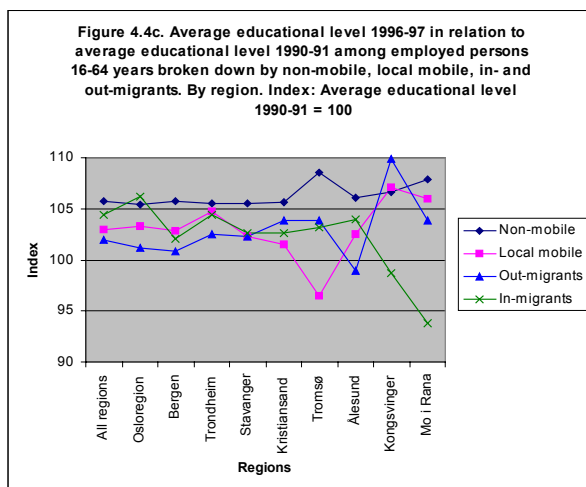
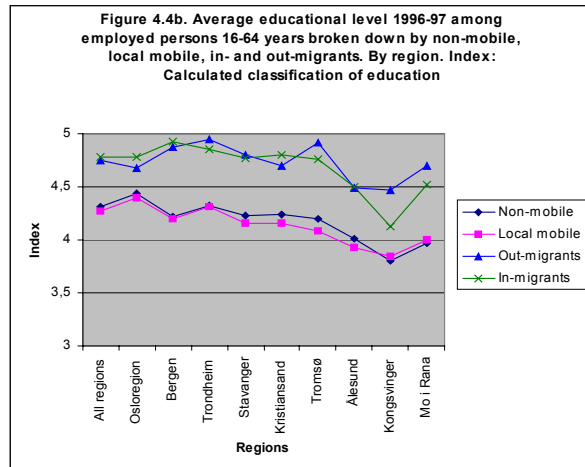
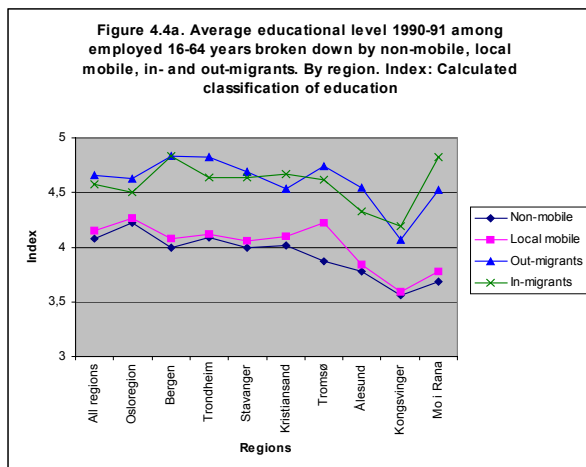
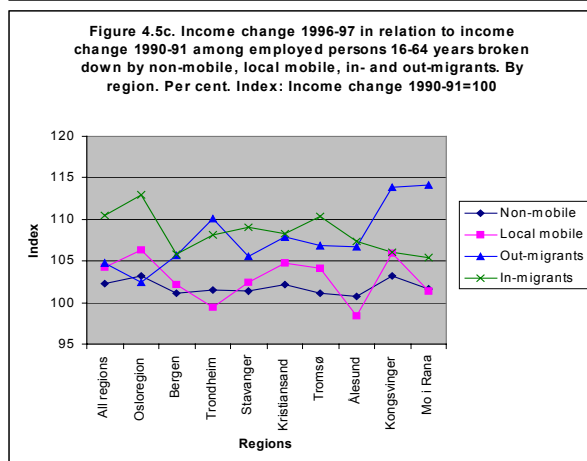
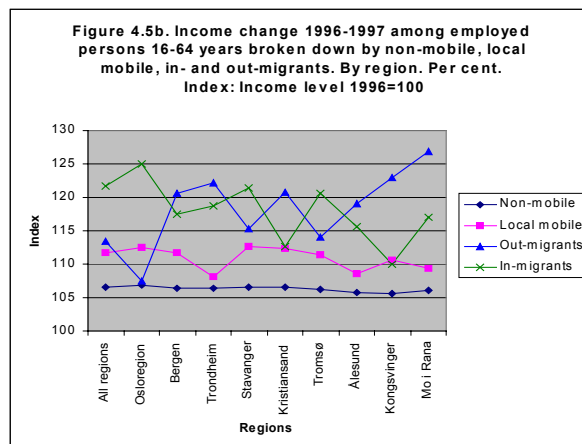
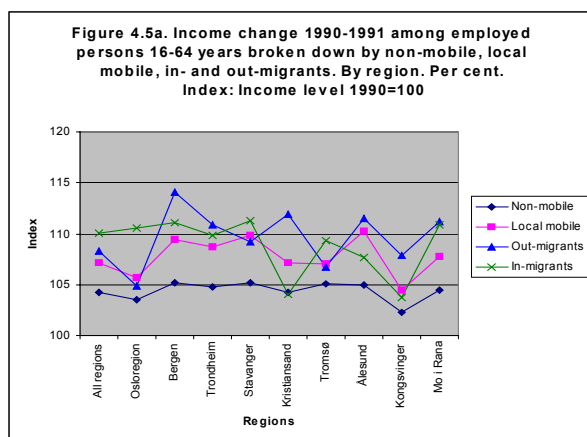


Figure 4.4b shows similar results from the period of economic upswing. Like in the recession the educational level of employed migrants was considerably higher compared with other employed. The central regions of Oslo and Bergen besides the region of Kristiansand showed a considerable "brain-gain" through the migration process, while the region of Tromsø, and the smaller regions of Kongsvinger and Mo i Rana experienced a clear "brain-drain" correspondingly. Considering the majority of employed, who did not migrate, the educational level now seemed to have been somewhat higher among non-mobile compared with local mobile. This is illustrated in figure 4.4c, which shows the average educational level among employed in the boom period in relation to the recession period. In average all groups of employed increased their educational level between these periods. The figure indicates, however, that employed non-mobile has increased their educational level most during the 1990s. In-migrants to jobs also showed a significant rise in their educational level, while out-migrants from jobs showed the least improvement of education. The increased "brain-drain" through the migration processes in the smaller regions of Kongsvinger and Mo i Rana was recognised with a fall in the educational level of in-migrants to jobs during the 1990s as well as a remarkable increase in the educational level of out-migrants from these regions.

4.2.2. Economic returns

In the same way as investigating the qualification streams above, this section illustrates the course of the economic returns in the different mobility groups. In figure 4.5a the income change among employed migrants, local mobile and non-mobile employed is shown during the recession years. It was a clear tendency that non-mobile employed had a weaker income growth compared with employed that were mobile within or between the regional labour markets. This reveals the expectation that when employed choose to change their jobs, they mostly do this when achieving a higher income. Another important factor is the educational level. The mobile employed almost generally had higher educational level than non-mobile employed. In this context we thus expect that migrants do achieve a higher income growth compared with other employed. In addition to different income levels within the local labour markets, income changes through regional migration also reflect the differences in income across regions. This is illustrated by the differences in income change between in- and out-migrants in the capital region of Oslo, showing much higher income growth among in-migrants compared with out-migrants. The opposite phenomenon was observed in many of the other regions.

Figure 4.5b shows similar results from the economic upswing period. The differences in income change between the groups was now more distinct, with lowest income change among non-mobile employed, and almost generally higher income growth among migrants compared with local mobile employed. Strong income growth was especially observed among in-migrants to the region of Oslo. As described in the section above, the "brain-gain" of the migration processes was significant in the capital region in these years, adding to the regional differences in income level, which may reflect the relatively lower income growth of out-migrants from Oslo. The regions of Stavanger and Tromsø also showed higher income growth among in-migrants compared with out-migrants. This was somewhat surprising in the region of Tromsø, experiencing a "brain-drain" through the migration processes in this period. It is in this context also noteworthy to recognise the very strong rise in income among out-migrants from the smaller regions of Kongsvinger and Mo i Rana, reflecting very high economic returns by moving to other regions.



In figure 4.5c the income change during the economic upswing is compared with the income change in the recession period. As expected the increase of income follows the economic cycles with higher income rise during the upswing period. Also in this context the income winners in the regional labour markets were those who chose to move to Oslo, Stavanger and Tromsø or out-migrated from the smaller regions of Kongsvinger and Mo i Rana.

4.3 Local labour market performance

In this section, we do discuss how the local labour markets perform through different transition to employment. The analysis includes a total local labour market performance rate, which measure the relative performance within each region. The total performance rate is composed of a set of different mobility rates derived from internal gross-flows within the local labour markets. All local labour market mobility measures are compared with the national average measures correspondingly.

Local labour market performance index

Each individual in the local labour force (16 – 64 years) is classified according to their highest formal education: Primary, secondary and post secondary. Each individual in the local labour market is further classified in terms of careers to employment year t+1 from either of the following status year t: Employed, unemployed, under education and others outside the labour force. Hence, the local labour market performance index (LLMPI) is a description of the rate of activation of twelve pools of labour in the local labour market in comparison with the corresponding activation rate in the country as a whole (figure 4.6). As the figure shows the activation rates are thus measured for four main groups (A-D) broken down by three

educational levels. The activation rate of each group is measured separately, but the rate of each element may be interdependent. In a well functioning and strong growing regional labour market there may be room for a high score in most of the separate indexes. In reality the situation may be different, where several of the rates may be in competition with each other, although segmentation excludes to a certain extent cross-educational competition. In many regions high net in-migration to jobs may function as an obstacle to high transition from local unemployment to job or from local education to job, while in other regions the situation may be opposite. In the end of this section we thus include an analysis comparing the local activation to jobs in the local labour markets with activation through net in-migration to jobs.

Figure 4.6. *Local labour market performance index (LLMPI). Rate of local activation of twelve pools of labour force in the local labour markets (LLM)*

Status year t	Status year t+1: Employed		
Education:	Primary	Secondary	Post secondary
A. Employed in the same LLM	A1. Job to job (primary)	A2. Job to job (secondary)	A3. Job to job (Post secondary)
B. Unemployed in the same LLM	B1. Unemployed to job (primary)	B2. Unemployed to job (secondary)	B3. Unemployed to job (post secondary)
C. Under education in the same LLM	C1. From education to job (primary)	C2. From education to job (secondary)	C3. From education to job (post secondary)
D. Others in the same LLM	D1. Others to job (primary)	D2. Others to job (secondary)	D3. Others to job (post secondary)

Each of the elements in the total local performance index is calculated as follows:
 A1-A3. Job to job: Persons still employed at the same LLM year t+1/All employed at the same LLM year t) - (the same relation for the nation as a whole).
 B1-B3 Unemployed to job = Became employed at the same LLM year t+1/All unemployed at the same LLM year t - (the same relation for the nation as a whole).
 C1-C3 Education to job = Became employed at the same LLM year t+1/All persons under education in the same LLM year t - (the same relation for the nation as a whole).
 D1-D3 Others to job = Became employed at the same LLM year t+1/Persons outside the labour force in the same LLM year t - (the same relation for the nation as a whole).

The total local labour market performance index (LLMPI) appears as the average of all twelve elements (A1-D3). The total performance index gives an illustration how each local labour market performs in the national context. The decomposition of the total indexes should, however, give some incentives to different sector-policy what may be successful or less successful performances. The total indexes illuminates how the local labour market function as a whole, while the elements give a measure which transitions contributes most to the total local well performance. The job-to-job elements and not at least the unemployment-to-job elements represent important areas for national and regional labour market policies. In the same way the elements, from education to job, reflect the success of the educational policy, measuring to what extent the local labour markets are able to absorb the newly educated. All these elements are, however, important for the regional policies.

In table 4.1 the total local performance index of each region is shown in the period of recession and economic upswing period. During the recession period there were only two out of the nine regions that performed better within their local labour market than the national average suggested. Best local performance was to be found in the region of Stavanger, while the local labour market of Bergen also had slightly higher figures than the national average suggested. It is worth noticing the negative local performances in central regions like Oslo and especially Trondheim. In the period of economic upswing the number of regions with local performances

above the national average increased slightly to three out of nine. The smaller region of Ålesund now showed the best local performances while Stavanger and the capital region of Oslo also experienced a local performance better than the national average suggested. According to hypotheses we should expect that the largest regions (1) should perform better than the medium sized regional centres (2) and the smaller regions (3). As the figure show, there were, however, several deviations from these patterns both during recession and economic upswing.

Table 4.1. Total local labour market performance index in 1990-1991 (recession) and in 1996-1997 (economic upswing). National average = 0.

Total local index of performance in 1990-1991 (recession)			Total local index of performance in 1996-1997 (economic upswing)		
1. Stavanger	(2)	0.79	1. Ålesund	(3)	1.58
2. Bergen	(1)	0.33	2. Stavanger	(2)	0.93
3. Mo i Rana	(3)	-0.34	3. Osloregion	(1)	0.56
4. Osloregion	(1)	-0.36	4. Bergen	(1)	-0.01
5. Tromsø	(2)	-0.71	5. Tromsø	(2)	-0.32
6. Ålesund	(3)	-0.73	6. Mo i Rana	(3)	-0.62
7. Kongsvinger	(3)	-1.32	7. Trondheim	(1)	-1.11
8. Trondheim	(1)	-1.36	8. Kristiansand	(2)	-1.59
9. Kristiansand	(2)	-2.74	9. Kongsvinger	(3)	-2.65

In the figures 4.7a - 4.7c the total local performance rates in each region is broken down by each element shown in figure 4.6. The contribution from each element did vary remarkably both between periods, between regions as well as within regions. The relative good local performances in Stavanger during the recession period was mainly due to relative better access in the local labour market for lower and middle educated persons from education. The transition rates from unemployment to job was also higher than in most other regions, and especially then for unemployed with middle education. The better than average local performance in this region during the economic upswing mostly revealed the high transition from education to job among low and middle educated and high transition from unemployment to job among persons with higher education. The negative local performance in the capital region during the recession period was not homogeneously distributed among the transition elements. The negative figures were partly due to higher than average deactivation from jobs in the local labour market, but mostly due to very low transition from unemployment to job in all education groups. The transition rates from education to job were, however, positive during this period. This transition pattern was also clearly present in the economic upswing period, when the positive total local labour market performance in the capital region mostly derived from far better transition from education to job than the national average suggested. The very high local performance rate in the smaller region of Ålesund during the upswing period was due to high transition to job from unemployment and from education to job among persons with lower education. The increased tightness in this local labour market did as well strongly activate others outside the labour force. More generally it was a certain trend that the most growing central regions showed the best performance with regard to education-to-job recruitment and weaker performances with regard to transition from unemployment to jobs, while the situation was opposite in some medium sized and smaller regions. This may reflect the necessity of newly educated into several of the central located branches.

Figure 4.7a. Local index of performance 1990-1991 (recession) and 1996-1997 (economic upswing) in the main cities of Norway. National average = 0.

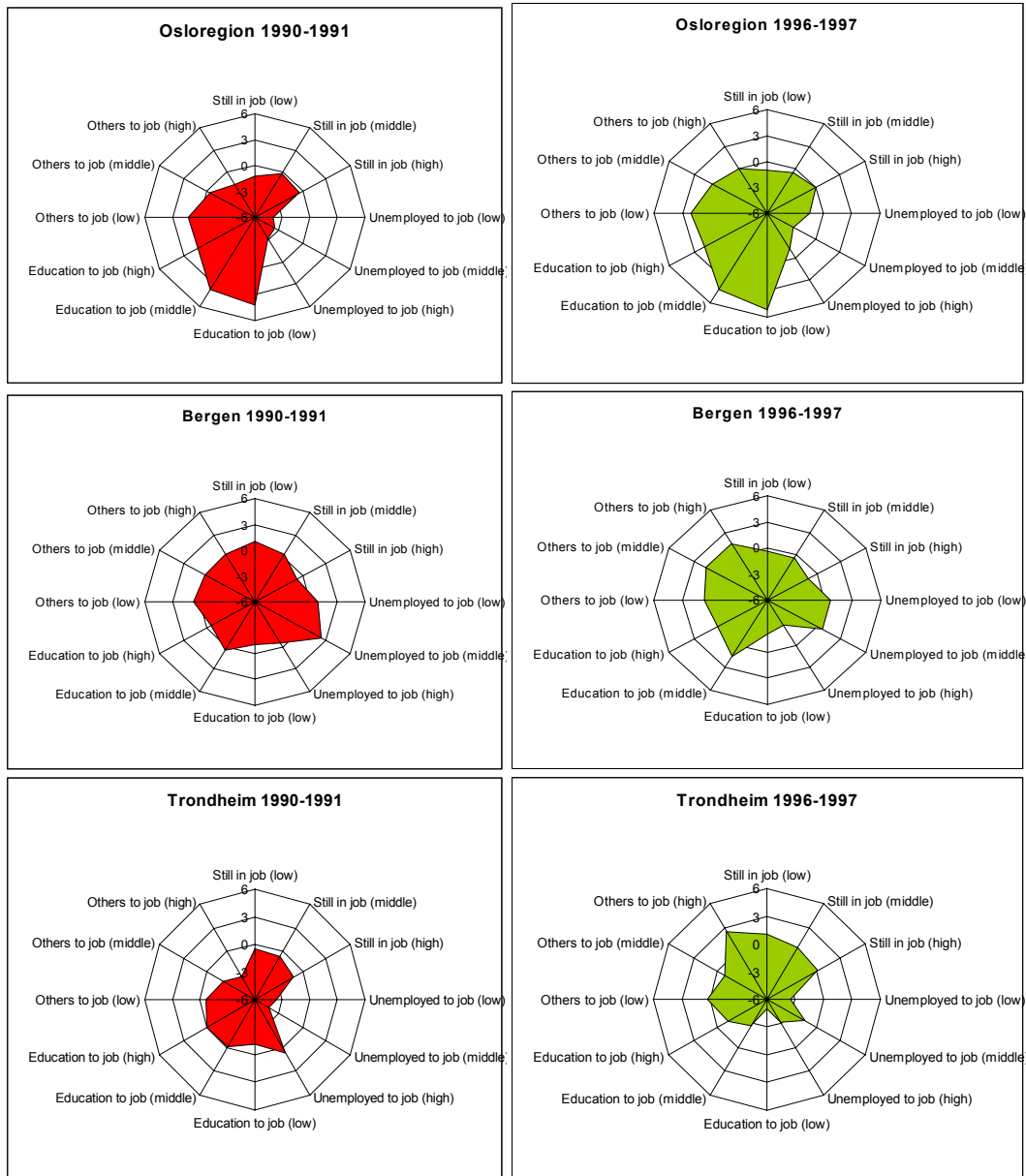
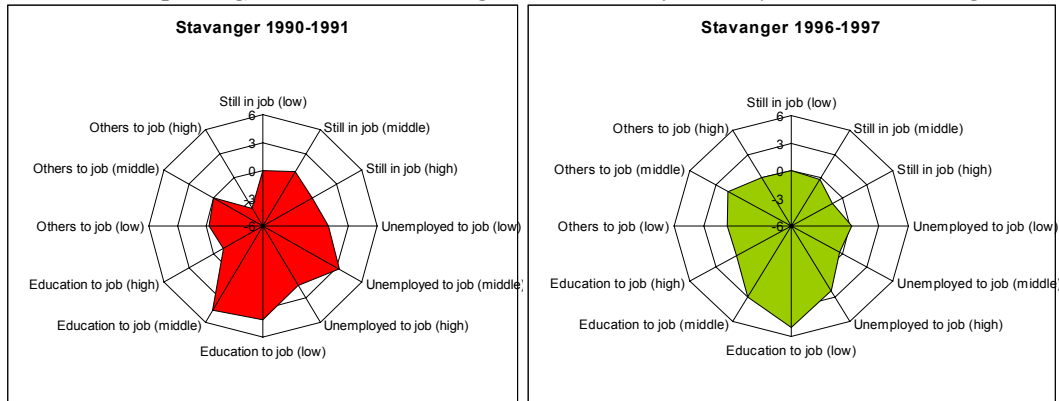


Figure 4.7b. Local index of performance 1990-1991 (recession) and 1996-1997 (economic upswing) in intermediate regional centres of Norway. National average = 0.



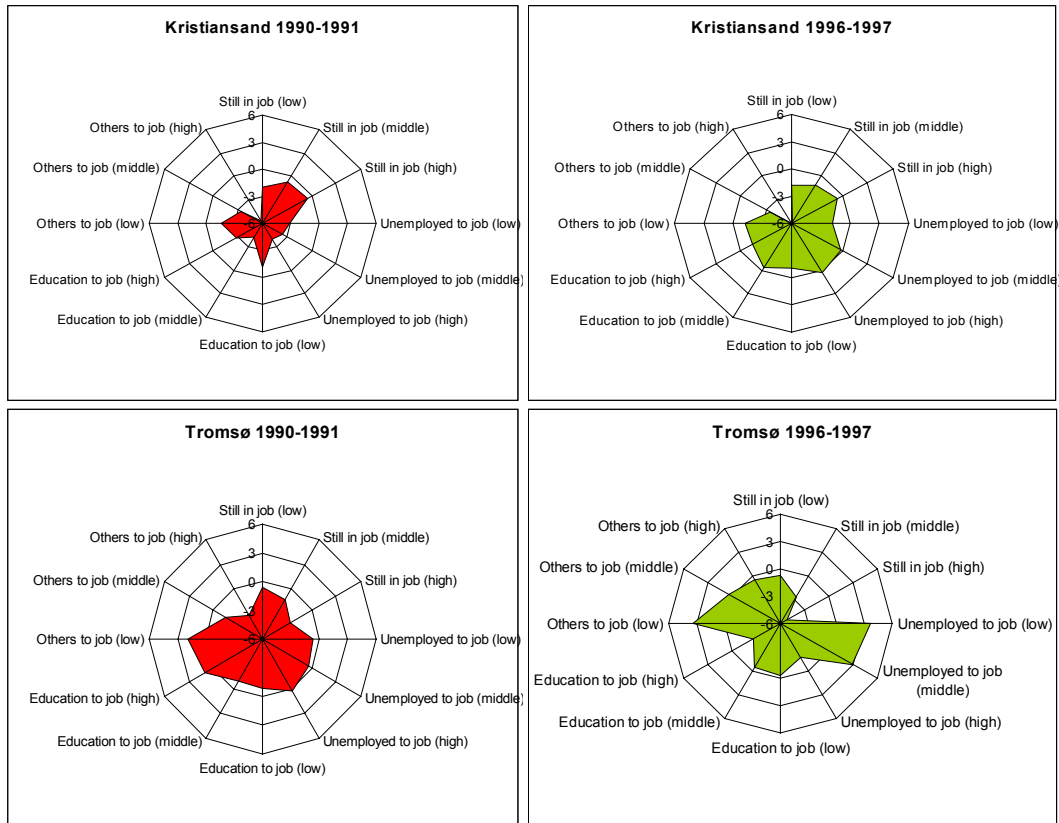
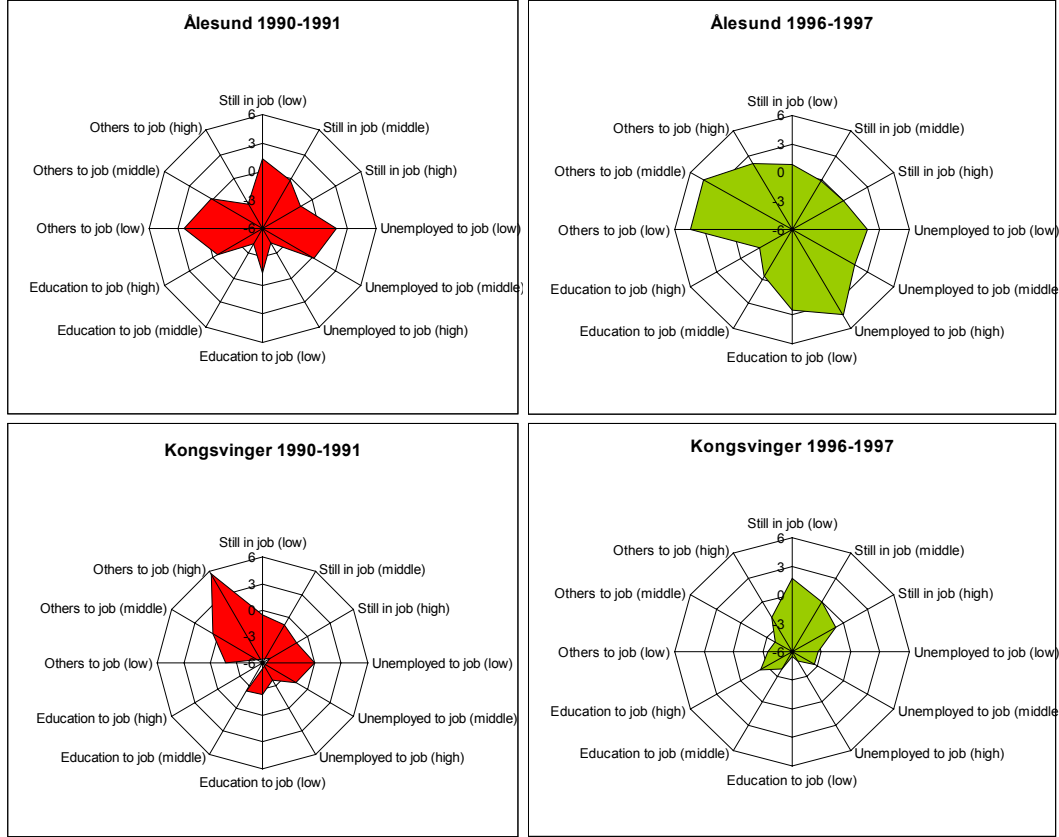
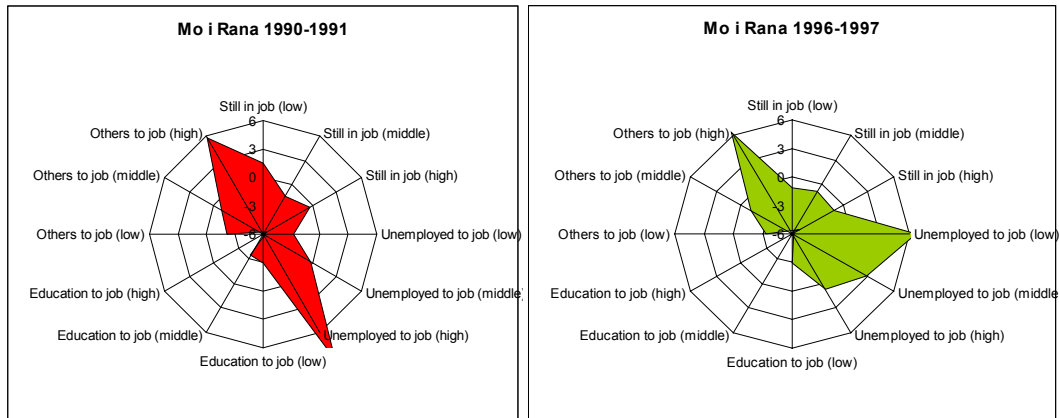


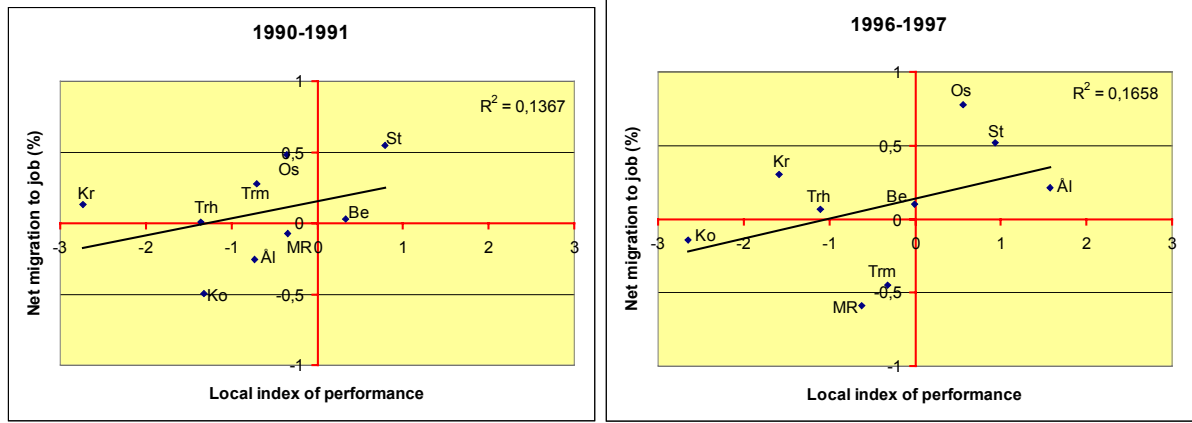
Figure 4.7c. Local index of performance 1990-1991 (recession) and 1996-1997 (economic upswing) in smaller regional centres of Norway. National average = 0.





As mentioned above, the local performances within each region must be seen in light of the recruitment to jobs derived from the migration processes. In a well functioning region with a growing labour market there should be room for and necessity of both high local recruitment to jobs as well as positive net in-migration to jobs. On the other hand there may appear times when these groups are in competition with each other applying to fill in the same vacancies in the regional labour markets. As already shown, migrants represent a highly competitive group in the regional labour markets, which through their level of qualification makes them even more important than their actual number should suggest. In the figures 4.8a - 4.8d we have thus compared the local recruitment to jobs measured by the local performance indexes and the recruitment to jobs derived from net migration. The figure 4.8a shows the relationship between the total local labour market performance index and the total net in-migration to jobs, while in the other figures all measures are broken down by education.

Figure 4.8a. The relationship between net migration to job and total local index of performance in 1990-1991 (recession) and 1996-1997 (economic upswing)



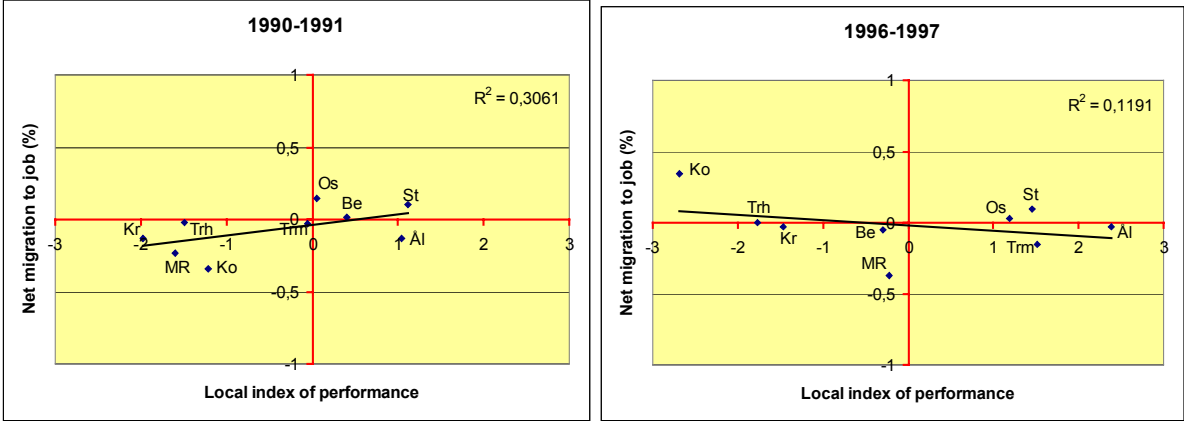
Os = Osloregion, Be = Bergen, Trh = Trondheim, St = Stavanger, Kr = Kristiansand, Trm = Tromsø, Ål = Ålesund, Ko = Kongsvinger and MR = Mo i Rana.

Figure 4.8a shows that it was a certain positive correlation between the local performances and net in-migration to jobs during the recession period. Some regions deviated, however, from this pattern with much higher net in-migration to jobs than the local recruitment suggested. With weak local performances in most of the regions in this period, a relative high net in-migration to jobs in the region of Oslo, and also in the regions of Tromsø and Kristiansand, contributed to an even weaker local performance in these regions. In the economic upswing period, the positive development in the regions of Oslo, Stavanger and Ålesund gave room for

both good local performances as well as positive net in-migration to jobs. Weak local performances in the regions of Tromsø, Mo i Rana and Kongsvinger was followed by a net out-migration from jobs, while weaker than average local performances in the regions of Trondheim and especially Kristiansand were counteracted by employment growth through the migration processes.

Breaking down the results by education, figure 4.8b shows that the regions of Stavanger, Bergen and Oslo all had better local performances of employed with lower education in the recession period than the national average suggested. All these regions experienced as well a positive net in-migration to jobs for this education group. The relative good local performances of lower educated employed in the smaller region of Ålesund was partly due to net out-migration from jobs, establishing vacancies in the local labour market. All other regions show a positive correlation. In the economic upswing period, it was weaker correlation between local performances and net in-migration to jobs for lower educated labour. A well local performance for this group in the regions of Oslo and Stavanger was followed by a positive net in-migration to jobs. An even better local performance for this group in the regions of Ålesund and Tromsø was, however, counteracted by net out-migration from jobs. In periods with employment growth, net out-migration from jobs increases both the prospects for and the necessity of good local recruitment. On the other hand the very weak local performance of lower educated labour in the smaller region of Kongsvinger increased the necessity of net in-migration to this category jobs during the economic upswing period.

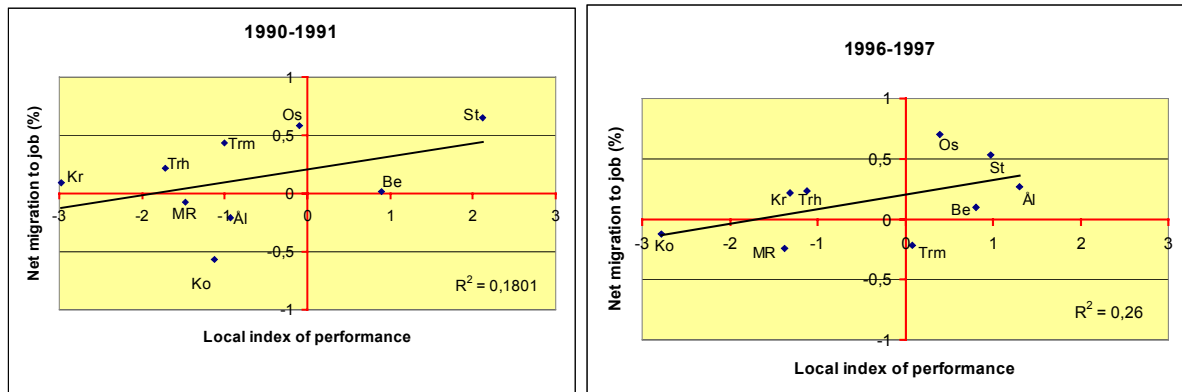
Figure 4.8b. The relationship between net migration to job among lower educated persons and local index of performance of lower educated in 1990-1991 (recession) and 1996-1997 (economic upswing)



Os = Osloregion, Be =Bergen, Trh = Trondheim, St = Stavanger, Kr = Kristiansand, Trm = Tromsø, Ål = Ålesund, Ko = Kongsvinger and MR = Mo i Rana.

In figure 4.8c similar results are shown for middle educated labour. During the recession period the well local performance for this group in Stavanger was followed by a high net in-migration to jobs, while the negative local performance in the smaller regions of Mo i Rana, Kongsvinger and Ålesund was followed by net out-migration from jobs correspondingly. The weaker local performance for middle educated labour in Oslo, Tromsø, Trondheim and Kristiansand was, however, counteracted by a clear net in-migration to jobs. In the economic upswing period the correlation between local performance and net in-migration of middle educated labour was somewhat better, although regions like Kristiansand and Trondheim still showed remarkable net in-migration to jobs in spite of not too well local performances.

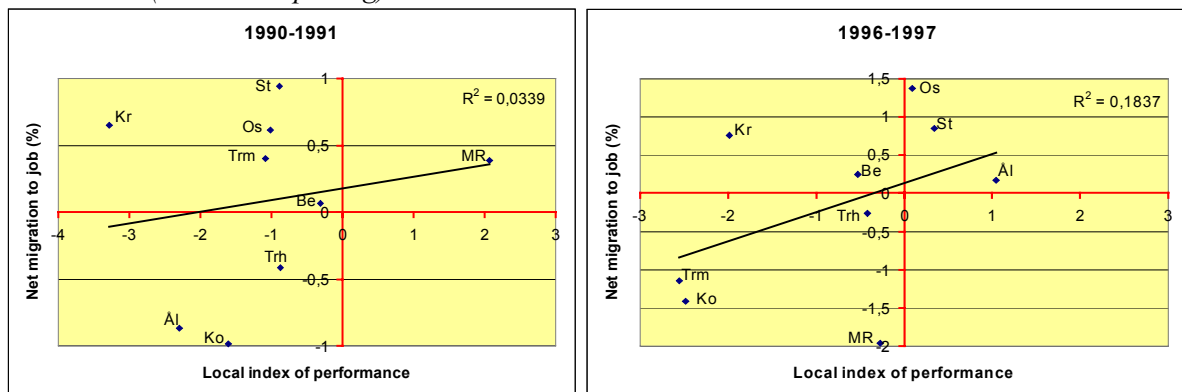
Figure 4.8c. The relationship between net migration to job among middle educated persons and local index of performance of middle educated in 1990-1991 (recession) and 1996-1997 (economic upswing)



Os = Osloregion, Be = Bergen, Trh = Trondheim, St = Stavanger, Kr = Kristiansand, Trm = Tromsø, Ål = Ålesund, Ko = Kongsvinger and MR = Mo i Rana.

Finally figure 4.8d shows the correlation between local labour performance and net-migration for higher educated labour. The figure reveals the very weak local labour market position for this group in the central regions during the recession period. Of the nine regions only Mo i Rana experienced a local performance of higher educated labour above the level suggested by the national average in this period. Most regions showed, however, negative correlation between local performance and geographical mobility for this group. Central regions in southern Norway, like Stavanger, Oslo and Kristiansand showed all a remarkable net in-migration to well qualified jobs in spite of rather weak performances for this group within these local labour markets. These figures reveal the fact that the in-migrants were the winners in these regions and rather strengthened the decrease of local performance in a period with very weak development in the employment. Figure 4.9d shows, however, better correlation between local and geographical mobility of higher qualified labour during the economic upswing period. All regions except from Kristiansand and Bergen showed positive correlation between local recruitment and net in-migration to jobs in this period. Like in many of the results above, the region of Kristiansand showed a clear positive net in-migration to jobs in spite of (and may be because of) rather weak local performance.

Figure 4.8d. The relationship between net migration to job among higher educated persons and local index of performance of higher educated in 1990-1991 (recession) and 1996-1997 (economic upswing)



Os = Osloregion, Be = Bergen, Trh = Trondheim, St = Stavanger, Kr = Kristiansand, Trm = Tromsø, Ål = Ålesund, Ko = Kongsvinger and MR = Mo i Rana.

5. Concluding remarks

- The gross labour market mobility generally grew from the recession years at the beginning of the 1990s up to the economic upswing period of 1996-97.
- The local cross sector exchange did as well increase remarkable from the recession to the upswing period.
- The vacancy filling of middle and higher educated persons was higher than for lower educated during the recession, while the vacancy filling of lower educated was the most dominating during the upswing period. This may partly reveal a returning of lower educated into employment and partly reflect the very high labour market participation, forcing the employers to search for employed from more marginal part of the labour force.
- The smaller regions showed a local vacancy filling above the average level in both investigation periods. This reveals a higher dependency on own labour force due to less recruitment through in-migration to jobs.
- The self-sufficiency of labour tends to increase in upswing periods and decrease in recessions. This is due to the highly competitiveness of migrants that expects to have stronger effect during recessions when the competition mainly is to be found at the supply side.
- The level of education was significantly higher among employed moving between regions compared with local mobile and non-mobile employed.
- The central regions experienced a "brain-drain" through the migration processes during the recession period, while the smaller regions had a "brain-gain". During the upswing period, the situation was clearly the opposite.
- Employed migrants showed much higher income growth than local mobile employed and especially non-mobile employed.
- In-migrants to the capital region of Oslo and the regional centres of Stavanger and Tromsø experienced higher income growth compared with out-migrants from these regions. In all other regions out-migrants showed higher income increase than their in-migrant counterparts.
- The high rise of income among migrants indicates that income may be a more important factor for migration than earlier assumed in the Norwegian egalitarian wage structure.
- It was no clear tendency of better total local labour market performances in larger regions than in medium sized and smaller regional centres.
- The most growing central regions showed the best performance with regard to education-to-job movement. This may reflect the necessity of newly educated into several of the central located branches.
- The migration processes contributed significantly to the total regional labour market performances and especially then in some central regions of Southern Norway.
- Highly competitive job-migrants did strengthen the weak performances within some local labour markets in the recession, while the upswing period gave room for both local recruitment and in-migration to jobs in the best performing local labour markets.
- The migration processes seemed to function better in the regional labour markets in the upswing period than in the recession period, especially then for middle and higher educated labour.
- The migrants as a group is rather successful in the labour markets compared with many other groups, and represent thus a more important factor for the regional labour market performance and competitiveness than their actual number should suggest.

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