

Performance of Local Employment Systems in Nordic Countries

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Introduction

At the national level the employment system consists of the set of institutions, and policies affecting institutions, which together moderate the level of production, employment and unemployment in a country. These institutions include employment legislation, taxation policy and the education and training systems. However, the dynamics and the performance of the national labour markets could only be understood by analysing the still more complex and systemic character of employment at the regional and local levels. The regional and local social systems function as filters or restrictions, resulting in differing performance of local labour markets. The interaction between the labour market and the local educational and private household systems – including its various preferences and life-style options - is reflected in and allowing for differing rates of labour market participation and for more individual extensions of work day space. This is particularly valid in large countries in *Norden*, where there is a wide variation of functional labour markets in terms of size, differentiation, density, mono- or polycentric surrounding and demographic structure. At the same time, labour markets cannot be demarcated on the map in any definite way.

In this paper, we set out firstly to describe the working day space as responses to technological and structural changes, working life organizational changes and altering priorities in the household sector; secondly to develop a common typology of local labour markets (LLM), reflecting the full variation in size, function and polycentric surrounding relevant to four Nordic countries; thirdly to analyse the performance of the common Nordic labour market in the year 2001, at three levels; namely at the national level, between different categories of LLMs and within LLMs of the same type; and fourthly to analyse the rate of convergence at the common Nordic labour market during the period 1994-99 between different types of LLMs within each of the countries and between individual labour markets within each category of LLM.

Hence, we aim at a benchmarking approach, allowing us to suggest hypotheses on the factors explaining superior and inferior performance of labour markets at different levels. Explanations to the particular performance of the national labour market may be sought for *both* in the structure of the national LLM system according to size, function and polycentric potential *and* in institutional differences. Differing performance within each category in a given country will be described by analysing characteristics of outliers at both ends.

Employment Policy in Nordic countries

In all Nordic countries, national labour market policy is uniformly implemented across the country. The focus is on the activation of the unemployed. The goal of the governments' labour market policy is to achieve full employment – in some countries

(as Sweden) stipulated to reach 80 percent regular employment in the population aged 20-64 years of age, in 2004. *Labour market policy* has three principal tasks: To channel work to the unemployed and labour to the employers, to take steps to combat labour market bottlenecks, and to take initiatives to help those who have difficulty obtaining work in the regular labour market.

Labour market performance, however, is also depending on national characteristics of *social insurance* and the *study support system*, which is considered to be an important instrument for the implementation of the countries' educational targets. The role of study support is to remove financial, geographical and social barriers to people wishing to pursue further education. The ambition to improve women's chances for work has been central to Nordic policy making for a number of years. The most important measure in this connection is the *childcare facilities*, which is to some extent differently developed in the Nordic area. The *health insurance* is also differently implemented in the four countries. These systems are all differently ambitious in the four countries, which is expected to be reflected in differing performance of labour market at each nation's level.

Regional policy aiming at Well Functioning Local Labour Markets

It is generally accepted across Europe, that the economic performance of regions, nations and indeed of the entire European Union is dependent on the efficient performance of each individual LLM. For instance, in the case of Sweden, a Government Bill on regional policy states that, "well functioning local labour markets across the entire country should be the prime objective for regional policy, aiming at increased economic growth in all regions." However, due to wide variations in structural terms, it is probably not feasible to set a common standard objective for the performance of all local labour markets in any one country.

It is also commonly expressed, that in order to optimise the performance of the diverse types of LLMs, labour market policy has to be flexible, as well as being adjusted to, and implemented at, the lowest possible regional level.

The rates of labour mobility, vertical and horizontal/geographical, as well as the flexibility of wage policies also vary considerably within Europe. National labour market policies have different rationales in different countries, and their implementation is, to a varying extent, decentralised to the regional and local levels. There are already some results currently available from evaluations of common European employment programme initiatives (e.g. Territorial Employment Pacts), and over the next few years there will be an abundance of *ex-post* evaluation reports available in connection with the EU five year Employment Strategy, which ended in 2002. As such then what we have is the emergence of an increasingly important research field in comparative labour market analysis across Europe.

In order to be applicable at a functional common framework labour market level, economic development, including policies on education and communication, as well as on social policy, will all have to be better co-ordinated at the national, regional and local levels. This calls for an improved and qualified information system that targets both the performance of individual LLMs and differing types of labour markets.

Local labour market – a fuzzy concept

In evaluating labour market performance, however, it is necessary to define local labour market as a geographical entity. It is obvious, that in parallel to the urbanisation process in Nordic countries – i.e. the de-population of rural areas and growth of cities – during the 1900s, a successive *regional enlargement* occurred, as a result of the increased technological range of residents. The increasingly common commuting to work is in the process of shaping what is partly a new settlement structure throughout the Nordic countries. In the first place, a few polycentric city regions have developed and, secondly, a number of expanded regional centres have formed. At the same time, there will continue to be a good number of smaller municipalities, which comprise quite isolated labour markets with industries of limited variety.

Labour markets cannot be demarcated on the map in any definitive way. And there are many indications that their geographical extent will be even more difficult to define in the future. This is due to the fact that human activity is to an increasing extent organised in networks, where the distance between different nodes often plays a minor role. There are tendencies towards changes in the *functional space* in three directions. In the first place, in many creative activities there is a development towards more global forms of organisation. Consultants, researchers, cultural workers – or more generally knowledge intensive industries – often work in international networks. In the second place, many types of goods and services production are becoming more dependent upon regional networks or clusters, not least between competence and educational centres, on the one hand, and the private sector on the other. Thirdly, the demographic development in society – with an ever-growing number of very elderly persons and a low birth rate – means that a growing dependency burden will be laid on the workforce, which has to provide for social services, education and health care of both children and the elderly. This places high demands for a substantial supply of publicly funded local labour force, not least in the many small municipalities with shrinking populations. The question then becomes, how do these three tendencies together contribute to the changing of the geography of work and economic growth in the long term.

Changes in the workday space

The spread of the local labour market means different things for different groups of the workforce. Women's working trips, for example, are shorter on the average. Men have, it would seem, greater freedom of choice in the labour market, but at the same time they subsequently face stiffer competition. The regions formed by individuals' travel patterns are thus affected, for instance, by a factor such as gender, which is a consequence of the traditional choice of education and profession. Women work – both privately and professionally – to a much larger extent than men, with regular personal contacts, which in turn limits both their need for and possibility to make lengthy trips. In the future we can expect a continued expansion of the geographical extent of labour markets. This does not necessarily mean that total work travel will increase substantially. In many activities, especially those where working with knowledge is a major job component, daily travel to the workplace will be reduced. A growing number of people will have the possibility of partly working at their residence and keeping in contact with colleagues, customers and information bases via telecommunications over an unlimited distance. Certain smaller population centres may attract a growing number of people and new service centres will appear nearby

those locations where people choose to live. This may result in a decreasing number of people who move to a job, while an increasing number will move to a residential environment, which is subjectively experienced as attractive.

New forms of work in the industry and service sector

For the spread of networks, the systems of transportation and of information communication are important. In these areas continued change is definitely to be expected. Companies' locations will be affected by new technology becoming available and by the re-locating of workplaces and inventory within companies. Completely new sectors will arise as the indirect result of developments within communications and logistics. There may in the future be more opportunities for independent contractors, especially among people working in specialised or general knowledge professions. Many of these jobs cannot even be described yet. The workforce that can avail itself of continuing education will also be the most competitive, regardless of its formal qualifications. Schools at various levels will become more and more disconnected from the local student base. Recurring periods of education will alternate with paid employment. There will be less nine-to-five work following fixed routines, and instead more flexible working hours.

The labour market regions of the future

How the enlargement of regions will proceed during the coming decades is naturally difficult to predict. This is linked to development in the area of communications technology, the expansion of infrastructure and, not least, the way the labour market functions in the future. A simple extrapolation of the development patterns we have seen in recent years would indicate that there will be 50 or so more-or-less independent local labour markets in Sweden in two to three decades' time. Today there are generally considered to be some 80 functional commuting regions, most of them comprised of several municipalities bordering on one another.

This can – in other words – lead to the formation of large city regions: in southern Norway: around Oslo; in southern Sweden/Denmark: in the Mälardalen region, in Västra Götaland around Gothenburg, as well as the Øresund region; and in southern Finland. In addition, a limited number of medium-sized regions will be formed in the Nordic area. The possibly remaining 200-300 small, local labour markets are expected, even in the future, to be so geographically isolated that they will not be able to become integrated into larger regions through traditional commuting. Many of these small local labour markets will become more and more dependent upon employment in health care and social services, primarily within the public sector. An approaching labour shortage may mean that the possibilities for developing a competitive private sector are at risk of becoming even more limited in these small communities than it is today.

The labour market and residential preferences

Access to various forms of education and possibilities of new careers have come to play a growing role for many people throughout their lives, i.e. not just during their youth. This may come to have a decisive significance for the way in which labour markets operate. It may happen that ever-growing numbers of people feel that they need to live close to greater and more specialised educational supply. Thus the university towns will continue to strengthen their positions, not only as a destination for in-migration, but above all as a base for people to continue to reside after their

basic studies. Already today, more than half of the tertiary educated workforce in the Nordic countries is concentrated to a very few big city regions. The geographical concentration of the knowledge society to three city regions can be expected to increase.

The third task of tertiary institutions – to serve as a stimulus for industry in the local/regional labour markets where they are located – has been discussed extensively in recent years. There is scarcely any doubt that there have been positive effects in several instances, but there are substantial differences between the Nordic countries. Near the end of the 1990s in Sweden it could be concluded that several of the relatively new colleges with primarily a general/social science orientation in their instruction, in principle functioned merely as transit locations for students, while primarily locations with technical instruction not only managed to keep a larger portion of their students but also reported a net increase in employment. In Finland again this pattern is not as marked, and where students from e.g. universities settle after graduation, is more dependent on the dynamics of the regional labour market than on study orientation. Thus for instance, of all students graduating from Lappeenranta Polytechnic University between 1997-2000, only 18% were living in the same region by the end of the period. On the other hand nearly 60% of all students graduated from Oulu University remained in place. In the smallest Swedish college towns hardly any effect at all has been seen. The small and medium-sized colleges have, on the other hand, by increasing the availability of tertiary education contributed to reducing the socially biased recruitment to tertiary education.

Continuing economic-geographical concentration

Together with the increasing concentration of the workforce in city regions, generally with a higher income level, and the increasing proportion of workers with higher education, an ever-growing portion of the nationally generated income will be created through work in these same regions. Today, between 50 and 60% of the Nordic GDP is generated in the three largest Nordic towns per country alone, and estimations for Sweden indicate that the all big city regions and college towns may eventually increase their combined share of GDP from the current 75% to as much as 85% in the space of a few decades (Persson & Nygren 2001). The geographical concentration of economic strength will thus become even stronger than the population concentration and number of employees. Many people will interpret this as a consequence of increasing international competition, where knowledge-driven service and goods production has the best premises for development in dynamic city regions.

The sector width and regional dynamics of industry

With the large variations in population density, industrial diversity and composition of the workforce which are found among the country's local labour markets, it comes as no surprise that the mobility of the workforce is a central factor in understanding the way in which these markets, and thus entire regions, function as production environments. The big cities are in general characterised by a high local workforce turnover, but a relatively low exchange of migration with other regions in consideration of the size of the labour market. One reason for the higher local mobility is that the big city regions have a substantially larger sector width than do all other regions. There are simply many more types of jobs and more employers to choose from.

Smaller commuting regions in various areas of the country, often comprised of a single municipality, are characterised by a much more one-sided industrial structure and thus by limited possibilities for an effective matching between supply and demand. Here there is often a permanently negative net migration, both to work and to study. These small areas are often dependent upon an import of college-educated people. They generally have great difficulty in offering work for the various competencies available and in meeting the work demands made by both older and younger workers today. In many respects the sectoral width – i.e. the number of jobs within different sectors in the local labour market – is just as important as size in terms of number of positions to have a well functioning local labour market. There is naturally a correlation between the number of sectors and the size of the labour market, but especially among the country's many smaller and medium-sized labour markets sector width does vary markedly.

Towards large polycentric regions – and numerous small labour areas

One conclusion is that the expansion of regions – resulting from increased technological reach – is in practice, for large groups of employees, the most accessible route to increased freedom of choice for the population living in one-sided municipalities – both with regard to the residence market and the labour market. To create a substantially more diversified industrial structure, through local or regional industrial policies or other types of interventions, and a better functioning labour market would appear, against this background, as unrealistic in the many small municipalities. At the same time, for the municipalities situated in the more peripheral parts of the Nordic countries, the possibility of expanding the region is often very limited. There planning should be directed at ensuring a *pool* of local workers who can provide public services to the decreasing population. In many parts of especially Denmark, Finland and Norway – where the municipalities are in relative terms small – there is a possibility (and perhaps a need) for local administrative structure reforms with the aim to create a larger and more cost-effective public service production.

For the urban regions around the big cities and for most of the larger university regions there are, on the other hand, better possibilities for planning and developing polycentric regional structures offering freedom of choice to both employers and employees. This is not only dependent upon investments in effective transportation networks but also to an equally high degree on co-ordinated emphases in the educational sector and regional industrial policy.

Factors behind differing Performance – Towards a typology of LLMs

The major explanations of differential performance of national labour markets are macroeconomic conditions, including differences in industrial specialization, trade patterns and national innovation systems. However, production conditions and the efficiency of matching processes in the regions differ widely within any country and hence even more so between regions in different countries. What we here refer to as a regional production environment includes factors such as:

- the size of the LLM in population numbers
- its continuous supply of human capital by localised universities
- the function of the region in terms of the range of services provided
- the dynamics and differentiation of its trade and industry
- various aspects of accessibility and communications, and

- cooperation options within polycentric surroundings.

By using combinations of such more or less tangible structural factors we will suggest a common *Nordic typology of local labour markets*. Most of these structural preconditions are not possible to influence by means of public policy intervention, at least not in the short or medium term. Location of qualified public services as well as communication and transport infrastructure project measures are implemented in long term national plans, while industrial dynamics are addressed in national and common European regional policy.

Other, and less tangible factors, such as the quality of life, the climate for industry, the spirit of entrepreneurship, culture and social capital, may also be included among regional production conditions. Nowadays, such measures to improve the performance of such tangible and less tangible factors are included in most regional policy programmes within the EU as well at national level. In addition, national social, education and several other policies moderate the effects in terms of LLM performance.

Definitions of Local Labour Market areas used

The concepts of functional regions, labour market regions or commuting regions are to a varying degree established in all four Nordic countries. Per definition, functional regions are changeable, and the concept is an open one. What is functional and how depends on the specific context. In our context – labour market policies and employment systems – the functionality can broadly be defined through the degree of labour commuting. There exist several (competing) definitions of LLMs in the Nordic countries. What we have here used consist of the LLM defined by:

- The Danish Landsplanredegørelse (the national planning document) identifying 46 LLM (of which we have used 45) based on commuting data from 1992. In 2000 these have decreased to 34, but since this division is as of today not politically (unanimously) approved in Denmark, we have opted for the older version
- Statistics Finland, which has – based on commuting data from 2000 – divided the country in 52 labour market areas as well as 173 individual municipalities not belonging to any other LLM
- NIBR, where Norway is divided into 161 LLM based on commuting 2000
- Statistics Sweden, where the country is divided into 109 LLM based on commuting data from 1996. There is an ongoing reduction in the number of LLM in Sweden, and today these only number around 80.

The thresholds for in- and out-commuting as well as the establishment of criteria for a central place vary according to the national context, but are at best reasonably comparable between the countries. Apart from technical differences, one other major factor needs to be taken into account when comparing LLM across the Nordic countries, namely the effect of the municipal pattern on the pattern of LLM. In all four countries functional regions are defined through adding of whole municipalities regardless of true commuting patterns within municipalities.

In 2001 the municipalities in Denmark numbered 275, in Finland 448, in Norway 435 and in Sweden 189. On average the land area of a Danish municipality was 157 km².

In Finland the corresponding number is 680 km², in Norway 707 km² and in Sweden 2 174 km². As was mentioned above, the basic building bloc for any LLM in the Nordic countries is the municipality, and thus the pattern of the LLM is a direct reflection of the municipal pattern in each country. In other words: the fewer municipalities there are in a country, the less LLM there is, and vice versa. This has naturally very little to do with actual commuting flows taking place on the ground.

In this respect the division into LLM is not truly comparable between all four Nordic countries. Whereas data for Norway and Finland – as well as also to a certain extent Denmark – could in this respect be characterised as at least moderately comparable, the municipal division (and hence the division into LLM) in Sweden does not to the same extent allow for capturing local or regional commuting flows.

The basic characteristics of the LLM used in this paper are presented in Table 1. Apart from Sweden, the LLM by and large could be characterised as mirrors of the settlement system of the countries involved. Denmark has a well-developed urban network and a high population density in comparison with the three other countries and e.g. the population of LLM in Denmark thus (naturally) differs from that of the other three countries.

The exceptional administrative pattern of Sweden implies that the population in the median Swedish LLM is roughly 4-5 times that of the corresponding in Finland and Norway. The median population density in Swedish LLM is also 2-3 higher than the corresponding in Finland or Norway, despite the fact that the average Swedish population density is only slightly higher than that in the other two countries.

Table 1: Basic characteristics of Nordic LLM

		<i>Denmark</i>	<i>Finland</i>	<i>Norway</i>	<i>Sweden</i>
Number of LLM		45 (+1)	225	161	109
Population	Smallest	2 266	237	232	3 195
	Median	52 913	5 142	7 873	26 624
	Largest	1 881 187	1 284 775	1 036 900	1 890 253
Area (km ²)	Smallest	17	10	6	142
	Median	730	662	1 443	2 319
	Largest	3 728	15 173	9 082	20 162
Population density	Lowest	20	<1	<1	<1
	Median	66	9	5	18
	Highest	505	248	156	235

Data source: National Statistical Institutes

To sum it up, the differences in the pattern of LLM between the countries cannot be accounted for by differing national settlement structures alone, but a large portion of

the explanation lies in the local administrative structure of the countries. This fact must be kept in mind both when applying the joint criteria for typologisation of the LLM as well as when later on interpreting their labour market performance.

LLM Structural Context - A Typology of Nordic Local Labour Markets

As mentioned earlier on, we have developed a common Nordic typology of local labour markets by using combinations of structural factors describing each LLM in Finland, Norway, Denmark and Sweden.

- The size of the LLM in population numbers reflecting the range of variation reflected in four Nordic countries. This leads to a classification of *Metropolises*, *Regional centres*, *Medium sized towns*, *Small* and *Micro labour areas*
- The location of universities as sources of knowledge production and for enhancing human resources and the primary characteristic function of the region in terms of the range of services provided. This leads to the categories *Nordic regional centres with university*, *Nordic capitals* and *Other Nordic regional centres*
- The dynamics of its trade and industry, leading to subdivisions of *Production-based* and *Service-based* areas.
- Various aspects of accessibility and communications, as well as cooperation options within polycentric surroundings is reflected in the subdivision of labour markets according to location in *Polycentric* and in *Non-polycentric surrounding*.

Basic indicators used

In order for any international typology to be purposeful, it should be able to capture the essentials and main characteristics of the countries taken as a group, without at the same time losing too much of its applicability in any individual country or part thereof. This inevitably involves making compromises in each country in order to identify the smallest common denominator that they share across borders. The result is more seldom than not similar to what would be acquired had the typology been constructed purely on a national basis. In an ideal case, the choice of “hard” indicators to be used in classification would be restricted to such alone that are comparable across country borders. However, many aspects – especially with regard to spatial systems – are inherently incomparable across nations in statistical terms, and thus we have been forced to make certain exceptions. Thus the hard data is supplemented with data based on our own subjective judgements, harmonisation of official data, or combinations thereof.

We have chosen four dimensions to steer the categorisation. Firstly, the settlement structure of and within the LLM, measured in population of the LLM, its population density and the number and density of localities within it. Secondly, certain aspects of the functionality of a LLM are considered, namely its administrative status and the existence of a university or a regional university in the LLM. Thirdly, the coarse economic base of the LLM measured in the share of persons employed in primary production, share of persons employed in manufacturing (including extraction of minerals and construction) and share of persons employed in services (public and private jointly) is taken into account. Fourthly, we have considered the location of each LLM with respect to its surrounding urban pattern, measured as the number and

density of localities in the NUTS 3 region surrounding the LLM, providing us with an indication of whether the LLM is situated in a polycentric surrounding or not.

The underlying assumption in the last dimension is that regions located within a polycentric urban structure do at least have the *possibility* to physically-functionally connect with neighbouring regions, whereas regions located far from other centres are highly unlikely to do so. This does not mean that all regions that we have classified as lying in a polycentric environment will inevitably be involved in such a regional enlargement process, nor does it mean that none of those regions that are classified oppositely will inexorably not do so in the future.

Two of the indicators are especially vulnerable to subjective judgements from our part. First, the above-mentioned polycentricity. The usage of NUTS 3 regions means that the boundaries of each region “surrounding” the LLM are based on administrative divisions alone with no regard to functional reality. Thus, for instance, Norway’s third largest town Trondheim is by us classified as lying in a monocentric environment simply because the administrative County (NUTS 3) boundary happens to include only few localities, whereas the somewhat less urbanised region just south of it will for the opposite reasons here be classified as having a polycentric urban structure. Similarly, also LLM in the western parts of the Swedish County of Värmland are here categorised as lying in a polycentric environment simply because of the shape of the county, although in reality there are few and sparsely located urban centres there. However, looking at the Nordic countries on the whole, this method provides us with at least a coarse indicator of the urban pattern surrounding each LLM.

Second, the choice of what constitutes a “university” or a “regional university” is highly subjective. There are no established international criteria of a university, rather the opposite is the case, and each country labels their educational units rather arbitrarily. Well aware of the potential potholes, we have here considered as universities all those educational institutions that do offer graduate courses and conduct research on a broad scale, i.e. not only within a few narrowly defined subjects. We have also included all polytechnic universities in the same category. Those educational institutions that have e.g. Master’s programmes but do not offer PhD courses, or only offer them on a narrow basis, have been characterised as regional universities. This includes institutions such as Seminarium in Denmark, Ammattikorkeakoulu in Finland, Statlig høgskola in Norway or smaller University Colleges in Sweden.

The population figures of the LLM refer to the end of year 2000. Data on the employment structure refers to the end of 1999. The localities used in classification are from 1995 (Finland and Sweden), 1997 (Norway) and 1998 (Denmark). All data is obtained from the databases of the respective countries National Statistical Institutes.

Criteria for typologisation

Based on the indicators depicted in the previous chapter, we have all in all identified seven major groups of LLM in the four countries involved, namely: 1) Nordic capital regions; 2) other Nordic metropolises; 3) Nordic regional centres with university; 4) other Nordic regional centres; 5) Nordic medium-sized towns; 6) small Nordic labour areas; and finally 7) Nordic micro labour areas. They are all divided with regard to their surrounding and the last two categories further divided into production-

based or service based areas. The criteria and thresholds of each category are summarised in table Annex 1. It should be stressed that the labelling of the areas reflects the specific Nordic settlement pattern and is most likely not applicable in the more densely populated parts of the world.

The methodology applied is hierarchically exclusive, meaning that once a region has fulfilled the required higher hierarchy criteria, it will not be included in lower levels of the hierarchy even if its characteristics would more markedly fit the lower level. For example, a LLM such as Uppsala, fulfilling the criteria for a metropolis (type 2) will on basis of this be classified as one, although it is also a pronounced university town (type 3) and is in general Nordic conception considered as one.

All in all there are in Denmark, Finland, Norway and Sweden 540 LLM. One quarter of the Nordic population can be found in the capital regions and slightly over a fifth in the 14 other metropolises. The 77 regional centres as a whole (with or without universities) include nearly a third of the Nordic population. The largest number of LLM are found in the smallest class “Nordic micro labour areas” that number 337 or over 60% of all 540 LLM. However, their population only amounts to 8.7% of the Nordic total although they cover 58% of the total Nordic land area. Their average population density is as low as 3 inhabitants/km². Finland and Norway have some 20% of their population within categories six and seven, whereas in Denmark and Sweden they only constitute around 5%.

Population density across the typology decreases with rank. Similarly, the share of persons employed in primary production increases the lower one goes in the typology. The same applies to the share of employment within manufacturing, with the exception of the smallest class “Nordic micro labour areas”. The opposite holds true for employment within services, where e.g. the capital regions as a whole have over four fifths employed in service production. Details on the characteristics and structure of each typology taken as a group and broken down per country and group are provided in Annex (*not included in this submission to figure ERSA 2003*).

Indicators of Performance and Convergence

In this chapter we set out to test the applicability of the constructed typology by analysing the degree of performance and convergence a) at the national level, b) across the typology, and c) within each type in each country. This is done by means of two basic indicators, namely the unemployment rate in April 2001, which we use to measure *performance*, and the relative change in employment during the period 1994-99, which is our measurement of the rate of *convergence*.

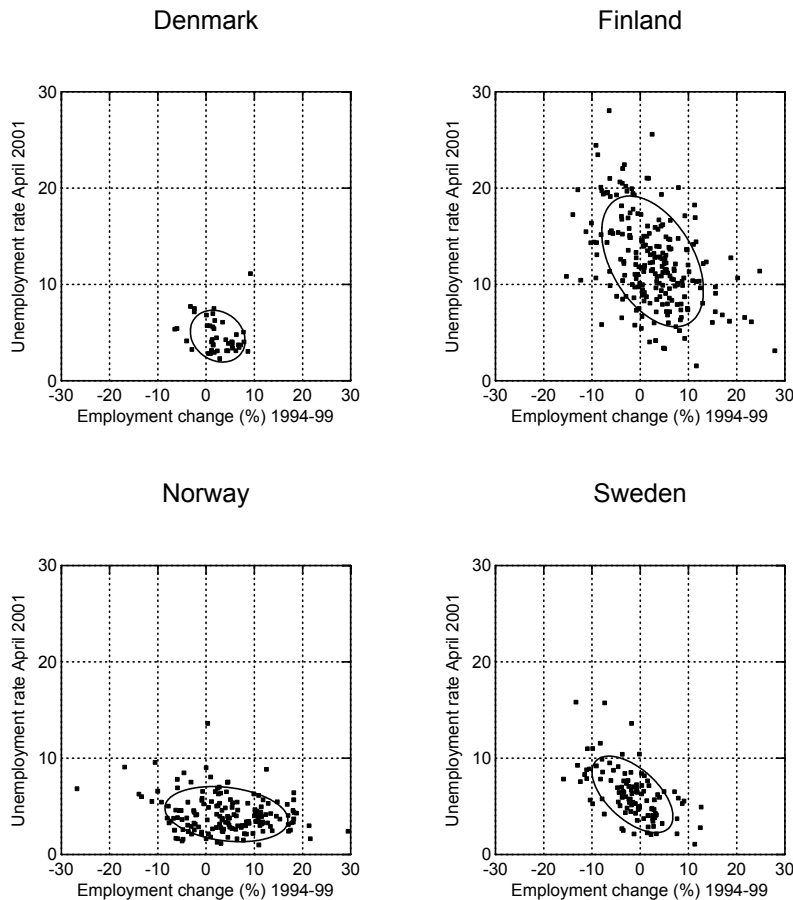
The employment figures presented in this chapter are register-based and stem from respective countries' National Statistical Institutes and refer to employed persons in the region. The unemployment figures are our own constructions based on municipal-level register data (both labour force and unemployed persons) adjusted at the national level to Eurostat LFS figures for April 2001. This enables comparison between countries on equal level, albeit for single (very small or extreme) municipalities the figures may vary considerably from corresponding register ones. As is always the case, the limited choice of indicators to address a larger topic (performance, convergence) can be called in question. However, as this is merely an initial step in

“testing” the applicability of the method, we believe that this limited choice is here justified.

Performance and convergence at the national level

Despite the transnational character of the typology, the LLMs in each country are still constricted by their national boundaries. Each region in any given country has the same legislation, currency or interest rate as any other regions in that country. Furthermore, national policies in general – excluding those with explicit geographic differentiation – are by and large similar for each region.

Figure 1: Unemployment rate 2001 and employment change 1994-99 per LLM and country



Ellipses contain (an unweighted) 2/3 of the sample.
Data source: National Statistical Institutes, Eurostat

This implies that the starting point for regional cross-border analysis cannot purely focus on the performance of the single labour market, but rather an admission that its performance is a function of the performance of the national economy and its own specific regional endowments is also needed. In the Nordic case this national framework – and the starting point for our analysis – is illustrated in figure 1.

In April 2001 the unemployment rate (y-axis) in Finland (10.2%) is significantly higher than in the other three countries. Norway and Denmark both have an

unemployment rate of less than 4% and also the Swedish one is lower than 5%. The increase of employment again (x-axis) has been most rapid in Finland (13.4%) and Norway (13.2%), whereas Denmark and especially Sweden have had more moderate increases (5.6 and 4.3% respectively). The overall convergence across regions is highest in Denmark, but partially also a function of the small number of Danish regions (45). Finland shows the largest variations in both dimensions. In Finland and Sweden unemployment and employment change to a certain degree correlate so that LLM already having a relatively low unemployment are also those that have fared best in new job creation. This pattern of spatial polarisation is not as marked in Norway and Denmark.

All in all this provides for very different starting points when these national deviations are levelled out and the analysis is applied across typologies regardless of country.

Performance and convergence across the typology

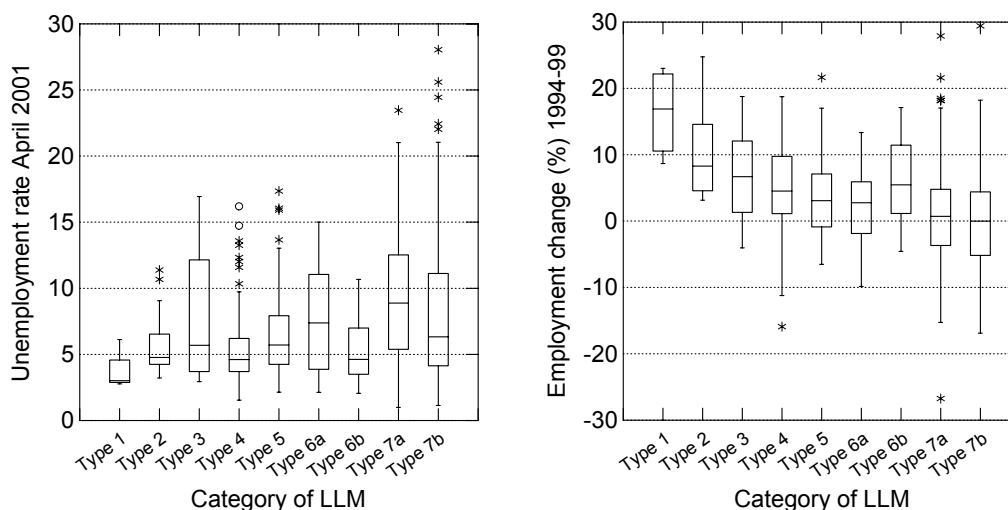
The two box plots (which originate from the work of: Tukey, J.W., 1977) in Figure 2 show the unemployment rate (left) and employment change (right) across main categories of the typology. The centre vertical line (inside the box) marks the median of the sample. The length of each box shows the range where the central 50% of the LLM fall, with the box edges at the first and third quartiles, the entire box therefore containing all observations within the 25th and 75th percentiles. The absolute value of the 75th minus the 25th percentile is called Hspread, and the “whiskers” (the vertical lines) mark the distance from the box edges to $Hspread \times 1.5$ below the first and above the third quartile. Single *outlying LLM* marked with asterisks lay within $\pm Hspread \times 3$ in the extreme quartiles and *extremely outlying LLM* located outside this range are plotted with empty circles. For detailed numbers on the performance across types, see Annex 2.

Unemployment rates in April 2001 generally follow a hierarchical logic, where smaller LLM in the Nordic countries on average have higher unemployment than do larger ones. This increase is not linear, however, and reflects the qualitative choices made in the typology as well as the structure of the local economy. “Small” and “Ultra-small” LLM with a production-oriented economy have higher unemployment than corresponding ones with an economy where service production plays a more prominent role. The highest average value (8.3%) is for “Ultra-small” production-oriented labour areas, this being mostly due to two-thirds of these regions lying in Finland and hence reflecting the poor national performance of the country.

The dispersion inside typologies displays a variation partly depending on the number of samples within each category, but also on national differences, as is the case with the 15 “Regional centres with university”. The smaller LLM taken as a group display the largest variations. New job formation also follows the size-logic of LLM, where larger and more diversified ones have during the period increased their relative distance to smaller LLM. On average the capital regions have had an employment increase of nearly 15% during the period, whereas employment in e.g. Nordic micro labour areas has remained nearly on the same level throughout the entire period. When employment change is adjusted for the Nordic total, only the capitals and the 14 Nordic metropolises have fared better than the Nordic average.

Employment change in the capital regions varies from less than 9% to 23%. All other categories of LLM also show substantial internal variations. The most extreme case is (once more) production-oriented “Micro labour areas”, where employment change during the period ranges between -27% and $+28\%$.

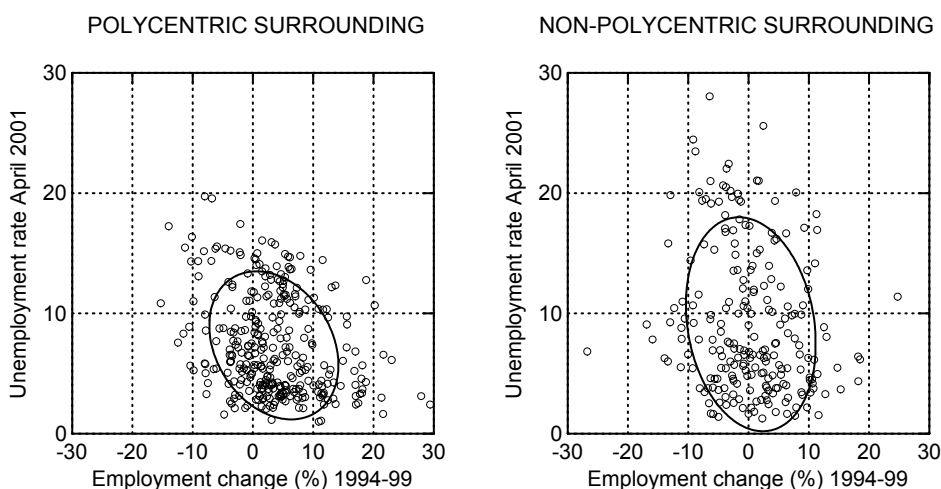
Figure 2: Unemployment rate 2001 and employment change 1994-99 across main categories



For coding of regions, see Table 2.

Data source: National Statistical Institutes, Eurostat

Figure 6: Unemployment rate 2001 and employment change 1994-99 by surrounding settlement structure



Ellipses contain (an unweighted) 2/3 of the sample.

Data source: National Statistical Institutes, Eurostat

There is a substantial difference with regard to performance and convergence to the advantage of regions located in a polycentric surrounding (Figure 6). In these, the

number of jobs has on average increased with 8.3% during the period, whereas this increase has in LLM located in non-polycentric surroundings amounted to only 4.8%. Similarly, unemployment rates are substantially higher (on average 7.8%, as opposed to 5.3%) in regions situated in non-polycentric surroundings. Norwegian and Finnish LLM constitute 4/5 of this class. In the extreme cases, the six LLM showing best performance (<10% unemployment) and highest employment growth (>20%) are all located in polycentric surroundings.

Performance and convergence within each type in each country

The national context of different LLM varies highly across the Nordic countries. However, when national differences in performance and convergence are taken into consideration, a more perceptible pattern of regional hierarchies emerges. This centre-periphery pattern is more discernible for employment change than for unemployment. This is quite logical, since unemployment rates are subject to equalisation as a result of policy intervention. Table 3 presents the average unemployment rate and average employment change of all main types of regions as their deviation from the respective country averages. (Note that a negative value for unemployment and a positive value for employment change indicate better than country average achievement, and vice versa.)

There does not exist a clear-cut hierarchical linkage between unemployment and LLM hierarchy. This is especially true for Norway where several of the smaller types display average unemployment rates significantly lower than the national one. On average however, higher-hierarchy LLM do perform better than lower ones. Thus the capital regions have an approximately 1-4 percentage units lower unemployment rate than their respective countries on average. All other main types of regions have higher unemployment rates than the countries on average, albeit with large variations between sub-types. Furthermore, with only three exceptions in Finland and Norway, categories of regions situated in a polycentric surrounding do also in this respect demonstrate better performance than their counterparts located in non-polycentric surroundings. The single worst struck group of LLM are the service-based micro labour areas in Finland, where unemployment is nearly 10 percentage units higher than in Finland on average.

With regard to employment change, the hierarchical pattern is more straightforward. The capital regions of Finland, Norway and Sweden have seen an employment change of over 8 percentage units better than the aggregated employment growth in the countries, and also in Copenhagen this lead has been over 3 percentage units. In addition, all metropolises (apart from two Norwegian ones, i.e. Bergen and Stavanger) also have had a better development. The only other main type of regions performing better are the regional centres in Norway, whereas all other categories in all four countries have performed worse than their aggregated national labour market.

The distribution within different categories also displays wide variations between countries. Figures 3 and 4 depict the spread of unemployment and employment change respectively for all LLM within each main category per country. The inter-categorical deviations in unemployment are generally larger in lower-hierarchy LLM. Denmark has – partly due to the small number of regions involved and the overall high employment rate – the smallest variations in unemployment within all categories. Nonetheless, among Danish regional centres (Type 4), the regional capital of

Bornholm (Rønne) stands out with a high unemployment rate, and among the ultra small Danish labour areas, the island of Læsø tops the list.

Table 3: Deviation from national average of unemployment 2001 and employment change 1994-99 per category

	Percentage units deviation from country average							
	Unemployment rate April 2001				Change in employment 1994-99			
	DK	FIN	NOR	SE	DK	FIN	NOR	SE
Nordic capitals	-0.7	-4.1	-0.7	-2.1	3.1	9.6	8.1	8.2
Nordic metropolises	0.6	0.0	0.5	0.4	1.0	6.0	-0.2	1.8
• in polycentric surrounding	0.6	-0.3	0.4	0.4	1.0	4.5	0.7	1.8
• non-polycentric surrounding	:	1.2	0.8	:	:	11.4	-2.7	:
Nordic regional centres with university	0.0	2.1	-0.4	0.6	-3.7	-0.3	-0.5	-4.1
• in polycentric surrounding	0.0	1.2	:	:	-3.7	0.4	:	:
• non-polycentric surrounding	:	5.0	-0.4	0.6	:	-2.2	-0.5	-4.1
Other Nordic regional centres	0.1	2.0	0.2	0.6	-1.7	-4.0	0.3	-3.2
• in polycentric surrounding	0.0	2.0	0.2	0.5	-1.5	-3.8	2.1	-2.5
• non-polycentric surrounding	3.1	1.9	-0.2	1.1	-5.5	-4.7	-6.8	-7.1
Nordic medium-sized towns	1.4	1.1	0.0	0.7	-5.1	-4.9	-4.3	-5.0
• in polycentric surrounding	1.4	0.0	-0.2	0.6	-5.1	-3.4	-1.5	-4.9
• non-polycentric surrounding	:	5.0	0.2	1.4	:	-10.4	-6.5	-6.0
Small Nordic labour areas	0.6	1.3	0.0	0.0	-4.3	-8.2	-3.3	-5.6
- <i>production-based</i>	<i>-0.6</i>	<i>1.7</i>	<i>-0.5</i>	<i>-0.2</i>	<i>-4.6</i>	<i>-8.4</i>	<i>-8.6</i>	<i>-5.9</i>
• in polycentric surrounding	-0.6	1.2	-0.6	-0.2	-4.6	-7.7	-3.8	-5.9
• non-polycentric surrounding	:	3.7	-0.2	:	:	-11.1	-20.5	:
- <i>service-based</i>	<i>1.4</i>	<i>-1.8</i>	<i>0.3</i>	<i>0.6</i>	<i>-4.2</i>	<i>-6.8</i>	<i>-1.2</i>	<i>-4.5</i>
• in polycentric surrounding	1.4	-3.0	0.1	-1.2	-4.2	-8.0	-0.6	-2.5
• non-polycentric surrounding	:	0.4	1.7	3.1	:	-4.4	-7.7	-7.1
Nordic micro labour areas	1.8	3.0	0.2	2.7	-2.3	-12.3	-9.7	-9.1
- <i>production-based</i>	<i>-0.6</i>	<i>1.3</i>	<i>-0.2</i>	<i>1.5</i>	<i>-1.3</i>	<i>-11.9</i>	<i>-8.6</i>	<i>-6.9</i>
• in polycentric surrounding	-0.6	0.4	-0.3	1.0	-1.3	-11.4	-5.8	-5.5
• non-polycentric surrounding	:	3.2	-0.2	3.8	:	-12.9	-11.1	-13.1
- <i>service-based</i>	<i>2.2</i>	<i>8.1</i>	<i>0.5</i>	<i>3.5</i>	<i>-2.5</i>	<i>-13.6</i>	<i>-10.3</i>	<i>-10.4</i>
• in polycentric surrounding	2.0	1.6	-0.8	2.8	-1.7	-10.6	-9.1	-9.3
• non-polycentric surrounding	3.8	9.8	0.7	3.9	-8.0	-14.4	-10.5	-10.9

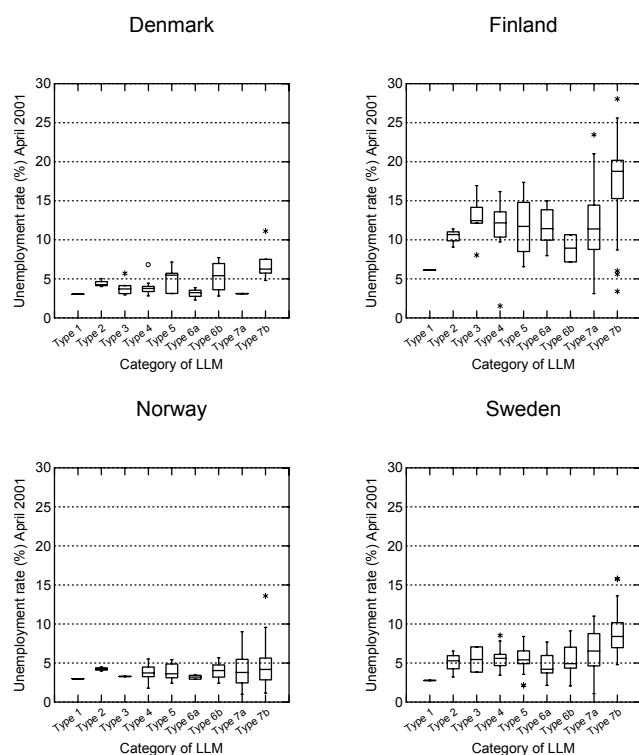
: = Category not represented in country. *Data source: National Statistical Institutes, Eurostat*

Also in the other countries mostly the extremely peripheral regions stand out as outliers, having unemployment rates significantly higher than in their respective categories as a whole. These include LLM such as Salla, Enontekiö, Suomussalmi or Savukoski in the Finnish region of Lappi (Lapland), Guovdageaidnu/Kautokeino in the Norwegian county of Finnmark or Pajala and Haparanda in the Swedish county of Norrbotten. At the other end fewer categorical extremes can be found. In the Finnish case several maritime LLM – such as Mariehamn in Åland or Nagu, Kimito or Västanfjärd in SW Finland) have significantly lower unemployment rates than other LLM in their respective categories. Apart from Gislaved and Värnamo in the Swedish Gnosjö area (renown for its industriousness), few other extremes on the lower end exist in the four countries.

With regard to employment change (Figure 8) the picture is more scattered. The differences between the groups' internal variances are not extremely large, but again dissimilarities between countries are significant. With the exception of “Small labour areas” (Type 6) in Finland and Norway, service-oriented LLM have generally had a

more unfavourable employment development than production-oriented ones. The absolutely largest variations are within the category of “Ultra-small labour areas” in Norway, where employment changes range $\pm 30\%$, as well as in the corresponding Finnish one (-15 to $+30\%$).

Figure 3: Spread of unemployment 2001 across main categories per country

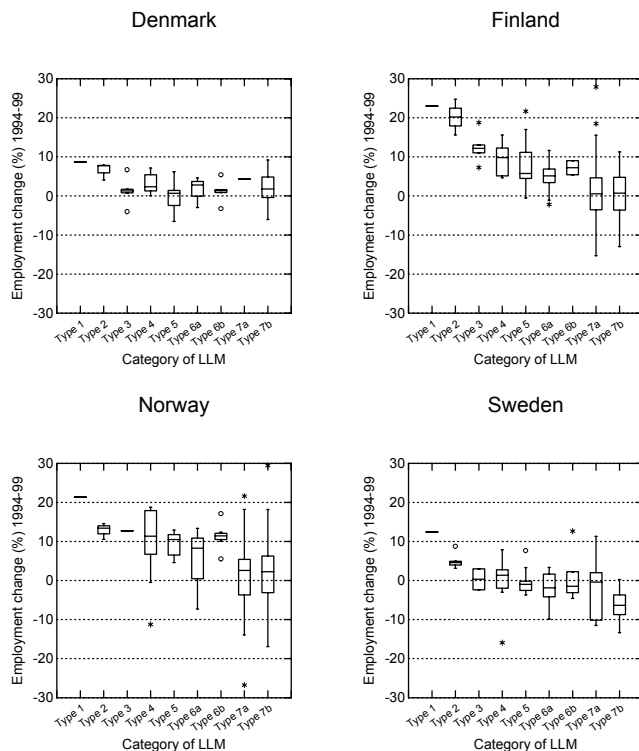


For coding of regions, see Table 2.

Data source: National Statistical Institutes, Eurostat

Those extreme outliers that have performed significantly better than their respective category in their country do not have that much in common across countries, albeit some similarities can be identified. To this group belong successful small and medium-sized manufacturing regions such as Kolding and Tønder in Denmark, Lohja and Sievi in Finland, or Gislaved in Sweden. There are also large cities such as Jyväskylä in Finland or Göteborg (Gothenburg) in Sweden, as well as smaller municipalities in the near vicinity of larger cities, for example Kongsberg (outside Oslo and Drammen), Hjelmeland (outside Stavanger) in Norway. Also a small number of extremely small labour areas, such as the island regions of Iniö in Finland or Utsira in Norway, have fared well in employment terms, although the absolute increases in numbers of jobs in these cases are rather modest. Another extreme in this respect is the Swedish border municipality of Strömstad, where Swedish-Norwegian border trade has occasioned a substantial increase in employment. At the other end of the scale there are a number of LLM affected by closures of larger industries, such as Nakslov in Denmark, strong out-migration areas like Norwegian Alstahaug and Røyrvik, or regional or university centres such as Slagelse in Denmark, Lappeenranta in Finland, Vadsø in Norway or Härnösand in Sweden.

Figure 4: Spread of employment change 1994-99 across main categories per country



For coding of regions, see Table 2.

Data source: National Statistical Institutes, Eurostat

Concluding Analysis

The performance of the national labour market is the aggregated result of the performance of each individual labour market, which in turn is the outcome of the competitiveness of the local enterprises and the efficiency of the matching processes. In our model, we assume that both the economic performance and the demand-supply linking processes reflect underlying structural differences. For analytical purposes, we have classified each individual LLM into categories according to structural features.

Firstly, our analysis has shown that the structural composition in terms of the distribution across these categories varies between the four countries. In particular labour markets of the lower hierarchy (Types 6 and 7) are underrepresented in Denmark as compared to the other countries, while they are overrepresented in Finland and Norway. In the Danish case this is largely due to the differing settlement structure of the country, whereas in the Finnish-Norwegian case again partly due to the local administrative structure. *Secondly*, our analysis shows that performance in terms of unemployment rates as well as employment growth rates described as divergence from each aggregated national LM varies quite systematically between the same types in all countries. This is largely a reflection of the centre-periphery hierarchy, but also the differences in polycentric-non-polycentric environments.

By comparing the structural composition of the national labour markets and the relative performance of each type, we can finally discuss the strengths and weaknesses of the employment system in each country as regards to the “geography and function” of the labour market. The employment system consists of the set of

institutions, and policies affecting institutions, which together moderate the level of production, employment and unemployment in the country. These institutions include employment legislation, taxation policy and the education and training systems. They also include the location of education facilities. By this comparison, we can also look for explanations to differing performance of each type between countries. At the end we should be able to discuss the need for better targeting and changing priorities in national employment policy.

Annex 2 summarizes the structural and performance differences of the national labour market in the four countries involved. The size of each circle illuminates the weight of the specific type of LLM in each country. A sample of findings of particular interest in this benchmarking approach includes:

- The Danish labour market performs in general best out of all national labour markets and there is a comparatively large coherence between the different types. This is particularly evident when it comes to unemployment, suggesting that the labour market policy is well adjusted to the – NB relatively homogenous – structure of the Danish labour market.
- The capital has a dominating role in contributing to large employment growth and keeping unemployment rates low in Denmark.
- Capital LLM have similarly large relative size and importance in Finland and Norway, but the performance of the Finnish capital is much superior as compared to all the other types of LLM in Finland. On the other hand all Finnish types of LLM perform worse in terms of unemployment as compared with their counterparts in other countries.
- Norway describes a homogenous performance in unemployment terms across the typology outside the capital region, while economic growth in terms of employment growth is highly concentrated to the capital.
- The Swedish labour market contains several types of small LLM which display very poor employment growth – i.e. decrease. However, their aggregate weight is relatively small at the national labour market, suggesting that a well targeted policy to cope with the growth problems of small regions should not necessarily need to be very resource demanding. However, the absence of polycentric surroundings for most of these small and peripheral LLM creates severe problems for regional enlargement strategies and infrastructure provision.

In conclusion we are developing an instrument for interregional and international comparative analysis of the performance of the labour market and the employment system, designed in particular for Nordic countries. Further research will include an extended selection of performance indicators and inclusion of gender perspective.

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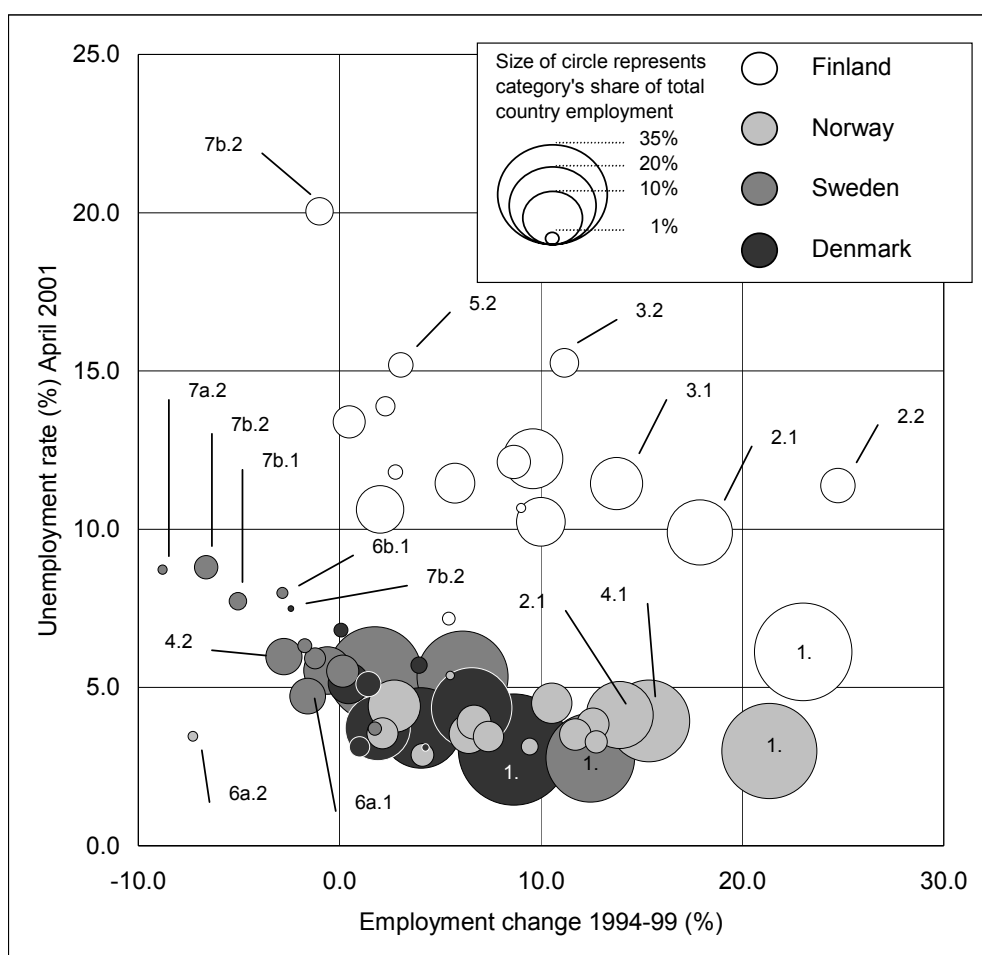
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Annex 1: Criteria and thresholds for typologisation

Code	Category	Sub-category	Location	Criterion/a
1	Nordic capitals			National capital and > 1 million inhabitants within Local Labour Market (LLM)
2	Nordic metropolises			200 000 – 1 million inhabitants within LLM
2.1			in polycentric surrounding	LLM situated in NUTS3 region having at least 2 localities (tätort, tettsted, taajama) with more than 5 000 inhabitants and a density of more than 3 such localities per 10 000 km ² land area.
2.2			non-polycentric surrounding	LLM situated in NUTS3 region not fulfilling criteria of 2.1
3	Nordic regional centres with university			LLM with university or technical university
3.1			in polycentric surrounding	See 2.1
3.2			non-polycentric surrounding	See 2.2
4	Other Nordic regional centres			Regional administrative centre (Amt in Denmark; Maakunta/Landskap in Finland; Fylke in Norway; Län in Sweden) or >75 000 inhabitants in LLM
4.1			in polycentric surrounding	See 2.1
4.2			non-polycentric surrounding	See 2.2
5	Nordic medium-sized towns			30 000 – 75 000 inhabitants within LLM
5.1			in polycentric surrounding	See 2.1
5.2			non-polycentric surrounding	See 2.2
6	Small Nordic labour areas			10 000 – 30 000 inhabitants within LLM and having a locality (tätort, tettsted, taajama) with at least 5 000 inhabitants and a population density ≥ 10 inhabitants/km ²
6a		production-based		LLM with share of employment in primary production >20% or share of employment in manufacturing >30% or share of employment in services <65% and not having a regional university or affiliate
6a.1			in polycentric surrounding	See 2.1
6a.2			non-polycentric surrounding	See 2.2
6b		service-based		LLM fulfilling criteria of 6 but not of 6a
6b.1			in polycentric surrounding	See 2.1
6b.2			non-polycentric surrounding	See 2.2
7	Nordic micro labour areas			< 10 000 inhabitants within LLM or 10 000 – 30 000 inhabitants and not having a locality (tätort, tettsted, taajama) with at least 5 000 inhabitants or not having a population density ≥ 10 inhabitants/km ²
7a		production-		LLM with share of employment in primary

Code	Category	Sub-category	Location	Criterion/a
		based		production >20% or share of employment in manufacturing >30% or share of employment in services <60% and not having a regional university or affiliate
7a.1			in polycentric surrounding	See 2.1
7a.2			non-polycentric surrounding	See 2.2
7b		service-based		LLM fulfilling criteria of 7 but not of 7a
7b.1			in polycentric surrounding	See 2.1
7b.2			non-polycentric surrounding	See 2.2

Annex 2: Performance 2001 and convergence 1994-99 by country and category of LLM



For coding of regions, see Table 2.

Data source: National Statistical Institutes, Eurostat