# North Western Norway

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## *Abstract*

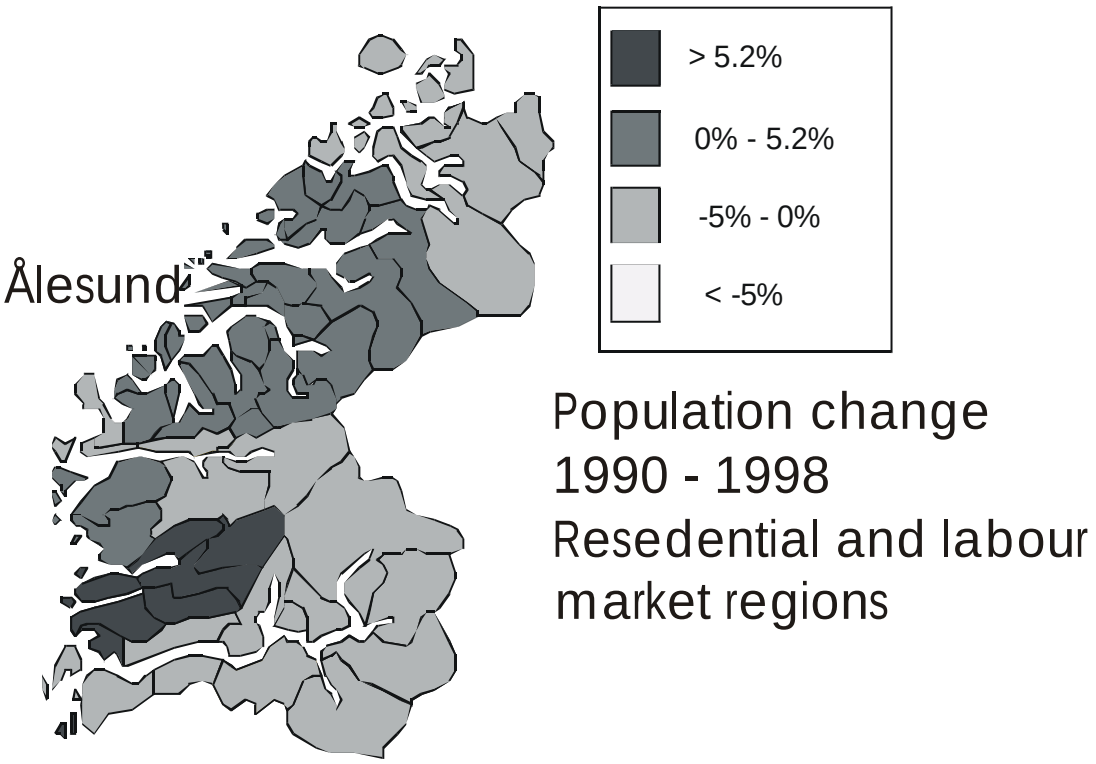
Culturally and historically, North Western Norway (with the possible exception of Nordmøre) with a single identity on the basis of common features such as spoken language, an egalitarian "small fisherman and farmer culture", a region facing the sea and dependent on the ocean, sea and fjords from the point of view of both its economy and infrastructure. But this complex structure with good access to the sea that was vital to establishing society, today functions as an obstacle to further development.
It is the coastal regions and the most densely populated regions that are enjoying growth in North Western Norway. Regions with small residential and labour markets, especially in the fjords and on the islands, face great problems in recruiting and keeping young people even though there is an increase in the number of jobs.
Three scenarios are presented at the end of the paper.

## *Introduction*

As a region, North Western Norway has many features that are associated internationally with "learning regions" (Asheim 1996, Asheim & Isaksen 1997, Hansen & Selstad 1999) or "dynamic regions" (Amdam R. 1997a & b, Nilsson 1999), except for the fact that research and know-how-developing activities aimed at business and industry have been poorly developed. What is typical for such areas is that industrial environments have grown up "from below" and on the basis of a "French" model (Wicken 1997), in which there is a close interaction between customers' demands and production characterised by craftsmanship. The key industries in the area: marine and maritime enterprises (processing, shipyards, tools and equipment, design, etc) related to the fishing and oil activities (supply) and the furniture industry have all witnessed a steady growth in employment in the 1990s and have assumed a dominant role also in a national context.

The term North Western Norway as a region is usually used to refer to the counties of Møre og Romsdal and Sogn og Fjordane. Based on industrial structure and in part also on cultural criteria, it can be argued that the area ought to be limited even further by excluding at least Sogn and Nordmøre – in fact many people would point to a core area between the Romsdalsfjord and Nordfjord with Ålesund as its natural centre (the area covered by the newspaper Sunnmørsposten). The core industrial area may perhaps be defined as the regions of Florø, Nordfjord, Ørsta/Volda, Ulstein, Ålesund and Molde.

*Map 1. Changes in population 1990 to 1998, residential and labour market regions (Amdam et al 2000)*



## *Regional structure and developmental features*

## The structure of business, trade and industry

Table 1 shows the structure of business, trade and industry in 1998. Compared with Western Norway and Norway as a whole, the share of secondary industries is particularly high, but then so is that of primary industries. Just one of the regions of North Western Norway (Førde with its regional hospital and trade) has a lower percentage of jobs in secondary industries than the national average. On the other hand, the level of employment in private service industries is lower than the national average in all the regions. North Western Norway is without doubt a manufacturing region and with exports that totalled NOK 26.5 billion in 1999. In 1999 Møre og Romsdal had just 5% of the country's population, but boasted 12% of the exports (NOK 19.3 billion) from mainland Norway (Amdam et al 2000).

*Table 1. The structure of business, trade and industry in North Western Norway in 1998 (Amdam et al 2000).*

Share of employment/jobs 1998

| Region | Primary | Secondary | Priv.services to individuals | Priv.services to industry | Public services |
|---|---|---|---|---|---|
| Høyanger | 13 % | 31 % | 16 % | 5 % | 35 % |
| Sogndal/Årdal | 8 % | 32 % | 22 % | 7 % | 31 % |
| Førde | 11 % | 21 % | 28 % | 9 % | 32 % |
| *Florø* | *10 %* | *35 %* | *22 %* | *10 %* | *23 %* |
| *Nordfjord* | *14 %* | *31 %* | *24 %* | *6 %* | *25 %* |
| *Ålesund* | *6 %* | *33 %* | *28 %* | *11 %* | *23 %* |
| *Ulsteinvik* | *12 %* | *40 %* | *20 %* | *8 %* | *20 %* |
| *Ørsta/Volda* | *9 %* | *26 %* | *26 %* | *8 %* | *30 %* |
| *Molde* | *8 %* | *29 %* | *26 %* | *7 %* | *30 %* |
| Kristiansund | 8 % | 26 % | 29 % | 9 % | 28 % |
| Sunndalsøra | 8 % | 42 % | 18 % | 5 % | 26 % |
| Surnadal | 18 % | 30 % | 22 % | 5 % | 26 % |
| | | | | | |
| Vestlandet | 6 % | 29 % | 28 % | 11 % | 27 % |
| Norge | 4 % | 23 % | 30 % | 14 % | 28 % |

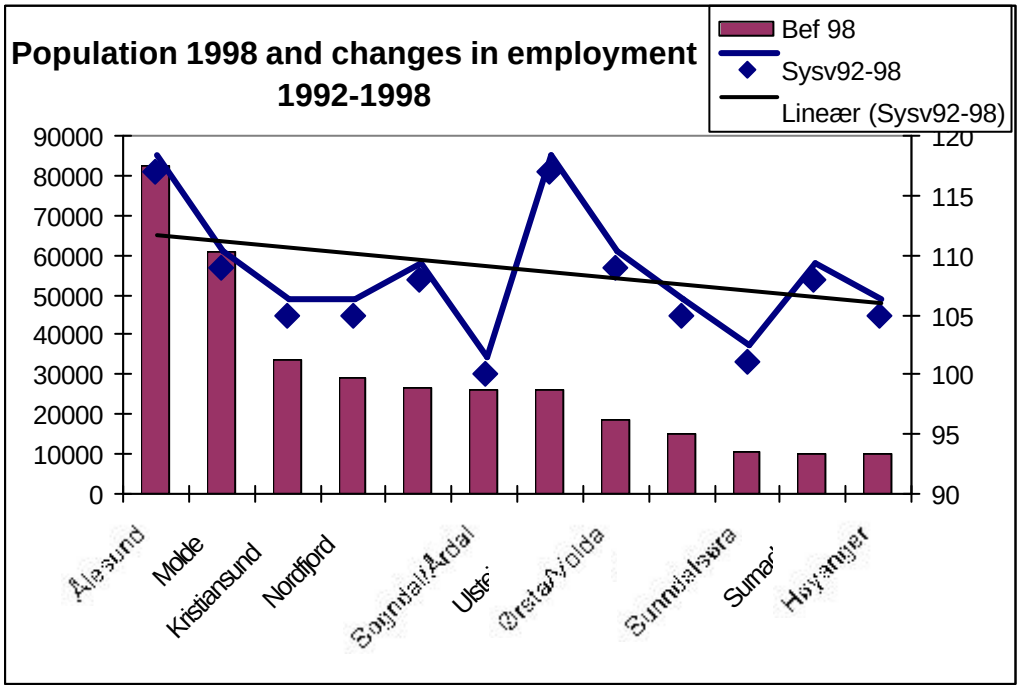
A look at the industrial changes in the 1990s (table 2) shows that it is especially the regions of Ålesund and Ulstein that appear as the winners with a growth in employment from 1992 to 1998 of all of 17%. This is higher than the average for Western Norway and for the country as a whole. The growth has been particularly large in secondary industries, but also in private service industries. On the other hand, the whole of Western Norway is greatly affected by the decline of the primary industries, especially agriculture. In spite of the fact that North Western Norway has higher employment in both primary and secondary industries than the rest of the country and fairly strong industrial growth, the share of and growth in private services to industry is lower in most of the regions than in the country at large. While, for example, Ålesund has an 11% share of employment here, the figure is as high as 26% in Oslo. Also in the field of private services to individuals, a town like Ålesund, along with most of the other regions, have a lower share of employment and lower growth than the national average. All in all, North Western Norway is "underdeveloped" in the service sector.

*Table 2. Employment in 1998 compared with 1992, per cent. (Amdam et al 2000)*

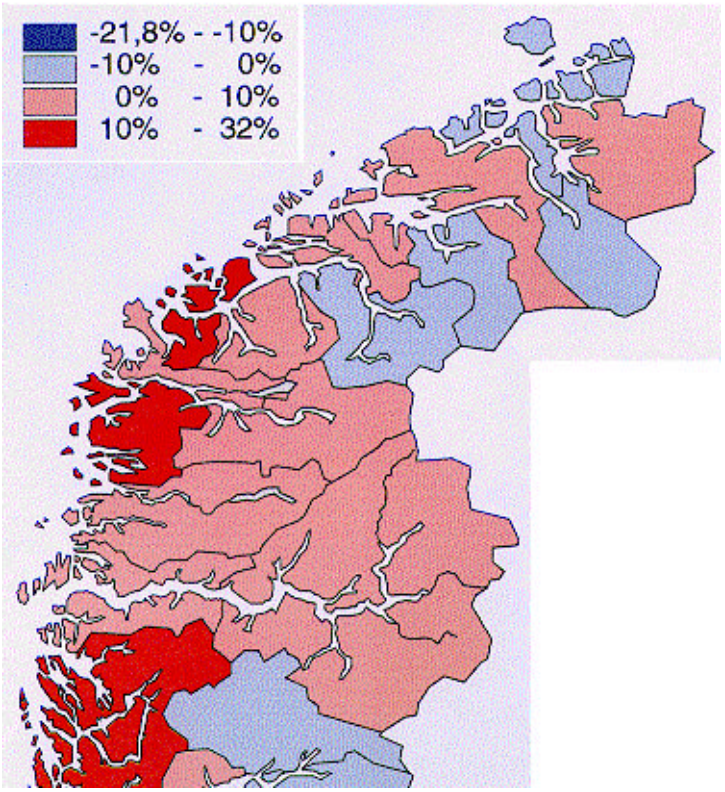
| Region | Employment 1998 Number | Changes 92 - 98 Total | Primary | Secondary | Priv.services to individuals | Priv.services to industry | Public services |
|---|---|---|---|---|---|---|---|
| Surnadal | 4302 | 108 | 83 | 117 | 115 | 131 | 111 |
| Sunndalsøra | 4371 | 101 | 80 | 98 | 94 | 129 | 119 |
| Kristiansund | 13452 | 105 | 82 | 111 | 106 | 97 | 110 |
| *Molde* | *27278* | *109* | *79* | *111* | *122* | *121* | *106* |
| *Ålesund* | *38350* | *117* | *83* | *123* | *115* | *129* | *117* |
| *Ulsteinvik* | *11485* | *117* | *77* | *131* | *123* | *141* | *110* |
| *Ørsta/Volda* | *7637* | *109* | *69* | *106* | *128* | *157* | *109* |
| *Nordfjord* | *13091* | *105* | *76* | *113* | *115* | *114* | *109* |
| *Florø* | *6686* | *105* | *87* | *98* | *117* | *137* | *105* |
| Førde | 12189 | 108 | 69 | 121 | 121 | 122 | 110 |
| Høyanger | 4482 | 105 | 81 | 109 | 102 | 115 | 112 |
| Sogndal/Årdal | 12251 | 100 | 71 | 104 | 94 | 111 | 109 |
| Vestlandet | 534062 | 113 | 84 | 115 | 119 | 129 | 107 |
| Norge | **2064244** | **114** | **86** | **110** | **119** | **139** | **108** |

Figure 1 illustrates the relationship between regional size and growth in employment in the 1990s. What is typical is that the growth in general is greatest in the largest regions in North Western Norway, but at the same time modified such that regions in the core area enjoy larger growth than the others and that regions in Nordmøre and in Sogn show lesser growth than their size would seem to indicate. There are also distinct differences between coastal and inner fjord areas, with the growth being generally stronger on the coast, while municipalities and regions in inner fjord areas reveal stagnation or decline in employment (see map 2 with its more detailed regional classifications), especially during the 1990s.

*Figure 1. Regional population (bef) size1998 and changes in employment from 1992 to 1998. (Amdam et al 2000)*



*Map 2. Changes in employment from 1980 to 1995, residential and labour market regions (Selstad 1998)*




## Population

In Western Norway there is a relatively clear connection between the sizes of the regions and the growth in population and in employment during the last 10 - 20 years (Amdam et al 2000). The larger regions Bergen, Stavanger/Sandnes, Haugesund and Ålesund show growth, while the small (isolated) regions reveal decline. As indicated in figure 2, the connection is not as obvious in North Western Norway; a large number of the regions have greater or smaller population growth than expected on the basis of their size. On the positive side, there are regions like Førde (public sector development and services), Florø (maritime activities), Ulsteinvik (fishing and manufacturing) and Ørsta/Volda (public sector development). On the negative side, we find especially Kristiansund, Nordfjord, Surnadal and the "hydro-electric power regions" Sogndal/Årdal, Høyanger and Sunndalsøra. The most typical feature is that there has been growth in the "core area" of North Western Norway, with a slight exception for Nordfjord – and decline in Nordmøre and in Sogn.

If one looks at the connection between population change and changes in employment in the 1990s, a situation appears as is shown in figure 3. Most of the regions have enjoyed considerably greater growth in employment than in population, and the difference is particularly noticeable in the very small regions and in Ulstein and Ørsta/Volda. The Ulstein region has had a 17% growth in the number of jobs compared to a population growth of just 2.7%. This can partially be explained by large unemployment at the start of the period (the crisis in the shipbuilding industry), but during the 1990s there has been a fairly large out-migration of young women and in part in-migration of men. This has meant that the ratio of young women to men has deteriorated during the period and is as low as 0.85 for the age group 30 – 39 in the Ulstein region.

*Figure 2. Regional population size 1998 and demographic change from 1980 to 1998.*

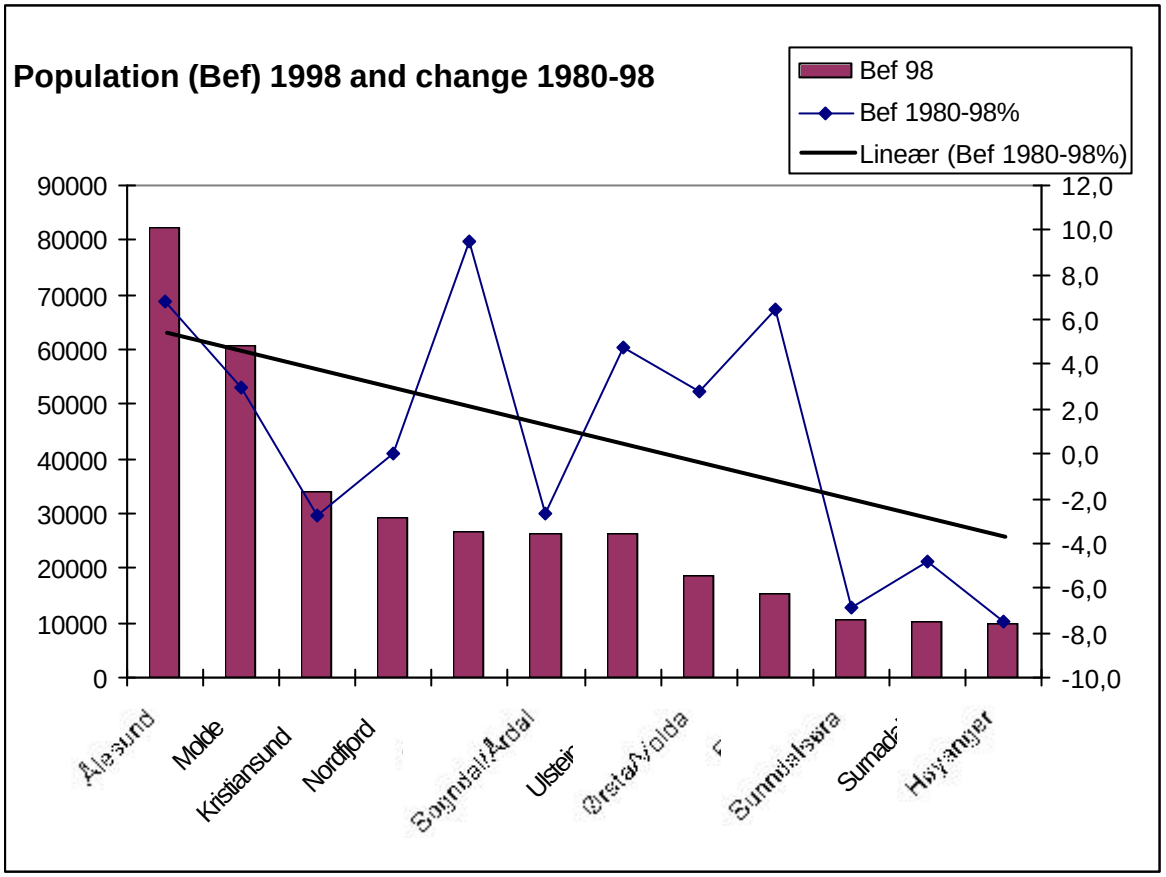
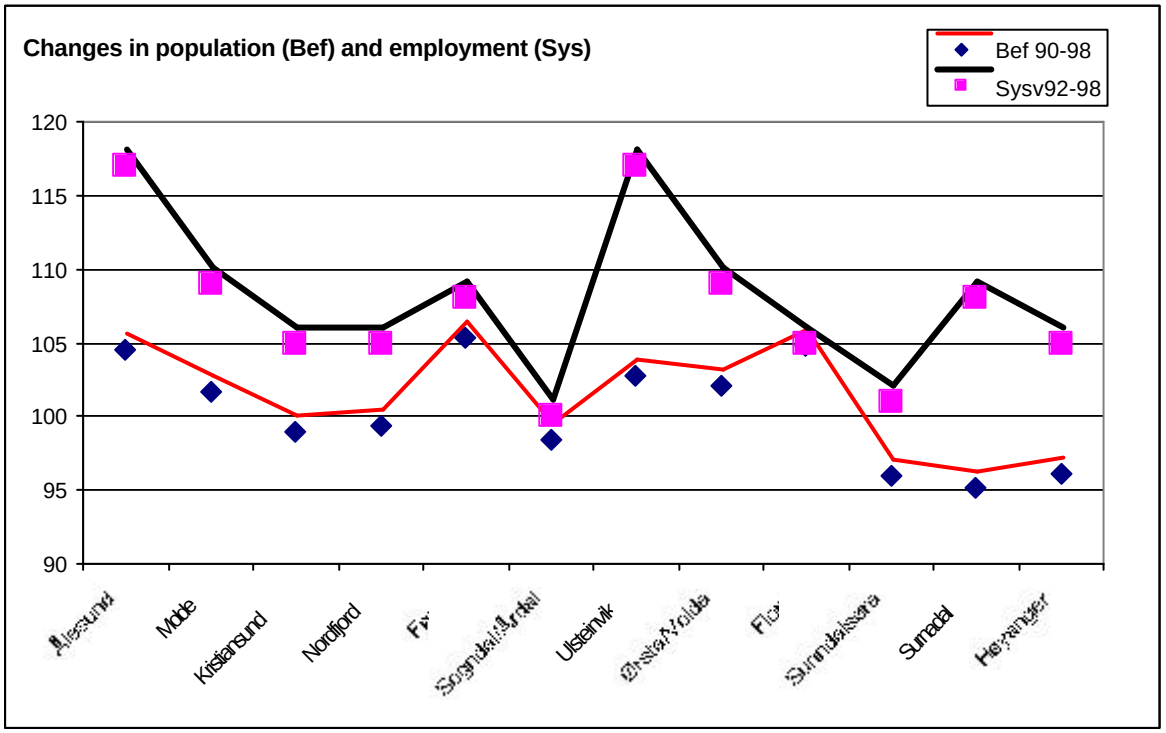
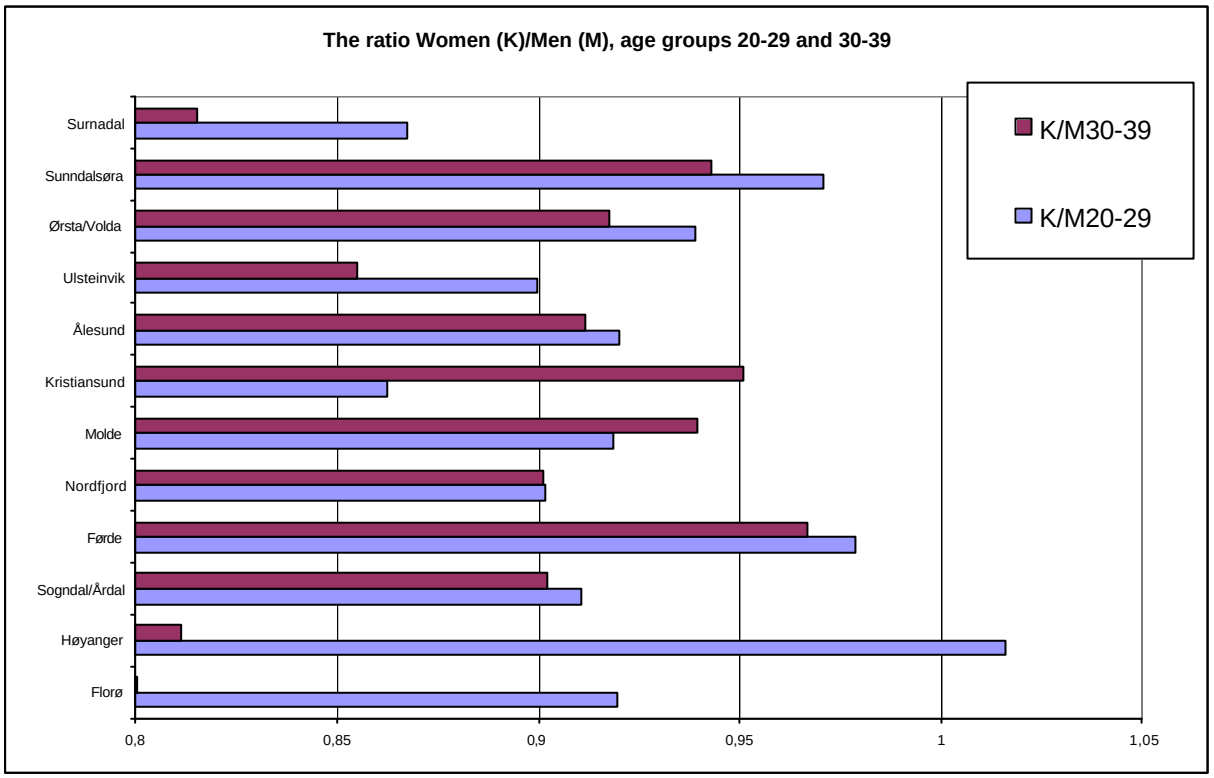



*Figure 3. Changes in population and employment in the 1990s. (Amdam et al 2000)*



A striking feature of the development in the region as a whole is that the population growth is relatively weak in relation to the strong growth in the number of jobs. There is no single region in which the growth in the population has been stronger than in employment. This is the opposite of Eastern Norway, where many regions have experienced just such a situation (Selstad 1999:49). Not even in the larger urban regions in Western Norway does the population grow faster than the number of jobs. As is shown in figure 4, there is a clear deficit of women in the strategic age groups with regard to establishing a home in North Western Norway. This has no doubt to a large extent to do with the low share of employment in the service industries. Certain regions that are relatively dominated by manufacturing show for example growth both in the number of jobs and in the age group 30-39. Even so, what is remarkable is the fact that such growth can lead to an even greater imbalance between the sexes in the same age groups. Thus certain regions show a larger surplus of men at the end of the nineties than they had in 1980, which is an indication that the recruitment of newly established young adults has declined in relation to the previous decade.

*Figure 4. The ratio of women to men – 20 to 39 years old (Amdam et al 2000)*




There can be several reasons why the population growth does not correspond to the growth in the number of jobs:

- It may be due to the fact that it is difficult to get people to take the jobs that are created, which to a large extent means that these vacancies must be filled in other ways. In industry such situations are usually solved by, for example, employing hired labour either from other parts of Norway or from abroad.
- The correspondence between demand for and the supply of labour also depends on what skills that are being demanded and supplied. Youth in rural areas, in the same way as young people in general, are most interested in gaining an education, often involving a

long course of study. Such choices of an education are often motivated more by what one wants to become than by the demand for labour in the region in which one grew up. In such a situation, a mismatch between supply and demand in the labour market can often be the result. This will in particular affect regions that have difficulties in recruiting a workforce through migration.

- Difficulty in finding two jobs for two persons from the same household in one and the same place is also a well-documented problem. When a family is looking to establish a home it will often be a prerequisite that both individuals can find suitable jobs.

Such structural features will also influence future development. Because business and industry in North Western Norway is so dependent on international trends and on the number of jobs available in the primary and secondary industries, coupled with the younger generation's preferences for work and what sort of community they want to live in, the development of society (societal development) in North Western Norway is particularly uncertain. It is especially frightening that surveys of young people and young adults in various municipalities reveal a high degree of dissatisfaction and that many plan to move away (Amdam et al 2000b).

### *Strategic industries*

In the report "A future for Western Norway? (Amdam et al 2000), the following industries are identified as particularly strategically important to Western (and North Western) Norway:

1. Energy production – especially the extraction and processing of oil and gas
2. Sea farming and fishing
3. Maritime industry – clusters in the south (oil/gas) and the north (fishing/oil/gas)
4. Knowledge-based industries – parts of private services aimed at manufacturing, research and the passing on of knowledge in higher education
5. Industries especially important for rural areas (farming, tourism)

In North Western Norway furniture production is also vital in the core area and smelting plants are important in Nordmøre and in Sogn. At the same time, the service industries are generally "underdeveloped" in North Western Norway, which creates problems in relation to being able to offer a variety of jobs. Below the presentation will be limited to industrial activity.

## Energy – oil and gas

Western Norway has traditionally been a large net-producer of energy – in part with considerable exports in the form of electricity to Eastern Norway and in the form of energy-intensive processing of raw materials. In recent decades the huge finds of oil and gas have resulted in enormously valuable exports and also in great economic ripple effects, especially in Rogaland and gradually in Hordaland – but also for the rest of Western Norway. A greater emphasis on renewable energy sources such as wind and wave energy offers enormous potential for Western Norway and for North Western Norway in particular.

Smelting plants and the production of energy for these have been important to Western Norway and still are for regions like Sogndal/Årdal, Høyanger, Sunndalsøra and municipalities like Bremanger. The total number of jobs in metal production is about 5000. Further development in Sogn and in Nordmøre will to a large extent be dependent on

increased supplies of energy and increased production in order to maintain the level of employment.

In 1998 the petroleum-based activities employed a total of about 92,500 (Leknes & Steineke 2000). Of this total, roughly just under half were employed in the building of permanent and floating constructions. About 70% of these are employed in Rogaland and Hordaland, with around a mere 5% in North Western Norway. On the other hand, this part of Norway is important for the supply industry, in Herøy alone there is a fleet of over 40 supply boats. It is likely that the oil and gas-related activities reached an historic peak in 1998 and that the number of jobs will be reduced by 50-70,000 the next 10-20 years, at the same time as activities will gradually be moved northwards. One cannot, however, count on any particular increase in North Western Norway (Amdam et al 2000, Leknes & Steineke 2000).

## Sea farming and fishing

The fishing industry is huge in Norway; in fact it is the second-largest export industry after raw oil and on a par with natural gas in terms of value. In 1998 1.95 million tonnes of seafood were exported at a value of NOK 28.2 billion. The farming of salmon and trout accounted for about a third of this figure. The fisheries represented roughly 8.5% of Norwegian exports.[1] Møre og Romsdal has established a strong position. In 1980 about 20% of all fish measured by value was landed in this county; this increased to 28% in 1990 and 32% in 1997 (SSB (Central Bureau of Statistics) – Nordic statistics on CD-rom 1999). The fishing industry in North Western Norway (M&R and S&F) stood for 42% of the total value of fish landed in Norway and 39% of the quantity, in addition to also having decisive control over much of the industry and exports from Northern Norway. The future development of regions like Ålesund, Ulsteinvik, Nordfjord (Måløy) and Florø will be strongly influenced by developments in the fishing industry.

From table 3 we can see that Western Norway's four counties account for about half of the value of fish landed and for 53% of the value of farmed fish. In the fisheries, Møre og Romsdal has a dominant position, while in fish farming Hordaland is slightly more important than Møre og Romsdal.

*Table 3. Firsthand value of fish landed and farmed 1998, NOK 1000 (Source: SSB Internet)*

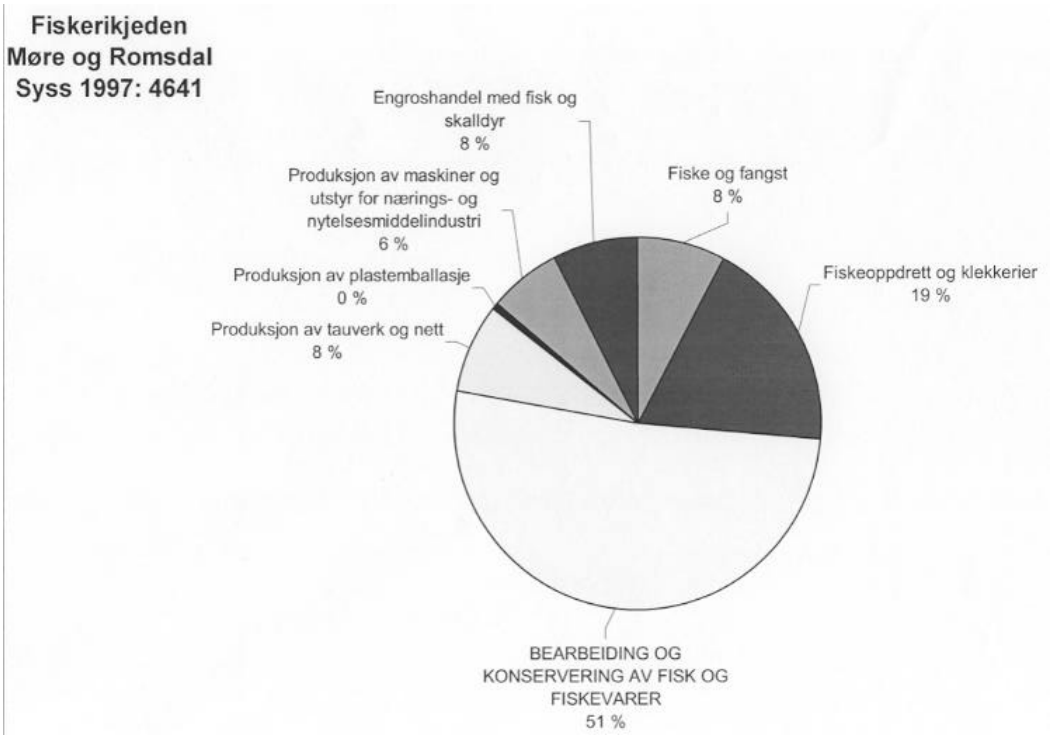
| County | Value of catch | Value of farmed fish | Total |
|---|---|---|---|
| Rogaland | 794716 | 556166 | 1350882 |
| Hordaland | 296891 | 1774130 | 2071021 |
| Sogn og Fjordane | 931888 | 781250 | 1713138 |
| Møre og Romsdal | 3184356 | 1389406 | 4573762 |
| Vestlandet | 5207851 | 4500952 | 9708803 |
| Noreg | 10409428 | 8513332 | 18922760 |

Within the traditional fisheries, the increase in the amounts caught is very limited and species like cod are probably over-fished. On the other hand, the value of whitefish in particular has increased considerably in recent years, which has raised interest for farming these varieties.

[1] Source: www.fiskeoppdrett.no / Eksportutvalget for Fisk

With quantities of fish caught constant in the long term, the challenge will be to increase the value by taking better care of the raw materials and making better use of the products. This also applies to the secondary catch and also challenges associated with by-products from waste like feed and with bio-chemical production. Improving quality, processing, by-products and new markets would seem to be the main challenges in the field of traditional fishing activities.

*Figure 5. The fishing chain in Møre og Romsdal, share of jobs (Nås 2000)*




Jobs 1997: 4641:
Wholesale trade with fish & shellfish – 8%
Production of machines & equipment for food & drinks industry – 6%
Production of plastic packaging – 0%
Production of rope and nets – 8%
Fishing & hunting – 8%
Fish farming & hatcheries – 19%
PROCESSING AND CONSERVING OF FISH & FISH PRODUCTS – 51%

Figure 5 shows the fishing chain in Møre og Romsdal with its roughly 2,300 jobs in processing and conserving fish and fish products. By comparison there were about 1,300 industrial workers in fish and fish products in Sogn og Fjordane in 1997, and with other activities corresponding to those in Møre og Romsdal it must be assumed that the fishing chain there employs about 2,600. This means that the total number of jobs in the fishing chain in North Western Norway is over 7,000.

There are great expectations of growth in the fish farming industry, which is to be expected on the basis of figures showing that the quantity of farmed salmon sold increased by over 100% from 1993 to 1998, from about 160,000 tonnes to about 360,000 tonnes. The value has

increased somewhat less, by about 80%. In the report "Norway's opportunities for the formation of values in fish farming" (DKNVS 1999) it is suggested a potential for a tremendous growth in value in fishing, fish farming and associated activities from about NOK 40 billion in the year 2000 to about NOK 240 billion in 2030. A great deal of this growth will eventually come from the cultivation of species that previously have simply been caught – but also from a five-fold increase in the quantity of farmed salmon. Such a change will, however, demand a dramatic escalation of research and development efforts. It is reasonable to believe that North Western Norway will get its share of such a growth. At the same time, the effects of fish farming on employment have so far been small due to the low degree of processing in Norway. Just 4,284 persons were directly employed in this industry in 1997, of these 389 in S&F and 678 in M&R (SSB Internet). In addition will come jobs in associated activities such as export companies, transport etc which for example were calculated by the Directorate of Fisheries to be about 9,700 in 1994 (Leknes & Steineke 2000) – all told a job effect of about 14,000, of which at least ¼ in North Western Norway.

## Maritime industry – clusters

Historically fishing activities and shipping have been very decisive for the development of the marine industry in North Western Norway. The development has followed the "French" model (Wicken 1997) where craftsmen have developed the industry in close co-operation with users in the face of new challenges and technical possibilities. From wooden boats, metal boats and modern shipbuilding was developed. The copying of simple engines and other equipment led to the production of the advanced equipment necessary in modern vessels. In principle the industry has developed products that fishermen and ship-owners required as needs were defined and technology made it possible to meet these requirements.

After the discovery of oil in the 1970s these environments have been basically divided into two. In South Western Norway an "oil cluster" was formed where the maritime industry to a large degree transformed itself to establish the capability to meet the demands presented by searching for and extracting oil. The centre of these efforts is Rogaland, but also Hordaland. In North Western Norway the construction of vessels and equipment continued, but with new types of vessels such as supply boats etc for the oil industry along with to boats for fishing and various specialised vessels. The latest addition to this category is vessels for laying optical cables on the seabed. The centre of activities here is Møre og Romsdal with a base in the Ulstein- and Ålesund region, but also Sogn og Fjordane and to some extent Hordaland.

These two partly integrated maritime clusters are of vital importance to North Western Norway. To indicate the dimensions and integration we can refer to the figures about activity in Møre og Romsdal (Hervik et al 1998), see table 4. Of the roughly 13,700 jobs in 1999, as many as 3,700 were in the Ulstein region, 3,600 in the Ålesund region excluding Haram, 2,800 in Haram, Sandøy, Midsund and Vestnes, 1,500 in the remainder of Møre og Romsdal and 1,900 in Nordmøre (Hervik et al 2000). Similar figures can be presented from Nordfjord and the Florø region. In Sogn og Fjordane in 1997 about 1,700 were employed in "Other means of transport", which means to all intents and purposes shipbuilding. In that county the other parts of the cluster are far less developed (just 500 were employed in SSB's groups 29-33 which are machines and electrical equipment). The same cluster in North Western Norway probably represents somewhere between 15,000 and 18,000 jobs.

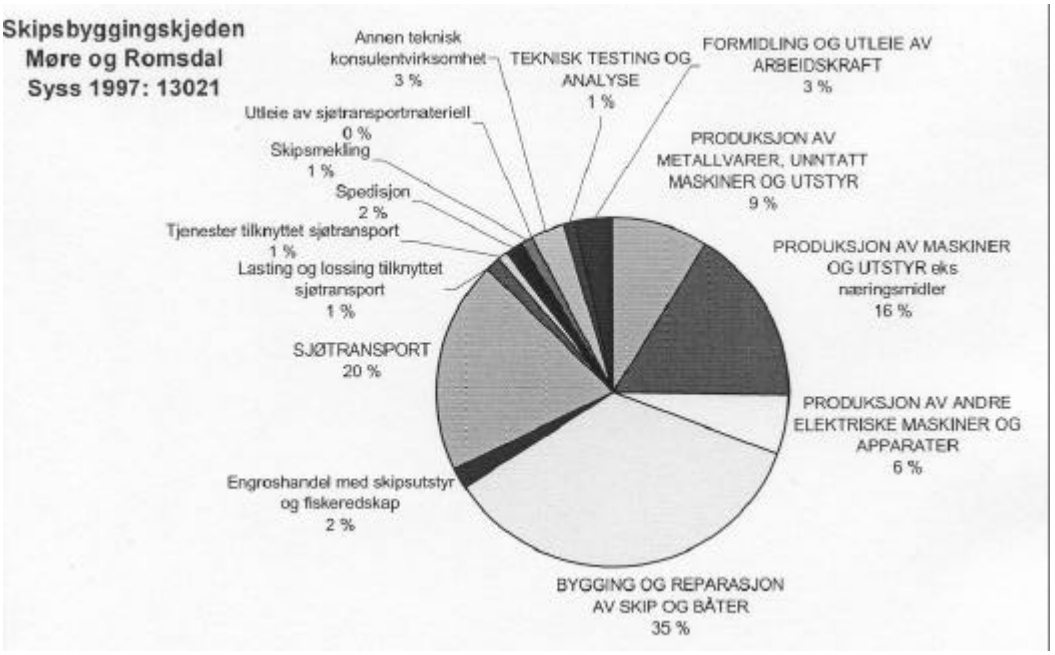
*Table 4. The maritime cluster in Møre og Romsdal in 1997/98 (Hervik et al 1998)*

| Trade | No. of firms | Turnover 1997, NOK mill. | Jobs | Operating margin |
|---|---|---|---|---|
| Shipyards | 23 | 5700 | 3000 | 1.2 % |
| Suppliers &<br>Ship consultants | 190 | 6000 | 4900 | 6 %<br>15 % |
| Shipping firms<br>(shipping/<br>seafishing) | 13 trad. Shipping<br>130 boats fishing | 2700<br>2900 | 5300 | 29 %<br>15 % |
| Total | | 15700 (1) | 13000 | |

(1) – Corrected for internal supplies

In reality the shipyards that are the most visible activity are just 1/3 of the total closely related activities. Hervik's survey shows that ship constructors have the whole world as their market, that their activities mean that vessels are constructed in Norway and in particular that Norwegian equipment is used. They have a key role in the development of the synergy effect in the cluster. In the period 1994 up to and including 1997 the ship constructors in the county were responsible for the total planning of 198 vessels, of which 101 were for overseas owners. 43% of the vessels were built in the county, 31% abroad. Regional shipowners also tend to use regional shipyards and equipment manufacturers.

*Figure 6. The shipbuilding chain in Møre og Romsdal, share of employment (Nås 2000)*




**Jobs 1997: 13021:** Other technical consultant services 3%, Hire of sea transport material 0%, Ships' brokers 1%, Forwarding agents 2%, Services related to sea transport 1%, Loading/unloading of sea transport 1%, SEA TRANSPORT 20%, Wholesale trade with ships' equipment & fishing tackle 2%, BUILDING & REPAIR OF VESSELS AND BOATS 35%, PRODUCTION OF OTHER ELECTRICAL MACHINES & APPARATUS 6%, PRODUCTION OF MACHINES & EQUIPMENT exc. food & drink 16%, PRODUCTION OF METAL GOODS, EXC. MACHINES & EQUIPMENT 9%, PROCUREMENT & HIRING OF MANPOWER 3%,
TECHNICAL TESTING & ANALYSIS 1%

## Furniture

Møre og Romsdal is Norway's leading county in the production of furniture (Møre og Romsdal County Authorities 2000). The county boasts half of the Norwegian furniture industry, both in terms of jobs and gross production value, as well as over half of the total exports of furniture. The trade with its almost 4,300 employees (furniture, fitting out & wood products) is second only to shipbuilding in the industrial sector in Møre og Romsdal. It therefore is of vital importance for jobs in industry and the formation of values in North Western Norway, even though Norway as a whole is regarded as a small nation in the furniture trade. The furniture industry is in general struggling with profitability, especially the small companies and the production of pine furniture.

The actual production is mainly concentrated in the Ålesund region with the centres of activity being Sykkylven, Stranda and Stordal. But there are active environments in Skodje, Haram, Ålesund and Ørsta within the core area and other smaller environments in other places like Surnadal and in Nordfjord (about 300 employees in Sogn & Fjordane in 1997).

## Knowledge industries and IT

In their presentation of the maritime cluster (see above), Hervik et al (1998) point out the key role of the ships' constructors, in respect of their ability to attract assignments from all over the world, which lead to ships being built in Norway and in particular that equipment from Norwegian manufacturers was used.

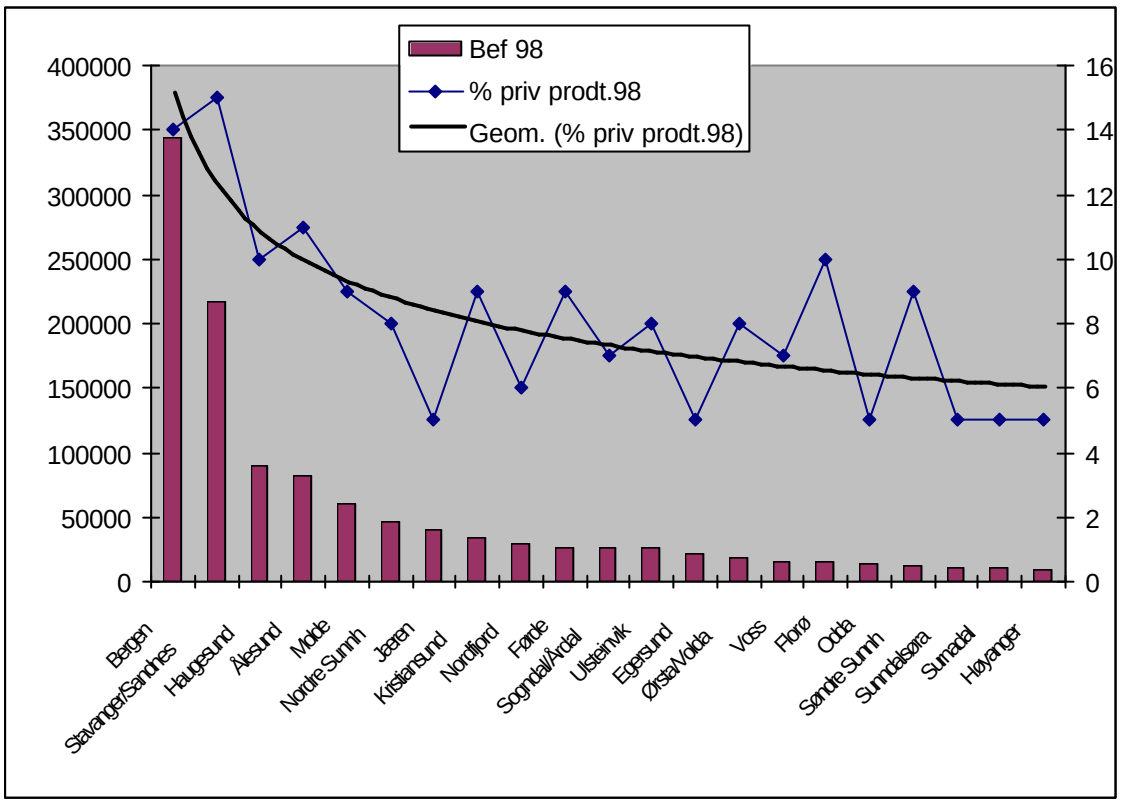
During the 1980s and 1990s we have seen that private services to industry have expanded strongly, especially the part of these activities that demand a high degree of competence. Employment in services aimed at manufacturing and demanding know-how, such as business services and research, grew by as much as 71% in the 1980s (Selstad 1998) – in fact, most of the national growth of 14% in these trades came in this field.

Table 1 above shows that while Norway has about 14% of its job total in the field of private services to industry, Western Norway has only 11%. Stavanger/Sandnes and Bergen are in fact barely on a par with the national average or just above, Ålesund with its 11% is on the average for Western Norway. Counties like Møre og Romsdal and especially Sogn og Fjordane are way below the national average. Figure 7 shows that there is a relatively clear connection between the size of the region and the level of private services to industry in Western Norway, as might be expected. Oslo and Asker/Bærum have as many as 26 and 25% of their jobs in this field. What is clear is that in this line of business, the Oslo area dominates completely with many activities that serve a national market.

In the field of research and IT, there is roughly the same centralised pattern as above, see Leknes & Steineke (2000). In 1997 R&D costs pr inhabitant varied greatly in the four counties of Western Norway. While Hordaland lay just above the national average in costs pr inhabitant, Rogaland was below 50%, M&R about 25% and S&F just 10% of the national average. In Hordland almost half of the R&D activity was carried out in the university and college sector, while business and industry were responsible for most of the R&D work in

both Rogaland and Møre og Romsdal. In Sogn og Fjordane the institute sector contributed about half of the R&D effort in the county. Seen in relation to the high level of industrial activity in Western Norway, this is a clear indication of a lack of public sector R&D involvement in areas close to business and industry – a factor that makes it difficult to establish interactive learning between research environments and business and industry (Isaksen & Spilling 1996, Isaksen 1997).

*Figure 7. Regional shares of jobs in private services to industry in Western Norway 1998, seen in relation to the population (Bef) size of the region.*



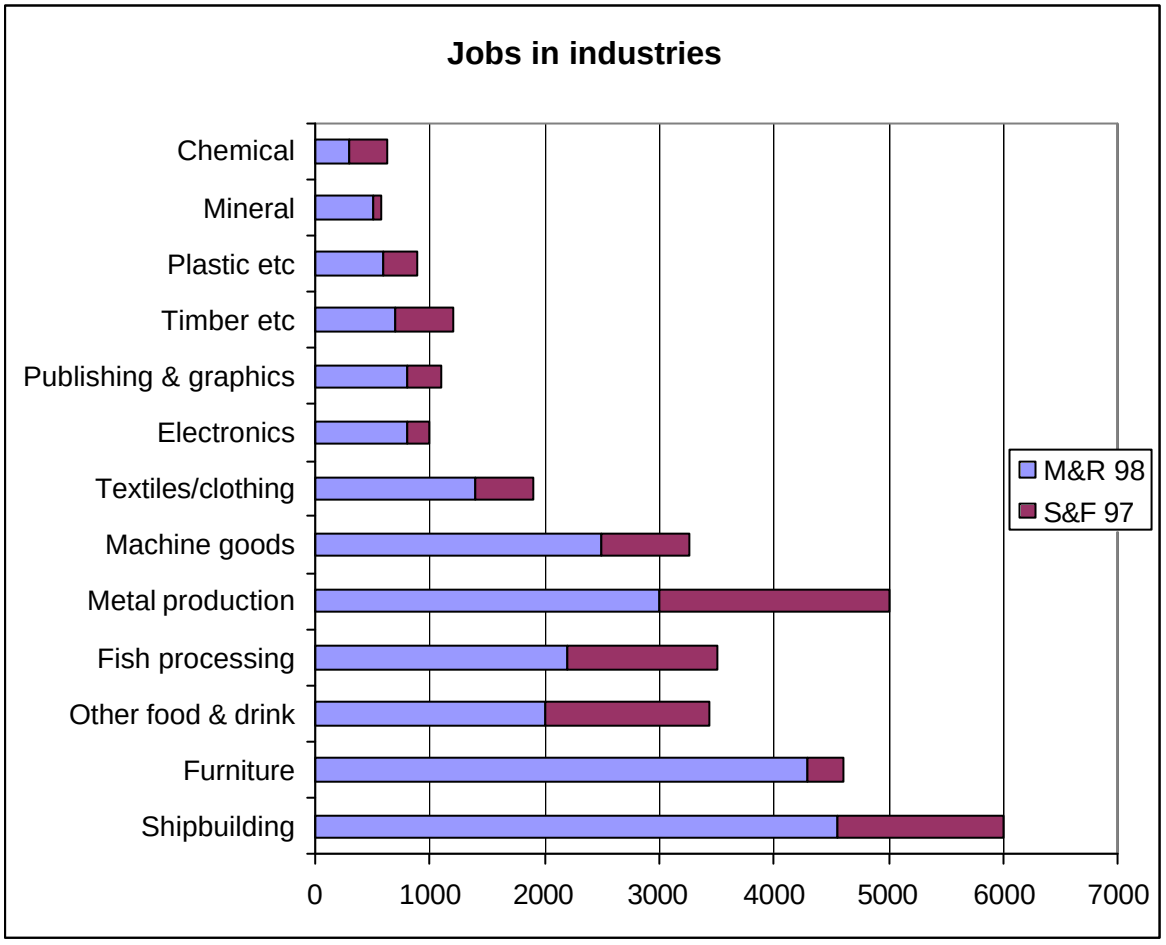

Bergen and Stavanger/Sandnes are the dominating regions in the IT business in Western Norway – both absolutely and relatively. In Bergen there are 8.5 IT jobs pr 1000 inhabitants, making a total of almost 3000 persons. In Stavanger/Sandnes these figures are 7.65 and 1650 respectively. Of the other economic regions in Western Norway, only Ålesund, Molde and Haugesund had more than 1000 persons employed in IT businesses at the end of 1998.

## *Challenges facing North Western Norway*

In the course of our work with the regional analysis of Western Norway (Amdam et al 2000) as part of the regional Green Paper, we identified joint challenges facing the whole area and which generally also apply to North Western Norway. Western Norway and the coastal area in particular are full of potential for the years ahead and in many fields. In spite of the fact that the oil reserves in the southern part of the North Sea are beginning to be depleted, possibly resulting in less activity in exploration and development, a pool of know-how has been established that ought to be able to adapt to other forms of activity or to activity in other countries. There are tremendous challenges linked to the national processing of oil and gas.

Prospects are bright for the fish farming industry, and Western Norway has the know-how in research and economic activity that is necessary to exploit such opportunities, as long as investment is made with a definite aim in R&D and entrepreneurial skills to cultivate new species, improve technology for the transport of these products, marketing etc. The marine and maritime environments are strong in Western Norway and have great potential for further development especially in relation to petroleum and fish farming activities. In addition there are other locally active environments in tourism, the metallurgic industry, furniture, etc.

*Figure 8. Jobs in industry in North Western Norway (Source: County authorities' website)*




If we look more closely at North Western Norway, we see that the area is extremely skilled at producing and exporting. As in many other regions with a "flexible industrial production", it is the traditional industries that dominate, se figure 8 which shows jobs in industry in Møre og Romsdal in 1998 and Sogn og Fjordane in 1997. A high-cost country like Norway requires a great ability to adapt and renew, so that businesses can survive. Theories on dynamic/learning development point to the need for interactive learning and close networks and relationships, many meeting-places etc, if the necessary dynamics are to be created (Amdam R. 1997, Storper 1997).

A disadvantage for the economic / business environment in North Western Norway is that in particular private services to industry based on specialised know-how are underdeveloped, along with research and educational activities. North Western Norway produces and exports goods, Oslo has the services associated with these activities and "creams off" the profit and advantages – this is an accurate description of the actual situation. This is one of the greatest

challenges facing the region in the years ahead, not to reduce the manufacturing activity, but to increase the research, development and service activities in order to establish a best possible learning and development environment, which in turn will make it possible to recruit well-educated youth of both sexes.

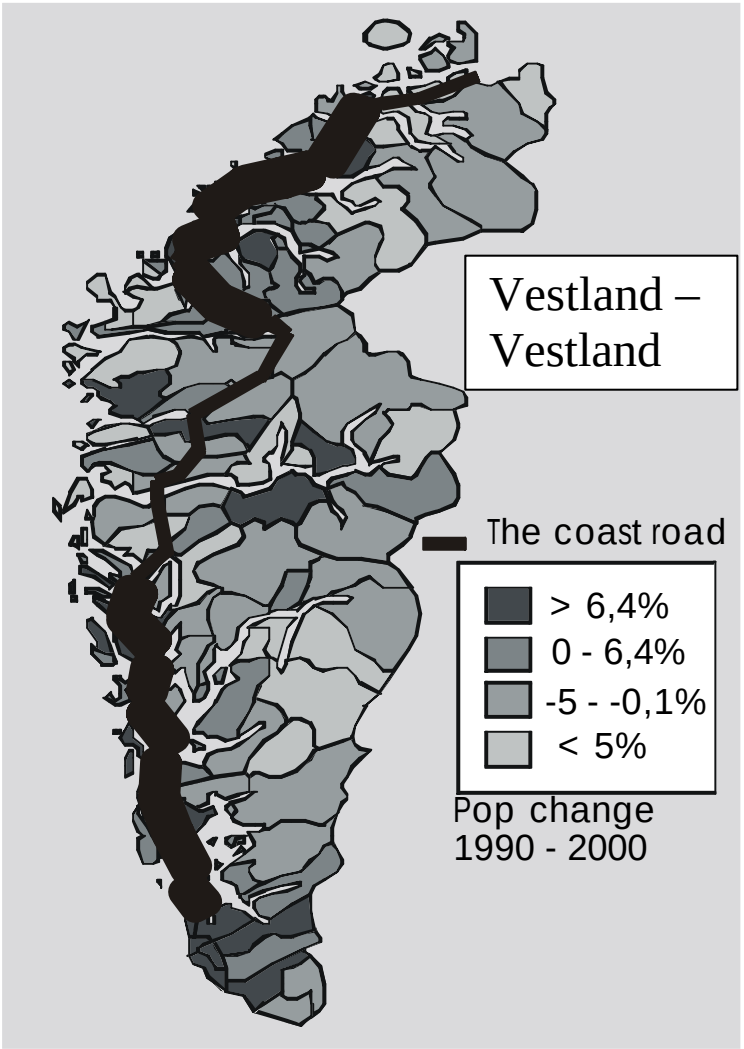
Culturally and historically, North Western Norway (with the possible exception of Nordmøre) with a single identity on the basis of common features such as spoken language, an egalitarian "small fisherman and farmer culture", a region facing the sea and dependent on the ocean, sea and fjords from the point of view of both its economy and infrastructure. But this complex structure with good access to the sea that was vital to establishing society, today functions as an obstacle to further development. As I have demonstrated above, it is the coastal regions and the most densely populated regions that are enjoying growth in North Western Norway. Regions with small residential and labour markets, especially in the fjords and on the islands, face great problems in recruiting and keeping young people even though there is an increase in the number of jobs.

The distance as the crows flies between Ålesund and Ørsta/Volda is about 60 km, but the actual travelling time corresponds to about 120 km. Investment in the coastal highway with the shortest possible distances between the larger centres in North Western Norway can result in an "urban area" from Ørsta/Volda, Ulstein, Ålesund, Molde to Kristiansund within about 2.5 hours' driving (as opposed to about 4 hours today depending on ferry times) and with a population of almost 200,000 which can function in interconnected residential and labour markets (Amdam et al 2000). With increasing demands from urbanisation and for variation in job offers, many regions, in fact the whole of North Western Norway, will face huge developmental challenges, if it is not possible to establish larger and more varied labour markets.

*North Western Norway 2020 – three scenarios*

## Scenario 1: Western Norway (Vestland – Vestland)

The basis of the first scenario is the establishing of a north-south transport system with good links direct to Europe. In 2020 it is possible to travel without ferries between Stavanger and Trondheim after the opening of a tubular steel bridge across the Sognefjord. This transport corridor is linked to the Continent and the UK with high-speed vessels. This huge investment has been made possible through a public-private partnership and the establishment of a special development and operating company for the National Coastal Highway. Over-capacity in the offshore industry has been used in mass production of tubular steel bridge elements – which have also become an export article. The National Coastal Highway has functioned as a joint project for the huge County of Western Norway, the project designed to unite Western Norway as one single unit. In reality two conurbations with enormous growth potential have been created, the axis Stavanger-Haugesund-Leirvik-Bergen with a population of over 800,000 within commuting distance to one or more of these centres and the axis Stryn-Ørsta/Volda-Ulstein-Ålesund-Molde-Kristiansund with about 220,000 inhabitants within commuting distance from one or more of these centres.

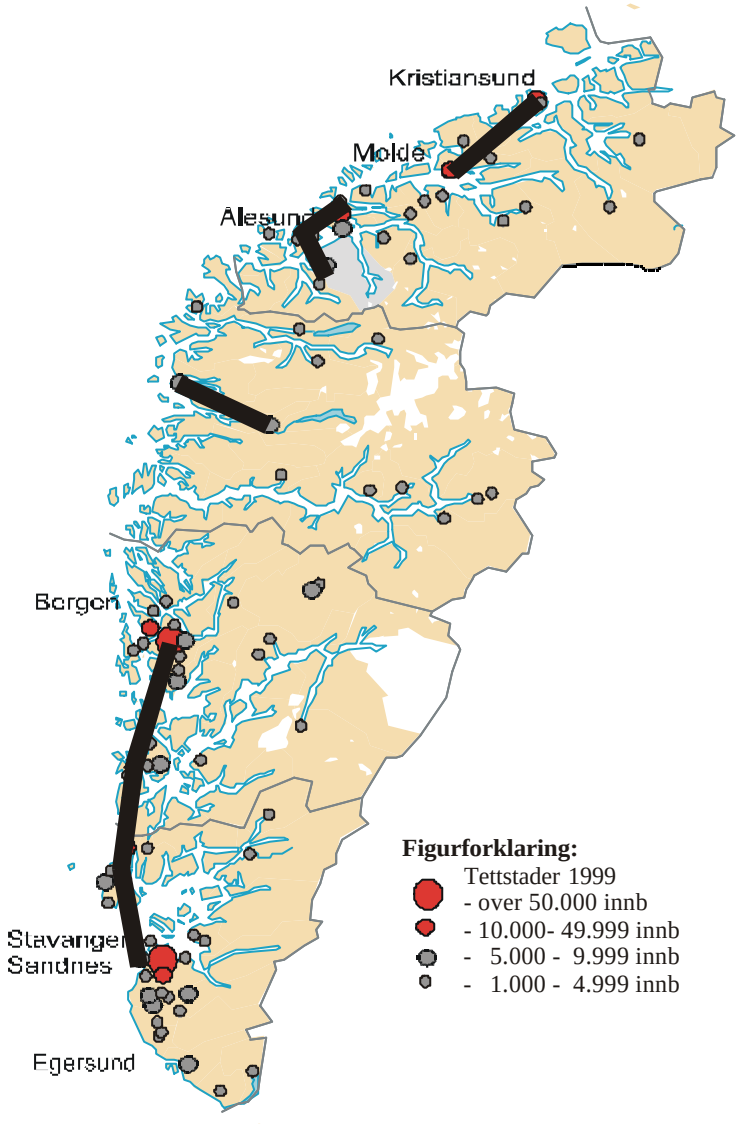



Halfway between these two we find Florø-Førde with some degree of growth. Within these urban areas created by the Coastal Highway, there are partly overlapping labour markets. On the other hand, the coastal areas in between and the inner fjord districts are characterised by stagnation and thinning out – in particular because agriculture has been dramatically reduced, with the exception of those areas that have managed to readapt successfully to human care activities and which have invested in becoming good environments for housing the elderly who "are seeking refuge" from the towns. There is considerable rivalry between in particular Bergen, Stavanger and Ålesund.

*Figure 9. Regional structure scenario Vestland - Vestland*

## Scenario 2: North and south, fjord and sea

*Figure 10. Regional structure scenario 2.*



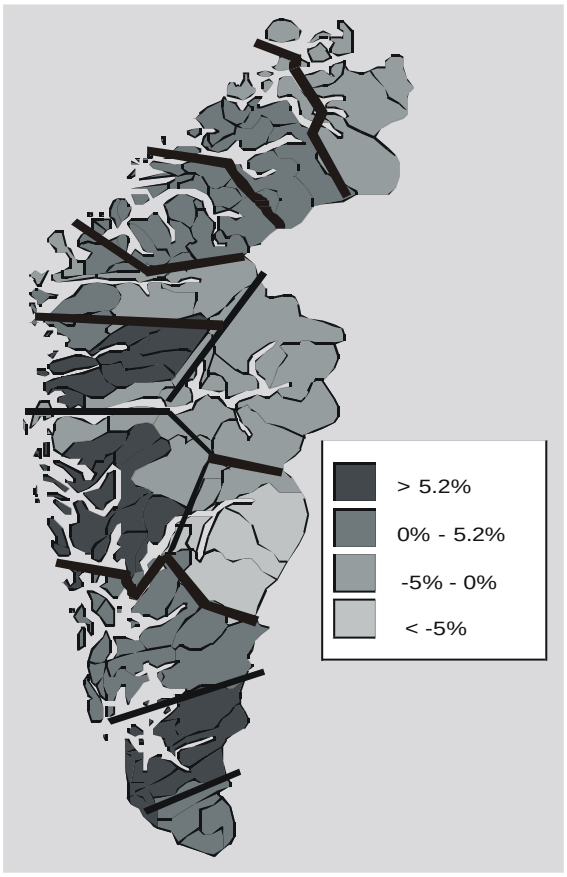

The basis for this scenario is that the value of the production of fishing and fish farming has quadrupled from 2000 to 2020. Even though the level of employment has not increased appreciably in the primary and secondary industries (little processing), there has been a resounding increase in know-how based activities related especially to sea farming. This is due to the fact that in the last twenty years R&D activity and pioneers in this field etc have been stimulated so that a large number of small and medium-sized companies have been established that specialise in the development and cultivation of new species, enzyme discovery and production, quality-control activities, market development, etc. Western Norway has assumed the role of sea farming's Silicon Valley.

Simultaneously many new finds of petroleum have been made, resulting in a fairly high level of activity in the North Sea, in spite of low prices. This is the result of the introduction of tax and duty reductions on the development of marginal fields and tail-end production from existing fields. Even so there has been a decrease in the number of jobs in the petroleum industry in South Western Norway.

In communications, the National Coastal Highway has been built between Stavanger and Bergen so that it is possible to drive the distance in 2 hours 15 minutes and the area has the look and feel of a conurbation. Further north, most of the fjords can be crossed on high-speed ferries. The labour markets of Florø-Førde, Ålesund-Ulstein-Ørsta/Volda and Molde-Kristiansund have been amalgamated. Western Norway appears to be ever more divided between the "real Western Norway" south of the Sognefjord (which has been designated as a nature reserve) and the more fragmented North Western Norway with its links with Eastern Norway. There is also a considerable antagonism between the strongly growing coastal strip and the more stagnating fjord districts.

## Scenario 3: The regional division of Western Norway

*Figure 11. Regional structure scenario 3.*




The third scenario describes what might happen if Western Norway were divided into 11 regional municipalities (Surnadal, Molde-Kristiansund, Ålesund, Nordfjord, Førde-Florø, Sogndal, Bergen, Hardanger, Leirvik-Haugesund, Stavanger and Egersund) after the abolition of the county authority level of administration. Since the challenges and development potential vary enormously, some of which are characterised by co-operation, while others result in "quarrels between neighbours", it is really necessary to write 11 scenarios here. There are still 9 ferry crossings along the Coastal Highway, but some of these have high-speed ferries. Road investments have mainly been spent on improving the existing road system in and around the urban centres, where the toll road income has guaranteed government funding.

The regions north of the Sognefjord gave priority to improved road links with Eastern Norway, while the other regional municipalities put their money into the National Coastal Highway. The petroleum industry is enjoying a relatively high level of activity with many finds in the Norwegian Sea and high prices. The development of fields where time is critical has helped to maintain activities in South Western Norway, whilst in Mid-Norway there is an increase in the number of jobs in operations and maintenance. The sea farming industry is characterised by large growth, but has been taken and is controlled by international food companies who do their R&D and processing overseas, but with Ålesund as the centre of their mercantile activities.

There is a strong polarisation culturally and in other respects between the regions and the state authorities exploit this situation through a "divide and rule" approach to negotiations on compensation for public welfare production. Employment in the public sector, especially linked to control and administration, is increasing considerably, but is fairly evenly shared between the regions combined with strong growth in Oslo.

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