

Patterns of Demographic Ageing and Related Aspects in the Nordic Peripheries

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Preface

This report is a comparative study of some main features of Nordic demography, notably the demography of ageing in the periphery. The report will be relevant to anyone occupied with demographic and welfare policies and with studying regional demographic patterns. Researchers Olaf Foss and Dag Juvkam of the Norwegian Institute for Urban and Regional Research have conducted the research within the project 'Territorial Patterns and Implications of Socio-Demographic Change'.

The project is part of the second phase of the Nordic research programme *Future Challenges and Institutional Preconditions for Regional Development Policy*. The programme was commissioned by the Nordic Council of Ministers/Nordic Senior Officials Committee for Regional Policy (NERP). A pilot phase of the project was reported

in 2000. The first phase of the programme (2000–2002) was reported through eight published studies in 2002. The reports from six separate projects in the second phase (2003–2004) of the programme will be published successively through the autumn of 2004 and the spring of 2005 together with a summary of the programme.

Nordregio wishes to thank the project team as well as the members of the Programme Steering Committee: Bue Nielse (Denmark), Janne Antikainen (Finland), Kristin Nakken (Norway), Nicklass Liss-Larsson (Sweden), Kjartan Kristiansen (Faroe Islands), Bjarne Lindström (Åland Islands) and Hallgeir Aalbu (Nordregio).

Stockholm, August 2005

1 Focus and research questions

1.1 The general aim and focus of the study

The rationale behind the recent concerns about population ageing is not that the phenomenon represents a new or emerging tendency, or a tendency currently entering or characterised by a particularly intensive phase. On the contrary, the populations of the Nordic countries, along with the populations of the rest of Europe and other western countries, have been moving in this direction gradually, most of them for at least a century and many for close to two centuries (cf. below). Thus the current debate is probably more closely related to other aspects of society and social change than to demography.

Some rather recent demographic period-specific events have had an impact on demographic structures in our time, and will continue to do so in the near future in more immediately visible ways, since the age groups they have affected most are continuously reshaping age pyramids. Such events are the relatively high numbers of births from the mid-1940s to the mid-1960s (known as the baby boom) and the start of longer periods of below replacement-level fertility in a growing number of countries from the end of the 1960s.

The likely implications of these (and other) demographic events and their subsequent effects on population structure development in different areas of society are not evident beyond the mere numerical projections that can be made for different strategic age groups. Even these are made with considerable uncertainty for some age groups. Nor is it clear how to achieve a better description and understanding of probable and important dynamics to facilitate a more informed discussion of such impacts. Leaving behind the aggregate levels of nations and large regions and moving down to more detailed territorial divisions,

the challenge becomes even more difficult. The number and types of relevant issues and possible problems and the level of complexity and uncertainty shift considerably when we change scale from nation to region.

A limited survey of available research and literature reveals that thus far very few projects and reports seem to focus specifically on population ageing as a sub-national territorial phenomenon, in the sense that they have explicitly set out to illuminate territorial variation in the state and process of changing demographic structures (the geography of ageing), and/or focus in particular on establishing a better basis for detecting and understanding possible non-demographic impacts. The phenomenon of ageing is usually treated as an aspect in general studies of regional-demographic change or studies of other demographic themes.

The present report attempts to establish a rather detailed and comprehensive empirical basis for the description and analysis of territorial variation in demographic structure and structural change, with special focus on the level and tendencies of demographic ageing. Besides ageing, the focus is explicitly on what the authors consider to be the geographic periphery of the Nordic countries and further subdivided into different *types* of peripheries (cf. below). An overall purpose is to establish a picture of and shed some light on territorial variation in 'ageing', or the geography of 'ageing', in the Nordic periphery, and to contribute to an analysis of the *territorial implications of demography* with particular reference to ageing. The different approaches employed are described in the relevant chapters below.

1.2 The issue and discussion of demographic ageing

So-called *population ageing* or *demographic ageing* is considered to be the most pronounced demographic change in the 20th century. Several interrelated processes contributed to the gradual structural transformation of the population from a bottom-heavy pyramid to something often described as being shaped rather like an onion. The periods of transformation have varied in length from

country to country, usually taking from one to two centuries.¹

¹Japan is an exception from this pattern, with most of its demographic transition taking place within a few decades. Japan currently has the highest life expectancy of all countries and has had very little time to adjust to this new frame condition.

The development in Norway serves as an illustration. The segment of the population aged 67 or over constituted less than 5 per cent of the total population in 1845, but contributed almost 18 per cent of the net population growth from 1845 to 2000. The 16 to 66 age segment represented just less than 60 per cent of the total population in 1845, but accounted for more than 67 per cent of the total net growth in the period up to the turn of the millennium. Children and teenagers (0 to 15) represented almost 36 per cent of the initial population, but contributed only 15 per cent of the growth. Their share of the total population therefore dropped from well above one-third to slightly more than one-fifth. In 1845, there were 7.6 children and youths (0 to 15) per elderly person (67+). By 2000, this ratio had changed to 1.5.

This change in the demographic balance of young and old, between the lower and upper part of the age pyramid² as societies move slowly through the different stages of the development known as the demographic transition, was the subject of scientific and political awareness and controversy over much of the 20th century. As mentioned, there is now renewed world-wide awareness of and debate regarding alleged menacing aspects and problems of population ageing since the early 1980s, and even more so since the beginning of the 1990s. The debate has focused in particular on phenomena labelled 'population decline', 'depopulation' and 'ageing'. What in many western countries appear to be unprecedented periods of fertility at below replacement level, combined with the good news of increasing life expectancy, will inevitably influence the development of age structures and growth levels in several geographical areas, based on various combinations of the types of phenomena mentioned as likely outcomes.

However, much of the discussion seems to relate either to more general questions of a macro-economic or macro-social nature, often with an inter-generational distributive dimension or with a group or individual perspective (Hicks 2003). The first important United Nations statements on population ageing and subsequent follow-ups (e.g. 1992, 2002³) covered a wide range of areas and issues where ageing was assumed to pose challenges that could not have been foreseen. These were related, for instance, to health and medical services, the need for care and assistance, family and households, welfare, housing arrangements, labour supply and economic growth, employment and income security, education, research and training.

Around the mid-1990s, many countries' public pay-as-you-go pension systems became a central issue in the light of the impending retirement of the baby boom generation (cf. for instance, the World Bank 1994, Orszag and Stiglitz 1999, Gillion et. al 2000). The debate gradually grew more

polarised and became partly ideological, and it is mirrored in the current Nordic debates over the future labour supply, pensions and public finances. The perspective is still largely 'macro', and related neither to the territory nor to any great extent to individual and family welfare. The OECD accepted the challenge and organised policy thinking on several of the issues and perspectives from the ageing debate around the turn of the millennium. This discussion provides relevant background for *understanding the prevailing ageing focus*, although it still has *no immediate relevance in terms of any apparent territorial dimension*.⁴

The primary processes *related* to demographic ageing, usually assigned a causal status in relation to the population ageing process, are the declines in fertility and mortality. Fertility decline is thought to be the main determinant of the timing and extent of population ageing in the early stages of the demographic transition (although a fall in mortality usually marked the commencement of the transition). At later stages, mortality decline at all ages, but gradually more at older ages, has increasingly come to have more influence on the development of the relative size of the older age groups in the population.

In some European countries, the waves of overseas out-migration in the past two centuries, especially their levelling out in the early years of the 20th century, influenced demographic structure with an ageing bias (cf. Backer 1965). *Unfortunately, all three of the main determinant factors mentioned above are highly unpredictable, making future demographic development much less foreseeable than we like to think even at aggregate territorial levels such as nations* (cf. below). At the territorial level, internal migrations further complicate any efforts at forecasting.

Nevertheless, the long-term macro-economic and macro-social questions related to a shift in population structure towards a gradually higher average age and the changed numerical relationship between old and young people in the population are not the focal issue of this study, however important and relevant they are as a frame of reference. As stated above, the purpose is rather to take a closer, more territorially disaggregated perspective in order to detect *the extent to which the general profile of demographic structure and immediate tendencies of change in demographic structure apply to different types of territories* within the Nordic area, notably the territories we have defined and empirically delimited as the geographical *peripheries* of the Nordic countries, and their respective sub-types of territories. Is there such a thing as a 'Nordic demography' and a 'Nordic problem of ageing'? If not, what are the phenomenon's status and its implications, with specific reference to the geographical periphery?

²The development has hardly affected the share of the large population segment of so-called 'active' or 'working' age (16 to 66 years).

³Cf.: <http://www.un.org/esa/socdev/ageing/index.html>

⁴It is worth mentioning that controversies over the role and implications of demography in economic development and social change have occurred from time to time over at least two centuries, cf. for instance, Hofsten 1974.

2 General background

2.1 The significance of the relative size of 'functional' age groups

Some of the recurrent political concerns over the implications of demographic change relate to the development of the relative size of broad 'functional' age groups. One assertion is that the share of people within the potentially most economically active age span needs to be of a certain size for society to stay economically and in other ways functionally 'sustainable'. Another assertion concerns the potential implications of the numerical relationship between children/youth and elderly people in a population, i.e. the basis for society's preoccupation with 'demographic ageing'. However, it is not at all obvious exactly how these functional age groups ought to be defined. They will vary considerably from one society to the next, as well as over time. The *rationale* is nevertheless based on the presumption that production as well as consumption behaviour (in a broad sense), and particularly the relationship between and the relative intensity of the two modes of behaviour, are systematically and largely dependent upon age¹ (Pressat 1970).

In reality, of course, important modifications need to be made to this kind of socio-demographic reasoning. One of the most obvious and necessary modifications is that the actual socio-economic significance to society of the kind of purely demographic relationship mentioned above is mediated by and through a complex set of non-demographic structures and conditions. These are, for instance, the determinant factors of actual economic activity (labour force participation, etc.) for different groups, educational and broader human capital aspects, technology and broader productivity aspects, and the general level of income and welfare in society.

All these aspects assign 'weights' to the socio-economic roles of the individual members of the respective functional demographic groups. On the consumption side, even more mediating factors enter the arena, making the socio-economic significance of pure demographic structure even more complex to assess (Carver and Liddiard, eds.: 1978, Teitelbaum and Winter: 1985 and Day: 1992).

¹The average life cycle has changed substantially over the past century and will probably continue to change in the years to come. The relative roles of education, work and different family phases, and retirement at different ages have changed continuously in interaction with developments in life expectancy (Warnes and McInerney: 2004).

Yet even taking some significance of the functional age group approach for granted, it is of interest to learn more about how the relative representation of crude age groups varies across the Nordic territory. At the international level, the 'active' or 'working age' population is often defined as the age group from 15 to 64. The elderly are defined as age 65 or more. The un-weighted mean share of the working-age population among all the Nordic municipalities was just above 63 per cent at the beginning of 2003. The un-weighted mean share of elderly people was just above 17 per cent (the *weighted* mean was 15.7 per cent).

The *variation* among the Nordic municipalities in the relative representation of the working-age population may be characterised as moderate or even small. Even if we compare the weighted means for the very different Nordic countries (Åland included), the shares range only from 62.9 per cent (the Faroe Islands) to 68.4 per cent (Greenland). Among the mainland Nordic countries, the shares vary between 64.6 per cent (Sweden) and 66.9 per cent (Finland). The proportion of elderly people shows more variation among the countries, ranging from 5.6 per cent in Greenland to 17.2 per cent in Sweden (the share varies from 14.8 per cent to 17.2 per cent among the mainland countries). The lowest ratios of elderly people are found in Greenland, Iceland and the Faroe Islands, which also have the highest proportions of children and young people (0 to 14 years). However, even among all the Nordic municipalities, the crude group of elderly people varies only moderately (Table 1).

Table 1. The representation and distribution of broad 'functional' age groups among Nordic municipalities in 2003

Measures	0–14 years	15–64 years	65+ years
Un-weighted mean	19.5	63.3	17.2
Median value	19.1	63.1	17.2
Standard deviation	3.2	3.3	4.5
Regional coefficient of variation*	16.3	5.1	26.3

*The regional coefficient of variation is calculated as the standard deviation as a percentage of the un-weighted mean value.

Even more remarkable than the very moderate territorial variation in the proportion of the working-age population, which in fact even applies to the territorial units at the NUTS 2 level of the larger European territory which

has come to be known as the ESPON space (ESPON project 1.1.4, Third Interim Report), is *the very moderate variation in this share over time*. Based on demographic model populations, the theory of the so-called demo-

Figure 1. Three main age groups' share of the total population from 1845 to 2050 in Norway at five-year intervals. Estimates for 2005 to 2050. Statistics Norway: Historical Statistics 1994, Population Statistics, Population Forecast 2002 (2002–2050, medium variant: MMMM).

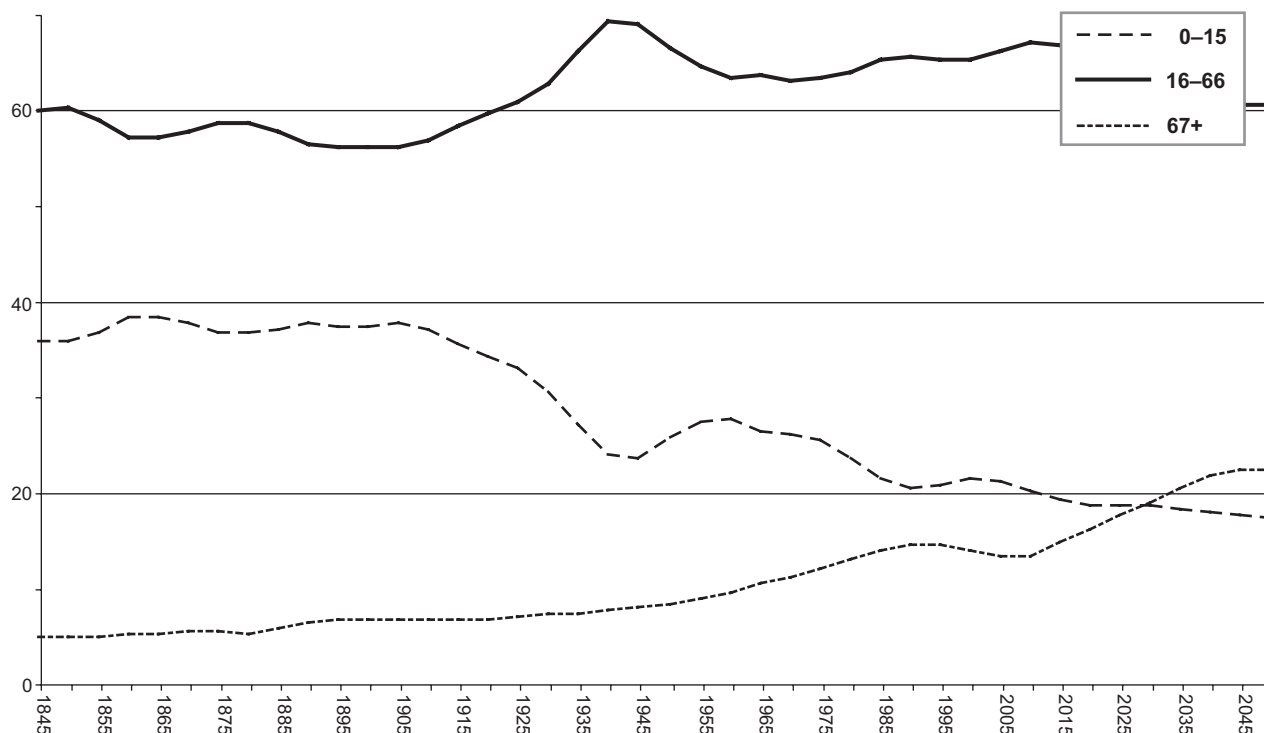
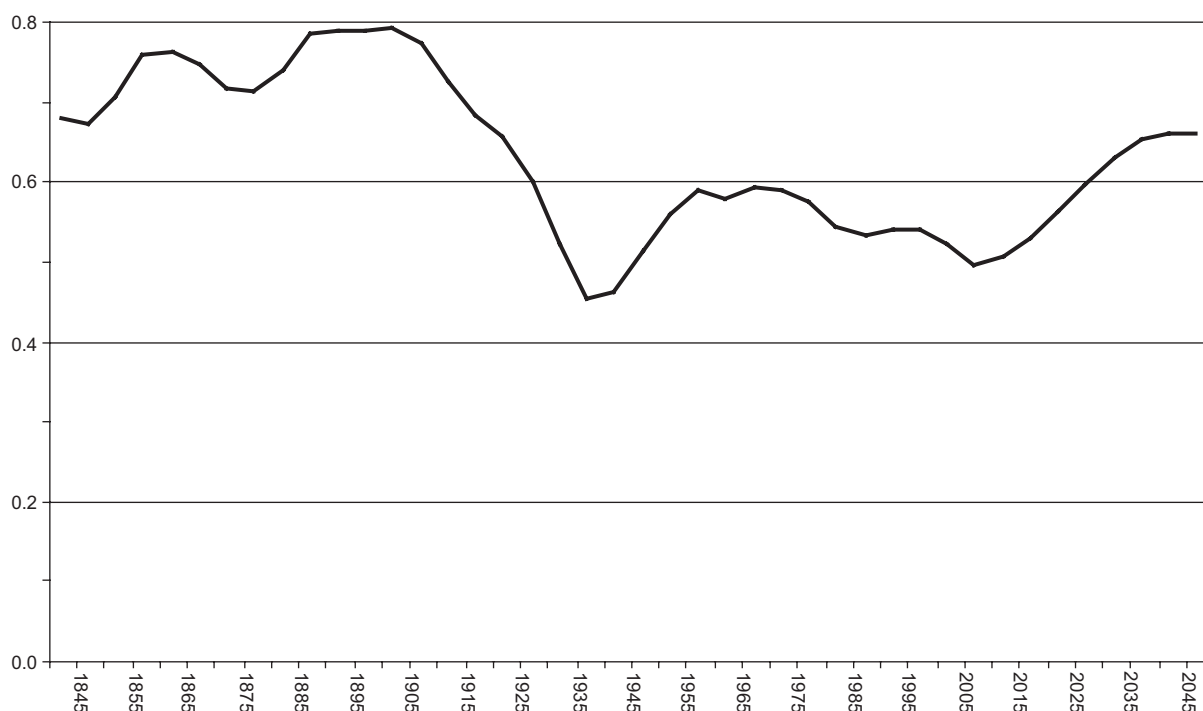


Figure 2. The dependency ratio (people aged 0–15 and 67+ per person aged 16–66) from 1845 to 2050 in Norway at five-year intervals. Estimates for 2005 to 2050. Statistics Norway: Historical Statistics 1994, Population Statistics, Population Forecast 2002 (2002–2050, medium variant: MMMM).



graphic transition (cf. above, also known as the 'vital revolution') prescribes a transition through several stages from a 'pre-modern' to a 'modern' society over a period of up to two centuries, a course of development implying only a brief period during which the share of working age population falls below the norm of just above or below 60 per cent of the total population in the transition countries (Pressat 1970, Tornstam 1992). Figure 1 is an example of the actual development, based on Norwegian data, extrapolated to 2050 by the latest national forecast (Statistics Norway 2002). The middle age group is here defined as people aged 16 to 66.

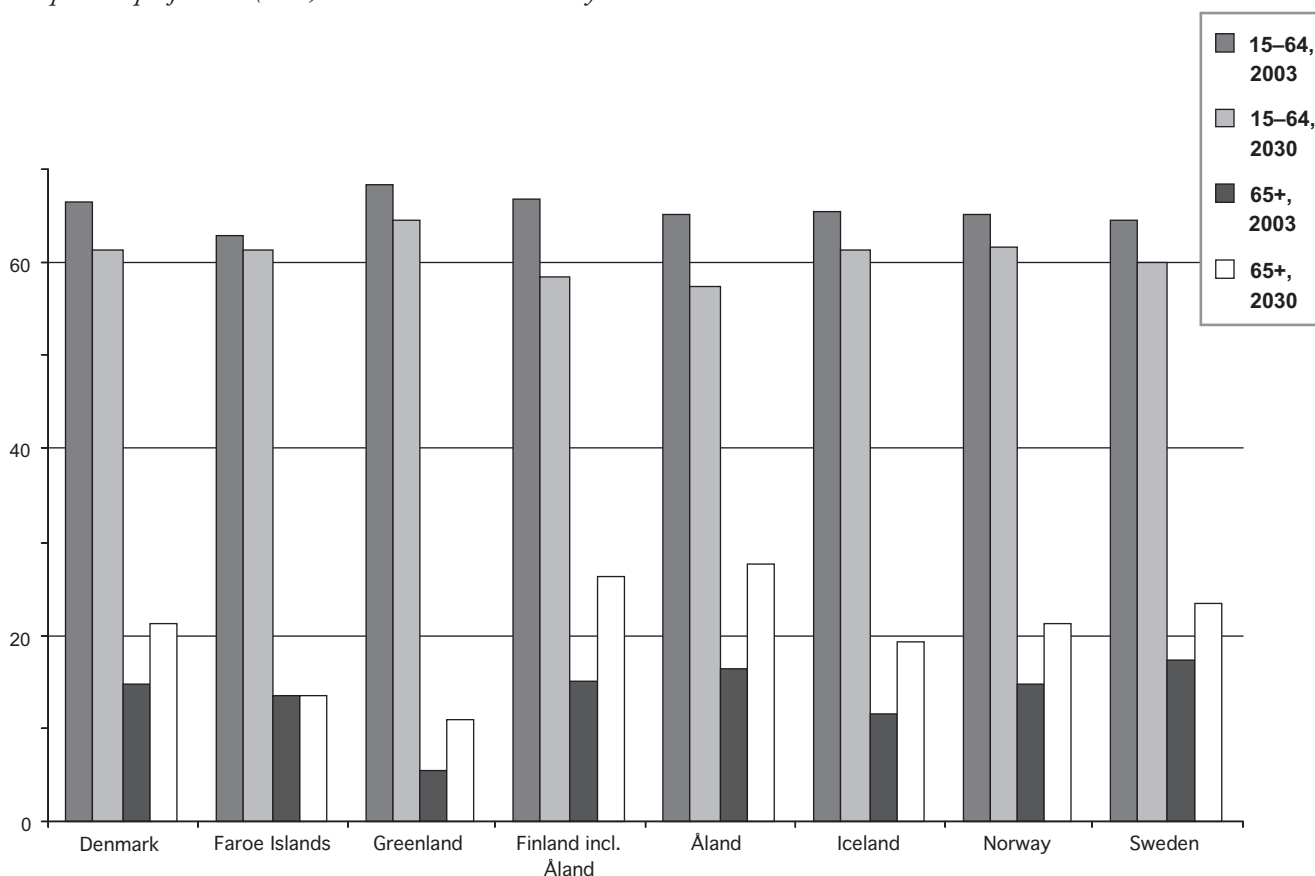
Translated into the demographic dependency ratio (a problematic and highly controversial indicator of the socio-economic significance of demographic phenomena), the stability of the comparison is confirmed (Figure 2).

The ratio was at its highest during the approximate 10-year periods preceding and succeeding the formu turn of the century. It declined almost in pace proportion with falling fertility and the sizes of birth cohorts until the end of the 1930s, then rose again with the large birth cohorts of the post-war baby boom. Even though the latest Norwegian population projection (Statistics Norway 2002) employs controversially positive presumptions of future life expectancy, the dependency ratio is expected to level out at a historically medium level around the middle of the present century.

In Figure 3, the broad age groups from 15 to 64 and 65+ are projected to 2030 as a proportion of the total population in the Nordic countries. This is based on the collection of Nordic population projections referred to in the *Statistical Yearbook for Norway 2003*. At the national level, the projections show a slight reduction in the largest age group in all countries, but at its most pronounced in Finland and Åland. The Faroe Islands seem to have the most stable population structure during this period. According to the projection, all but the Faroe Islands will see an increasing share of their total population moving into the oldest age group. Again, it appears that Finland and Åland, and even Iceland, can expect a more rapidly increasing proportion of elderly people than the other countries in the decades ahead.

The national projections are presented solely for reference purposes. We have chosen not to use population projections for this territorial analysis with a focus on the periphery owing to some extent to the uncertainty of projections at the national level, and much more so at sub-national territorial levels. Another reason is the desire to operate with a detailed age variable over a more predictable period of time, where the outcome is based solely on the recent purely demographic preconditions in the respective types of areas ('Natural growth potential', cf. below and Sørli 1995).

Figure 3. Broad age groups' share of the total population in the Nordic countries. 1992 and 2030 (based on the latest available/comparable projections (2002). Source: Statistics Norway.



2.2 The impact of demography on society at different territorial levels, and the problems related to demographic forecasting

The literature seems to indicate that knowledge of contemporary and prospective demographic evolution has rarely been shown to have influenced behaviour or policies with regard to the future in any direct or decisive ways, except perhaps in respect of efforts to adjust particular age-related supplies of material and services within certain sectors to short- or medium-term changes in the size of the relevant population categories. Rather, the demography has been taken for granted and incremental adjustments in societal arrangements and individual behaviour have taken place along the way, mostly in a reactive and slow manner. However, concerns about and sometimes rather alarmist reactions to apparently problematic demographic trends and futures have occurred from time to time. In retrospect, the validity of these justifications varied considerably.

The most obvious reason for this state of affairs is that above a certain territorial level of aggregation, net demographic changes, notably the reshaping of age pyramids, tend to evolve exceedingly slowly and undramatically, granting oceans of time for individuals and societies to consider, plan, act and adapt. Moreover, as mentioned, demographic forecasting is an uncertain and inaccurate exercise. More often than not, forecasts have proven wrong. There is some truth to the saying that 'those who live by the trend die by the bend'. Again, Norwegian examples may be used to illustrate a more general phenomenon:

A population projection produced by Statistics Norway in 1969 to support an analysis of medium-term social and economic perspectives (Ministry of Finance 1969) for the government's Long Term Programme 1970–1973, altogether missed, of course, the subsequent major fall in fertility and totally misjudged the development in the number of children and teenagers for 1970 to 1990 (Statistics Norway 1969: NOS A 307). According to the projection (only one variant was produced), the number of people aged 0 to 15 years would grow by more than 30 per cent over the 20-year period. In reality, the age group declined by almost 15 per cent, a difference of more than 455 000 children and teenagers in just two decades. On the other hand, the projection slightly underestimated the growth in the population of the working age group (16 to 66).

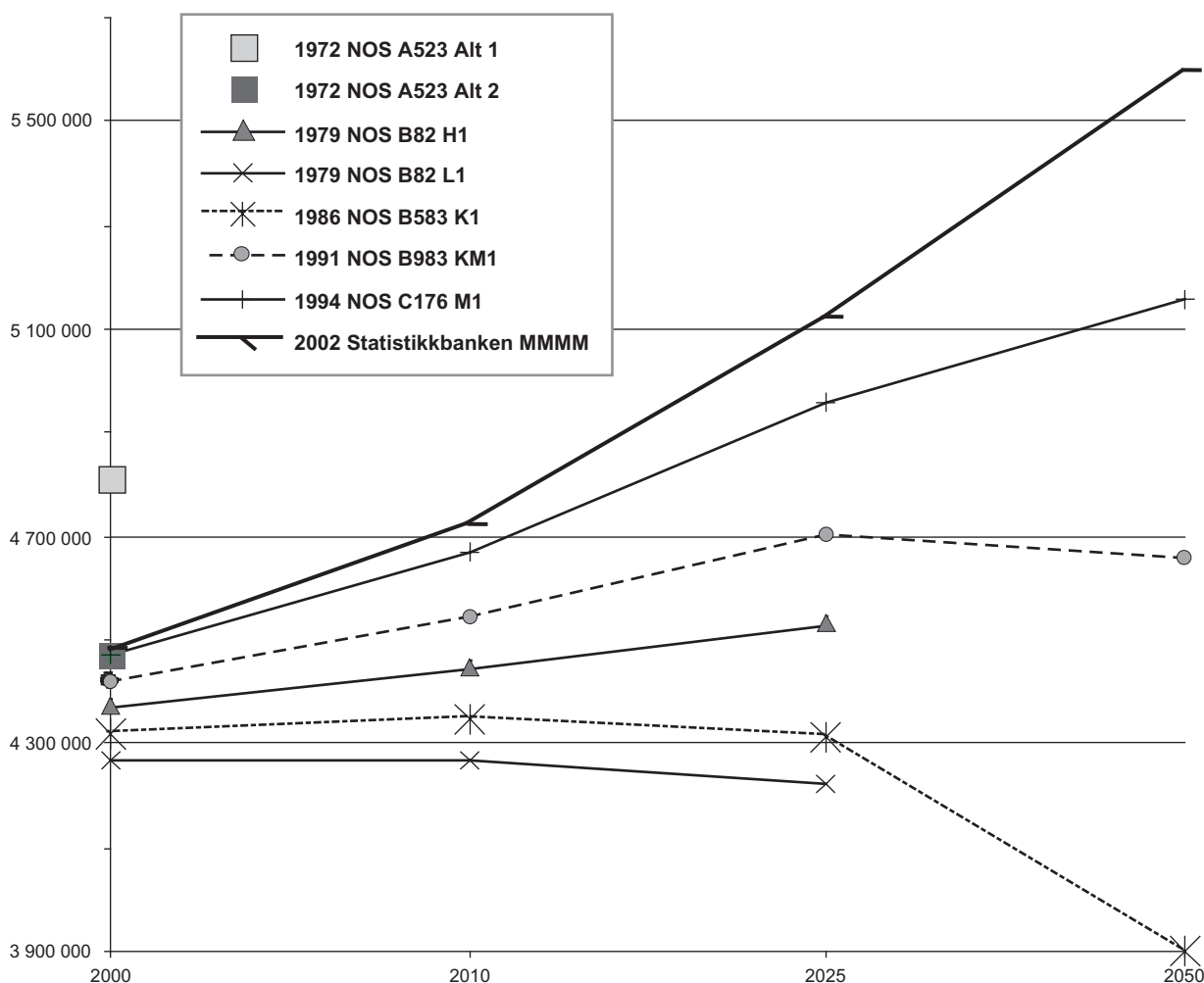
The medium variants (Alternative MMMM) of the two latest Norwegian projections (Statistics Norway 1999, 2002) differ in projected total population size around the middle of the present century by almost 400 000 people or about 8 per cent of Norway's current population. A summary of the history of the different 'medium' or 'constant' (or similar) variant population projections from the early 1970s onwards is given in Figure 4 below (total pro-

jected population size in selected years). It is a good reminder of the need to treat population projections with considerable scepticism and caution. While they may well be fruitful analytical tools, they should not stand alone as a basis for policy-making.

Lincoln H. Day (1992) writes: 'Because they can be expressed numerically, demographic phenomena (and, for the same reason, economic) are often accorded a causal significance beyond their due'. Most social and economic processes do not render themselves as easily to formal (mathematical) modelling and forecasting as does pure demography. However, this being the case as illustrated here, even outputs of demographic forecasting depend on inputs, and the inputs have to be based on theoretical and empirical knowledge and insights from far less stringent, exact and uncontroversial fields of study than mathematics. The degree of quality or the fruitfulness of demographic forecasts is not so much determined by the mathematical sophistication of the model as by the state of our knowledge and creativity in other areas of society and socio-economic change. This is not a criticism of forecasting/projecting efforts or a case against this technical aids for policy and planning altogether, but a warning that they are best employed as a tentative point of departure rather than as the answer.

Below the highly aggregated territorial scales (e.g. nations or larger territories), population projections may at best serve to illustrate alternative frame conditions, given different sets of assumptions, for territorial population development. Moreover, the importance of demography for development, as well as problems at more disaggregated territorial levels, must be judged in a broader context. At lower and more detailed territorial levels, highly pronounced demographic shifts may take place against the background of specific local or regional events (for instance, the closure of establishments accounting for large shares of local jobs or the closure of important welfare and service institutions), or simply owing to a framework of generally small-scale and/or somewhat peculiarly composed local populations that are highly susceptible to influence by even moderate demographic changes. Yet the implications still need not be very severe, since smaller territorial units are usually part of larger territorial units and hence even larger socio-demographic and socio-economic systems. Any assessment of vulnerability must presume the proper relevant demographic, socio-economic and territorial context. Moreover, even at finer territorial scales, the most characteristic or common situation is slow demographic net change having only moderate and gradual im-

Figure 4. A selection of published projections of the Norwegian population carried out during the past 30 years. Variants are presented as middle/medium, constant or similar. In the projections of 1972 and 1979, both fertility alternatives are presented as equally probable. Statistics Norway (see reference specification in legend)



plications for the socio-economic context with which it interacts.

History most often proves demography to be the *outcome* of societal processes, rather than the cause. Stretching over a couple of centuries, the demographic transition or vital revolution (cf. above and below) has been a long-standing target of explanatory efforts and has not been so much in focus as a driving force in human history. The history of politics and planning therefore comprises many

relative successes, or at least examples of the absence of severe failures, despite failed efforts to forecast or project demographic developments. Other processes of economic and social change, even less predictable than pure demography, and the human ability to learn, create, change and adapt have far outweighed the potential promises or menaces of the one-factor forecast. 'The variables we cannot project are invariably more important than those that we can' (Hicks: 2003).

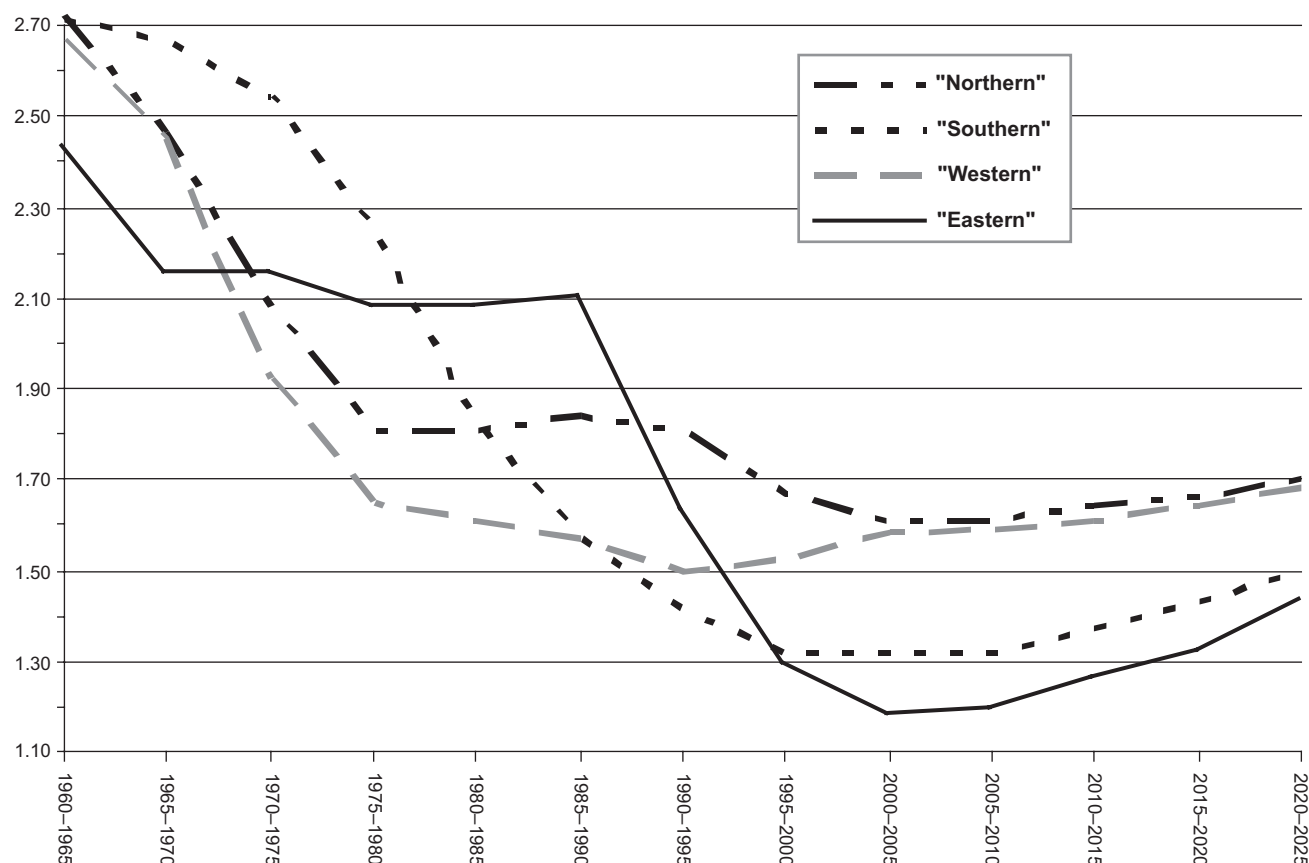
2.3 Recent background

The general background for the renewed interest in population stagnation/decline and demographic ageing is the recent fertility decline which, in most western countries, took place from the mid-1960s to the mid-1970s, with some earlier as well as some later starters among the various European countries. After a major fall in rate, fertility tended to remain stable or to decline more slowly. Thus far

there are no European examples of apparently enduring upward shifts (cf. Figure 5 on next page), although some fluctuations have taken place.

The recent events may be linked to long-term demographic development, dating back at least a couple of centuries and including the period we have described as comprising the demographic transition. This major and lasting

Figure 5. Total fertility rates (TFR) for groups of European countries 1960–2025. Five years averages
Historical numbers and medium variant projections. Source: World Population Prospects, 2002 Revision. UN Population Division, Population Database.



shift from high to low mortality and fertility has been most pronounced in Europe, North America, Japan, Australia and New Zealand. During the period, increments in human longevity culminated in an unparalleled rise in life expectancy during the first 60 years of the 20th century. Fertility declined dramatically in the countries of transition, i.e. roughly 50 per cent from 1870 to 1940.

From about 1870 to 1935, population growth in western countries in general declined gradually due to falling marital rates, reduced marital fertility and considerable emigration. Most remarkable was the fall in fertility rates within marriage, indicating that a change was taking place in preferences regarding the ability to choose family size. The exceptions, with a 20-year lag, were Spain, Portugal and Italy. As is well known, the fertility decline eventually came to a stop and the subsequent rise in fertility displayed an even more remarkably parallel course among all the western countries than did the preceding decline, which had its exceptions and deviants. There were several contributing factors during this phase, e.g. increasing marital rates and decreasing marital age, a decreasing number of childless women and women with only one child. The number of large families declined and the number of families with two or three children increased. The intervals between births became shorter. The total fertility rate grew to around 3.0 in several countries. The next period of fertility

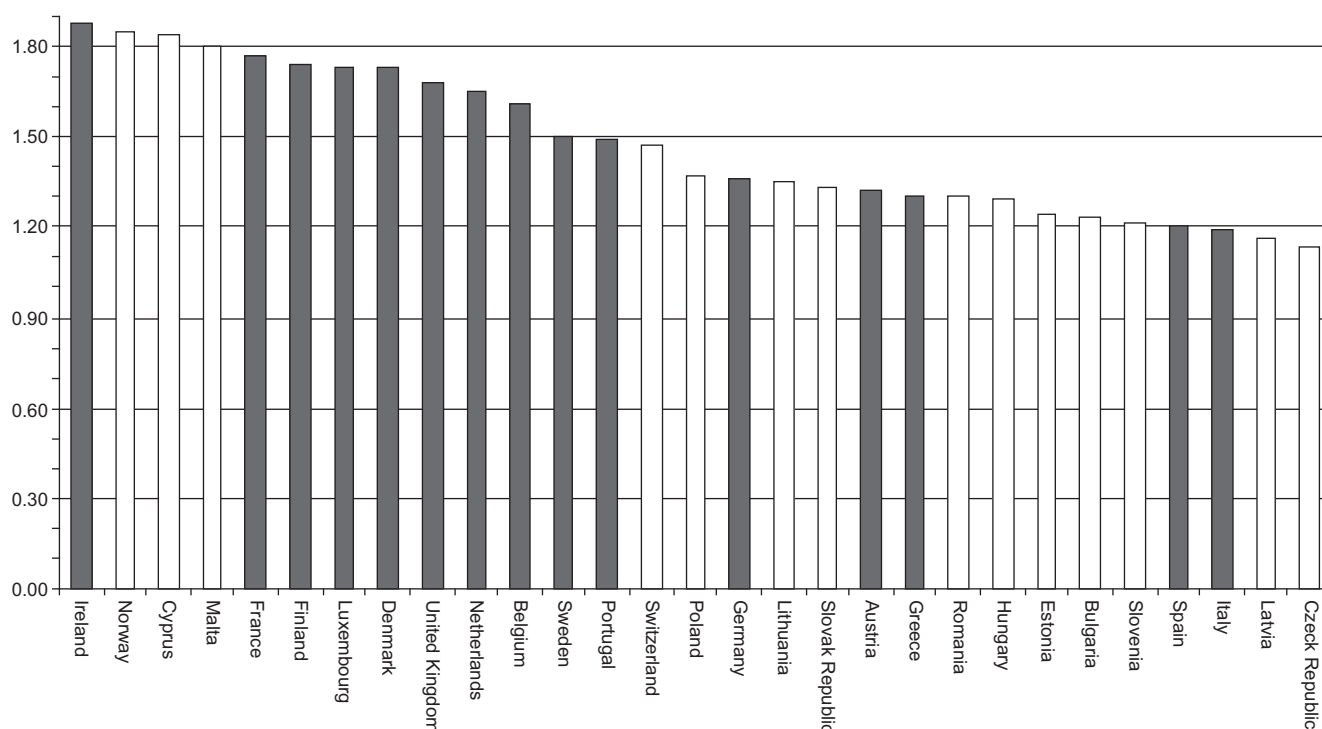
decline started in Europe in about 1965, and in North America five years earlier. The general decline lasted until the end of the 1970s. Since then, development has varied more among western countries, although fertility has generally remained at a low level.

Just as the different Nordic countries experienced varying population growth rates over the past two centuries², their courses of recent fertility development have also varied, despite general parallels. In Sweden, below replacement level fertility emerged as early as in 1968, and the current level of fertility (Total fertility rate, TFR) is 1.5. Denmark and Finland reached below replacement fertility in 1969 and their present fertility level is 1.7. Norway entered the below replacement phase in 1975 and its present TFR level is approximately 1.8.

None of the distinct, comprehensive changes and phases in fertility and population growth patterns mentioned above were foreseen by researchers or policy-makers at their respective times of their commencement (cf. the Norwegian example from 1969, referred to above). Nor have they been ade-

²The Finnish population grew by 215 per cent from 1801 to 1901 and by 94 per cent from 1901 to 2001. In the same intervals, the other mainland Nordic countries experienced the following growth rates: 163 per cent and 118 per cent (Denmark), 154 per cent and 102 per cent (Norway), 120 per cent and 72 per cent (Sweden).

Figure 6. Total fertility rate (TFR) 1999 in 29 countries of Europe. Dark = EU member states in 1999
Source: *Recent Demographic Developments in Europe 2000*. Council of Europe.



quately or unanimously explained in retrospect. The many attempts at explanations largely point to period-specific factors affecting living cohorts in different ways in the path of general social change and/or related to specific historical events. In other words, there is little to build upon for predicting future patterns (cf. for instance, Day: 1992; Moen: 1981).

By and large, the 20th century saw a continuation of the transition, although significant fluctuations occurred with the world economic crises of the 1930s and World War II. Developments in many countries since the middle of the 1960s brought an end to almost two decades of post-war baby boom and took apparently fertility levels back to the long-term downward trend. The extent to which various countries experienced these trends is not always the same, however, and outcomes can be seen to differ in important ways. From the late 1960s to the early 1980s, fertility fell well below replacement level (approximately 2.1) in most European countries. However, the courses of the declines differed and fertility levels varied substantially among the countries in the decades following the steepest decline, indicating different demographic prospects for the years to come (cf. Figure 6).

The patterns are even more heterogeneous when we move to sub-national territorial entities. Studies in several countries have documented that the timing, pace and course of development in fertility change varied substantially between different types of local communities and regions, based, for instance, on factors commonly associated with rural-urban, centre-periphery, etc. However, the

resultant patterns seemed to tend towards fewer regional differences in fertility level than at the onset of the period of decline.³ At sub-national levels, the mechanisms of regional-demographic change, especially migration, were in many places strongly influenced by the emergence of a regional-demographic zero-sum or minus-sum game as national populations gradually grew more slowly, stopped growing altogether, or even began to decline.

Eurostat compiled regional population scenarios (projections) at the NUTS 2 level in 1997 for the period from 1995 to 2025. According to the base-line scenario, described as 'a continuation of current trends', the EU-15 population as a whole would continue to grow at a very slow rate and start declining around 2020. While about 30 NUTS 2 regions faced a population decline in the latter half of the 1990s, mainly concentrated in the former East Germany and southern Europe, the number of regions with a negative rate of population change is expected to triple by 2025. Regions experiencing population decline will be widely spread across the EU, comprising about half the EU population. The scenario clearly illustrates the implications of uneven regional-demographic processes and growing sensitivity to migration balances.

Throughout Europe from Lisbon to Vladivostok, the

³There are still substantial regional differences in fertility, however. Among Swedish municipalities the Total Fertility Rate (TFR) ranges from between 1.2 and 1.3 to just more than 1.9. A quarter of the municipalities have TFRs from approximately 1.5 and down and approximately 1.7 and up, respectively.

recent rapid drop in the rate of population growth is remarkable. From 1950 to 1975, the average annual rate of growth was 8.3 per 1 000 population. Over the past 25 years, this index has fallen to 2.9 per 1 000. Around the turn of the millennium, negative natural population growth rates appeared in 17 European countries: Byelorussia, Bulgaria, Croatia, the Czech Republic, Estonia, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Moldova, Romania, Russia, Slovenia, Sweden and Ukraine. In addition, Austria, Poland, Slovakia and Spain had close to zero natural growth (Demeny: 2003 Chesnais: 2000).

The long-term tendencies towards stable and declining populations, and their inherent demographic dynamics, affect population structures in characteristic ways, *and these structural changes rather than the drop in total population numbers are frequently the main focus of concern*. The most obvious consequences of the general shift from high to low mortality and the decline in fertility rates are changes in the age structure of populations, and particularly the recent phenomenon of demographic *ageing*. The

main cause of ageing is the change in fertility. While improved mortality generally operates at all ages, fertility changes initially affect the size of one age group only, i.e. the very young.

By the time the decline in fertility rates started to level off in most countries (usually around the mid-1980s), the most aged populations were found in northern and western Europe. In countries such as Sweden and France, rapid ageing actually started as early as the mid-19th century. Other countries did not display such patterns until the 20th century, however. Demographers often speak of 'young', 'mature' and 'aged' populations, according to whether the share of people aged 65 or over is less than 4 per cent, 4 to 7 per cent, or more than 7 per cent. By this measure, most European countries, including the Nordic area except Greenland, and all but a very few NUTS 2 regions in these countries are 'aged'. In most of the regions, the share of elderly people is more than double this aged threshold.

2.4 Some tentative implications and correlates of demographic ageing

The phenomena and territorial patterns of ageing and related changes in age structures potentially concern a broad range of (territorial) development issues and aspects of public policy, but in complex and not easily foreseeable ways, e.g.:

- Natural growth potential, reproduction capacity.
- Mechanisms of territorial population re-distribution (regional composition, migration propensity, zero-sum games).
- Labour supply and the composition of the labour force (even local/regional labour market pressure and wage inflation).
- Learning capacity, education, restructuring/renewal capacity.
- The allocation of labour and public resources among age-related purposes and activities (child-care, educational services, health care etc.).
- Capacity of service provision in general, distribution of the supply of services of different orders.
- Local government expenditure.
- Housing markets, living arrangements.
- Patterns of consumption (types of services, retail demand patterns) and savings.
- Participation and demography, organisational life.
- Transport, infrastructure.

Some other important socio-demographic trends over the past few decades are also worth mentioning since they are

related to the general demographic development. Closely related to the fall in fertility and increasing longevity there has been *a continuous decline in average household size* for several decades. The decline in fertility rates, especially those of higher birth order, reduced family size naturally. First, as mentioned, the average size of families with children was reduced. Second, the child-rearing phase of the family life cycle became shorter. At the same time, the number of people living alone has increased rapidly, contributing substantially to the shrinking of average household size.

The latter is a consequence of several factors of change, varying in relative importance among countries and regions and between periods:

- An increase in the levels of divorce and separation.
- A propensity to leave the parental home at progressively younger ages (especially during the 1960s and 1970s).
- An increasing tendency to defer first marriage or cohabitation.
- A growing share of old people in the population, and excess mortality among men.

The tendency towards declining average household size is well documented for Europe after 1950, indicating a decline from 3.5–3.7 (for the former western and eastern Europe, respectively) to about 2.6–2.8 around 1990. In countries such as Sweden, Denmark and Switzerland, the figure

was down to between 2.1 and 2.3 around 1990 (MacKellar et. al: 1995, European Commission: 1993, Eurostat: 1995, Texmon: 1996, Fransson: 1992).

Several potentially policy-relevant features stand out in this picture, depending on country, region and period:

- Much faster growth in the number of households than in population size (in Norway, the ratio of household growth to population growth 1970–1990 was 4:1, about the same as in Sweden).
- A reduction in the proportion of households with children.
- A rapid decline in the number and proportion of households with many children.
- An increase in the number and proportion of families and households with 1–2 children.
- Growth in the number and proportion of single-parent households.
- An increase in the period of the family life-cycle with no children present in the household (at the start as well as at the end of the life-cycle).

- Rapid growth in the number and proportion of one-person households (in Norway the proportion grew from 14.2 per cent in 1960 to just more than 34.3 per cent around 1990; in Sweden from 20 per cent in 1960 to 36 per cent in 1985).
- More young people as well as more old people are living alone.
- A rise in the proportion of women among elderly people living alone.

Several of the changing socio-demographic trends referred to above are relevant indicators of possible challenges to areas of territorial sector policies, such as the supply of kindergartens and educational opportunities, different family policies, housing policies, the provision of services for the elderly and so on.

3 The Nordic territory

3.1 The Nordic geographical periphery

The territorial focus of this report is the Nordic periphery with relevant subdivisions. The geographical periphery is often looked upon as a residual, i.e. the part of a territory that is not geographically or otherwise central. In many instances, this means that the periphery is seen as what remain once the central parts of a country have been defined. For projects where the periphery is the focal area of study and for policies especially targeted at the periphery, however, we should define the area according to its own characteristic features. At the same time, a typology of the Nordic periphery must be based on the purpose for which it will primarily be used, since a periphery exists only in relation to something else.

In our case, we need a typology that can make a distinction between the periphery and other parts of each Nordic country *and* relevant distinctions within the periphery. As the purpose of this study is related to the process of demographic ageing, the delimitation of the periphery should aim to delimit a geographic area for analysis within each country where long distances to centres and thinly distributed populations are important, directly or indirectly, to demographic development. The purpose of subdividing the periphery is to make the heterogeneous pattern of ageing within the periphery compared with a centre as clear as possible, i.e. to define the peripheral dimension even within the geographical territory we have defined as peripheral.

3.2 What is the geographical periphery?

In the Nordic context, the geographical periphery is constituted by distant, sparsely populated areas. With the exception of Denmark, the Nordic countries have a population density of up to 22 inhabitants per square kilometre. This low density and the disadvantages of long distances to urban centres have necessitated regional policies aimed at supporting the periphery.

The Nordic geographical periphery was acknowledged by the EU in the membership discussions with Finland, Sweden and Norway conducted prior to the enlargement of the EU in 1995. A separate Structure Fund was established for geographical areas with low population density and peripheral location. It was accepted that low population density could be a primary criterion for classification of 'litra c' areas for regional support. This last point was also implemented in the EEA agreement (Mønnesland 2003).

As low population density has been and still is an acknowledged feature of the Nordic geographical periphery, population density is the main measure for our delimitation. Centres with higher densities will be included in the periphery when surrounded by territories with densities within those we define for the periphery. This is due to the purpose of the analysis, where a region's situation within otherwise sparsely populated areas has marked demo-

graphic consequences for both the centre and its hinterland.

As the periphery is distant in relation to *something*, we will, however, also make a distinction concerning the proximity to centres above a certain size within the periphery. This will be established once we have delimited the periphery, according to population density. This is one of the reasons for subdividing the periphery, and we would like to make a distinction between the centres themselves, their surrounding regions as such and areas that can, to a great extent, be considered independent in a regional sense. It is important to make such a distinction as the centres have often strongly influenced the demographic age structure of their surrounding geographical areas. This influence has increased with the reduction in fertility since the 1960s and the resultant ageing of the population in the hinterland as the younger generations have continued to migrate to regional centres and central places elsewhere. The demographic success of regional centres, with reduced numbers of potential migrants from the rest of their region, may make them future arenas of rapid ageing. This is particularly true for several smaller centres that receive most of their migrants from within a short distance of their borders, and it means that we need a typology of municipalities based on their regional positions.

3.3 Periphery and demography

There are differences in the demographic logic of the Nordic periphery compared with that of more central parts of the Nordic countries, partly due to differences in population density. For Norway, Sørli (2003) has shown that the municipalities with age structures most similar to the national age structure are all central municipalities, and usually municipalities with an urban centre of at least regional significance. As regards age structure, the selective aspects of migration have in the long run been the most important factor in most municipalities, not least given the reduced difference in fertility between regions and in terms of the urban-rural dichotomy. The municipalities with the most stable age structure are among those without major turns in the migration balance for age cohorts during the three most recent generations of adults.

The periphery is mostly characterised by an aged population. This is a result of the migration balance having been negative for a long time and, from approximately 1970, from the birth rate having been on or below the replacement level. The changes in fertility mean that there will be relative ageing in peripheral populations with stable migration, as the younger cohorts will be smaller than the older. The fertility change means that populations will become more dependent upon migration to counterbalance relative ageing, and that migration will become more important in creating regional differences in age structure. In recent decades in particular, the age structure has become very biased compared with the national level, and this at a time showing a tendency towards an ageing population at the national level as well. The tendencies towards concentrations of national populations are a comparatively new aspect, even though the population has never been evenly distributed throughout the Nordic territories.

In the older farming communities, parts of the periphery served as territories of expansion when population pressure often meant that new generations had to move from existing communities, finding new farmland either close to home or further away. Basically, this meant that population growth distributed population to areas we would now consider sparsely populated. There was hardly any centre-periphery dimension that dominated the demographic picture. The differences within rural territories were, on the other hand, dominated by physical conditions for farming, hunting and fishing. In demographic terms, the study of a separate periphery does not yield much meaning for that period.

The development of a national periphery can be linked to industrialisation when population expansion created, within each country, a centralisation of migration to industrial centres and then later to the expansion of the tertiary sector, with its gradual concentration of services to central places of varying size.

With reduced employment in the primary sector, the importance of the more centralised industrial and service sectors has increased. This has meant that the development of a stable age structure has been difficult in the peripheral parts of countries since the level of stable local employment possibilities is reduced proportionally to peripheral-ity. Possibilities for commuting are much more limited, and commuting will also often be more burdensome, with longer distances and less frequent public transport. In some parts of the Nordic countries, especially in many northern municipalities, this means that only workplaces within the municipality are within reasonable daily commuting distance.

3.4 The basic territorial units for the delimitation of the periphery and our typologies

Our delimitation of the periphery and our typology are based on municipalities. For the delimitation of the periphery, we have also taken into account the population density of counties or NUTS 3 regions in places where counties do not exist.

For the typology, the only alternative to municipalities we considered as building blocks was the intra-municipal geographical level. By using such a level, we could create geographical units better suited than municipalities for comparison. The reasoning behind this is that a municipality can be too large a territorial unit in peripheral parts

of a country to be an ideal geographical unit. A municipality can group together demographically very different from geographical units. For example it may be constituted by two different labour market regions, or some may include all of their hinterlands within the municipality. The latter example will reduce the demographic distinction of the centre.

Within municipalities, there has been a flow of younger people to central places. This means that each municipality should ideally be subject to differentiation between its central places (*tettsted/tätort*) and the rest of the muni-

pality, since at the municipal level, there will be a tendency towards the reduction of contrasts, albeit not nearly to the same degree as at the regional level. This offers an opportunity to differentiate ageing processes according to a centre/periphery distinction within municipalities. For municipalities without central places, a distinction between municipal centre and periphery is appropriate.

One very important reason for not choosing a regional level as the territorial unit for the typology is the pattern of internal migration within each nation. For peripheral areas of the Nordic countries, this process has, as mentioned, been one of concentration on municipal, regional and greater territorial scales. By using regions, we would thus take away parts of the demographic age differentiation between territories, and thus present a far more even picture between regions, making comparisons between these re-

gions and single municipalities viewed as independent in a regional sense.

We have therefore chosen to use municipalities as the building blocks for our typology since it would be impossible to get all the necessary statistics for the project on an intra-municipal level suitable for comparison. The major differences between the municipal structures of the Nordic countries make it difficult to find common definitions for delimitation. This has meant that a set of pragmatic rules has been necessary to secure a delimitation close to what will usually be understood as the geographical periphery. In doing this, we have taken into account different national typologies for distinguishing between municipalities and combined them with some standard criteria for delimitation.

3.5 The delimitation of the Nordic periphery

When setting the outer delimitation of the periphery, we have chosen to apply the same set of criteria to the entire Nordic region. The criteria have been chosen to delimit the most peripheral part of the countries, resulting in a smaller periphery than is often the case. As delimited in this context, the periphery is a geographical territory defined by some characteristics of the geographical units that constitute the building blocks of the periphery as such, and adjusted by the location of the municipalities relative to the major urban centres of each country. Even if the criteria are identical for all Nordic countries, the archipelago criterion is really applicable only to Åland and the Faroe Islands.

The criteria for the delimitation of the periphery:

- Counties/NUTS 3 regions with less than 10 inhabitants per square kilometre are included.
- Municipalities with less than 2.5 inhabitants per square kilometre are included.
- Municipalities located in archipelagos are included.
- Municipalities located close to a city of national importance (more than 100 000 inhabitants in the urban settlement) are excluded.

We have not included any criterion for a continuous territory. Our delimitation of the periphery is as follows:

Denmark

No Danish municipality is part of the Nordic geographical periphery.

Finland

The following NUTS3 territories are included: North Karelia, Kainuu and Lapland. Outside these NUTS3 areas, the following municipalities are included: Kuivaniemi,

Kuusamo, Lestijärvi, Pudasjärvi, Puumala, Pyhäntä, Rautavaara, Savonranta, Suomenniemi, Taivalkoski and Utajärvi.

Iceland

The following regions are included: Vesturland, Vestfirðir, Norðurland vestra, Norðurland eystra, Austurland and Suðurland.

Norway

The following Norwegian counties are included: Hedmark, Oppland, Sogn og Fjordane, Nord-Trøndelag, Nordland, Troms and Finnmark.

Outside these counties, the following municipalities are included owing to population density of less than 2.5 inhabitants per square kilometre: Flå, Nore og Uvdal, Hjartdal, Nissedal, Fyresdal, Vinje, Åmli, Bygland, Valle, Bykle, Åseral, Sirdal, Forsand, Suldal, Eidfjord, Ulvik, Modalen, Norddal, Snillfjord, Holtålen and Tydal.

From the original periphery delimitation based on population density of counties, the following municipalities are excluded due to their proximity to a city of national importance:

From Hedmark: Kongsvinger, Hamar, Ringsaker, Løten, Stange, Nord-Odal, Sør-Odal, Eidskog, Grue, Åsnes, Våler, Elverum, Trysil and Åmot. From Oppland: Lillehammer, Gjøvik, Øyer, Gausdal, Østre Toten, Vestre Toten, Jevnaker, Lunner, Gran and Søndre Land. From Nord-Trøndelag: Steinkjer, Stjørdal, Frosta, Leksvik, Levanger, Verdal and Inderøy.

Sweden

The following Swedish counties are included: Dalarna, Jämtland, Västerbotten and Norrbotten. Based on popula-

tion density, the following municipalities are also included: Torsby, Ljusdal, Ånge, Sollefteå and Örnköldsvik.

The Faroe Islands

All the municipalities are included in the periphery.

Greenland

All the municipalities are included in the periphery.

Åland

All the municipalities are included in the periphery.

3.6 Subdividing national peripheries

A typology will usually be based on the use of current information. That being said, at any given time the demography of ageing is to a large degree a result of older demographic occurrences related to migration and migration balances for the past few generations of adults and to changing levels of fertility. Accordingly, a typology for a subdivided periphery for the demography of ageing should be relatively robust and relevant to research on spatial aspects of age segregation. It should also lend itself to being used to look into the demographic future. This basically means that the typology should be relatively simple.

Subdivision relevant to research on the spatial aspect of age segregation is best expressed by subdivision according to the urban-rural dichotomy. This can be operationalised by making a new typology based on those existing nationally, allowing a distinction between centres and other municipalities. In other words, the distinguishing features are aspects of each municipality's role in functional regions or according to certain functional aspects of the municipalities. On this basis, a new typology will have the following categories: centres, hinterlands, independent municipalities and independent centres. The following typologies have been used as a foundation for the new typology:

Denmark

None, as no subdivision has been made. No Danish municipality falls within the Nordic periphery.

Finland (with Åland)

Statistical grouping of municipalities.

Urban municipalities: Those in which at least 90 per cent of the population lives in urban settlements, or in which the population of the largest urban settlement is at least 15 000.

Semi-urban municipalities: Those in which at least 60 per cent but less than 90 per cent of the population lives in urban settlements, and in which the population of the largest urban settlement is at least 4 000 but less than 15 000.

Rural municipalities: Those in which less than 60 per cent of the population lives in urban settlements, and in which the population of the largest urban settlement is less than 15 000, as well as those municipalities in which at least 60 per cent but less than 90 per cent of the population lives in urban settlements, and in which the population of the largest urban settlement is less than 4 000.

Norway

Labour market regions, as defined by Juvkam (2002).

Sweden

Local labour markets (LA98).

A typology of the municipalities made by the Association of Swedish Municipalities.

Iceland

Kaupstaðir and Hreppur.

3.7 Subdivision

Finland (without Åland)

Centres: Joensuu, Kajaani, Kemi, Keminmaa, Outokumpu, Rovaniemi, Tornio.

Hinterlands: Eno, Kiihtelysvaara, Kitee, Kontiolahti, Lipperi, Paltamo, Polvijärvi, Pyhäselkä, Rovaniemen mlk, Suomenniemi, Tohmajärvi.

Independent municipalities: Enontekiö, Hyrynsalmi, Ilo-mantsi, Inari, Juuka, Kesälahti, Kittilä, Kolari, Kuivaniemi, Lestijärvi, Muonio, Nurmes, Pelkosenniemi, Posio, Pudasjärvi, Puolanka, Puumala, Pyhäntä, Ranua, Rau-

tavaara, Ristijärvi, Rääkkylä, Salla, Savonranta, Savukoski, Simo, Sodankylä, Sotkamo, Soumussalmi, Vaala, Taivalkoski, Tervola, Pello, Tuupovaara, Utajärvi, Utsjoki, Valtimo, Vuolijoki, Värttilä, Ylitornio.

Independent centres: Kuhmo, Kuusamo, Kemijärvi, Lieksa.

Norway

Centres: Tynset, Nord-Fron, Nord-Aurdal, Sogndal, Flora, Førde, Namsos, Bodø, Narvik, Brønnøy, Alstahaug, Vefsn,

Rana, Fauske, Sortland, Harstad, Tromsø, Lenvik, Vadsø, Hammerfest.

Hinterlands: Engerdal, Alvdal, Tolga, Folldal, Os, Sør-Fron, Ringeby, Nordre Land, Sør-Aurdal, Vestre Slidre, Øystre Slidre, Etnedal, Vang, Hjartdal, Åmli, Forsand, Eidfjord, Bremanger, Luster, Leikanger, Naustdal, Jølster, Gaular, Namdalseid, Snåsa, Mosvik, Overhalla, Fosnes, Sømna, Vevelstad, Vega, Leirfjord, Dønna, Herøy, Grane, Sørfold, Saltdal, Hadsel, Øksnes, Bø, Skjerstad, Gildeskål, Ballangen, Evenes, Gratangen, Hemnes, Kvæfjord, Skånland, Tjeldsund, Karlsøy, Tranøy, Sørreisa, Dyrøy, Unjárga, Nesseby, Kvalsund.

Independent municipalities: Stor-Elvdal, Rendalen, Sel, Vågå, Dovre, Lesja, Sjøk, Lom, Flå, Nore og Uvdal, Nissedal, Fyresdal, Vinje, Bygland, Valle, Bykle, Åseral, Sirdal, Suldal, Ulvik, Modalen, Gulen, Solund, Høyanger, Balestrand, Vik, Aurland, Lærdal, Årdal, Fjaler, Askvoll, Hyllestad, Vågsøy, Selje, Eid, Gloppen, Stryn, Hornindal, Norddal, Snillfjord, Tydal, Meråker, Lierne, Røyrvik, Namsskogan, Grong, Høylandet, Flatanger, Vikna, Nærøy, Leka, Bindal, Hattfjelldal, Nesna, Lurøy, Træna, Rødøy, Meløy, Beiarn, Steigen, Hamarøy, Tysfjord, Lødingen, Røst, Værøy, Flakstad, Vestvågøy, Vågan, Andøy, Moskenes, Bjarkøy, Ibestad, Salangen, Lavangen, Målselv, Bardu, Torsken, Berg, Balsfjord, Storfjord, Lyngen, Gáivuotna – Kåfjord, Skjervøy, Nordreisa, Kvænangen, Vardø, Guovdageaidnu, Kautokeino, Loppa, Hasvik, Måsøy, Nordkapp, Porsanger, Kárášjohka, Karasjok, Lebesby, Gamvik, Berlevåg, Deatnu, Tana, Båtsfjord.

Independent centres: Alta, Sør-Varanger.

Sweden

Centres: Smedjebakken, Mora, Falun, Borlänge, Östersund, Umeå, Skellefteå, Luleå, Piteå, Boden

Hinterlands: Torsby, Gagnef, Leksand, Rättvik, Orsa, Säter, Hedemora, Avesta, Ludvika, Ragunda, Bräcke, Krokom, Berg, Nordmaling, Bjurholm, Vindeln, Robertsfors, Norsjö, Malå, Vännäs, Lycksele.

Independent municipalities: Vansbro, Malung, Älvdalen, Ljusdal, Ånge, Sollefteå, Strömsund, Åre, Härjedalen, Storuman, Sorsele, Dorotea, Vilhelmina, Åsele, Arvidsjaur, Arjeplog, Jokkmokk, Övertorneå, Kalix, Övertorneå, Pajala, Älvsbyn, Haparanda.

Independent centres: Örnköldsvik, Gällivare, Kiruna

Iceland

Centres: Akranes, Akureyri, Siglufjörður, Seyðisfjörður, Sveitarfélagið Árborg.

Hinterlands: The other municipalities in Vesturland, Vestfirðir, Norðurland vestra, Norðurland eystra, Austurland and Suðurland.

Independent municipalities: None.

Independent centres: None.

For Iceland, the municipalities not regarded as centres have all been included in the hinterlands, reflecting a situation where the municipalities are dependent upon other municipalities for meeting the demand for services and employment, and where there are no distance barriers suitable for distinguishing demographically between territories.

Faroe Islands

Centres: Tórshavnar, Fuglafjarðar, Klaksvíkar, Runavíkar.

Hinterlands: Hvannasunds, Oyndarfjarðar, Elduvíkar, Leirvíkar, Gøtu, Nes, Sjóar, Skála, Eiðis, Sunda, Funnings, Gjáar, Haldarsvíkar, Saksunar, Hvalvíkar, Hósvíkar, Kvívíkar, Vestmanna, Kirkjubøar.

Independent municipalities: Fugloyar, Svínøyar, Viðareidís, Kunoyar, Mikladals, Húsa, Hests, Nólsoyar, Sandavágs, Miðvágs, Sørvágs, Bíggjar, Mykines, Sands, Skopunar, Skálavíkar, Húsavíkar, Skúvoyar, Hvalbiar, Tvøroyar, Fámjins, Hovs, Porkeris, Vágs, Sumbiar.

Independent centres: None.

Greenland

Centres: None.

Hinterlands: None.

Independent municipalities: Nanortalik, Qaqortoq, Narsaq, Ivittuut, Paamiut, Maniitsoq, Sisimiut, Kangaatsiaq, Aasiaat, Qasigiannnguit, Ilulissat, Qeqertasuaq, Uummannaq, Upernavik, Avarnersuaq, Ammassalik, Illoqqortoormiut, areas outside of municipalities.

Independent centres: Nuuk.

Åland

Centres: Mariehamn.

Hinterlands: Eckerö, Finström, Geta, Hammarland, Jomala, Lemland, Lumparland, Saltvik, Sund.

Independent municipalities: Brändö, Föglö, Kumlinge, Kökar, Sottunga, Vårdö.

Independent centres: None.

3.8 The population of the Nordic periphery

According to the delimitation and subdivision presented above, the Nordic periphery comprises almost 2.5 million inhabitants, corresponding to just more than 10 per cent of the total Nordic population in 2003 (cf. table 2). By these criteria, Denmark has no periphery in a Nordic sense, while the entire territories and populations of the Faroe Islands, Greenland and Åland are classified as periphery. Almost one third of the Icelandic population lives in the periphery, as do 10 per cent to 16 per cent of the popula-

eral to the more central areas within the peripheries, the centres growing an average of 5 to 10 per cent, while the hinterlands and independent municipalities in some countries declined by 6 to 10 per cent. In the Swedish periphery, even the centres experienced on average stagnation or a slight decline, while the population of the rest of the Swedish periphery declined by 7 to 10 per cent. The population redistribution within the periphery was most pronounced in Iceland.

Table 2. The size of the Nordic periphery and the different types of periphery, by country. Number of inhabitants in 2003 in per cent of all inhabitants in the respective country

NORDIC COUNTRIES	Not Periphery	Periphery Total				
			Centres	Hinterlands	Independent municipalities	Independent centres
DENMARK	100.0	0.0	0.0	0.0	0.0	0.0
FAROE ISLANDS	0.0	100.0	57.3	20.7	22.0	0.0
FINLAND excl. Åland	90.5	9.5	3.6	1.7	3.2	1.0
ÅLAND	0.0	100.0	40.5	50.6	8.9	0.0
GREENLAND	0.0	100.0	0.0	0.0	74.8	25.2
ICELAND	68.5	31.5	10.3	21.1	0.0	0.0
NORWAY	84.0	16.0	6.7	6.5	2.3	0.6
SWEDEN	88.4	11.6	6.2	1.9	2.3	1.1
NORDIC AVERAGE	89.9	10.1	4.5	2.7	2.2	0.8

tions of Finland, Sweden and Norway. However, the peripheral regions cover a considerable percentage of the area covered by each country as well as the overall Nordic territory.

Island societies differ from the rest of the Nordic region by being considered periphery in their entirety, and they also differ in the distribution of population among the various types of national peripheries. However, when comparing types of peripheries across national frontiers, it is important to bear in mind that the subdivision largely reflects national structures (existing national divisions) which vary from country to country. In the larger mainland countries, from just more than one third to just more than half the peripheral population lives in the centres of the periphery.

In all the Nordic countries with peripheral as well as non-peripheral areas, the peripheral population declined during the past 10 years (1993–2003). In Iceland and Sweden, the peripheral population in 2003 was between 4 and 5 per cent less than the population 10 years earlier. In Norway, the reduction was just more than 1 per cent. However, population development varied considerably among the different types of periphery within each country. The general pattern was a marked redistribution from the periph-

Figure 7 gives a rough overview of the structure of population change in the different types of periphery in some Nordic countries, based on selected age groups. Within a differentiated picture, the figure illustrates some apparently general traits:

- The 16 to 20 age group is shrinking everywhere and the degree of peripheral status is increasing.
- The oldest age group (65+) seems to be growing in the peripheral centres only, and declining more than the national averages in other parts of the periphery (especially in Norway and Sweden).
- Some of the periphery is losing children (0 to 15) and there seems to be a redistribution of children in favour of the peripheral centres.
- The working age population (20 to 64) is clearly redistributed from periphery to centre within the peripheries as well as within the nations, and the figures are declining in the 'peripheries of the peripheries'.

Figure 8 shows a preliminary crude picture of the present ageing profile of the Nordic territory according to the centre-periphery dimension defined in this Chapter. The figure should be read in a clockwise direction, the Norwegian peripheral areas following to the right of the national

Figure 7. Per centage population change 1993–2003 by selected age groups. Averages for Iceland, Norway and Sweden and types of national peripheries.

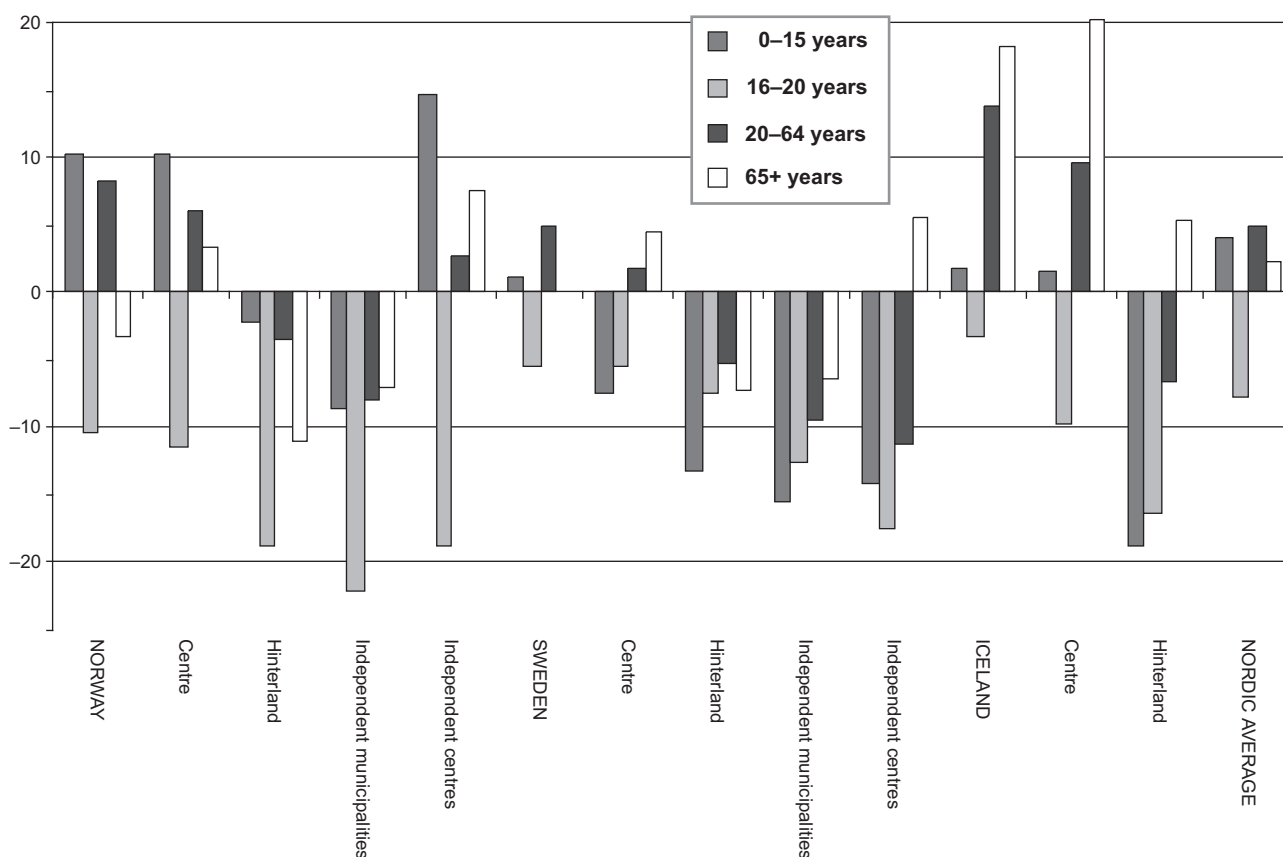
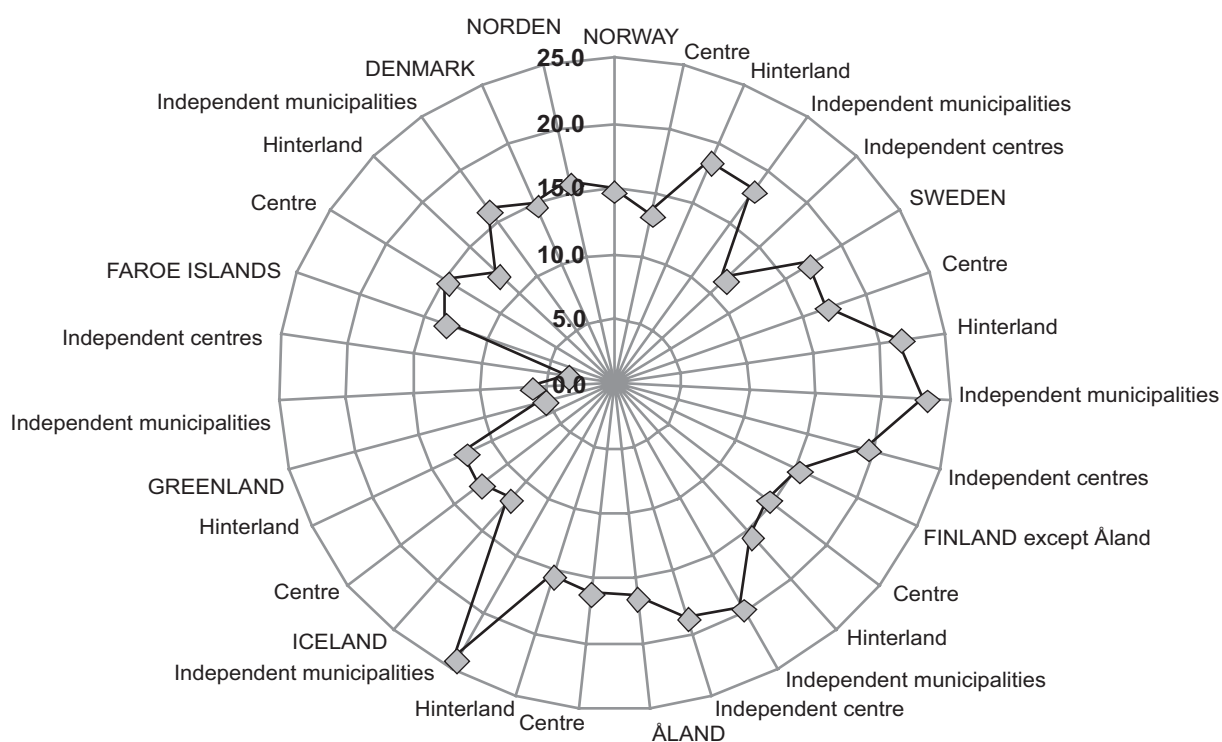


Figure 8. Share of the population 2003 aged 65 years or more. Country averages and types of periphery. Per cent



average, and so on. The figure simply shows the proportion of elderly people (65+) of the total population in one year (2003). The Nordic average is 15.7 per cent, Sweden and Åland have the highest average shares (17.2 per cent and 16.5 per cent, respectively) while Greenland and Iceland have the lowest (5.4 per cent and 11.8 per cent, respectively). The world average is estimated to be around 7 per cent and the European average is slightly above 15 per cent.

The highest proportions of elderly people are to be found in certain types of periphery in Åland, Sweden and Finland and, to some degree, in the Norwegian 'peripheries of the peripheries'. In Greenland and Iceland, even the peripheries have relatively low population segments aged 65 or older. The figure indicates that the different Nordic peripheries vary considerably demographically and concerning the age structure and ageing of the populations.

A more complete picture of the population structure of the peripheries requires age pyramids. Below are age pyramids for the total peripheries of Finland (including Åland), Norway and Sweden, cf. figures 9, 10 and 11. At this aggregate level, which of course hides important variations with-

in the peripheries, making it becomes clear that there is no such thing as a common Nordic peripheral demography (which is confirmed by the analysis later in the report). The Finnish periphery has a much larger proportion of its population in the middle age groups (the baby boom generation) compared with the Norwegian and Swedish peripheries, especially in the younger segment of the generation (late 40s to early 50s). It also has a larger share of young adults than the other countries' peripheries. At a glance, the population structure of the Norwegian periphery seems to be somewhat more balanced and less aged than the Finnish and the Swedish population structures.

In all the peripheries, men are outnumbered by women in the higher age groups, representing a clear majority of the older inhabitants of the Nordic periphery (this is also the case in non-peripheral areas of course, although the difference between the periphery and the non-periphery varies only slightly between the countries in level as well as in direction). There is a large hole in the Finnish peripheral age pyramid, for women as well as for men, for the ages around 30, which we do not find in the population of non-peripheral Finland.

Figure 9. Population pyramid for peripheral Finland (including Åland) 2003. Per centage of total population.

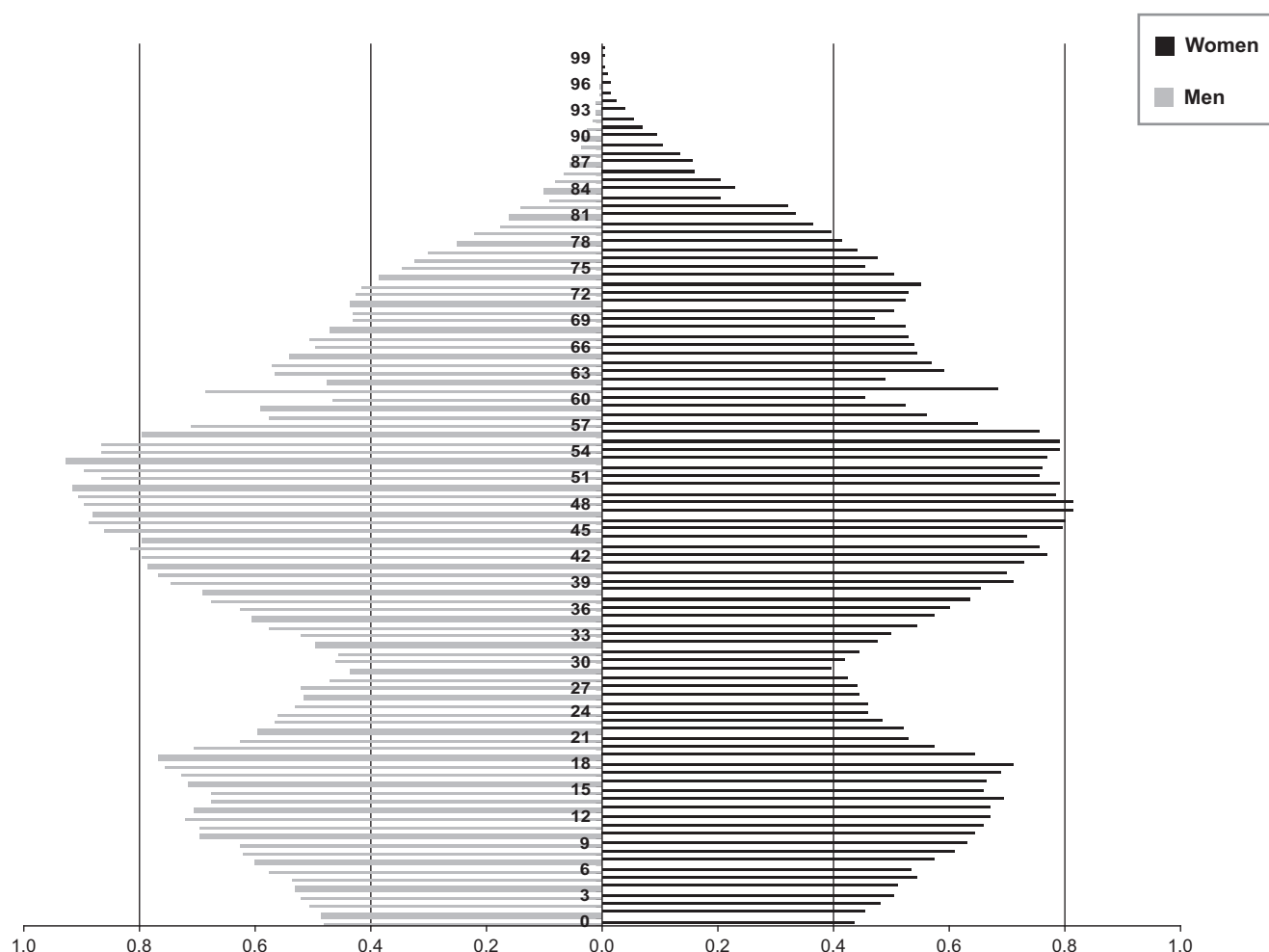


Figure 10. Population pyramid for peripheral Norway 2003. Per centage of total population.

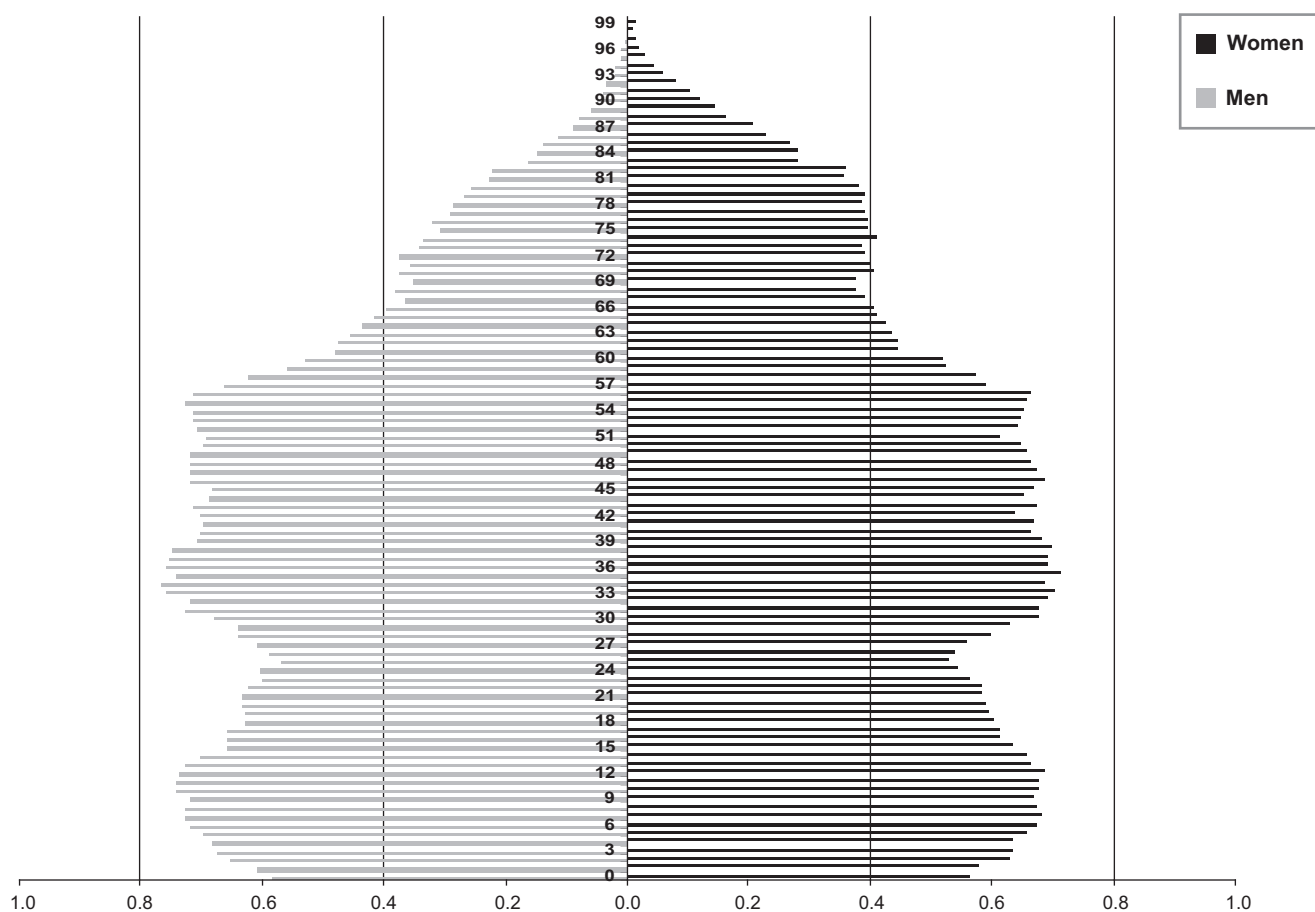
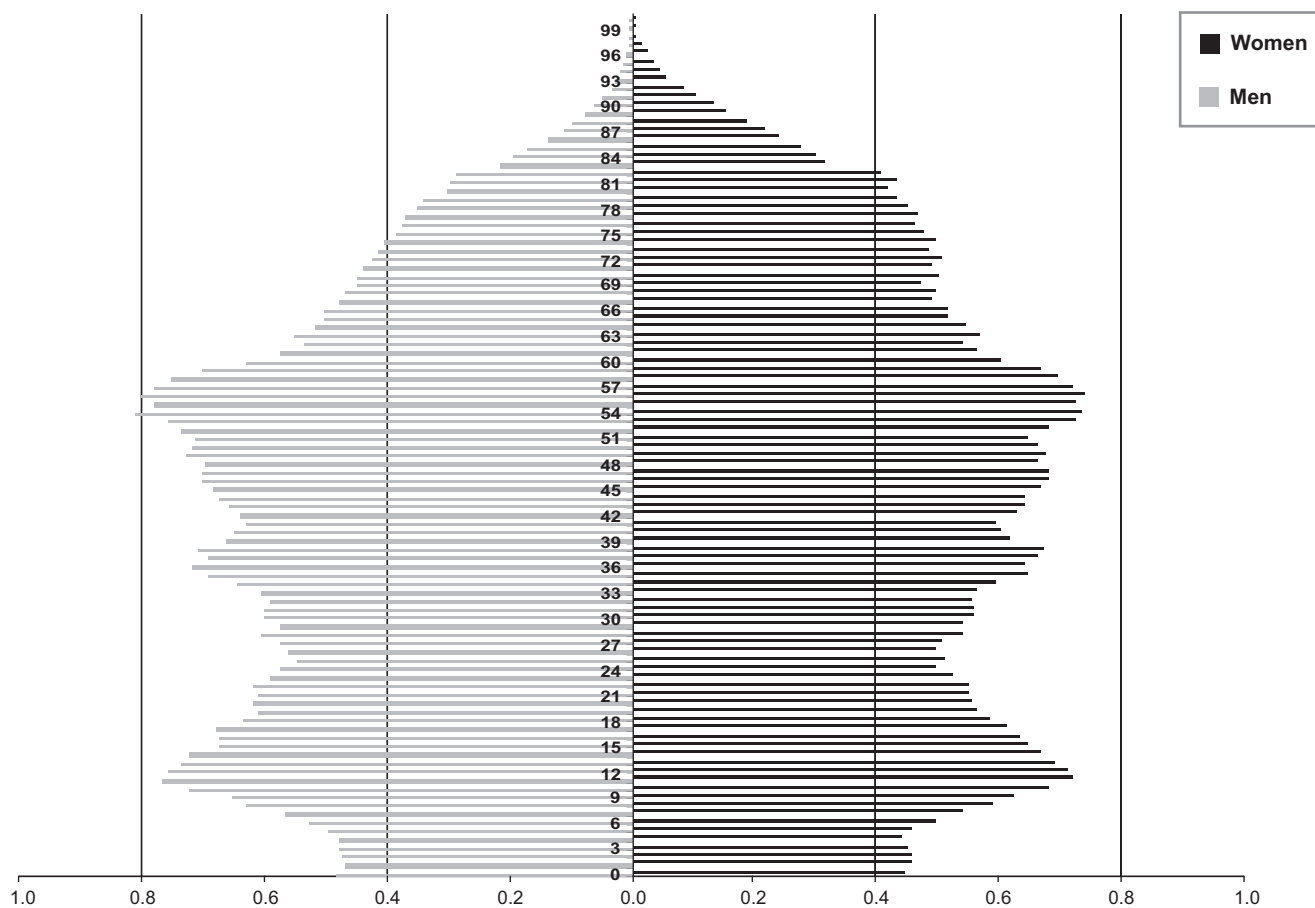


Figure 11. Population pyramid for peripheral Sweden 2003. Per centage of total population.



3.9 Peripheries for small area studies

The situation differs from what we have so far seen for small area studies. On this scale, it is also highly relevant to talk of peripheries in parts of countries outside our delimitation, as the development in less central parts of a municipality can differ substantially from the development in, and close to, the municipal centre. On this geographical scale, the different aspects of segregation are of great importance. We can distinguish between the following aspects (Hagestad 2003):

- Space
- Social institutions
- Segmentation of biographical time

Space

For the purpose of this study, we have to make a distinction between the homogeneity of residential age based on depopulation processes and on the ageing processes of a local area that experienced substantial turnover at some point. We should bear in mind that living in the periphery usually means living in a world of great heterogeneity as regards social connections, since the possibilities for creating spaces of age specific (or other socially homogeneous) content are less than in an urban society. At the same time, in societies like that in Norway where families have no legal responsibility for the elderly, a potential consequence is greater homogeneity in peripheral areas. Neither the elderly nor their kin migrate in response to care-taking obligations. Instead, the welfare state and the family supplement each other (Lingsom 1997) and a health care sector catering for the elderly population has evolved as an important labour sector in areas offering limited labour possibilities.

Social institutions

Social institutions influence ageing both directly and indirectly. The direct influence is linked to institutions catering for the elderly. The existence of social institutions on a municipal level can be important for maintaining the high

level of elderly people in peripheral municipalities, as dwellings are often ill-suited for the elderly, whereas new institutional or semi-institutional dwellings can cater for their needs.

The indirect influence is linked to the demographic consequences of institutional development on other parts of the demographic scale, where the number of elderly is not changed, but their relative share of the population is. For example, the closing of schools in peripheral locations can create gradual ageing when young couples move elsewhere, leaving behind few of an age associated with parenthood.

Our two sample studies will look at ageing on a more detailed geographical scale, the areas in focus having been selected to serve as examples of demographically aged communities in larger regions where population ageing is a visible general feature.

Demographic successes within municipalities

When there is a tendency towards centralisation of the population in a municipality, the demographical consequences will be a reduction of this flow as the population of the more peripheral parts of the municipality dwindles, resulting in an older age structure in the central parts of the municipality. Many of the municipal centres had high growth rates following the last round of municipal mergers and the period of intense growth of public sector jobs in the peripheral municipalities. Owing to reduced growth in the urban settlements, ageing occurred in many of them, so that today the relative share of elderly people in many centres may be higher than in the rest of the municipality.

This process can be compared with one where a central municipality becomes, for a period, a demographic success by depopulating its hinterland; a kind of demographic success that will lead to a backlash unless the central municipality is able to compete with other centres in terms of demography after having depopulated its own hinterland.

3.10 Life stages as subdivisions of regional populations

Demographic development and its regional implications in the Nordic peripheries are influenced by decisions made in different life stages, and by the development of decisions at the same life stage, by succeeding cohorts and generations.

For this work, we will to some extent use a division of life into seven-year life stages, or refer to life stages with this division in mind. This division into life stages can be used to group different ages according to their impact on ageing within the periphery;

Age

0– 6 years	Pre-school
7– 13 years	Primary school
14–20 years	Youth/lower secondary school/upper secondary school
21–27 years	Advanced education/work experience
28–34 years	Establishing family, children, work
35– 41 years	Specialised work experience, children
42–48 years	Development at work, teenaged children
49– 55 years	Consolidation/children leaving household
56–62 years	Consolidation, partly retirement
63–69 years	Becoming pensioners
70–76 years	Young pensioners
77–83 years	Pensioners, limited need of nursing
84–90 years	Older pensioners, some need of nursing
90+ years	Oldest pensioners, more often need of nursing

The different stages of life have different impacts on an analysis of ageing. On the one hand, the pensioner groups will, for many of today's debates on ageing, be the most

relevant, as the debate to a large extent focuses on the size of the workforce compared with the size of the retired population. However, as ageing is not merely a question of development in levels and numbers for a certain age span, but also the result of changes in other life stages, the nature of the other life stages' influence on ageing has to be defined. When the focus is on regional demography, some of the life stages play different roles than those at the national level. This is primarily due to migration being more common at certain stages of life.

The stages covered by the age span from 42 to 62 primarily show what is in store and are important as part of the labour force. The ages from 56 show the levels of people who will be the new pensioners of the next decade.

The representation of ages from 21 to 34 indicate future possibilities for development in age biases, as the majority of children will be born to people in these age spans. From 35 to 41, there is possible compensation by family migration to some periphery types and some catching up on fertility. These stages will also be those in which migration to other municipalities will primarily be concentrated, even though the bias between in-migration and out-migration may occasionally be greater at other life stages.

In other words, the relative division into life stages tells about different kinds of ageing. What we see in the peripheries today is ageing developing mainly by net losses due to migration in the life stages from 21 to 34, reducing the number of people of reproductive age and reducing the number of children. This increases the relative representation of the elderly even if their numbers do not increase. A grouping of ages into relevant life stages thus makes the pattern of ageing clearer.

4 Main approaches to the study of territorial age-structures and ageing

4.1 Ageing by indicators

In the OECD Territorial Database and in the ESPON project on demographic challenges (cf. http://www.espon.lu/online/documentation/projects/thematic/thematic_75.html), a set of rough indicators on aspects of demographic structure are employed to give information about, e.g. the relative degree of ageing and different age-related aspects (the so-called dependency ratio, potential labour force, ageing labour force, and so on). These indicators are simple shares (per centages) or ratios, and may be com-

pared directly across regions (and time) or related to a common reference (for instance, the national or Nordic or European or OECD average). The indicators are suitable for answering simple questions such as 'Does the dependency ratio vary among different types of regions?' and 'Are the over- and under-representation of specific age groups similar regardless of the type of region?' This report provides an overview based on the following indicators of this type:

Table 3. Ageing by indicators

Name of group	Definition	Calculation
Children	The percentage of children and teenagers in the population	Population 0–15/total population * 100
Youth	The percentage of young people in the population	Population 16–20/total population * 100
Labour force potential	The percentage of people of active or working age in the population	Population 20–64/total population * 100
Ageing labour force	The oldest age segment of active or working age as a percentage of the total group	Population 55–64/ population 20–64 * 100
Ageing population	The percentage of elderly people in the population	Population 65+/total population * 100
Ageing aged	The percentage of old people among the elderly	Population 80+ /population 65+ * 100
Labour force potential replacement ratio	The 15-year cohort <i>entering</i> working age in the next 15 years compared with the 15-year cohort <i>leaving</i> working age during the same period (roughly)	Population 10–24/ population 50–64 * 100
Reproduction potential replacement ratio	The 15-year cohort <i>entering</i> the most reproductive ages in the next 15 years compared with the 15-year cohort <i>leaving</i> the most reproductive ages during the same period (roughly)	Population 5–19/ population 20–34 * 100
Old age supporters ratio	People of active or working age compared with elderly people	Population 20–64/population 65+
Elderly versus children	Elderly people compared with children	People 65+/people 0–15

4.2 The regional age bias or representativity index

The regional age bias approach compares demographic cross sections for different territories, that is, it says something about the age structure at a given time in more than one territory. The age bias is based on index numbers of regional representativity (Sørli 1995).

A regional demographic representativity index measures the population level of an age group in a territory against the level of the same group at the national, or another, geographical level. For the purpose of this study, the Nordic population was used as a geographical reference, and the different national age biases were compared with this reference territory. Index values of more than 100 mean that an age group is over-represented, while index values below 100 indicate that it is under-represented. The deviation from 100 is a measure of the percentage deviation from the infusion in the geographical reference area.

The age biases should be historically interpreted (as, ideally, should all other cross section data). Even though each cross section will often be described separately and can be interpreted separately, it is preferable and provides sounder knowledge if an *analysis* is based on cross sections showing indexes at two or more different points in time. In this work, we compared cross sections from 1 January 1993 to 1 January 2003, using the latter point in time also for surveying the present situation for the periphery. Even though age biases, being cross sections, explain regional demographic causality only to a limited extent, they are still useful as measures for describing conditions and can

be used as a foundation for further questions and hypotheses.

When looking at the age biases for several points in time, we should bear in mind that age distribution will change not only in the territories we are studying, but also in the reference region for our comparison. In other words, what we analyse is the deviation from a reference distribution that changes between cross sections. Thus the relative and/or the absolute level of aged people can increase in a territory even if the representational indexes for the elderly decrease.

As the regional age bias takes into account the relative share of a population of a certain age compared with its share on a reference geographical level, the resulting age bias of, for example, the aged population, will be a result not only of how the demographic processes worked for one cohort in the territory (compared with the reference territory), but also the result of how it has worked for all other cohorts. In other words, we will not get an impression of the actual size of a cohort compared with other cohorts, but rather the share of a cohort in one territory compared with its share in another geographical territory.

When comparing two regional age biases, we will look primarily for changes in the representation of cohorts. If a cohort increases its representation with age, it will usually indicate that the population is ageing, the younger cohorts being too small to replace older ones completely.

4.3 Prospect analysis as a method (natural growth potential)

Prospect analysis shows the natural growth potential of a population, referring to the growth impulse caused by differing cohort sizes. Using this method, we provide information on relative change at single ages if, in future, a younger cohort duplicates the known demographic changes of a reference cohort. The difference in age between cohorts compared with each other equals the number of years we look into the future. When the size of succeeding cohorts declines, we call the phenomenon 'natural growth deficiency'. The *regional* variations in waves of this type are due to combinations of changing fertility rates and migration forward to the age they currently occupy.

The prospects are based on information from 1 January 1993 and 1 January 2003, meaning that we will study the prospects for cohort sizes in 2013 expecting, for example, the size of the 20-year-old cohort in 2003 to change identically in relative terms during the 10-year period ending in

2013 to what we have seen for the reference 20-year-old cohort from 1993 to 2003. The changes that should be copied by the younger cohort are shown graphically, and discussed in this work as population changes of cohorts from 1993 to 2003. The prospects do not take into consideration that some cohorts may be delayed in their passage from one life stage to another, which will most often be linked to centralising migration to join the work force, and the passage to family life with the more diffuse regional pattern of migrations to obtain good living conditions for children.

When using 10-year prospects, we usually find large differences in numerical development at the different ages, as 10 years represent somewhat less than half a generation. This means we will see development from very different parts of demographic waves in countries where such exist. A 25-year span would, on the other hand, give far fewer

dramatic changes, but at the same time stretch the method further than is methodologically prudent.

As we look at the relative change of a given age from a reference time into a future time, we should remember that the trend we see when, for example, one type of periphery has the strongest growth at several ages, does not

mean that this type of periphery is the most aged, but merely that it has stronger relative development at these ages. A region or type of municipality can have a far more dramatic relative development at an age when representations have been low than when they have been high.

4.4 Regional population changes by birth cohort

Some figures display percentage regional population change by birth cohort instead of age (year of birth rather than year of age). Using this approach, we are able to show how specific birth cohorts are redistributed in space over time. We follow the cohorts' 'life-line' and establish a picture of how the sum of migrations and deaths for each birth cohort leads to changes in the cohorts' location (type of region). Mortality has very little influence on the changes in younger ages and the graphs actually reveal patterns of cohort migration in these ages. We detect how different

types of territories gain or lose specific birth cohorts over time, first mostly through migration and later through a combination of migrations and deaths.

The analysis on regional age biases, prospect analysis and regional changes by birth cohorts will not be limited to the aged part of the population, as ageing is connected to demographic development for the entire age span, where severe ageing in a region generally results from long-term population losses in new generations of adults.

5 Degree of ageing – by indicators

5.1 A brief international background

In an OECD study from 1994 (Foss 1998, partly also published in OECD 2002), the crudest ageing indicator (share of people 65 years and over, cf. Chapter 4.1 above) showed that most OECD member countries reached an advanced stage of population ageing several decades ago. Around 1990, the people aged 65 or over constituted more than 10 per cent of the population in all member countries except Mexico. Only the populations of Canada, Japan, New Zealand and Australia did not reach the level of 10 per cent until the 1980s, and these were among the most rapidly ageing populations in that decade. Hungary, Sweden and the United Kingdom represented the most advanced stage of population ageing among the member countries. Population ageing was an ongoing process in most of the countries in the decade 1980–1990. The exceptions were the populations of Austria, France, the Czech Republic and Luxembourg.

Regional coefficients of variation clearly indicated that population ageing was far from a uniform process within the countries in question. Considerable regional differences existed. In several countries, e.g. Canada, Portugal, USA, France, Spain, Mexico and Australia, the size of the coefficients implies that different demographic dynamics were at work in different parts of the territory, or that the ‘demographic momentum’ of earlier demographic history was strong enough to echo the effects of more recent demographic trends in certain territories.

However, comparisons of regional coefficients of variation for 1980 and 1990 also indicated that *regional variation was reduced in most countries during the decade*. In a few countries, notably France and the Czech Republic, the reduction was substantial. Regional differences in the *timing* of demographic change, especially the most recent decline in fertility, is a probable explanatory factor, in which case a hypothesis of regional catching up on demographic trends seems reasonable. Accordingly, we expected continuing ageing and diminishing regional disparities in the degree of ageing to go hand in hand.

The study shed light on rural regions’ deviations from average national degrees of population ageing in 1990. The OECD territorial scheme was employed, ‘Predominantly Rural Regions’ being those where more than 50 per cent of the population live in rural local communities according to the criterion of population density (OECD 1994). Three features stood out: i) in most countries, ageing seemed more advanced in the rural populations than in the national

population on average, ii) even the share of children (0–14 years) was usually higher in the rural than in the national populations, and iii) considerable international differences existed between rural regions in patterns of relative representation of children and elderly in the population. In four countries, Spain, France, Portugal and Japan, the share of elderly (65+) in the rural region population was more than 20 per cent higher than the national average. In only three countries were the elderly under-represented in the rural regions compared with national averages.

Among the most evident indicators of degree of population in the above-mentioned sense, are the ratios of children and elderly people. Although controversial with regard to interpretation other indicators are the so-called post-active dependency ratio and the ratio of young people to elderly people. The two maps in this section concern two crude indicators of demographic ageing, namely the share of elderly people in the total population and the size of the elderly fraction of the working-age population. The indicators cover four categories, ranging from the European average or ‘better’¹, to one standard deviation (STD) or ‘worse’ than the European average. The maps in this section are at territorial level NUTS 2.

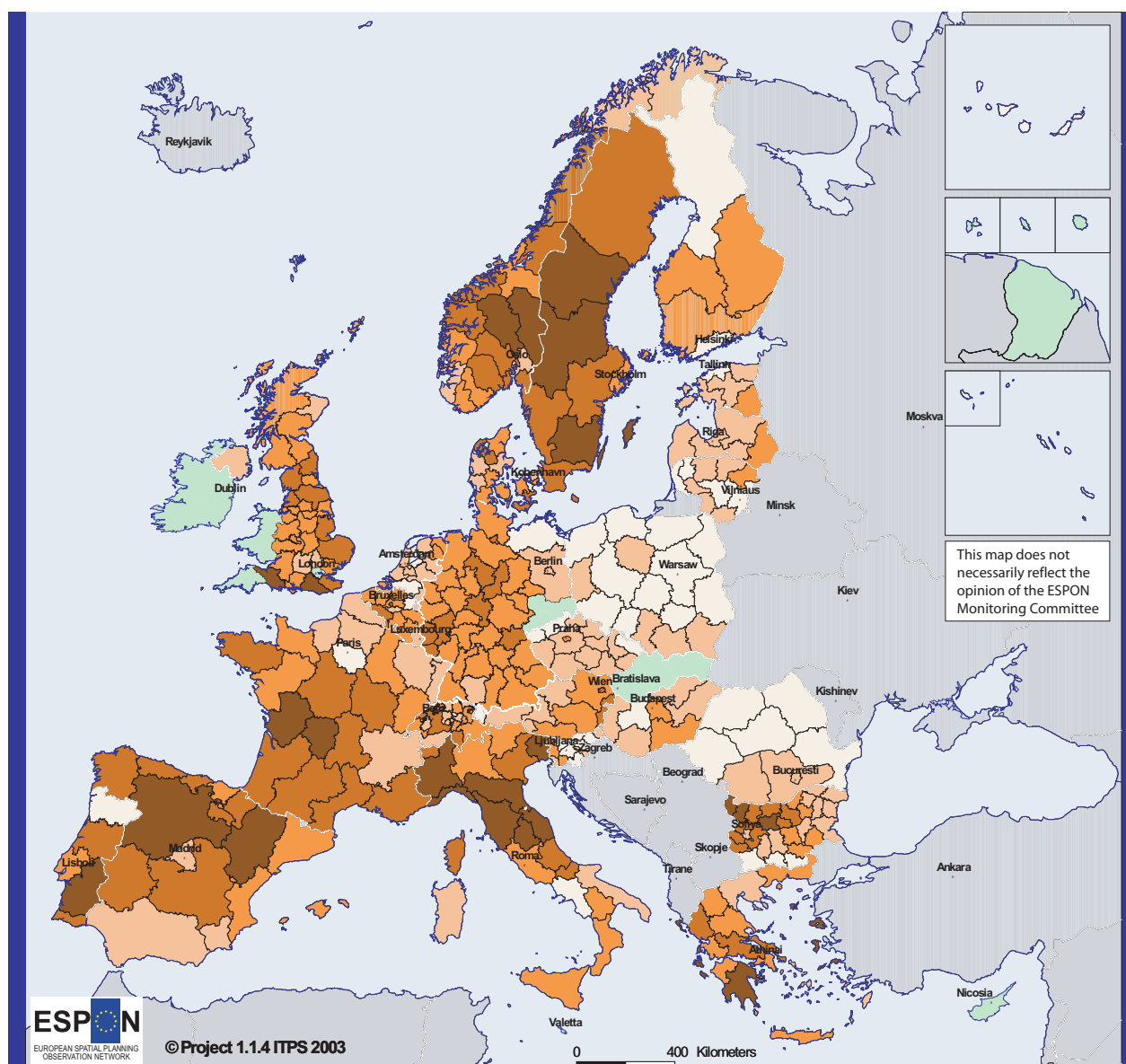
The table displays mean values, median values, standard deviations (STD) and the regional coefficient of variation for each indicator (plus the share of children under the age of 15) for European NUTS 2 regions (the 29 ESPON countries):

Table 4. Crude measures of central tendency and variation among European regions in three demographic indicators of relative population ageing. Year 2000.

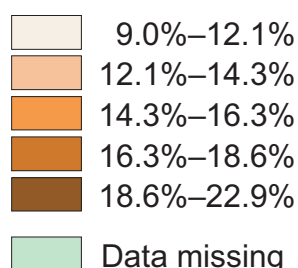
	Ageing population	Ageing labour force	Share of children
Un-weighted mean	15.6	17.7	17.2
Weighted mean	15.8	17.7	17.4
Median value	15.9	17.6	17.6
Standard deviation	2.9	2.5	2.7
Regional coefficient of variation	18.4	14.0	15.5

¹The 29 countries of the so-called ESPON-Space, cf. <http://www.espon.lu/>

Map 1. Share of the total number of inhabitants in NUTS 2 regions, aged 65 or older 2000. 29 European countries (ESPON Space): Aged Population.



Proportion of persons aged 65 or over in total population (percent)



© Eurogeographics Association for administrative boundaries

Origin of data:

- EU15 and CEEC: Eurostat
- Norway and Switzerland: National Statistical offices

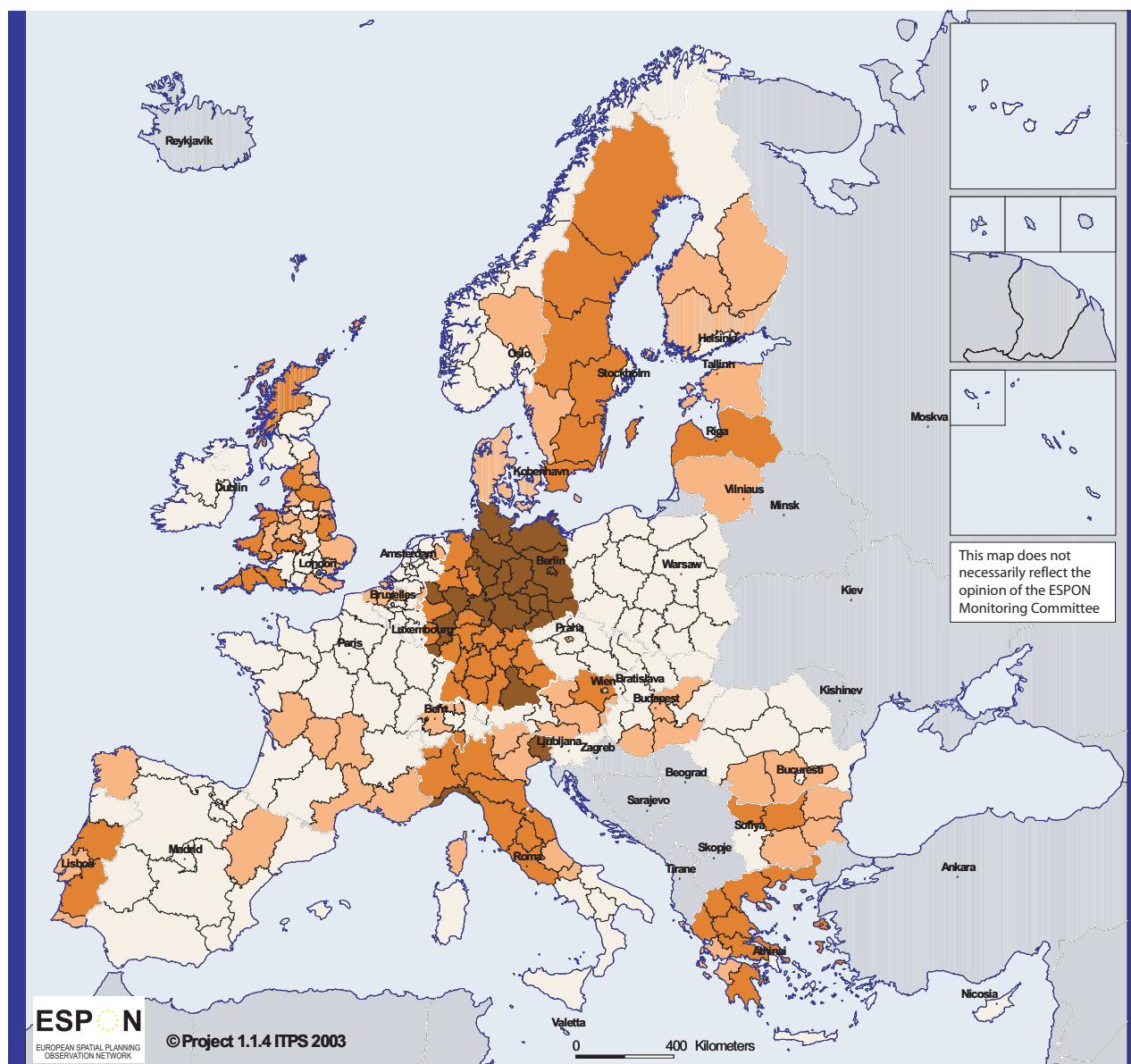
Source: ESPON database

The regions with highest *share of people above 64 years of age* are the Spanish and Portuguese, with low population density; much of northern and central Italy; and some parts of Greece, the United Kingdom and Sweden. The Italian regions are generally more densely populated than the others, and include many of that country's most im-

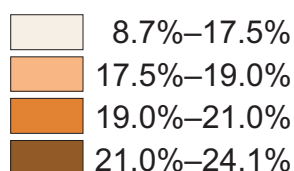
portant cities. Only three regions within the former east European countries are *not* included among the regions on the Europe 29 average or better.

When it comes *to the ageing of the labour force*, the northern Italian regions, most of Greece and most of Sweden are included in the two groups with at least ½ STD

Map 2. Inhabitants aged 55–64 in relation to inhabitants aged 20–64 in NUTS 2 regions 2000. 29 European countries (ESPON Space): Ageing Labour Force.



Proportion of 55 to 64 year olds
within population aged 20 to 64
(percent)



© Eurogeographics Association for
administrative boundaries

Origin of data:

- EU15 and CEEC: Eurostat
- Norway and Switzerland: National Statistical offices

Source: ESPON database

(standard deviation) negative deviations from the average. All the German regions fall within these two groups as well. This indicates that the early reduction in fertility in Germany is very marked in the age structure of the labour force, opening a potential for migration from the new EU countries where most regions have a lower share of the co-

horts near retirement age than the European average. France, with its very early reduction in fertility, does not have an ageing labour force by this measure; nor do the Benelux countries, Spain, Ireland or Norway.

5.2 Indicators of population ageing in the Nordic periphery

Figure 12 shows the population distribution for 1 January 2003 in the Nordic area, according to four broad age groups (cf. Chapter 4.1 and the typology developed in Chapter 3). The figure confirms the impression of relative similarity in the share of active or working age populations across the Nordic territory, alongside considerable variation in the proportion of children and elderly people, respectively. In Iceland, Greenland and the Faroe Islands, the proportion of children in the population is highest, ranging from some 23 per cent (municipalities classified as peripheral centres or independent municipalities in the periphery) to almost 29 per cent (the independent municipalities of Greenland). Among the mainland countries, Norway generally has the youngest population, although the differences are small. The Nordic *average* is 19.8 per cent. The share of children was higher than this in all the Norwegian types of periphery in 2003.

The peripheries with the highest shares of elderly people in their populations are found in Åland (independent municipalities) and Sweden (independent municipalities and hinterland municipalities of periphery centres). The lowest are found in Greenland and Iceland. But even the Faroe Islands, centre and independent centre municipalities in the Norwegian periphery and Finnish periphery centres, are below the Nordic average level of ageing according to this indicator. The figure shows that there is considerable variation in the level of ageing among the different types of national peripheries. No uniform Nordic or Nordic periphery pattern of ageing exists. In the mainland countries there is a pronounced centre-periphery pattern within the periphery, where the periphery *centres* are less aged and the periphery of the periphery usually more aged than the national average.

Figure 12. Age structure 2003, four broad age groups. National averages and types of national peripheries. Per centage of total population

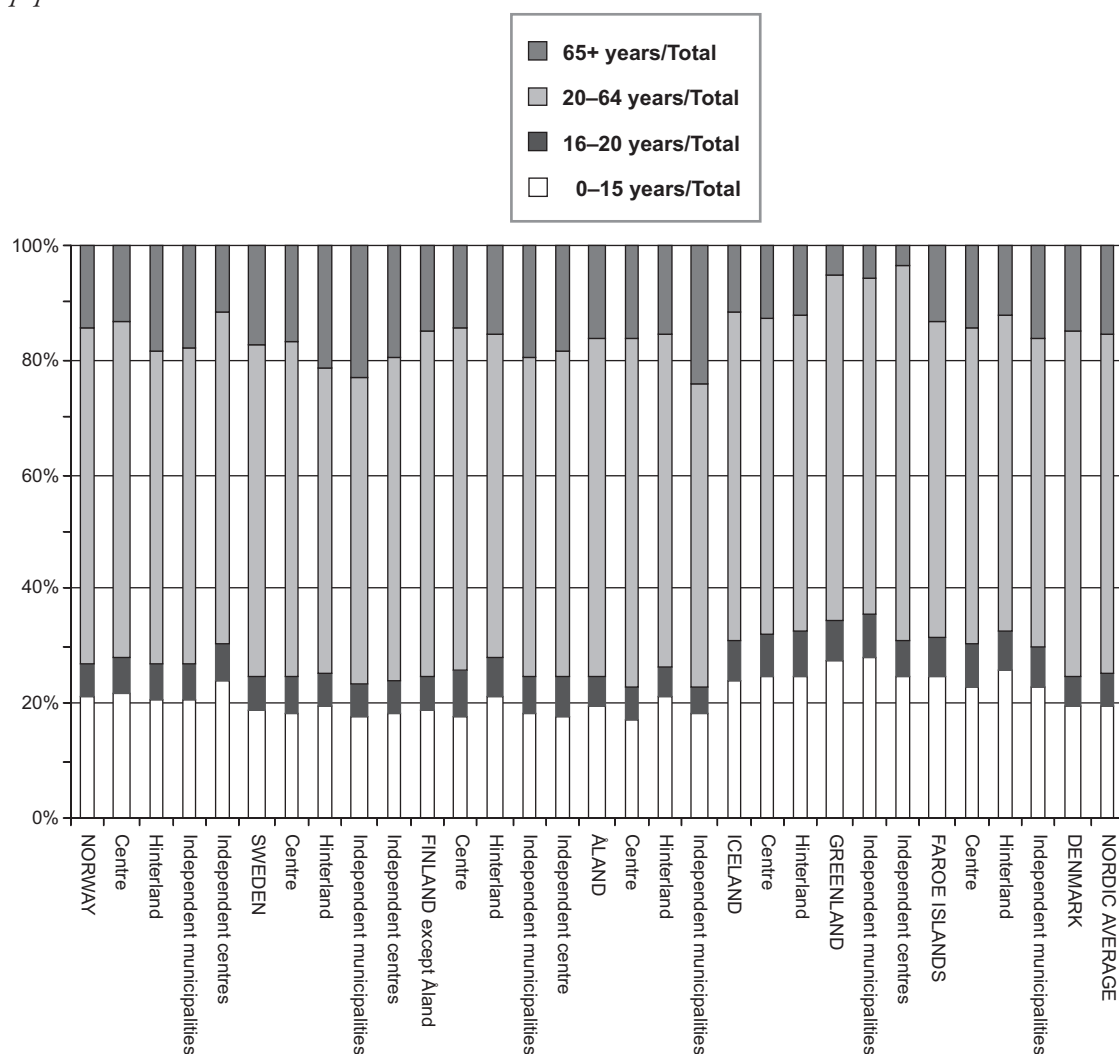


Figure 13. Three age groups' share of the total population 2004. National averages and types of national peripheries. Relative representation compared with the Nordic average representation. Percentage

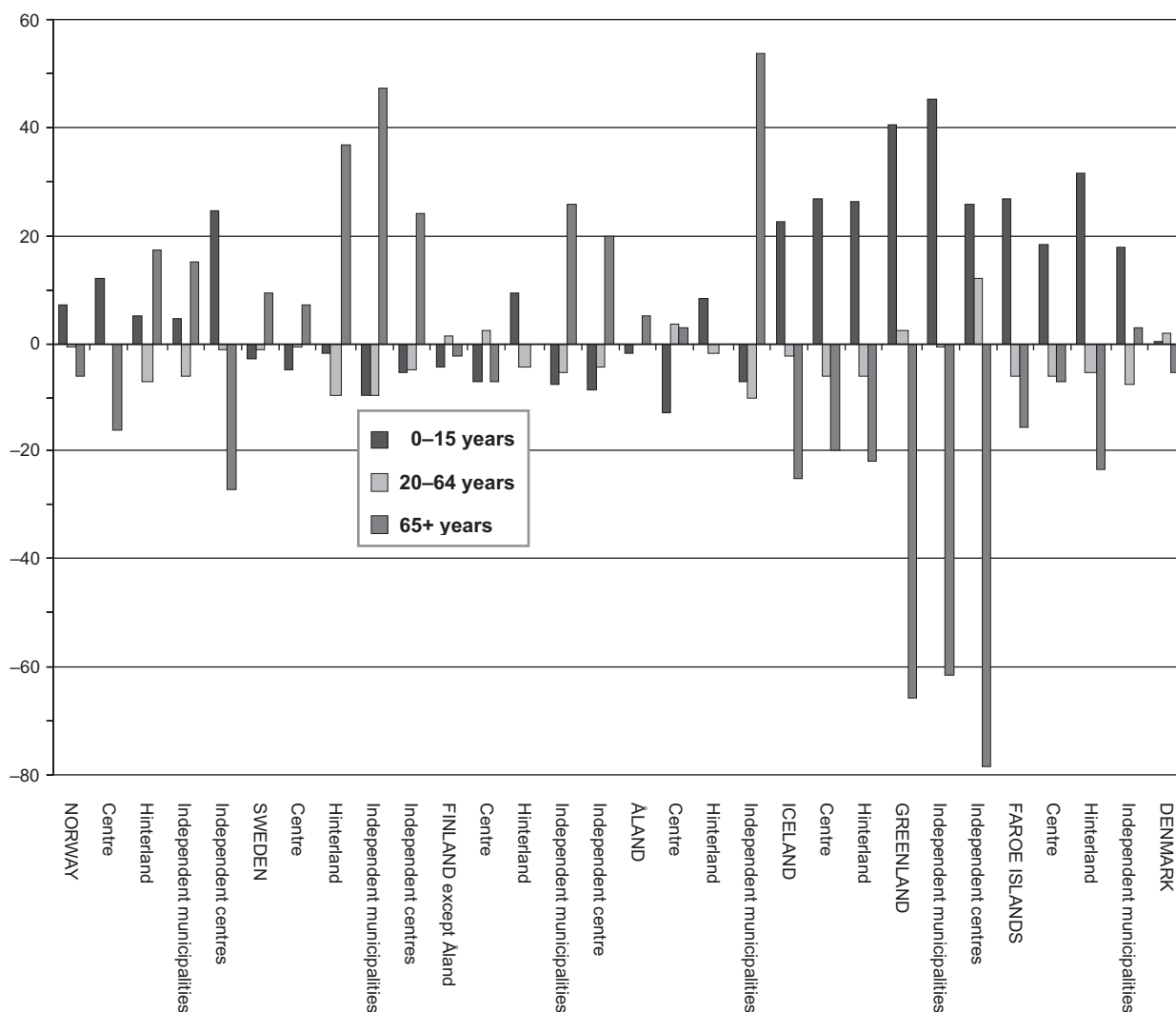


Figure 13 summarises the status of the Nordic countries and of the different types of peripheries within the Nordic countries with regard to the relative representation of three strategic age groups in the population, compared with the Nordic average. The bars indicate the percentage of over- and under-representation of the respective age groups.

The figure reveals significant deviations from the average Nordic age structure of 2003. The most striking is the relative youthfulness of the Nordic island communities (with the exception of Åland), implying considerable over-representation of children 0–15 and a marked under-representation of elderly people 65+ in all sub-types of periphery. The middle age group shows only minor differences from the Nordic average in the various periphery types although the difference usually seem to be to the disfavour of the peripheries.

The mainland country peripheries again display some variation, with a marked centre-periphery pattern within the peripheries. The Swedish hinterlands and independent municipalities in particular have a relatively more aged population structure than the Nordic average. Even the

independent centre and centre municipalities of the Swedish periphery are more aged than the Nordic average, but the over-representation is less than in the rest of the Swedish periphery. The group of elderly people is slightly under-represented in the Norwegian and Finnish periphery centres.

In a general Nordic sense, the most striking impression is *the significant variation in demographic situations*, even within the peripheries, and between similar types of peripheries in different Nordic countries. Applying a more detailed age variable will reveal even more pronounced differences, for instance, between Finland and the other mainland Nordic peripheries, with regard to the relative representation of particular segments of elderly people, cf. the following chapters.

Table 5 on next page shows an overview of the demographic situation in the Nordic countries and peripheries according to a selection of crude indicators of demographic structure and potential, cf. Chapter 4.1.

The indicators fall into two groups: five indicators of different aspects of the state of ageing, and two indicators

Table 5. Selected indicators of demographic structure 2003 (cf. Chapter 4.1). National averages and types of national peripheries

Types of national peripheries	55–64 years/ 20–64 years	65+ years/ Total	80+ years/ 65 years+	10–24 years/ 50–64 years	5–19 years/ 20–34 years	20–64 years/ 65 years+	65+ years/ 0–15 years
NORWAY	18.0	14.8	30.4	109.1	95.5	4.0	0.7
Centre	17.4	13.2	27.9	113.9	99.4	4.5	0.6
Hinterland	20.6	18.4	32.6	105.0	115.0	3.0	0.9
Independent municipalities	20.6	18.1	30.8	103.0	112.5	3.1	0.9
Independent centres	15.9	11.5	24.9	122.8	98.6	5.2	0.5
SWEDEN	21.3	17.2	30.6	96.8	99.1	3.4	0.9
Centre	21.1	16.9	28.4	102.5	97.0	3.5	0.9
Hinterland	24.8	21.5	31.2	90.2	148.6	2.5	1.1
Independent municipalities	25.3	23.2	30.0	84.6	134.5	2.3	1.3
Independent centres	24.2	19.5	25.5	85.2	125.4	2.9	1.0
FINLAND except Åland	20.0	15.3	23.6	93.7	99.8	4.0	0.8
Centre	18.6	14.6	21.4	111.1	97.2	4.2	0.8
Hinterland	21.0	15.6	20.4	91.3	165.6	3.7	0.7
Independent municipalities	23.6	19.8	20.5	82.6	167.0	2.9	1.1
Independent centre	23.4	18.8	19.5	84.0	159.0	3.0	1.0
ÅLAND	21.1	16.5	30.5	86.8	106.1	3.6	0.8
Centre	19.9	16.2	32.8	87.3	81.5	3.8	0.9
Hinterland	21.7	15.4	28.2	88.7	126.5	3.8	0.7
Independent municipalities	23.7	24.2	32.1	74.1	147.6	2.2	1.3
ICELAND	14.6	11.8	25.0	157.1	103.4	5.0	0.5
Centre	15.0	12.6	26.1	159.6	115.7	4.5	0.5
Hinterland	15.8	12.3	25.6	166.3	125.0	4.6	0.5
GREENLAND	13.6	5.4	9.1	168.0	126.1	11.4	0.2
Independent municipalities	14.2	6.0	9.0	173.1	133.9	9.8	0.2
Independent centres	12.1	3.4	9.2	153.2	104.8	19.5	0.1
FAROE ISLANDS	17.8	13.3	26.9	133.7	124.2	4.2	0.5
Centre	19.5	14.6	26.3	125.9	115.8	3.8	0.6
Hinterland	16.9	12.0	26.4	139.9	125.9	4.7	0.5
Independent municipalities	19.5	16.2	28.2	121.7	124.7	3.4	0.7
DENMARK	20.6	14.8	27.2	88.7	91.3	4.1	0.7
NORDIC AVERAGE	20.2	15.7	28.3	97.1	97.0	3.8	0.8

of demographic potential inherent in the present age structure. The ageing indicators reveal a consistent picture of the geography of ageing according to the delimitation and subdivision of the Nordic periphery employed in the project, and may be summarised thus:

1. The main division is between the peripheries of the island and mainland Nordic countries respectively, with

the highest degrees of ageing in the mainland peripheries (Åland excepted).

2. The main division among the mainland country peripheries is generally between the centre and periphery within the peripheries.
3. The Swedish peripheries of the periphery have the relatively highest shares of elderly people (followed by

similar peripheries in Norway), the relatively highest shares in the older parts of the working age population (followed by similar peripheries in Finland) and especially low support ratios (20–64/65+).

4. The Norwegian and Swedish peripheries of the periphery, together with Åland, have the highest shares of old people among the elderly.
5. The groups often compared in order to create an image of ageing populations are the elderly (65+) and the group of children/teenagers aged 0–15. This ratio has a value of one or higher in certain types of peripheries in Sweden and Finland and independent municipalities in Åland. It can be even lower than 0.5 in the centres of the periphery in Norway, Iceland, Greenland and parts of Faroe Islands.
6. Given 1 to 6 above, there is no basis for having a common perception of Nordic peripheral demography as related to ageing since the variations between countries and types of peripheries are significant, and somewhat different for different indicators.

The values of the two indicators of inherent demographic potential vary even more than the ageing indicator values:

The indicator we have called the 'reproduction potential replacement ratio' is *significantly higher in the peripheries outside the centres* (independent centres excepted) than in the centres of the peripheries and in the nations on average. This seems to apply to all the mainland countries, although the Norwegian independent centres deviate from this picture. The island peripheries (Åland centre excepted)

also seem very well equipped with regard to the structural basis for future growth in the highly reproductive age groups prior to the migratory redistribution phase that will inevitably decide the future pattern of settlement for these groups. The indicator signals an important aspect of the future regional reproduction potential (development of the number of people in the ages with the highest fertility rates) if no or very little migration takes place among these people in the relevant period.

The indicator we have named 'labour force potential replacement ratio' is also dependent on a 'no-migration' scenario. It indicates the degree to which the generation gradually ending working life in the next 15 years in the different types of regions will be gradually replaced by the generation expected to enter working life during the same period. Values below 100 indicate that the next generation is too small, in the absence of supplementary in-migration, to cover the need for replacement. Again, the island peripheries of the Nordic countries, except Åland, display significantly higher potentials than the Nordic average and most peripheries in other parts of the Nordic territory. However, even the Norwegian peripheries, and to some degree the centres of the Swedish and Finnish peripheries, show a growth potential. The lowest values (negative potential) are observed in Åland and the peripheries of Sweden and Finland outside the peripheral centres.

In the Nordic countries on average, the values of these two indicators signal that regional competition in the form of zero-sum games will characterise the regional demographic forces of redistribution.

6 Regional age biases

6.1 The regional representativity index

The regional age bias approach compares demographic cross sections for different territories, that is, it says something about the age structure at a given time in more than one territory. The age bias is based on index numbers of regional representativity (Sørli 1995).

A regional demographic representativity index measures the population level of an age group in a territory against the level of the same group at the national, or another, geographical level. For the purpose of this study, the Nordic population was used as a geographical reference, and the different national age biases were compared with this reference territory. Index values of more than 100 mean that an age group is over-represented, while index values below 100 indicate that it is under-represented. The deviation from 100 is a measure of the percentage deviation from the infusion in the geographical reference area.

The age biases should be historically interpreted (as, ideally, should all other cross section data). Even though each cross section will often be described separately and can be interpreted separately, it is preferable and provides sounder knowledge if an *analysis* is based on cross sections showing indexes at two or more different points in time. In this work, we compared cross sections from 1 January 1993 to 1 January 2003, using the latter point in time also for surveying the present situation for the periphery. Even though age biases, being cross sections, explain regional demographic causality only to a limited extent, they are still useful as measures for describing conditions and can be used as a foundation for further questions and hypotheses.

When looking at the age biases for several points in time, we should bear in mind that age distribution will change not only the territories we are studying, but also the reference region for our comparison. In other words, what we analyse is the deviation from a reference distribu-

tion that changes between cross sections. Thus the relative and/or the absolute level of aged people can increase in a territory even if the representational indexes for the elderly decrease.

When considering the differences between countries, we should keep in mind that Norway, unlike the other countries, has had a census in which students have primarily been registered as living with their parents. This has recently been changed into one in which students can choose either to register where they actually live or to continue to be registered at their parents' addresses. As educational institutions are generally situated in regional centres, this means that much of the periphery will seem somewhat less aged than it actually is, while the centres of the periphery have a somewhat younger population than the one registered. Where students are registered at their parents' addresses, the gradient of the graphic curves for single ages in the latter half of the 20s (as students join the working force), will be less severe in regional types outside the centres; returning students counterbalance some of the emigration at those ages.

As every part of Åland, the Faroe Islands and Greenland has been defined as periphery, we include in the discussions of the regional age biases information on the age bias of all the Nordic countries to give a more rounded picture. The national biases are also included to bring the biases of the peripheries into context, as there are major differences between the national age biases of the different countries, which in turn influence the differences between the national peripheries, the geographical level to which regional differentiation will primarily relate. Using the total population of the Nordic countries and its age structure as reference, the pictures may differ from the debates in the different countries.

6.2 Age biases at the national level

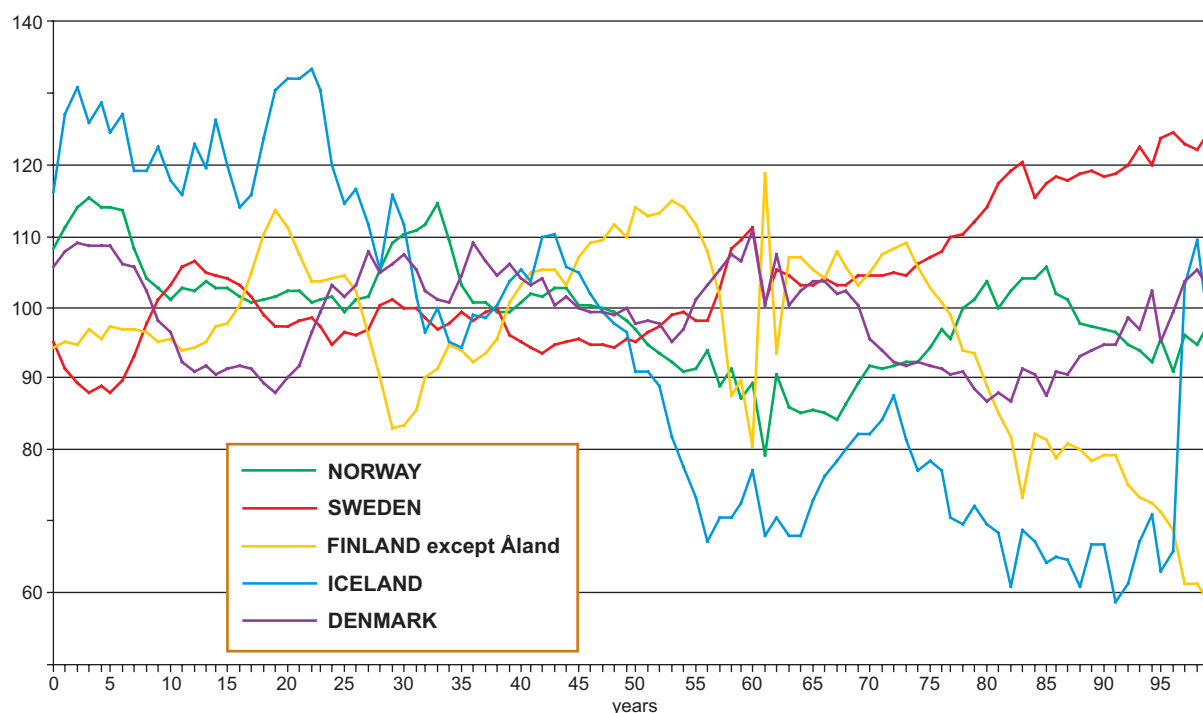
There are major differences between the regional age biases of the different Nordic countries (Figure 14). The highest representation of elderly at the national level is found in Sweden, where all cohorts aged at least 58 were over-represented in 2003. The representation increases proportionate to the age of the cohort. As the Swedish population is by far the largest of any Nordic country, an over-representation of 15 to 25 per cent for the age groups over 80 means that they will be under-represented in many other countries. The only other longer age span over-represented is that from 10 to 20 years of age. The most marked under-representation is for children below this age, which is partly reflected in a minor under-representation of the ages most associated with reproduction, but is probably also influenced by the Swedish policy of shortening time between childbirths; meaning that the success of the policy increased the number of births for some years, resulting in a drop later as many women had reached their probable number of children earlier than would otherwise be the case. In combination with this, representations decline further in Nordic terms, as the numbers of births has increased in other Nordic countries following a period of what was shown to be markedly a delay of births... In a debate on ageing, the latest development in representation of the youngest should therefore be interpreted with care as indicative of low fertility among women of reproductive age.

Finland shows a pattern influenced by war (not only with regard to deaths, but also to births, e.g. the low representation of the 1942 cohort), migration to Sweden and,

formerly, lower life expectancies than in Scandinavia. Nevertheless, none of the age groups up to 80 years are over- or under-represented by as much as 20 per cent. The representation of ages above 80, however, is by far the lowest among the mainland countries, generally being under-represented by more than 20 per cent. The ages between 60 and 80, on the other hand, are generally over-represented, meaning that today's low representations in the age groups over 80 will gradually disappear (see also the chapter on natural growth potential). The rest of the picture shows a marked wave pattern, with over-representation of people in their 40s and 50s, an over-representation mirrored by fewer cohorts in their late teens and their 20s. There are few younger children and people in their 30s. The pattern of future ageing will be uneven, starting with a wave of relative ageing and followed by lower representations when cohorts now in their mid 50s and early 60s join the ranks of pensioners.

In Norway, ages above 50 are mostly under-represented and ages below 50 somewhat over-represented, meaning that the Norwegian population is a young one by Nordic standards. The only slightly over-represented (generally within 5 per cent) ages among pensioners are the late 70s and the 80s. The lowest representation is found for the 1941 cohort, a reflection of the German occupation of 1940 (similar to the low representation of the 1942 cohort in Finland). The first cohort of the baby boom generation is less represented in Norway than on the Nordic level generally. There are marked over-representations of children be-

Figure 14. Nordic countries: Age structure 2003. National averages. Index, Nordic average = 100



low 10 and people from their late 20s to their late 30s and, for the other age groups below 50, a representation close to the Nordic average. Compared with the Nordic reference, the representation of the very oldest will increase in Norway, but decrease for all other age groups of pensioner age during the next decade. The over-representation of people of reproductive age will most likely keep the new cohorts above the Nordic level until about 2010.

Denmark has the most even age structure among the Nordic nations, never reaching over- or under-representations of as much as 15 per cent. Since it is over-represented in the reproductive stages, and under-represented in age groups above 70 (except some of those above 90), the Danish population will get reduced representation among the oldest ages in the coming years. The representation of younger pensioners will, however, rise, as the age group from 55 to 70 is over-represented. As in Norway, the over-representation of new cohorts of children will continue for some years.

The western Nordic island countries all have an age structure dominated by high representation of younger age groups, and low representation of older ones. Iceland, the most populous among them, has an age structure whereby ages above 50 are under-represented. For ages above 60, the under-representation is generally from 20 per cent to 40 per cent. Ages up to 25 are 20 per cent to 30 per cent over-represented, falling to below 10 per cent for ages up to 50, with slight under-representation for a few ages in their 30s. The over-representation of ages in the late 90s is probably due to the longstanding high life expectancies of Icelanders. The Icelandic population will for a long time continue to be relatively young in terms of Nordic age biases, with high fertility making the representation of children stand out.

As all of Åland, the Faroe Islands and Greenland are included in the peripheries, these peripheries are discussed as part of the national peripheries.

6.3 The national peripheries

Since we have already seen that none of the nations has an age bias close to the Nordic, it should come as no surprise that neither do any of the national peripheries, including the Faroe Islands, Greenland and Åland. However, the Faroe Islands and Iceland show similar patterns, i.e. young populations, a distinct over-representation up until the mid-20s, and under-representation of almost all later ages. Greenland also has a very young age structure, making it possible to talk of a pattern of western island countries biased towards younger age groups. At the same time, Greenland can be considered radically different owing to its very low representation of cohorts above 50, and where an explanation unique to the Nordic peripheries occurs: high mortality. All the countries mentioned above have one thing in common with the national peripheries of Sweden, Finland, Norway and Iceland: an under-representation for at least part of the age span constituting the reproductive ages. This could contribute to future ageing by reducing the representation for future new cohorts.

The Swedish periphery is the only one with over-representation for every age within the 50 to 90 span (Figure 15 on next page). Pensioners aged up to 90 are 20 to 30 per cent more common than at the Nordic level. This is probably related to the very strong centralisation in Sweden after the municipal reform of 1962–1974, together with the fact that these age groups are over-represented at the national level as well. The relatively low representation at ages 20 to 50 shows a continuation of the centralisation of the Swedish population, low representations for these age groups being quite typical for peripheries. The over-representation between 10 and 20 years is the only above-average representation among the youth and a result of relatively high fertil-

ity levels. Children under 10 are, surprisingly, considerably under-represented, more so than would be expected by the number of people of parental age. This might mean there is an ongoing centralisation of births in Sweden.

The Finnish periphery shows basically the same pattern as Finland, but with far more pronounced effects. This means that even before we look at the low representations for groups of more than 75 years of age, the representations vary between 60 and 130. The lowest representations are for cohorts of reproductive age, the highest for some cohorts in their teens and in the age span from the mid-40s to the early 70s, excluding most cohorts born during World War II. For most ages above 80, representation is lower than 80, falling to between 70 and 40 for cohorts in their 90s. This is unique among the core Nordic nations, but higher than representations among the oldest in Greenland. Today's age structure means that the representational levels of the elderly population will increase rapidly in the near future.

The Norwegian periphery shows far less of an age bias towards the elderly. The over-representation is restricted to ages from the mid-70s upwards, and is generally below 15 per cent. For people between 50 and these higher ages, on the other hand, the cohorts are under-represented, meaning that the near future will not see any growth in the representation of pensioners. At the same time, cohorts from the youngest up to those in their early 20s are over-represented, a result of high fertility levels bringing the representation 10 to 15 percentage points higher than most of the cohorts in reproductive age groups. Most cohorts in their 20s are, however, under-represented. The question is whether migration of people in their 30s will continue to give over-representation at some of the ages connected to

childrearing and if not, if we will see a drop to under-representation for children. The under-representation is, however, much smaller for these age groups than in the Swedish periphery.

The Icelandic periphery shows the same basic pattern as the country as a whole (Figure 16), but with somewhat higher representation of people up to 20 years, followed by

lower representational levels for cohorts up to 40. This is the same kind of relative failing in parallel age groups as in the other Nordic countries with a defined internal periphery. For age groups above age 40, there is strong similarity to the national levels of representation.

Åland shows by far the most even age distribution among areas not constituting the core territory of a state. At

Figure 15. The Nordic mainland peripheries: Age structure 2003. Index, Nordic average = 100

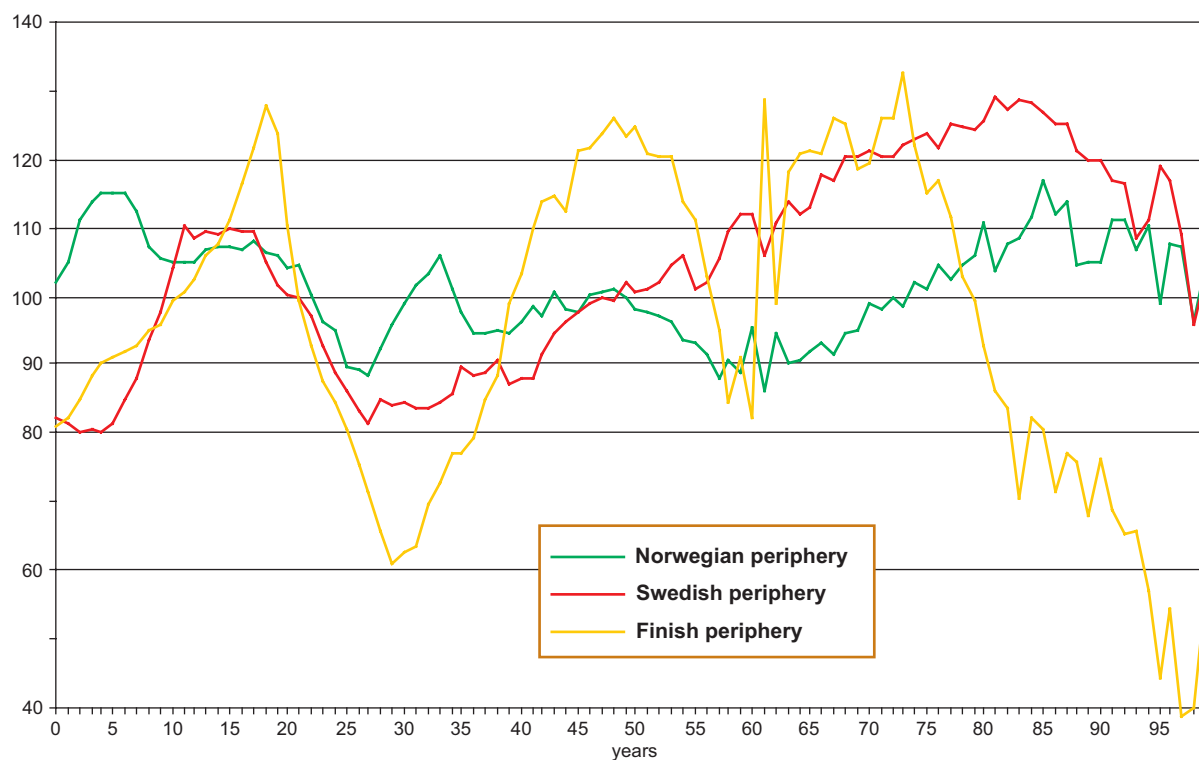
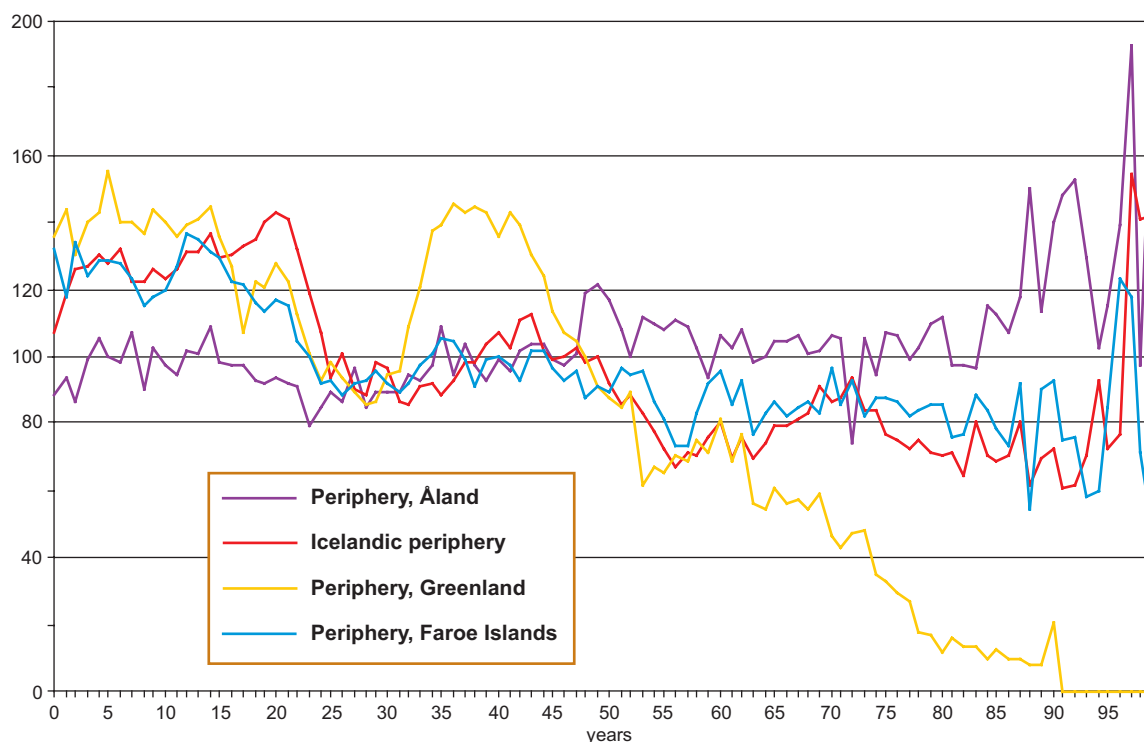


Figure 16. The Nordic island peripheries: Age structure 2003. Index, Nordic average = 100



the same time, we see the typical periphery feature of under-representation for many cohorts of reproductive age, which is also mirrored in under-representation for children up to 3 years of age. Age groups above 50 are generally over-represented, those above 90 especially so. Åland has an age structure very different from the rest of the Finnish periphery, showing much more even distribution among cohorts, the representation of elderly in the near future changing very little compared with the other Nordic countries.

As mentioned earlier, the age bias of the Faroe Islands is quite similar to that of the Icelandic periphery, but with a distribution that makes the Faroese population fractionally older. Considering that almost all cohorts above age 23 have lower than average representation, the population is still a young one. For cohorts up to 50, under-representation is generally less than 10 per cent, balancing between over- and under-representation for cohorts in the mid-30s

to mid-40s. One could say that what we see is a mirror image of the age distribution of Åland, the latter having a somewhat older population than the average Nordic one, while the Faroe Islands have a somewhat younger one. Single ages above 50 are generally 10 to 20 per cent under-represented. There will not be any particular change in the representation of older age groups in the near future.

The age structure of Greenland is very special. Children are about 40 per cent over-represented, as are cohorts in their mid-30s to mid-40s. For ages between childhood and the mid-30s, there is the typical periphery drop in representation, cohorts in their 20s being slightly under-represented. Cohorts above 50 are under-represented, mostly by at least 20 per cent, and those above 65 at least by 40 per cent, increasing to 60 per cent by age 75. The population of Greenland is thus by far the youngest in the Nordic region, and young by any standard.

6.4 Intra-peripheral diversity

Sweden

We have already seen that the Swedish periphery is more aged than the nation itself. When looking at the different types of periphery defined for this project, we find the most prominent ageing in the hinterlands and the inde-

pendent municipalities (Figure 17). These periphery types combine strong over-representation for people above 60 with under-representation for people of reproductive age, especially people in their 20s and 30s, but also for cohorts in their early 40s. For the age span from the mid-40s to the

Figure 17. Sweden: Age structure 2003: National average and types of periphery. Index, Nordic average = 100

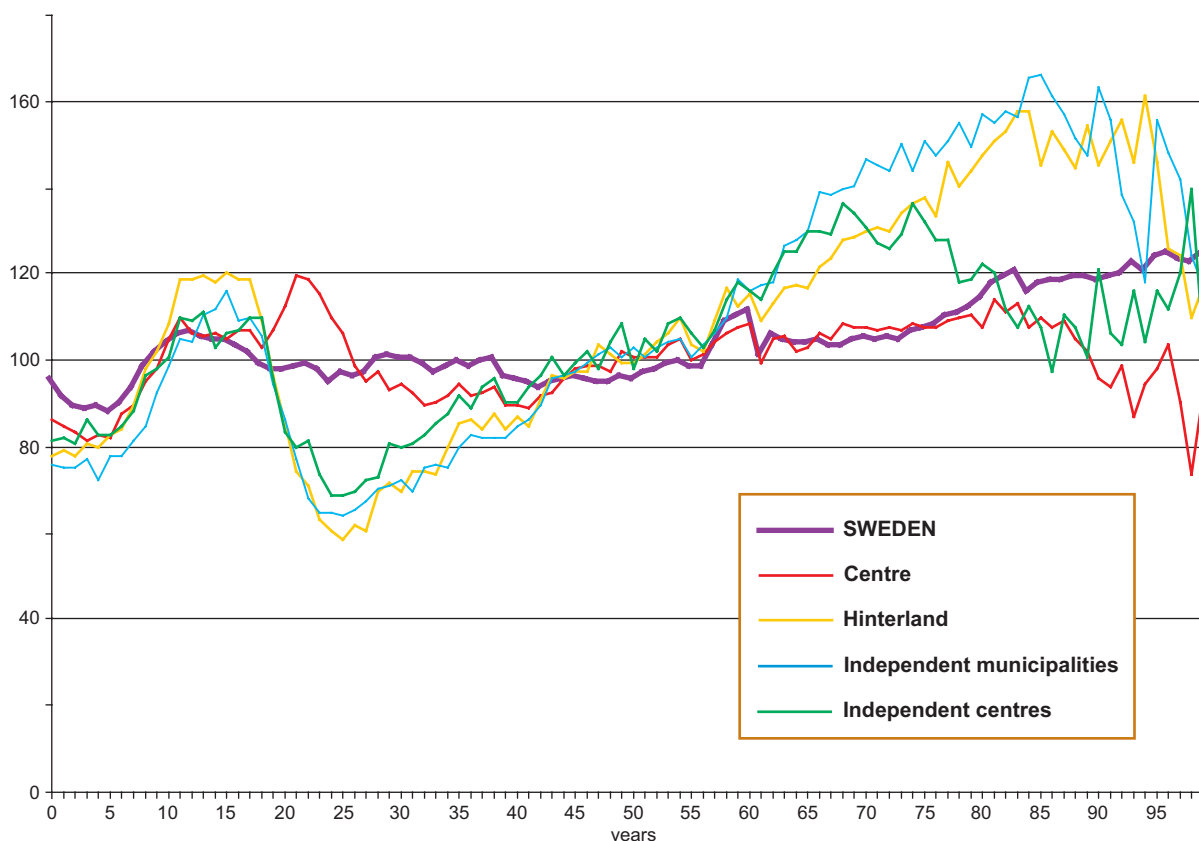
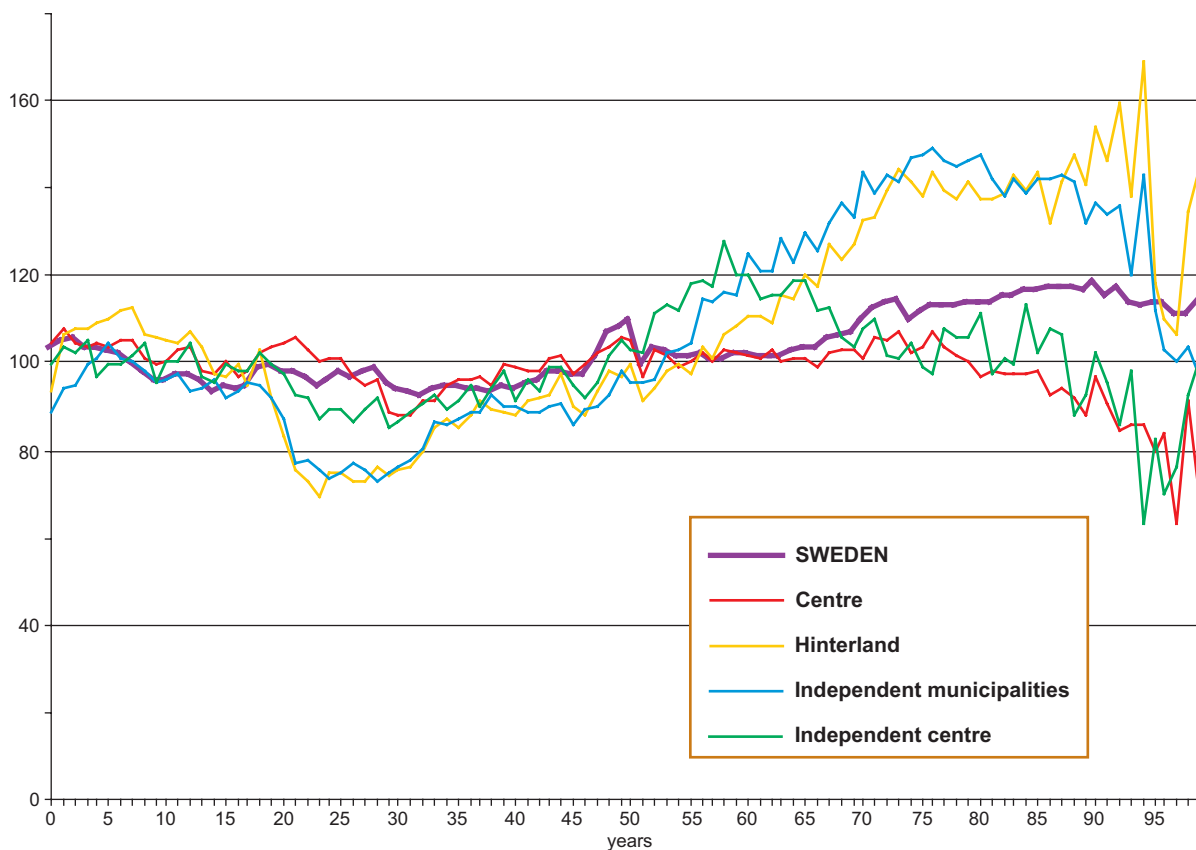


Figure 18. Sweden: Age structure 1993: National average and types of periphery. Index, Nordic average = 100



early 60s, there are only minor differences between municipal types, but all periphery types are more highly represented than at the national level.

As might be expected, independent municipalities depending on the local labour market are the periphery type with the highest representation of elderly. Over-representation is generally as high as 40 to 60 per cent for pensioners. For the hinterlands, the pattern is close to that of the independent municipalities, but with lower levels, being more than 40 per cent over-represented only for ages above 80. Possibilities for commuting to the centres have improved the demographic situation only slightly compared with independent municipalities. Only for youth between 10 and 20 years can we see the high representation of the central suburbs to which the hinterlands should be analogous in the periphery. The youngest children are about 20 per cent under-represented.

The independent centres are generally 20 to 30 per cent over-represented at ages in the 60s and 70s, falling below the Swedish national representation for ages above this, but still slightly over-represented on a Nordic scale. These centres show the periphery pattern of under-representation for cohorts in their 20s and 30s, but the representational level is within 15 per cent of the Nordic average. The independent centres, then, generally follow a periphery pattern in their biases at different ages.

The centres follow the national Swedish pattern for cohorts up to about 80, then increasingly fall below that level.

However, the representational bulge for ages in their 20s often seen in cities today is there, followed by somewhat lower representation for people in their 30s to mid-40s. The lower representation at the latter ages is similar to that in many major cities, where family life leads to migration to the suburbs. Other causes have to be found for the pattern for the peripheral centres, as there are no signs of such migration in the representational indexes for the hinterlands.

Many will see the centres as crucial to the demographic development of the peripheries, since they are municipalities with growth potential, bringing services to a wider region and providing labour opportunities for much of the periphery. However, the centres have a very similar population distribution to what we find at the national level. The only marked dissimilarities to the national levels are for ages above 80 (under-represented) and for people in their 20s, with the over-representation usually found in centres linked to education and the first years as part of the labour force. What is of concern for the future is the under-representation of children and inhabitants of reproductive age compared with Sweden and especially at the Nordic level.

The Swedish periphery has grown older since 1993 (Figure 18). The representational index for the elderly cohorts is higher than it was 10 years ago, indicating that younger generations are relatively smaller than on the Nordic level, tilting the population bias towards increasing over-representation of higher ages.

The changes show a population that has become 10

years older, but this means that new cohorts joining the pensioners, previously under-represented, are now slightly over-represented compared with the national average. The most important change for the demographic age bias in the centres is, however, the development of an over-representation of cohorts in their 20s that can only have been a result of migration. The same explanation is also behind the reduced levels for people in their 30s. The under-representation of children shows that fertility levels do not compensate for the level of cohorts of child-rearing age and a fertility level close to the national level. At the same time, the gains in population come in a phase of life where education is of primary importance, the loss coming in the next phase, when family life is established.

The relative ageing of the independent centres is pronounced, and exceeds the ageing effects of differing cohort sizes. As recently as 1993, the picture was one of representation levels beyond the national levels for pensioners, while now this holds true only for age groups above 80. The cohorts born between 1925 and 1940, being the most over-represented in the independent centres, now dominate the pensioner group, a bias that is increasing because the younger cohorts are too insubstantial to prevent it. There has been a severe aggravation in the relative levels of people in their 20s and early 30s since 1993, but the insignificant level of children is not as marked as one might expect because higher fertility than at the national level compensates for reduced numbers of potential parents. However,

the level for new cohorts does not show the same improvement that it does on the national level.

The changes since 1993 have reduced the earlier similarity between centres and independent centres. Ageing is far more marked today in the independent centres than in those with a defined hinterland. This is due not only to the great number of inhabitants in their 60s and 70s in the independent centres, but also to the opposite development for cohorts in their 20s. For the time being, the independent centres seem to be developing towards an age structure more similar to those, which we see in the independent municipalities and hinterlands.

The latter two are developing stronger over-representation of ages over 60 and very severe under-representation in the 20s (when youth are being educated), but the under-representation also seems to be increasing for age groups in the 30s. This causes a tendency towards under-representation of the age groups below 10 that is often as severe as 20 per cent. For cohorts between 10 and 20, we see reminders of the earlier pattern, i.e. children being over-represented in the periphery.

Finland

Compared with the Nordic region as a whole, the Finnish periphery has a very uneven age structure (Figure 19). Regional differences within the periphery accentuate an age bias still influenced by civil war, World War II and post-war migration to Sweden. In Finland, the hinterlands and the

Figure 19. Finland: Age structure 2003: National average and types of periphery. Index, Nordic average = 100

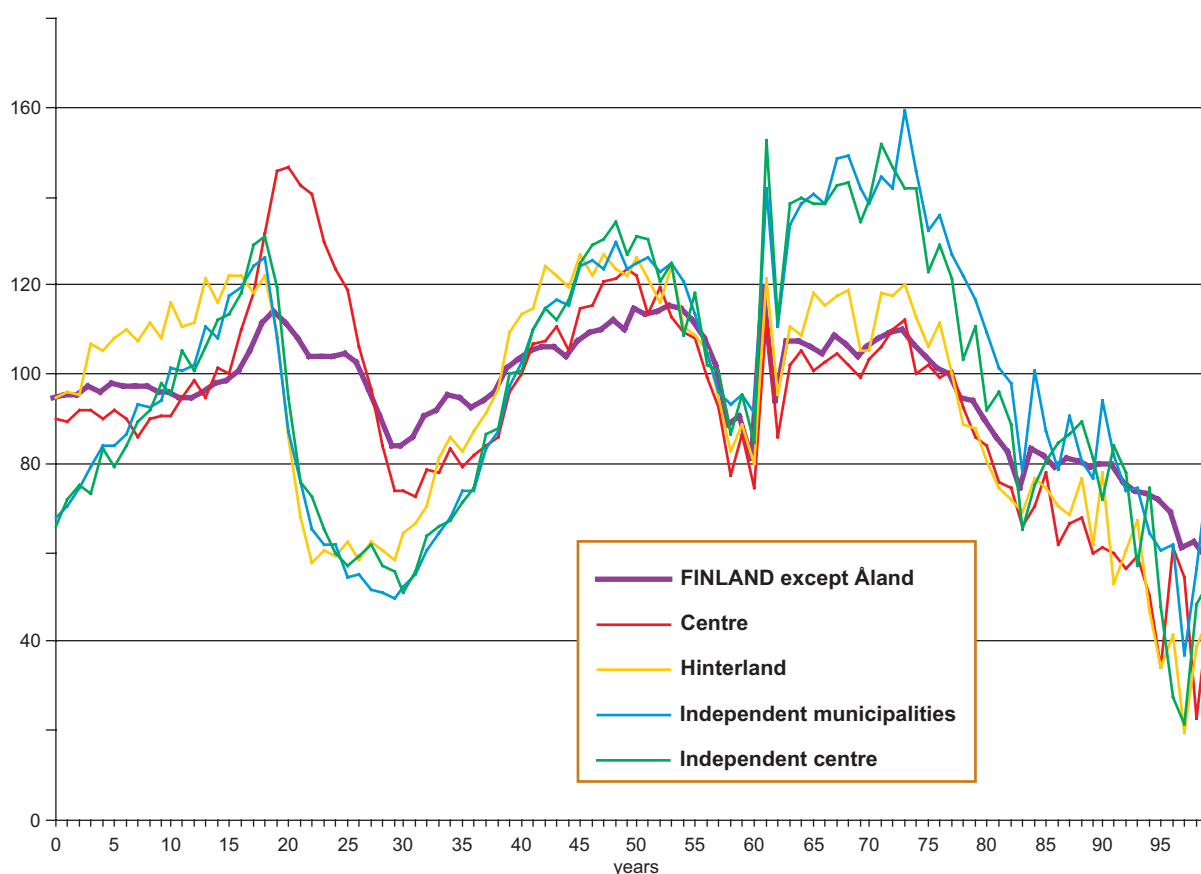
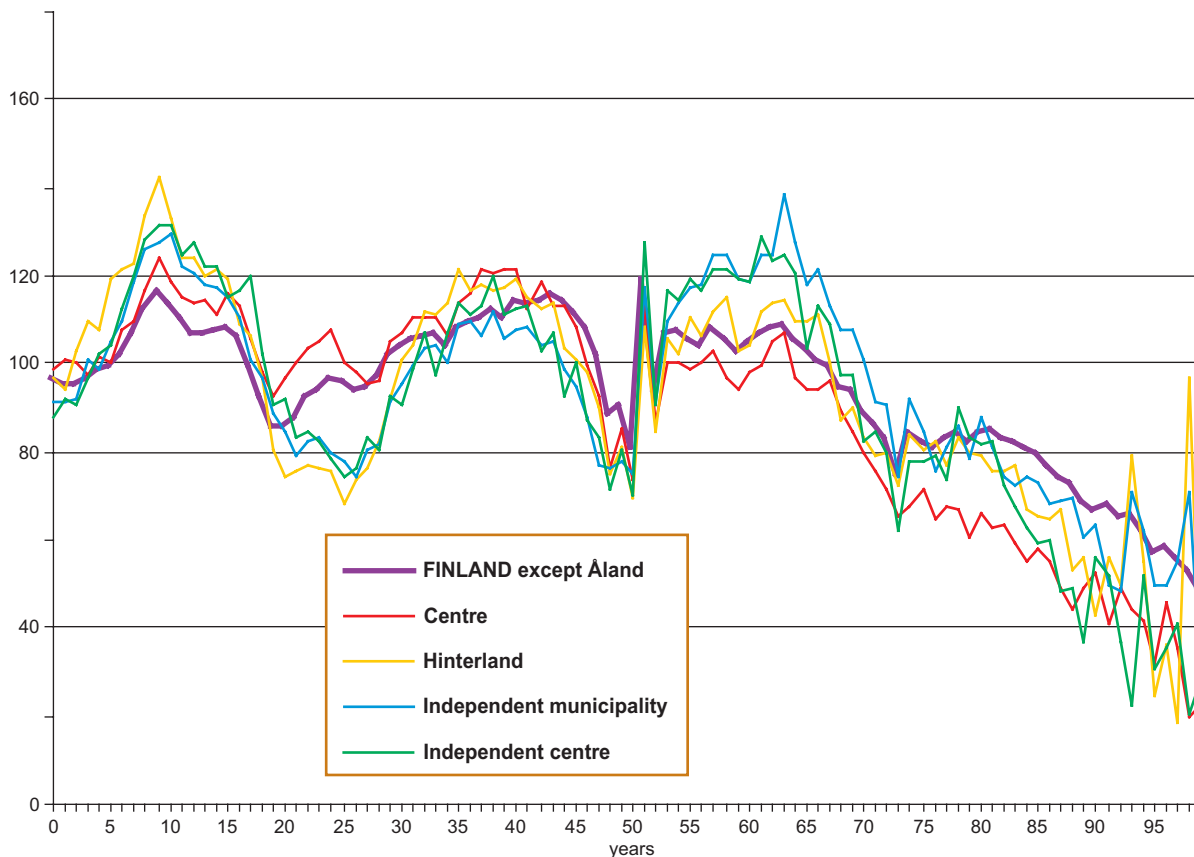


Figure 20. Finland: Age structure 1993: National average and types of periphery. Index, Nordic average = 100



centres show similar age biases for cohorts over 60, indicating that the hinterlands have been able to profit demographically from proximity to the centres. For ages over 60, the two categories of independent municipalities also show great similarity, but for younger age groups the biases differ, indicating changes in the territorial pattern of ageing.

The two groups of independent municipalities are about 40 per cent over-represented between ages 60 and 75. This is a new situation in Finland, which was accustomed to low representations for pensioner groups. The other periphery types are, by and large, also over-represented in the age span from 60 to 75 years, the most important exception being the low 1942 cohort caused by the war against the Soviet Union. The over-representation in these territorial units is, however, much less than for the two types of independent municipalities, with centres at lower levels than Finland as a whole. For older cohorts, the differences between periphery types is less marked, but with the same pattern concerning groupings of the types. Centres and hinterlands generally have lower representation at ages above 80 than the country as a whole, and all four types for ages over 90.

We see different patterns concerning age biases for younger age groups. There is, as in so many peripheries, an under-representation of the age groups between 20 and 40 for all periphery types except the centres, with an under-representation of up to 40 to 50 per cent that causes, and will continue to cause, an under-representation of children. This is particularly the case for the two groups of independent municipalities. As the hinterlands have a nar-

rower age span with very low representation, the level of children has dropped below 100 for those up to 2 years from levels of 110–120, the independent ones having already dropped to 70 for newborns. This lack of recruitment from below will cause the representational levels of older cohorts to increase with time.

The situation of the centres is quite different. They are at least 20 per cent over-represented at ages 17 to 25, narrowing the gap of under-representation to the age span from 25 to 40. This still results in lower representation of children than in the hinterlands, but this will in all probability change by mid-decade. The representation of cohorts in their 30s is lower than in the centres of the other Nordic countries, as it is more than 20 per cent under-represented. In other words no type of municipality is well represented for much of the age span in which children are brought up, indicating a loss of much of the new generation to more central parts of Finland. The differences between regions for age groups in the 20s and 30s are, then, a result of independent migration for that generation, rather than a result of parental migration.

There are major changes in the age biases of each municipal type in Finland since 1993, and these changes are only partially parallel between types. There has been trend towards much more marked differences between municipal types, especially for the typically problematic age groups in the peripheries today, i.e. pensioner and soon-to-be pensioner groups, and age groups important for reproduction and children.

For the two types of independent municipalities, however, the trends are parallel and feature age biases that are almost identical, indicating that for a long time these municipalities had similar developments, relative isolation being more important than the site aspect of rurality/centre. The representation of cohorts now over age 40 rises, usually sharply. Cohorts now in their 60s and early 70s have increased their representation by as much as 20 points. This relative ageing is a reflection of sharp reductions of representation for most cohorts below this age, giving very pronounced ageing due to deficits in younger age groups.

The reduction in representation levels for the hinterlands is, as has been the case for the independent categories since 1993, quite dramatic in reproductive ages, but with less growth in representational levels for older cohorts than in the independent municipalities.

The centres have witnessed a marginally stronger tendency towards an ageing population than Finland as a whole. At other younger ages, however, the changes are quite pronounced, with possible future consequences for the ratio of older people. On the one hand, there has been a sharp rise in the representation of ages in their late teens and 20s, further developing the high representations of these cohorts as far back as 1993 and centralising the young population of the periphery. At the same time, representation of ages from 28 to approximately 40 has been reduced to below the Finnish level, which is mirrored by the tendency towards lower representation of children than at the national level. There is, in other words, a minor weakening of the centres of the Finnish periphery, but the great over-

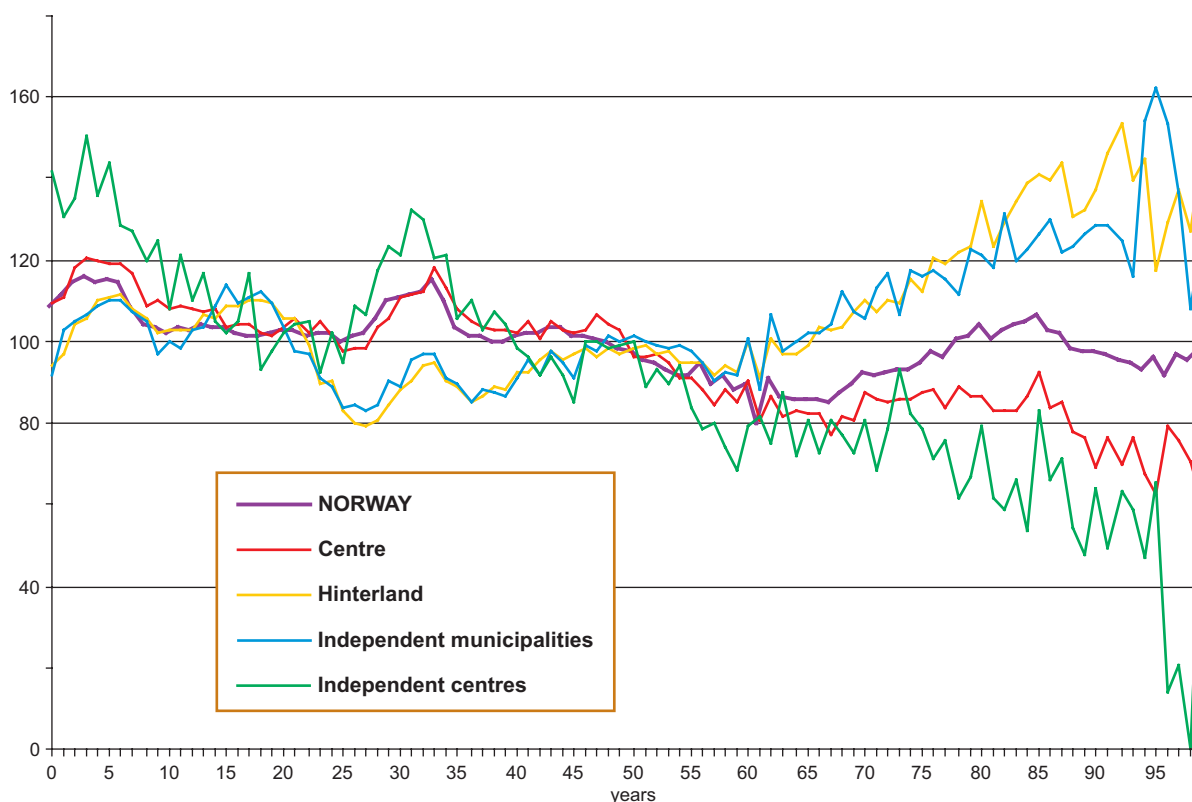
representation of cohorts now in their 20s will probably increase the representation of children in the near future (even though the level of the cohorts in their 20s will probably drop), and for a time it will offset the relative increase compared with the national level of elderly.

The hinterlands increase the relative representation of cohorts now above 40, owing to greatly increased under-representation of age groups in their 20s and 30s, i.e. most of the reproductive stages. There have, in other words, been processes of ageing through deficiencies in the age group that typically create ageing in the peripheries. The representational levels in ages at the reproductive stages have still developed less negatively than in the independent types, which is the reason for the low growth in representations of older ages.

Norway

In Norway, as in Sweden, the two categories of centres can be grouped together, as can the hinterlands with the independent municipalities (Figure 21). The centres have a younger population than the national population, as they are under-represented at ages above 50, and over-represented at almost all the younger ages, compared with both the national and the Nordic age structure. Special mention should be made of the high representation of children. The smaller centres probably have an older age structure than that indicated here, as the smaller centres generally have a less positive pattern of migration than the larger centres within the periphery. The independent centres have an over-representation of up to 30 per cent for the age span in

Figure 21. Norway: Age structure 2003: National average and types of periphery. Index, Nordic average = 100



their 30s, and an even greater over-representation for children under school age.

The hinterlands differ significantly from the pattern existing around the major cities, the latter having continuously expanding population growth with each new generation. In the periphery, on the other hand, the centres are emptying their hinterland of large parts of its new generations, resulting in a very biased age structure dominated by the elderly. This is probably why the hinterlands, for most ages over 75, are more biased than the independent municipalities, and also more under-represented at ages from the mid-20s to the mid-30s. However, the degree of similarity between the two types is high.

Fertility in the Norwegian periphery is higher than on the Nordic level, meaning that under-representation of people of early parental age still results in an over-representation of children. For the hinterlands and the independent municipalities, this results in an over-representation of people in their teens due to the late diffusion of lower fertility, while that in the early 20s is a result of students being registered at their parents' home addresses.

The Norwegian peripheries have seen fairly stable development since 1993 for the age groups above 60 (Figure 22). The two groups of centres have extended over-representation from ages up to 40 years in 1993 to those up to 50 years in 2003, and increased their over-representation of children. The continuation of the over-representation of cohorts born in the 1970s is important for this development. The different elderly cohorts have changed their

representational level very little during the 10-year period, meaning there has been strong enough population development in younger age groups to combat a more biased elderly population structure. At the same time, the centres' development is below national level for most cohorts born after World War II. Generally, the independent centres show weaker development than the other centres, the exception being cohorts born from 1973 to 1979.

For the hinterlands and the independent municipalities, there has been fairly stable representation in age groups over 60, with the exception of reduced representations for ages above 90. At the same time, the different cohorts increased their representation, meaning the total population is decreasing. Even though the representation of children continues to be high in Nordic terms, there is a deficiency developing compared with the national situation, where we see that childbirths today are shifting towards the central parts of Norway. This is partly explained by a loss of up to 30 per cent of the 1993 inhabitants in cohorts born in the 1970s.

Iceland

The Icelandic population has a very young age structure (Figure 23), the only over-represented ages among the pensioners being those well into their 90s, where numbers are low and linked to the very high life expectancy of the Icelandic population. As at the national level, the two types of periphery show an over-representation at ages below 25 and between 40 and 50, and an under-representation above this age and for most cohorts between 25 and 40. There are

Figure 22. Norway: Age structure 1993: National average and types of periphery. Index, Nordic average = 100

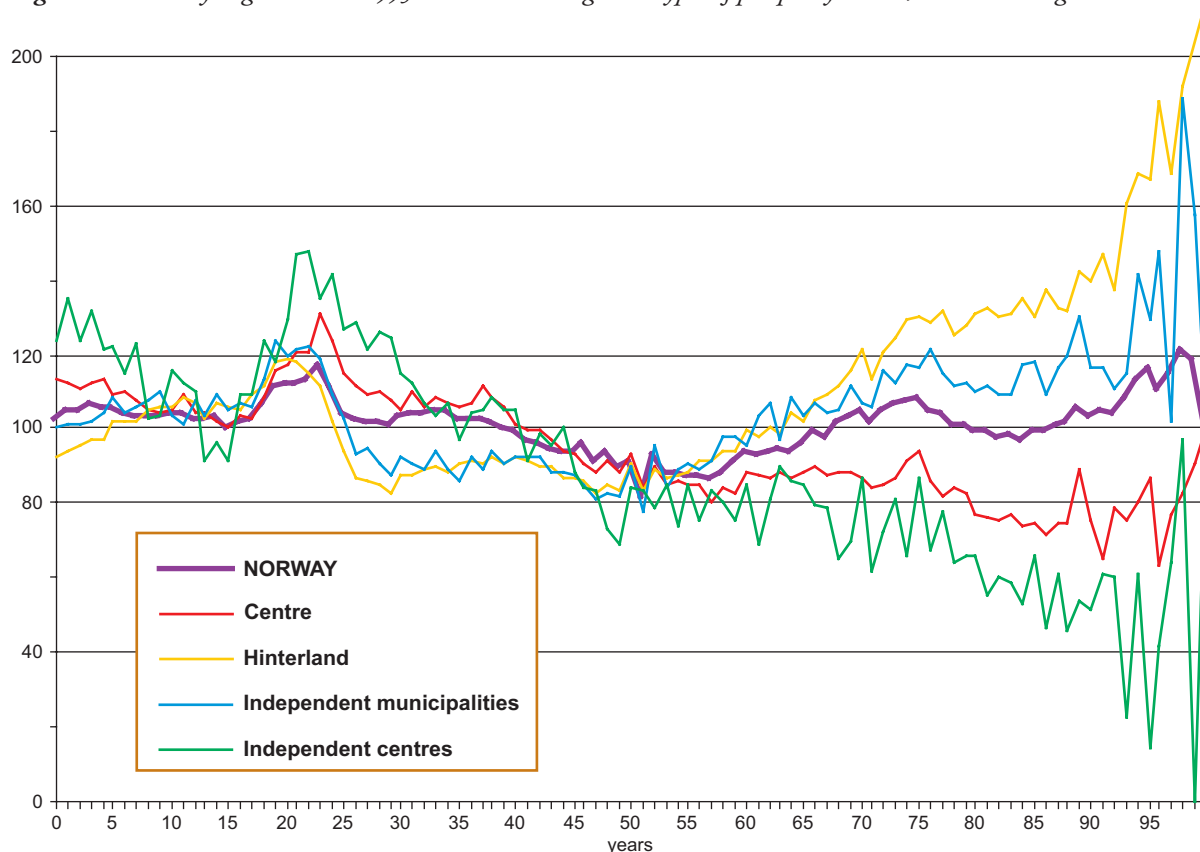
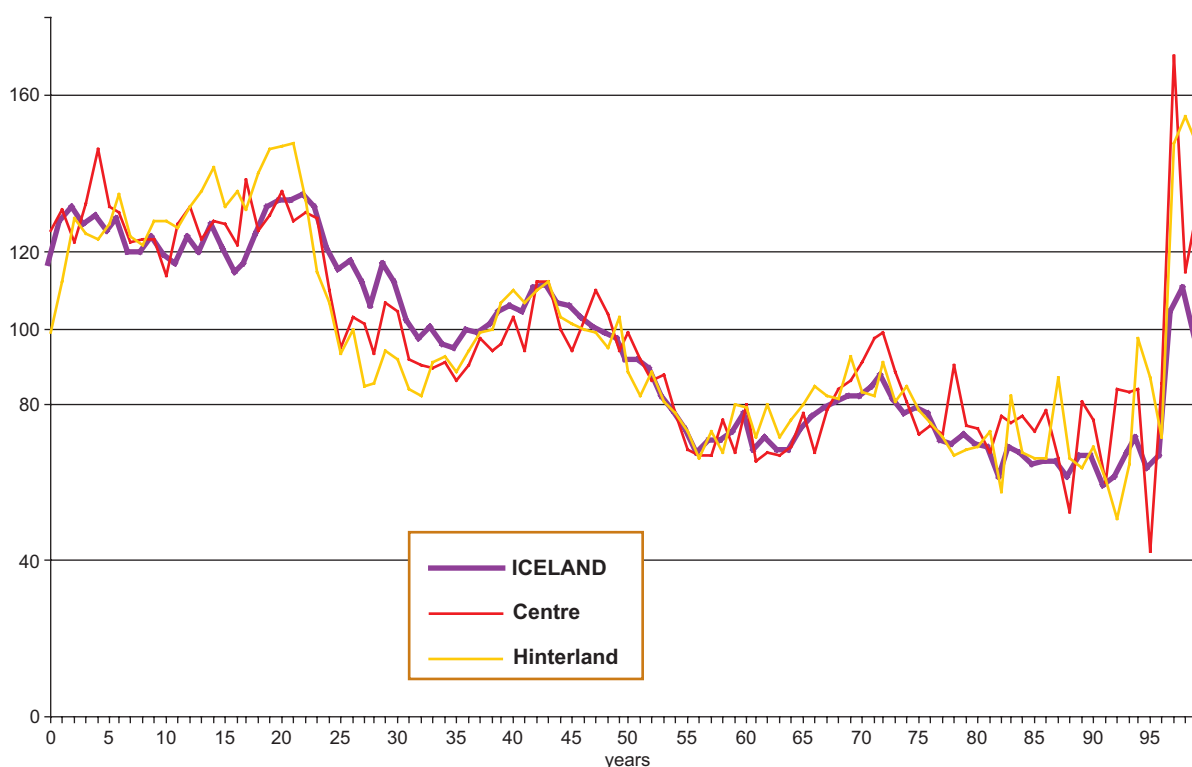


Figure 23. Iceland: Age structure 2003: National average and types of periphery. Index, Nordic average = 100

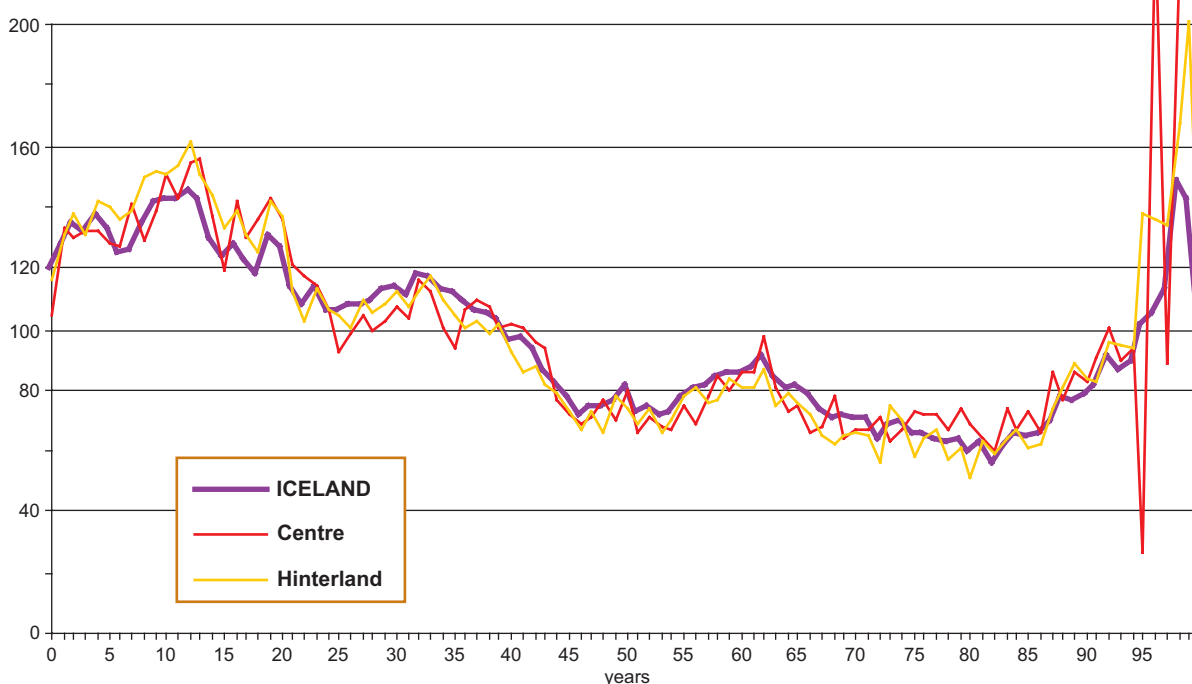


only small differences between the centres of the periphery and the other periphery municipalities, but there are lower representations for the hinterlands at ages from the mid-20s to mid-30s. In addition, the centres are below the national average for this age group. When compared with 1993, this tendency can neither be seen for this age group nor for the cohorts, then 10 years younger.

Consequently, the new cohorts joining the labour force

seem to be more centralised. The loss since 1993 (Figure 24) in cohorts born in the 1970s is more than 30 per cent for the hinterlands and 10 to 20 per cent for the centres of the periphery. The higher fertility in the periphery still means that children are slightly more over-represented here than in Iceland as a whole, and by an impressive 30 to 40 per cent compared with the Nordic average.

Figure 24. Iceland: Age structure 1993: National average and types of periphery. Index, Nordic average = 100



The drop in levels for those born in 2002 can be a first indication of changes towards lower representations, resulting from the under-representation of new cohorts joining the work force.

There is a tendency for cohorts above age 60 to be over-represented compared with the national level, meaning that there is a slightly more marked ageing in the periphery than in central Iceland. The general picture is of a comparatively young population by Nordic standards, but one in which this difference is decreasing. Compared with the relative situation of the peripheries of the other Nordic states (as opposed to countries), the Icelandic periphery (together with the Nordic centres) has the lowest level of pensioners. At the same time, the hinterlands have lost about 15 per cent of cohorts born since 1993, giving a balanced loss for all ages except those mentioned earlier. The centres have gained a bit, compared with Iceland, for cohorts born in the decade up to 1993, but are losing numerically for cohorts born in the 70s.

Faroe Islands

The Faroe Islands have a young population (Figure 25), especially in the hinterland. Since this is a nation where cohorts above their mid-20s are on or below the Nordic average, the divergence from the national average is not large enough for any municipal type to make them into ageing cohorts on a Nordic comparative scale. The centres show approximately the same age bias as the independent municipalities. The independent municipalities, which can be regarded as the most peripheral, show the common

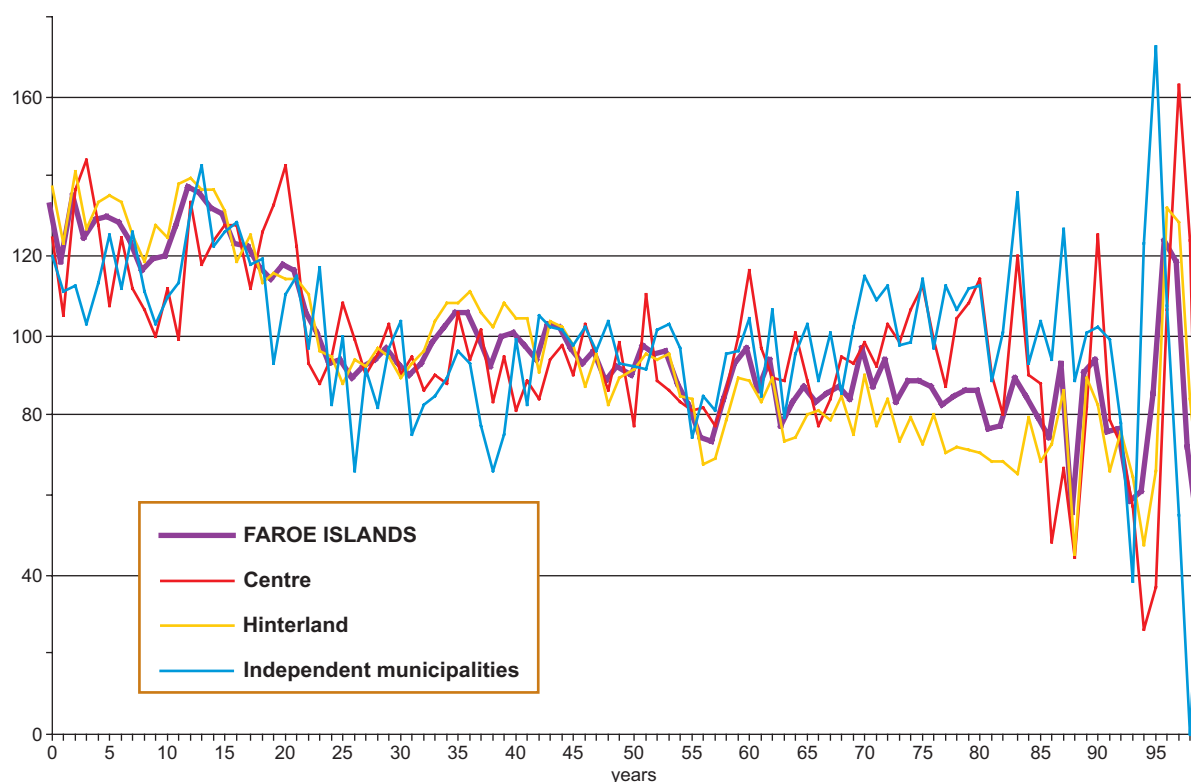
pattern of being the most under-represented for cohorts of reproductive age, weakening their relative position when it comes to children compared with the islands as a whole, even if they are still over-represented on a Nordic scale. The position of the hinterland differs between cohorts, there being few people in each, but cohorts above 40 are represented above Faroese levels, close to Nordic levels and mostly above them for ages 70+.

The hinterlands have the highest representation of children, the highest of people in their 30s and early 40s, and the lowest of the elderly. They are under-represented at ages above 44, indicating a very young population. The centres have representations between that of the independent municipalities and the hinterland, generally having representations above the national average for above age 50.

Greenland

The regional comparison for Greenland is between the municipality Nuuk, Greenland's capital, and the rest of the country. As these municipalities cover large territories featuring numerous small settlements, a typology based on intra-municipal categories could probably have given us more marked differences. However, the basic pattern would still hold true; the population of both Nuuk and the rest of Greenland is very young compared with that of all the other Nordic countries (Figure 26), and compared with the rest of Europe for that matter. For both the independent municipalities and for Nuuk, ages over 50 are under-represented, and ages over 70 are under-represented by at least 40 per cent. The cohorts of reproductive age are

Figure 25. Faroe Islands: Age structure 2003: National average and types of periphery. Index, Nordic average = 100



more over-represented in Nuuk than in the rest of Greenland, but less so when it comes to children. This means that Greenland demonstrates the traditional picture of lower fertility in the most central parts of the country. In the independent municipalities, there is currently the same

under-representation of cohorts in their mid-20s to early 30s that is often found in peripheries, a tendency for Greenland at large, but less so for Nuuk.

When comparing this with the situation in 1993 (Figure 27), we find the same situation for the same cohorts,

Figure 26. Greenland: Age structure 2003: Greenland average and types of periphery. Index, Nordic average = 100

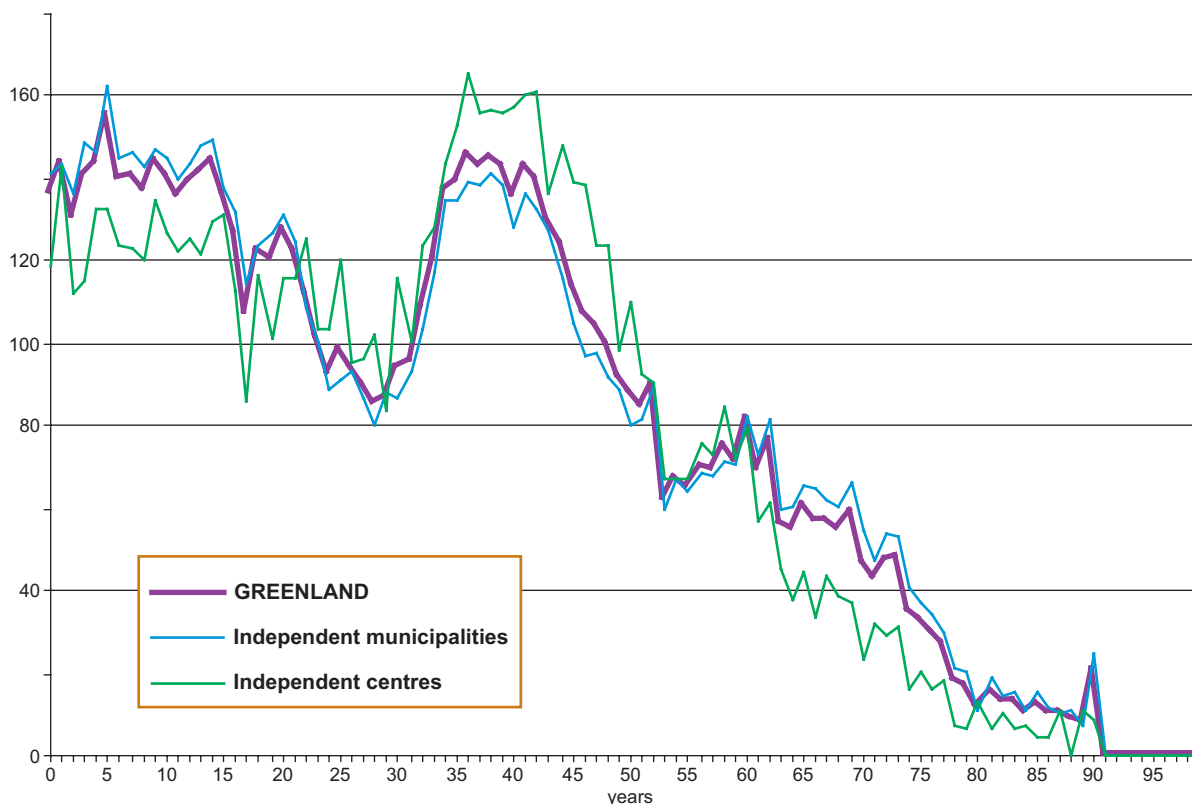
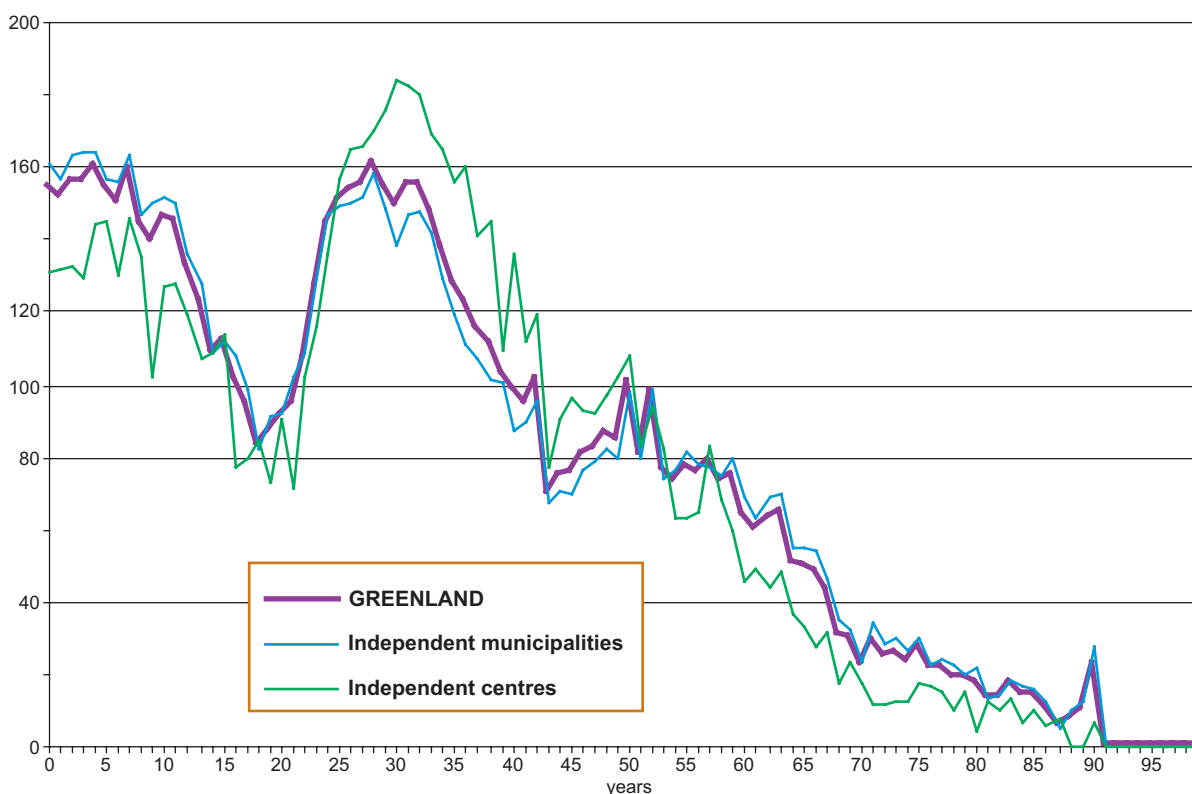


Figure 27. Greenland: Age structure 1993: Greenland average and types of periphery. Index, Nordic average = 100



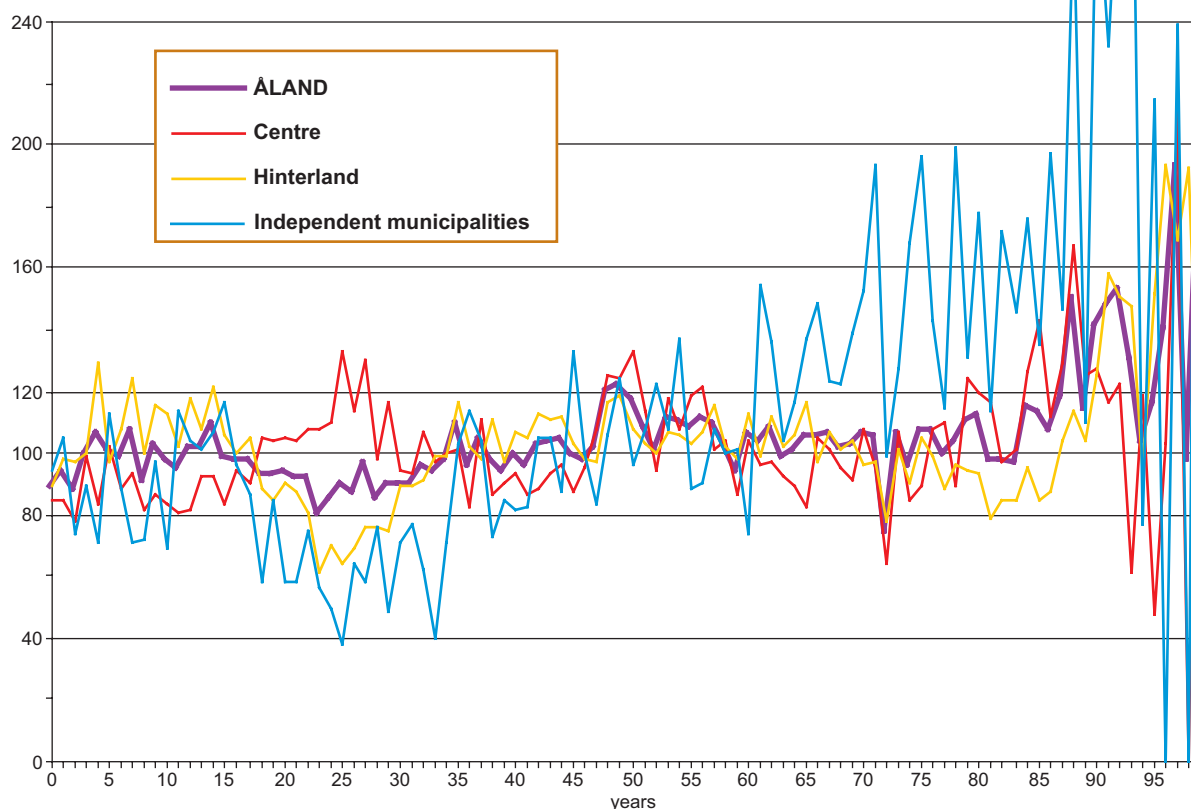
which does not primarily indicate the traditional periphery problem associated with losing young adults to more central regions. This kind of centralisation does, however, exist. Nuuk is clearly gaining while the rest of Greenland is losing inhabitants of different ages, especially those in their early 30s. The population bias of Greenland is changing. The small cohorts of old age are gradually disappearing, bringing younger cohorts closer to Nordic representational levels. Even so, the new cohorts are large enough to bring representational levels down for older ones. At the same time, there is a redistribution of population towards Nuuk at ages up to about 40, reducing these cohorts by about 10 per cent in 10 years. Since 1993, Nuuk has had up to 60 per cent growth in cohorts born in the 1970s. This gain is partly a result of positive migrational balances with other countries.

Åland

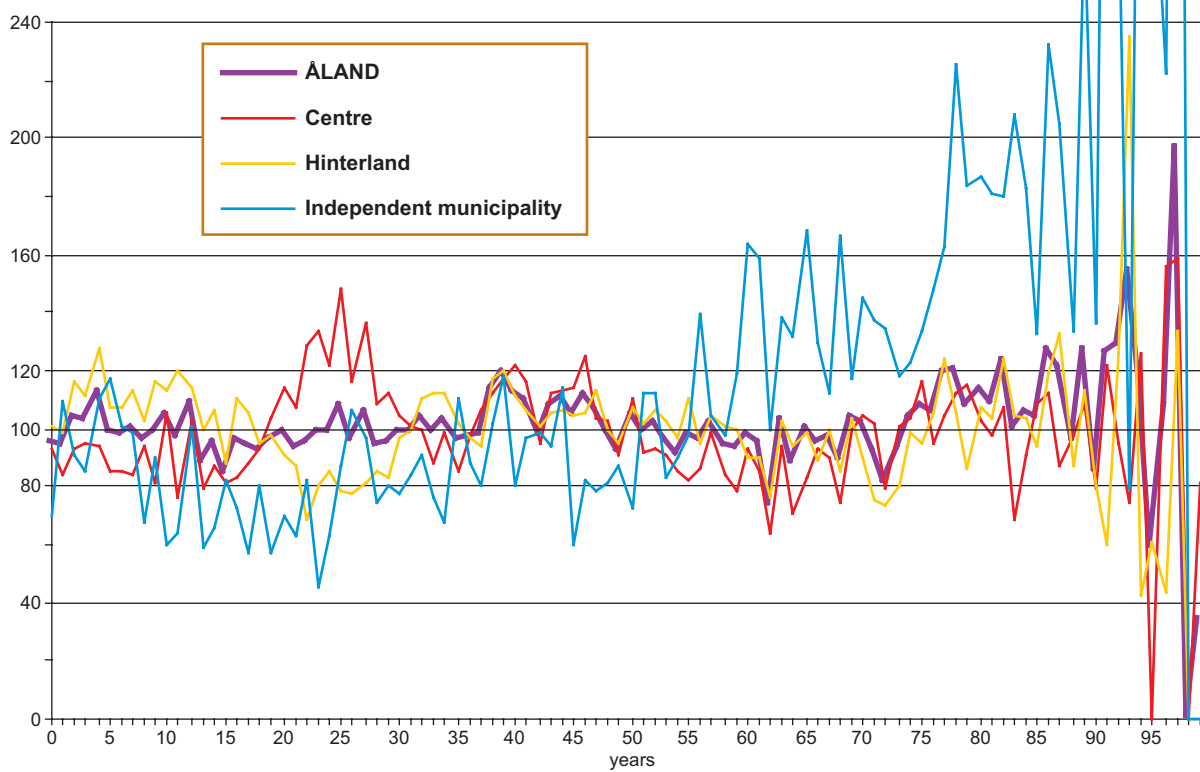
For Åland, the independent municipalities show a bias towards older age groups (Figure 28 and 29), where we find a

higher level of ageing in this periphery type than in the other countries. At the same time, they are severely under-represented in cohorts from 18 to 34, also resulting in under-representation for most cohorts of children. Mariehamn (centre) and the hinterland also differ markedly from each other. The hinterland's under-representation of the age group in the 20s is once again typical of peripheries, but there are tendencies for this now also to turn into an under-representation of the youngest children. For ages 35 to 70, the hinterland generally has over-representations and small under-representations in the age group 70 to 90. The centrality of Mariehamn is shown by its over-representation of inhabitants in their 20s and early 30s. The under-representation for the upper part of the reproductive ages also makes children somewhat under-represented.

Figure 28. Åland: Age structure 2003: Åland average and types of periphery.
Index, Nordic average = 100



*Figure 29. Åland: Age structure 1993: Åland average and types of periphery.
Index, Nordic average = 100*



6.5 Conclusions

Given the delimitation we have used for the periphery, there are very marked differences in age structure between the different territories within each national periphery. Some regions show a marked over-representation compared with the national level, others a marked under-representation. For younger age groups, the bias seems more confused. All in all, the periphery became relatively more aged from 1993 to 2003.

The main feature of the national peripheries of the Nordic countries is, however, not over-representation of elderly when compared with the Nordic age distribution but, rather, under-representation in life stages linked to reproduction or, in other words, a negative representation for people in their 20s and 30s.

As regards representation of the elderly, two main patterns emerge: one western for Iceland, the Faroe Islands and Greenland (ages over 50 years are under-represented) and one eastern with over-representation for at least parts of the elderly population, but where Finland has a very low representation for those above age 80.

There is to some extent a centre-periphery pattern within the periphery when it comes to age biases. The pattern is, however, more complicated in that the more peripheral a municipality, the more pronounced the pattern of ageing.

The independent municipalities are the most peripheral within the periphery. Where we have defined this type of municipality, it is usually the one where representation of the elderly is highest today, but in Norway the hinterlands are somewhat more aged than the independent municipalities. At the same time, this periphery type is one of the two with the lowest representation of people of reproductive age (the other usually being the hinterland). The situation has generally deteriorated for the independent municipalities since 1993.

The hinterland has been so named in this project because the municipalities surrounding a centre in the periphery often show a development very different from that expected in suburbs. While suburbs are integrated into towns by, for example, citizens commuting, and often have positive migration balances with towns when it comes to families with children (migration to gain better environmental and residential conditions), the hinterlands of towns in the periphery recruit many of the cohorts as they are about to enter the labour market by migration, distances being too great for commuting. In this way, the centres create ageing by redistributing younger cohorts, tilting

the bias to over-representation in older cohorts and under-representation in younger ones.

This is only part of the picture. In Finland, the hinterlands do quite well, functioning more as demographic partners of the centres than in the other countries. Thus the hinterlands seem to occupy two different positions: one where they primarily, in demographic terms, deliver population to the regional centre and gradually develop a very old population through losses in the young adult population, and one where the hinterlands lose youth but regain much of the loss later as families choose the qualities of the hinterlands for the upbringing of children. These issues will be discussed in more detail in the next chapter.

One factor in this picture is the long-term consequence for the centres of the periphery. The centres are dependent upon having a demographic migration pool wider than their hinterlands, as we have seen that the hinterlands have difficulties with the size of cohorts if reproductive age, ageing being the result of deficiencies at lower ages. This means the continued growth of the centres will to some extent be dependent upon territories outside the centre's own hinterland. As the independent municipalities are generally the municipality type with the most aged population, they will not be the ideal pool on which to count. The competition for population will then gradually have to be entered into with the central parts of each country. The future is less bleak for centres with a more balanced development in their hinterlands.

The centre type generally has the youngest population within the Nordic periphery, combining lower representation for the older population with the best representation for the reproductive stages. There are marked differences between the centres and the independent centres where such differentiation has been made. In both Sweden and Finland, the independent centres are developing a pattern very much the same as that associated with the most peripheral municipalities, leaving the centres as the only relevant ones for a positive demographic future. In Norway, however, the independent centres do very well, but only two municipalities fall within the category: Alta, one of the fastest growing municipalities in Norway, and Sør-Varanger, the municipality in Finnmark County that has the most balanced demographic age structure.

One of the consequences of the centralisation of the Nordic population is a change towards a larger share of children being born more centrally.

7 Regional demographic prospects – natural growth potential

7.1 Prospect analysis as a method

Prospect analysis shows the natural growth potential (the growth impulse caused by differing cohort sizes) of a population. Using this method, we elicit information on relative change at single ages if a younger cohort duplicates into the future the known demographic changes of a reference cohort. The difference in the ages of cohorts compared with each other equals the number of years we look into the future. When the size of succeeding cohorts declines, we call the phenomenon natural growth deficiency. The *regional* variations in waves of this type are due to combinations of changing fertility rates and migration up to the cohorts' current age.

The prospects are based on data gathered on 1 January 1993 and 1 January 2003. We will study the prospects for cohort sizes in 2013 expecting, for example, the size of the cohort 20 years old in 2003 to change identically, in relative terms, during the 10-year period ending in 2013 to what we have seen for the reference cohort aged 20 in 1993, until 2003. The changes that should be copied by the younger cohort are shown graphically and discussed in this work as population changes of cohorts from 1993 to 2003. The prospects do not take into consideration that some cohorts may be delayed in their passage from one life stage to another, which will most often result from the centralising migration to join the work force, and the passage to family life, with more diffuse regional patterns of migration to gain good living conditions for children.

Using 10-year prospects will result in large differences in the numerical development at the different ages, as 10 years represent somewhat less than half a generation. This means we will see trends from very different parts of demographic waves in countries where these exist; 25-year spans would have yielded far fewer dramatic changes but would also have stretched the method further than is methodologically prudent.

As we extrapolate the relative change in a given age from a reference point to a future prospective time, we

should bear in mind that the development we see when, for example, one type of periphery has the strongest growth at several ages, does not mean that this type of periphery is the most aged, merely that it has a stronger relative development at these ages. A region or type of municipality can show far more dramatic relative development at ages at which representations have been low than when they have been high.

The changes to be copied by the younger cohort are shown for the reference cohorts in our discussion of population changes for single cohorts. For the cohorts, the greatest regional effects will be in life phases concerned with establishing independent lives through education and work, and starting families. In the relevant life stages, from about the age of 20 until the mid-30s, the prospects will probably be less accurate than for the older cohorts, as cohorts do not copy reference cohorts precisely and the level of exactness is greater for ages where less migration takes place. For ages over 60, mortality will start reducing the cohorts quite strongly, but this will not have any major impact during a 10-year period.

The pattern that will be seen in the prospects for 2013 will be very close to the changes between the same cohorts from 1993 to 2003. The major differences will be the existence of those cohorts unique to the picture of development between the two years (since they are either new young cohorts or cohorts too old to be part of other graphs). In other words, the graphs primarily show how the different sizes of cohorts change the number of people at any one age and how this influences the size of the population in different life stages. It provides a good illustration of how the large post-war cohorts can, through their size, explain demographic changes as they move into different life stages (e.g. the number of births in the reproductive stages). It also shows the importance of looking at cohorts rather than at the mere size of cross sections.

7.2 Population changes for cohorts 1993–2003

As mentioned, the prospects are based on cohort changes from 1993 to 2003. Before we look at these prospects for different ages, we will therefore look at the cohort changes for the reference cohorts for the decade up to 2003, as these are the changes the younger cohorts are expected to copy. At the same time, this enables us to project development according to life stages and, potentially, also according to time periods.

With no migration occurring, every cohort should become at least fractionally smaller in a decade, and increasingly so with the age of the cohort, the reductions in 10-year terms reaching 10 per cent for cohorts approximately 60 at the start of the decade. Growth in the number in a cohort indicates that the periphery type has a migration surplus that more than compensates the cohort's mortality.

The pattern created by the graph that shows changes for each cohort born from 1905 to 1993 (for Greenland, 1915 to 1993) is much more even than the graphs that show prospects at certain ages (see the chapter on prospects). To some extent, however, we find that major changes are not contingent on mortality. This will usually be most pronounced for cohorts now in their 20s and 30s, concerned with higher education, getting established in the labour force and starting families. This often means that losses for the older cohorts are more severe than for younger ones because the older ones are decreasing from a level already subject to attenuation. Periphery types losing large shares

in cohorts of young adults need to grow in subsequent cohorts to compensate for their losses.

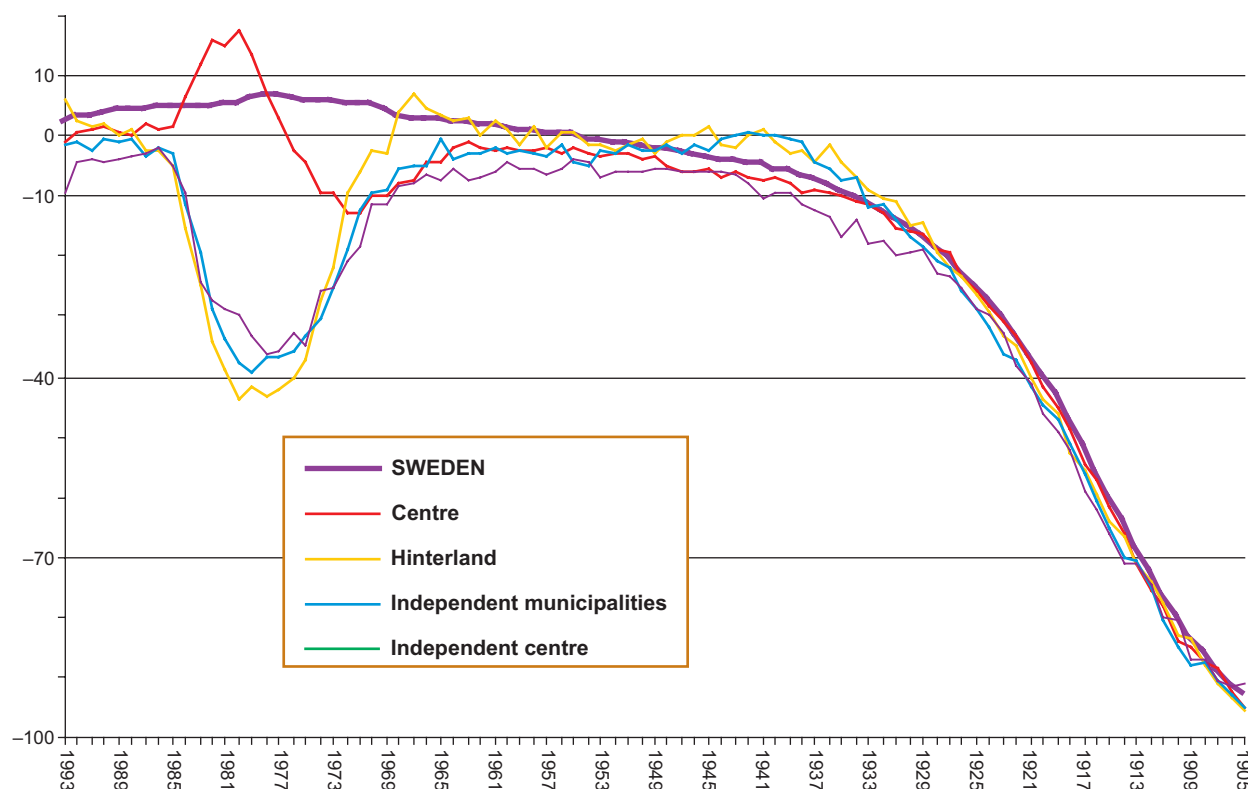
A periphery type showing less shrinkage in cohorts where mortality takes its toll than at the national level indicates a migration surplus for the relevant age span in the periphery type rather than differences in life expectancy.

Sweden

Contrary to what one would assume, the hinterlands seem at first glance to have the best development for almost all cohorts born before 1930, the major exception being for those born from 1971 to 1987 (Figure 30). However, the losses in the younger cohorts mean the population is actually ageing. With the pattern of change for these cohorts being reproduced over the years, the small growth for cohorts born in the 1960s mean that only a fraction of earlier losses are offset. Consequently, we primarily see a pattern where major losses in the new generation of adults are not compensated for and there is, therefore, greater ageing. This is reinforced by two other cohort changes. First, the migration of parents reduces the number of cohorts of school age. Second, we find a very interesting pattern of migration to the independent centres and to the hinterlands for cohorts born in the 1930s and 1940s, meaning the drop in cohort size has been postponed for about 10 years compared with Sweden as a whole.

The independent municipalities experience cohort

Figure 30. Sweden: Per cent population change 1993–2003 by year of birth. National average and types of periphery



changes similar to those of the hinterlands, but with fewer losses for cohorts born in the 1970s. However, some losses compared with the national level continue for cohorts going back to the 1950s, meaning there is never any compensation for losses in the new generation of adults either numerically or relatively. This is mirrored by small losses in the youngest cohorts. As in the hinterlands, ageing is reinforced by net positive migration in most cohorts born in the 1930s and 1940s.

The independent centres show a different pattern to those discussed above, even though they look much the same at first glance. The similarity to the patterns we have seen refer to the ageing of a population by losses in the new generation of adults, but with this periphery type for all the cohorts born after 1930 during the past decade. In other words, the pattern is one of population decline at all ages combined with movement towards older age groups caused by losses in the new generation of parents.

For the centres, the cohort changes are quite different from what we have seen thus far. With cohort growth for the 16 youngest cohorts, and above 10 per cent for those born from 1978 to 1983, the centres show a familiar growth pattern for the new generation on its way into the labour force. However, for those in a life stage where family and children are factors, there are losses comparable to the gains for the younger cohorts. The losses stabilise at up to 5 per cent below the national change for cohorts born between 1960 and 1930.

Differences among periphery types for cohorts born before 1930 are generally quite small. It is worth mentioning that the periphery types all show losses somewhat higher than the national level for Sweden.

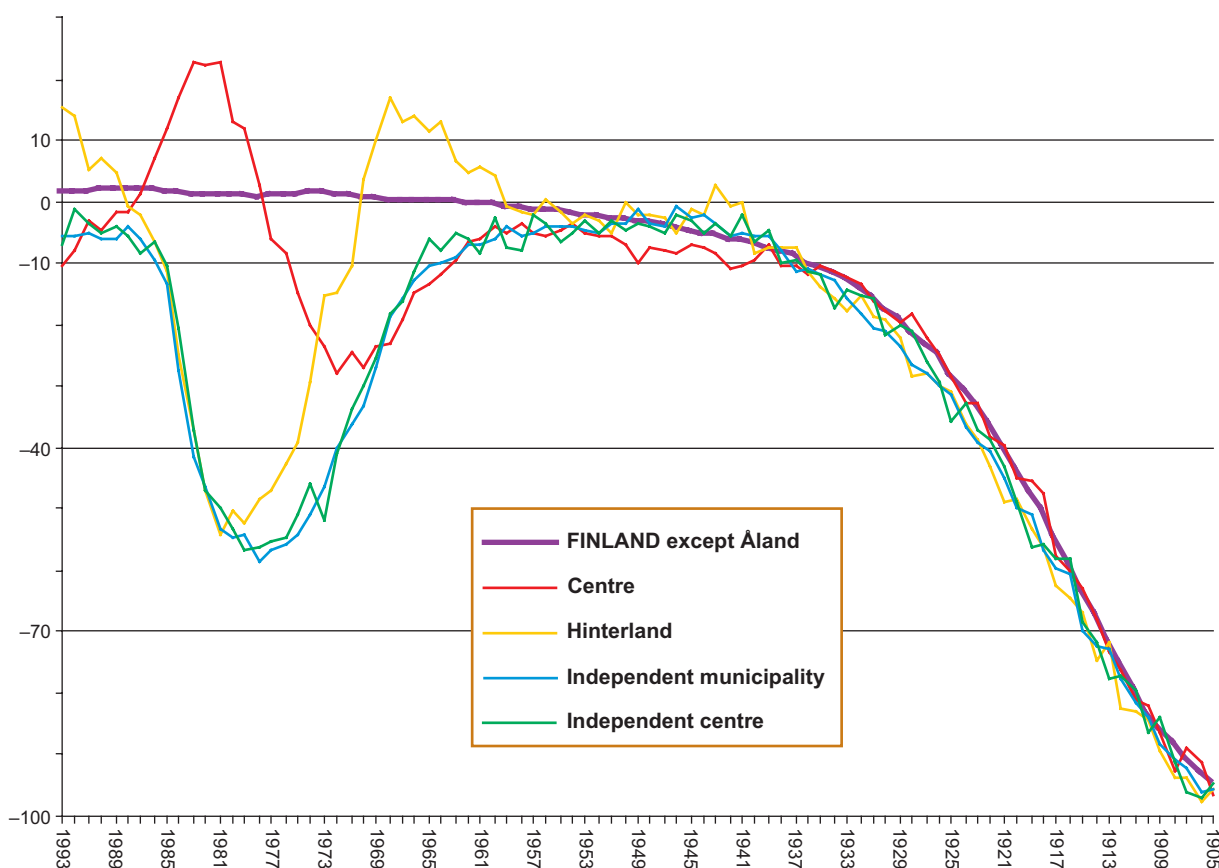
Finland

Finland exhibits a more or less extreme variation of the pattern seen for Sweden (Figure 31). Before looking at the different peripheries, it is worth mentioning that Finland has a very low migration surplus for distribution between regions, compared with Sweden and Norway. This means there is not the same surplus for distribution within the nation.

The independent municipalities and the independent centres exhibit the pattern associated with most peripheral municipalities, where the cohorts in their 20s and 30s are those with the highest losses before mortality influences the pattern. These two types of regions lose population in every cohort. Losses are small up until the end of compulsory education, but more than 50 per cent in the life stage of advanced education/early work years. Losses are large throughout the reproductive life stages but within 15 per cent in cohorts above age 35 in 2003. For cohorts born in the 1940s, the two periphery types gain fractionally compared with the national level. For older cohorts, the fall is somewhat larger than for the nation.

To some extent, the hinterlands demonstrate the same pattern as the two categories of independent municipali-

Figure 31. Finland: Per cent population change from 1993 to 2003 by year of birth. National average and types of periphery



ties, but there are also major differences, making the situation demographically different from that of the independent categories of municipalities. There are fewer losses for cohorts born in the 1970s, and growth for those born in the 1960s. In addition, children born in the youngest five cohorts in our comparison are increasing in number. This means there is only partial compensation for losses at other ages among the younger cohorts. Like the two categories of independent municipalities, the share of Finns born in the 1940s is increasing in the hinterlands. The losses in cohorts older than this are somewhat above the national level.

The centres show different trends when compared with the other types in the Finnish periphery, with growth in cohorts at levels below upper secondary education and the advanced education/early work stage, and where the other periphery types lose population in the cohorts. However, the centres lose population in all other cohorts, including children and cohorts in the main reproductive stages, and continue to lose, compared with the national level, for all cohorts born after 1940. The trend is close to the national level for older cohorts.

The Finnish periphery pattern, then, is one of ageing caused by losses in the reproductive stages. This is particularly true of the independent municipalities and the independent centres. The hinterlands find some compensation for losses in cohorts primarily born in the 1970s by growth of 5 to 15 per cent for cohorts born in the 1960s. This is mirrored by growth for the youngest cohorts, i.e. those born in the early 1990s and late 1980s. The centres show growth only in cohorts from 16 to 25 years of age, and later

losses are not offset by cohort growth in the hinterlands, also making the centre population grow older. For cohorts born from 1969 to 1977, all the types within the periphery show losses, demonstrating the problems of the periphery in recruiting people in the process of establishing families.

Norway

Norway demonstrates basically the same main pattern, if not necessarily the level of change for the cohorts in the hinterlands and the independent municipalities in Norway and Sweden (Figure 32). The independent centres in Norway show the same pattern as the other centres.

The comparably smaller losses for the hinterlands and the independent municipalities in Norway, compared with Sweden, may be due to differences in population registration for students, those in Norway traditionally being registered at their parental addresses. This is also indicated by the number of cohorts declining by more than 10 per cent in Norway (migration has not traditionally been registered for cohorts before the termination of education). There are marginally fewer losses in cohorts born from 1930 to 1945 in the hinterlands compared with the national level, and the differences are not as clear as in Sweden's peripheral hinterlands. In other words, migration does not have any significant impact on ageing within the cohorts on the brink of becoming pensioners. The independent municipalities have lost population in all cohorts born after the war, and by at least 5 per cent even for the very youngest, indicating a centralisation of children's national distribution.

Figure 32. Norway: Per cent population change from 1993 to 2003 by year of birth. National average and types of periphery

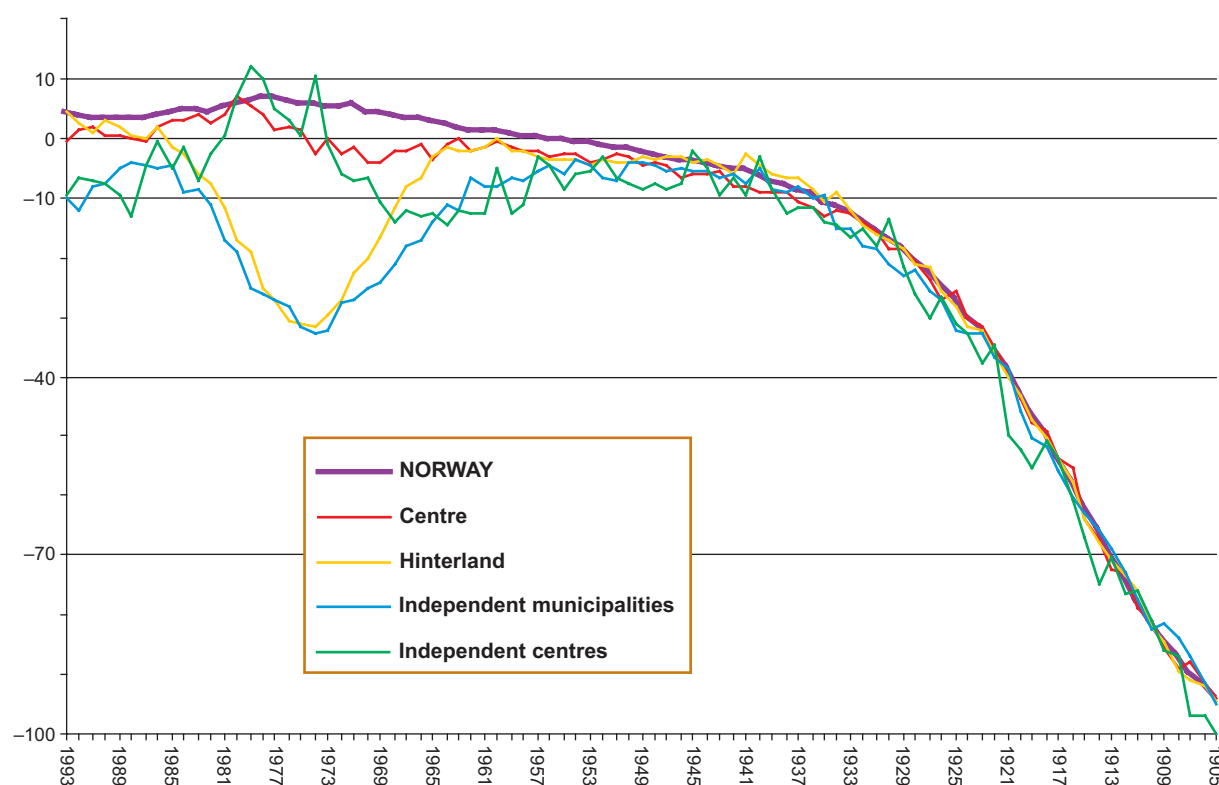
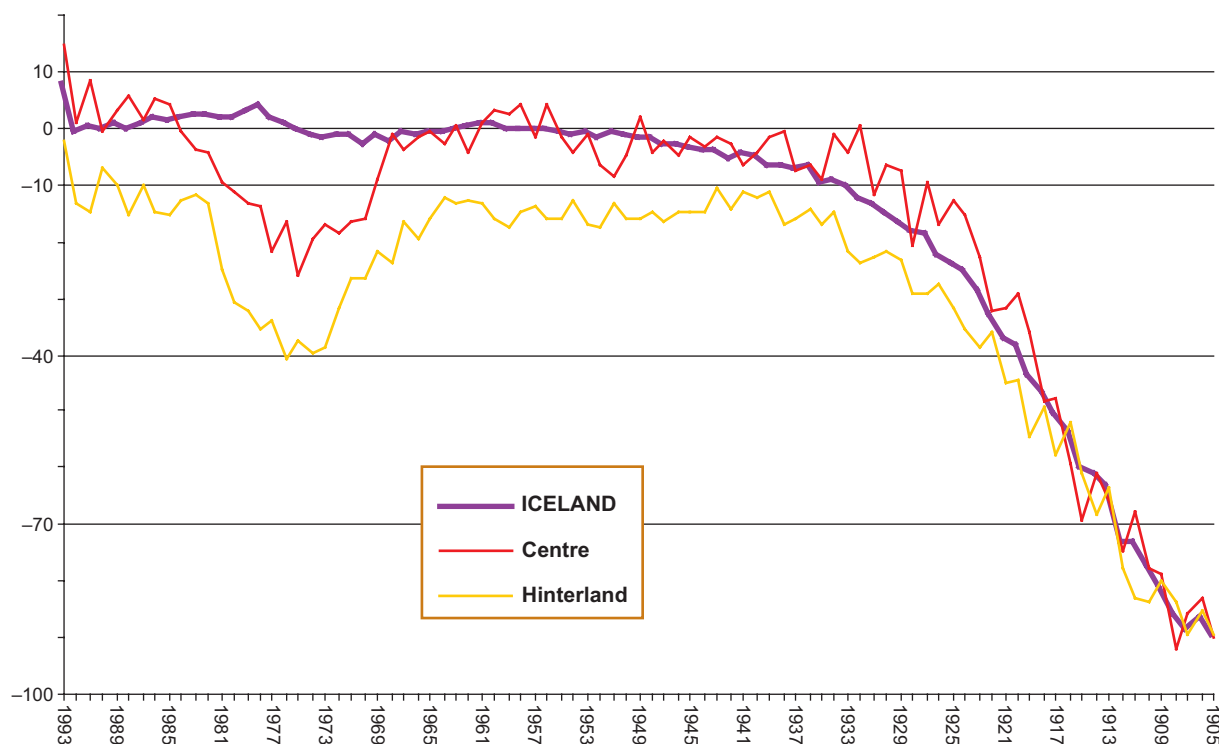


Figure 33. Iceland: Per cent population change from 1993 to 2003 by year of birth. National average and types of periphery



The independent centres (including Alta, one of the fastest growing municipalities in Norway) have seen growth for cohorts born from 1972 to 1981. At the same time, the cohorts they have replaced in age have been decreasing faster in 10 years than the growth of the 1972 to 1981 cohorts. As one might expect, the number of the very youngest has declined by 5 to 10 per cent, reducing the peripheries' share of Norway's children. One should remember that these are changes in a very young population, and that they only weaken the biases towards young age groups. The reductions are larger than at the national level for groups of pension age. Higher mortality rates in Norway's northernmost county of Finnmark compared with the rest of Norway are important, since the independent centres are located within the borders of this county.

The centres have a pattern of cohort change similar to the national pattern, but growing less by migration than the nationwide standard in cohorts born after 1974. Later cohorts are slightly smaller, meaning the entire growth in cohorts born from 1960 to 1974 are outside the periphery (which does not mean the centres of the periphery have not gained from international migration). These changes are quite small, however, and do not change the fact that these cohorts are well represented in the centres of the periphery compared with the Nordic level.

Iceland

The Icelandic pattern shows quite significant changes by comparison with the national average development for most cohorts (Figure 33). The hinterlands show negative development, decreasing for almost every cohort by more

than 10 per cent. At the same time, the evenness of change for cohorts born subsequent to 1930 means that these changes will not be seen clearly when comparing age biases for 1993 and 2003. The cohorts born from 1972 to 1980 have shrunk at by least 30 per cent. As losses are significant for cohorts beyond this age, there is no compensation for these losses within age groups of reproductive age. This is one of the clearest examples of centralisation in our material.

However, even the centres of the periphery lose at least 10 per cent in the cohorts born in the 70s, and some lose up to 25 per cent. At the same time, the number of children increases in the youngest cohorts, mirrored by stable levels for cohorts born before 1970. There seems to have been a net migration to the centres for cohorts born prior to 1940, showing that even if migration in these ages is numerically low, they can be very biased towards immigration or emigration. Basically, we see a weakening of the periphery, with the aged gaining prominence.

Greenland

Greenland, with its very young population, is very different from the other nations (Figure 34 on next page), not only because of other patterns for changes during a decade in the cohorts born after 1930, but also because higher mortality reduces the older cohorts much more during a 10-year period. In Greenland, the centre has much stronger growth than in the other nations in cohorts born from 1965 to 1980. This may partly be because the centre is actually the capital of Greenland. At the same time, the loss in cohorts born from 1930 to 1945 is even larger than in the rest of Greenland, creating an even younger age profile.

The independent municipalities do not exhibit the periphery cohort changes seen in the other countries, but most cohorts are reduced by at least 10 per cent. This is a change that is only marginally less than that of Greenland, indi-

cating some centralisation on the island and, at the same time, negative net migration. The exception for Greenland is in cohorts born in the first half of the 1970s, which have grown slightly, as opposed to the basic periphery pattern.

Figure 34. Greenland: Per cent population change from 1993 to 2003 by year of birth. Greenland average and types of periphery

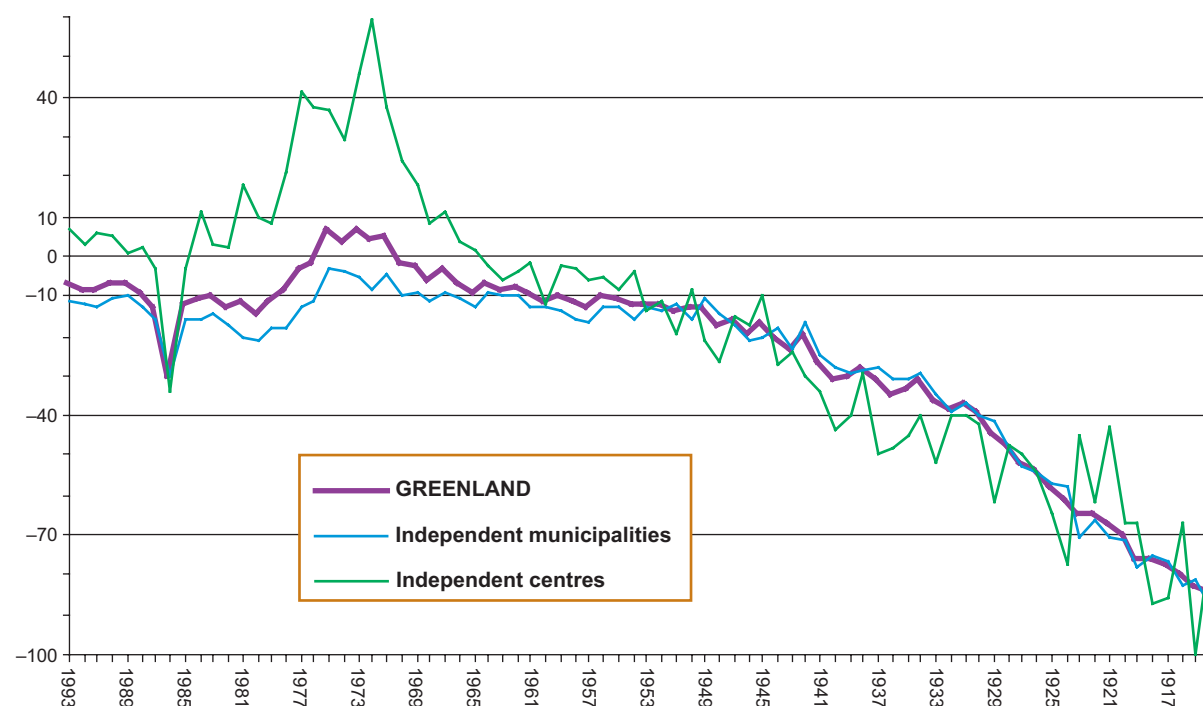
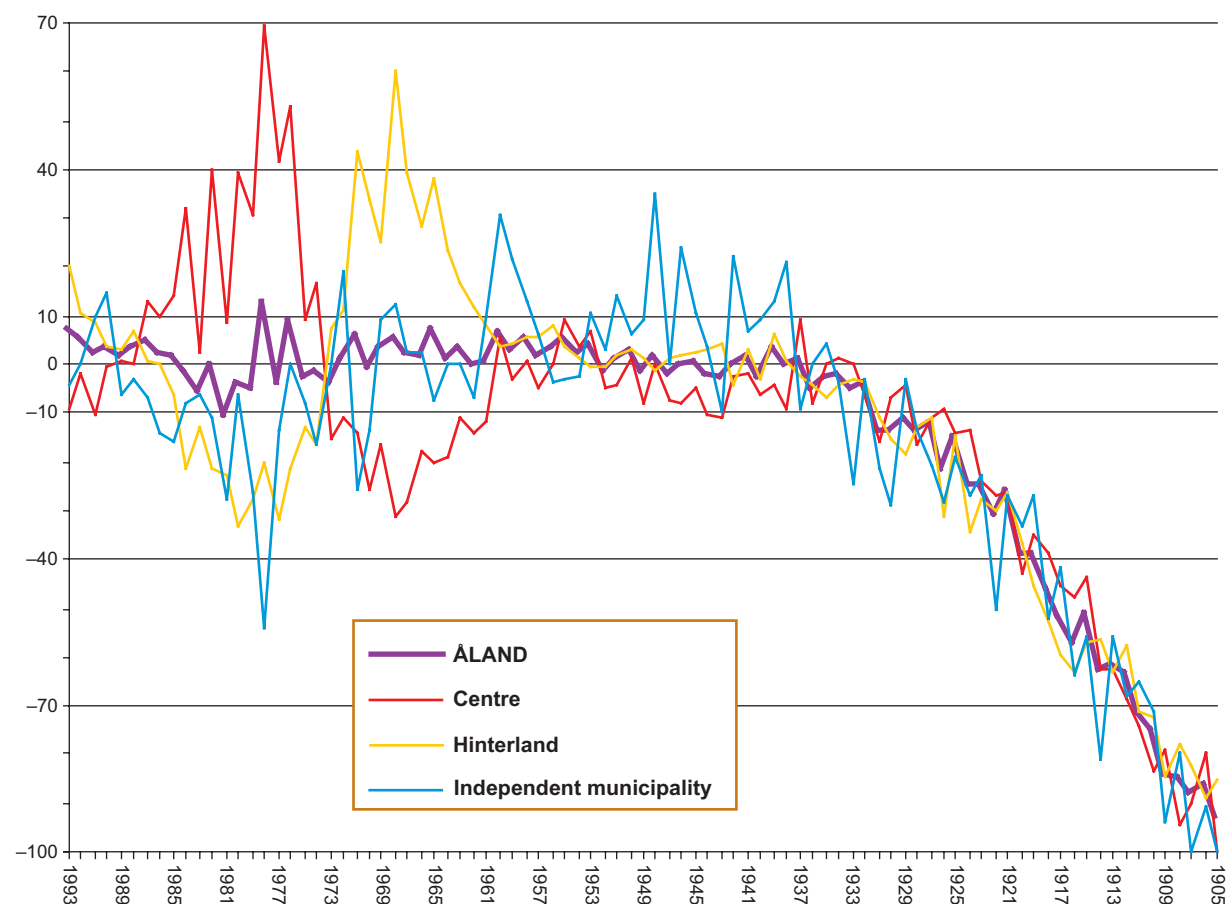


Figure 35. Åland: Per cent population change from 1993 to 2003 by year of birth. Åland average and types of periphery



Åland

As one might suspect, the Åland patterns differ from the rest of Finland and are influenced by the fact that the entire country falls within the periphery (Figure 35). The centre's relationship to its hinterland looks like the relationship between a centre and its suburbs. This means the centre gains in youngsters taking their education and entering the labour force, while the surrounding municipalities grow when families are being established. What we see, then, is growth in cohorts now undergoing upper secondary education and cohorts in their 20s in the centres, followed by losses in reproductive stages up to 42 years. At older ages, the level is about the same as in Åland as a whole.

The hinterlands, on the other hand, lose up to 30 per

cent in the cohorts where there is growth in the centres and gain in the family stages, also influencing an increase in children. For older cohorts, there is no distinct pattern compared with the country as a whole.

As is usual for the most peripheral parts of the Nordic countries, the independent municipalities suffer their most pronounced losses among people in their late teens and 20s, showing no clear pattern at later ages, and mixing growth and losses. More often than not, however, the independent municipalities gain in cohorts born in the 1940s and late 1930s, giving rising numbers close to retirement age and the first few years after retirement. This, together with losses in young cohorts, tilts the population towards higher ages.

7.3 Conclusions

The common pattern for the peripheries during the last decade is for changes in cohort sizes to be relatively more pronounced in cohorts born in the 1970s and 1980s, compared with the changes on the national level. During the 10-year period, these cohorts have been undergoing education and/or have entered the labour force. They have also largely established families, or are about to do so in the near future. Losses in these cohorts are either compensated marginally or not at all by changes in other cohorts. What we see, then, is a pattern of population that shows relative ageing compared with the national level and is based primarily on children and the new generation of parents being more centralised in the national distribution. This will

also bring further ageing to the periphery. For the cohorts entering adulthood, this is generally also the pattern of previous decades.

The centres show a different trend from that of the other periphery types, even though for Sweden the independent centres follow the general pattern of the other periphery types, as do the centres of the Icelandic periphery. The other centres have growing cohorts for those born before approximately 1975, Greenland having an especially strong profile. For older cohorts, the development is not particularly strong, indicating losses. However, the growth in cohorts of young adults keeps the population relatively young.

7.4 Prospects for Nordic countries from 2003 to 2013

As the prospects for every cohort based on natural growth potential use another cohort as reference, rather than a regional level, we have included the national level in our figures to get a clearer picture of the distinction of the peripheries.

Sweden

The Swedish prospects for 2013 (Figure 38 on page 72) show distinct patterns of ageing, but the picture is quite complex. The cohorts of children we have seen to be the most under-represented in 2003 are mostly in deficit compared with their reference, with deficits averaging about 20 per cent for children 10 to 16 years of age in 2013. For youth in the upper secondary or advanced education/early work phase (17 to 27 years), we find the younger cohorts to outnumber their reference cohorts, usually by 15 to 30 per cent. Almost all these cohorts are over-represented in today's age bias (see Chapter 6). More seriously, the cohorts in the stage where reproduction and entering the work force could be regarded as factors (28 to 41) show growth deficiency, except for 41-year-olds. This indicates a weakening of the size of the next generation children provided fertility levels are constant.

The stages from ages 42 to 55 are those where children of school age grow to an age at which they eventually leave home and make their careers. For these stages, there will be a growth up to the age of 50 of 5 to 15 per cent, and a decline

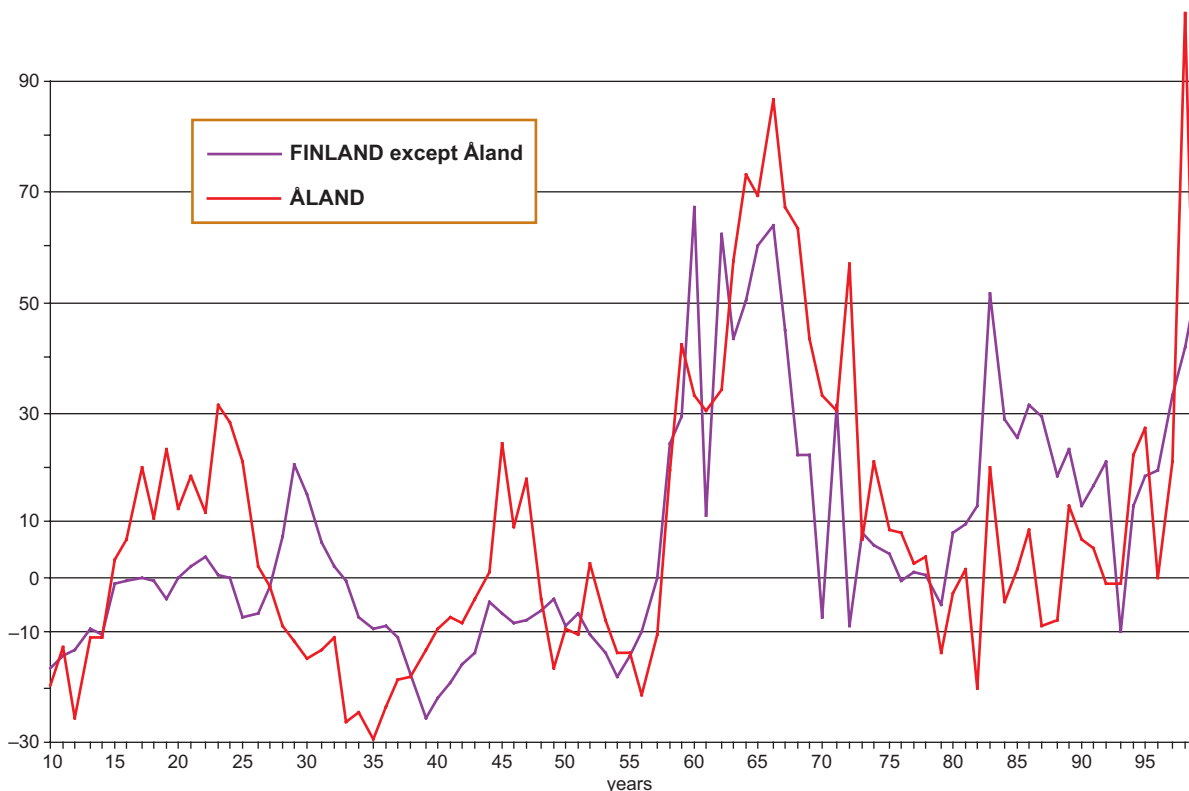
of 5 to 10 per cent thereafter. For the life stage 56 to 62 years, when many start planning their retirement years, or retire early, the ages below 60 see a reduction of about 10 per cent. The cohort that will pass 60 is part of a major wave of increasing numbers of people of an age dominated by younger pensioners (63 to 76). Those 66 years and younger are the baby boomers, while those older show the deviant pattern of high growth for countries that did not take part in World War II, and where the growth in births after the depression years following World War I came earlier than in the countries that did participate in World War II. The stages from ages 77 to 90 in 2013 are mostly stages with small cohorts born during the depression between the two world wars, and are outnumbered by the older ones. For the very oldest, over age 90, there will be growth in numbers.

Finland

Finland (Figure 36) differs from the other Nordic nations by having natural growth potential in the life stage from 28 to 34 years for 2013, but at the same time for very few other cohorts younger than 57. Growth at ages in the late 20s and early 30s will probably mean that many of the age groups of children not yet born will be larger than those 10 years older.

As for all nations, the major growth will be for the baby boom generation, bringing growth to the youngest pensioner group and to the group soon to become pensioners.

Figure 36. Finland and Åland: Natural growth potential for 2003 to 2013. Percentage



The number in their 70s will remain quite stable, while the number over 80 will grow by at least 20 per cent for the majority of cohorts. The numbers of children and young people in life stages most closely linked to education will diminish. Thus the Finnish population seems to be leaning towards higher ages.

Norway

The Norwegian prospects (Figure 40 on page 74) show a distinct similarity to the Swedish ones in wave pattern, but there are many differences in detail. Among children, only cohorts 10 to 12 years old in 2013 will experience a minor growth deficiency. Cohorts in the life stages of secondary education and college or university education will be larger than their reference cohorts (except the 27-year-olds). In the two seven-year stages (28 to 42 years), on the other hand, the new cohorts are smaller than the reference cohorts, but never by as much as 20 per cent. Still, this means the cohorts of reproductive age are generally smaller than today, making it very likely that the cohorts less than 10 years old will mainly be smaller than those at these ages today. During the two seven-year stages from 42 to 55 years old in 2013, the numbers will grow, but rarely by more than 10 per cent. Meanwhile, most ages in the next stage (up to age 62) will show natural growth, the oldest by 20 to 40 per cent. For those joining the ranks of pensioners in the next seven-year stage, growth will range from 40 to 75 per cent, the single greatest growth potential in the Norwegian population among those reaching the first stage of pensioner

life. The small cohorts born during parts of the 1920s and through the 1930s will give a growth deficiency for ages from 74 to 86. Ages above this will grow numerically, but at these ages the numbers will be relatively small. The numbers will diminish for the whole group over age 70.

Iceland

The Icelandic prospects (Figure 41 on page 75) show the country to have smaller changes in store than the other Nordic nations at ages below 50, but much the same pattern for ages above this with the largest growth potential for the post-war baby boom. For Iceland, however, the highest growth potential is found for the 1950 cohort. Unlike in most countries, almost all ages above 46 show growth, the exception being five ages in the early 70s. This means that almost all cohorts that have passed the basic stages of reproduction by 2013 will be larger than their 10 year older reference cohorts, thus showing a long period of marked ageing. As in the other nations, the growth potential is greatest for cohorts joining the ranks of pensioners around 2013, with growth of up to 70 per cent. The pensioner groups in their 80s will grow more than in the other nations.

As Iceland did not have as strong and as continuous a fall in cohort sizes born in the 1970s and 1980s as other nations, the pattern for cohorts under 50 is less uneven than in other nations, and the general picture for those in the primary reproductive stages is one of smaller deficits or growth.

7.5 Prospects for the Nordic periphery 2003–2013

Prospects for the national peripheries

Åland's prospects (Figure 36) are very different from the Finnish. The only similarity is for the almost inevitably strong growth of cohorts born after World War II, in this instance starting already with the 1940 cohort though strongest for the 1945 cohort. The level of pensioners in the seven-year stages from ages 77 to 90 will be quite stable as a group, the number of the very oldest will probably grow because of increasing life expectancy.

The reproductive stages from 28 to 42 will decrease by 10 to 30 per cent, which will also bring ages 10 to 15 down by about 20 per cent. The ages undergoing upper secondary and college/university education will, however, grow by about 20 per cent on average. Career-oriented cohorts aged 42 to 48 will mostly grow in number, unlike the stage up to 55 years, which will decline. The general picture, then, is one of mostly stable numbers over age 70, of very steep growth for the youngest pensioners and for people in their 60s as a whole, and a deficiency for groups where most of the parents of the children in 2013 will be 28 to 41 years of age.

The Faroe Islands' (Figure 37 on next page) graph for natural growth potential resembles that of Åland, with losses for the life stages most important for reproduction (28–41), growth in life stages oriented towards work career (and especially for cohorts in their 60s, i.e. the post-war baby boom once again), and a fairly stable number of people in their mid-70s to about 90, the growth potential for the very oldest being high because of the increase in life expectancy. The reduction in ages 26 to 44 brings down the number of children younger than 15, while the numbers increase from 16 to 26 years of age.

Prospects at the intra-peripheral level

The prospects of the different Swedish periphery types (Figure 38 on next page) show basically the same graphic pattern as the national graphic pattern, but result in very different developments. The changes are quite substantial, with the total span between growth and deficit being larger than at the national level.

Generally speaking, the peripheries show slower growth, or larger deficits, than Sweden for life stages below

age 76, the pattern for older stages being quite mixed. In other words, we see a weaker natural growth potential than the national one. We have already described the development for Sweden, where there are cycles of growth defi-

ciencies and natural growth. For the peripheries, however, growth is primarily to be found in ages above 60 years, the only exception for most periphery types being in the life stage of advanced education and early work experience (21

Figure 37. Faroe Islands: Natural growth potential from 2003 to 2013. Percentage

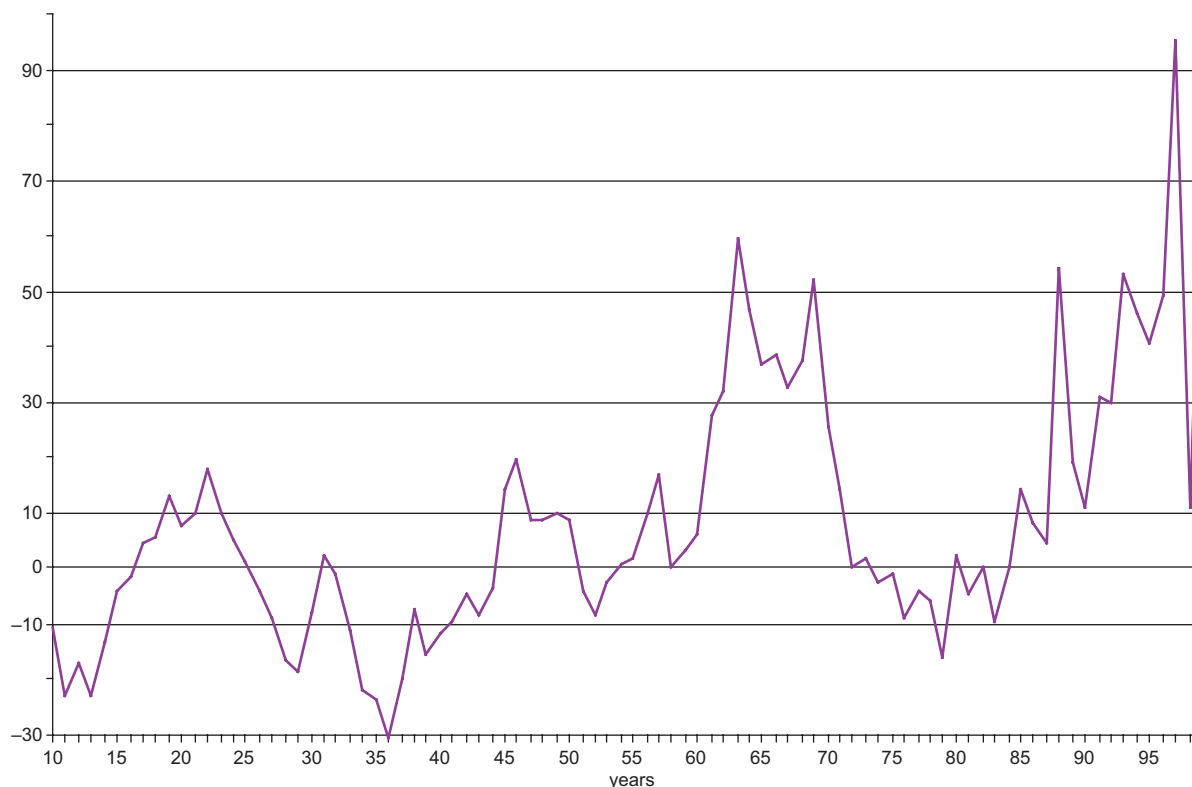
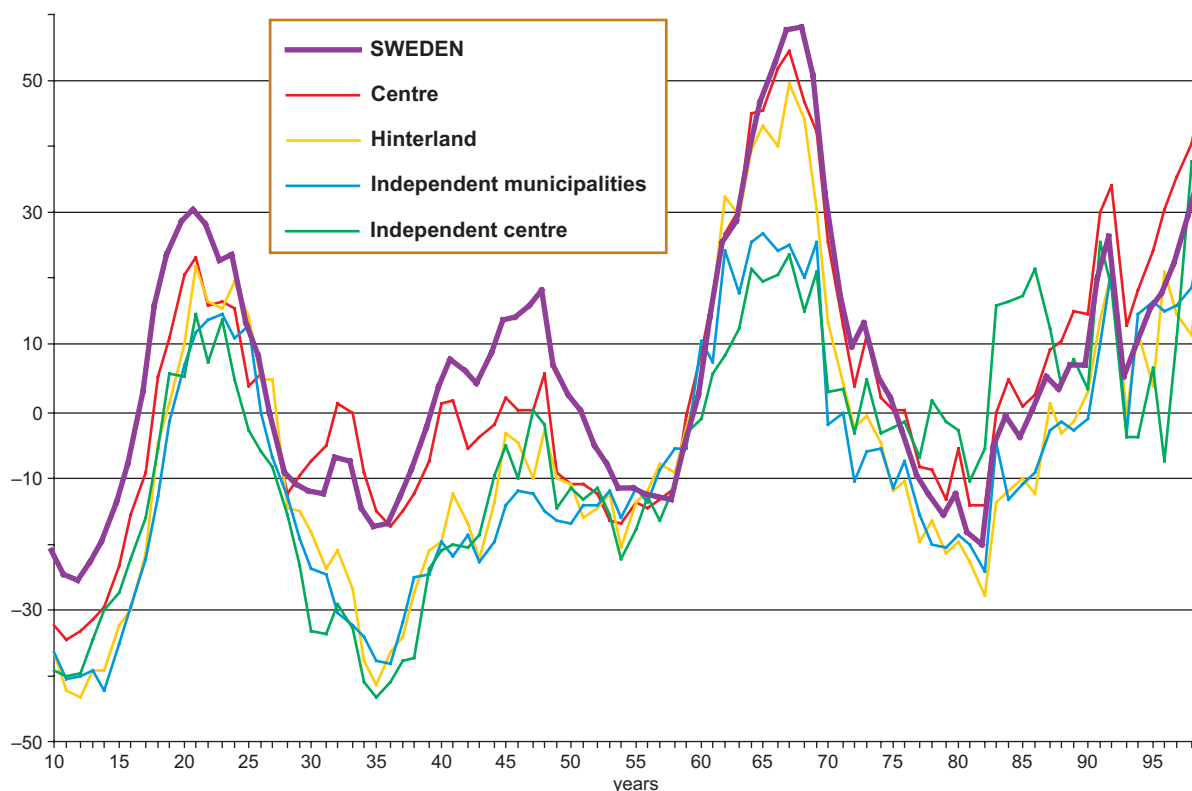


Figure 38. Sweden: Natural growth potential from 2003 to 2013. Percentage. National average and types of peripheries



to 27), and for the years in upper secondary education prior to this stage. With exception of the centres, the periphery types then show continued losses in age groups associated with reproduction and for children, tilting the population towards higher ages, as we also saw for the development from 1993 to 2003.

The weakest development is found in the independent municipalities and the independent centres, the latter having the strongest tendency towards population ageing. The slower growth in ages associated with the baby boom generation is due to this generation's centralisation in the Swedish population distribution, a centralisation that has continued, as shown by representations at younger ages compared with the national.

The hinterland has natural growth potential similar to the two types of independent municipalities, but with somewhat better development at ages below 60 if stability is set as the ideal, higher natural growth for ages in the 60s, and stronger deficiencies/less growth for ages above this.

Even the centres do not have a development on the national level in age groups below 60, except for some ages in the late 20s and early 30s, and numbers are diminishing at almost all ages between 30 and 60. This results in ageing above the national level, with particularly strong relative ageing at ages above 80.

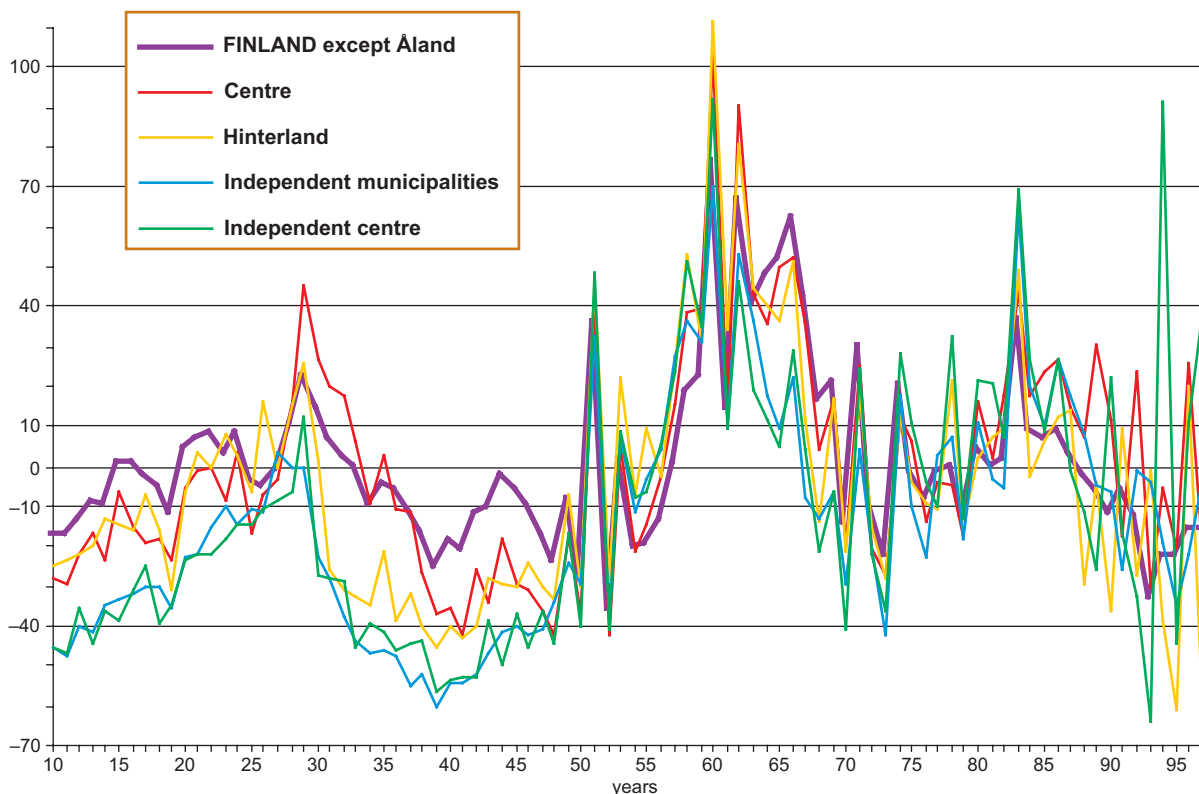
As one would expect for a population growing older by Nordic standards, the Finnish population in the different periphery types is decreasing at ages below 50, and showing growth at ages above (Figure 39).

As is typical for populations primarily ageing by losses in younger cohorts, the two categories of independent municipalities show growth deficiency for almost every age below 50, save for a few in the late 20s. The few ages featuring growth are among those with some of the largest negative changes of all the cohorts. The small growth at these ages still means that the actual *cohorts* to reach these ages will continue to be gravely reduced in actual numbers from 2003 to 2013. At older ages, there is a slower rate of growth than the national for the age span in the 60s and, mostly, a higher rate in the mid-70s to late 80s. The growth at the higher of these ages is generally up to 20 per cent, while the younger will grow by 20 to 60 per cent.

The hinterlands will also show an ageing tendency compared with the national level, with generally slower growth or larger deficiency at ages below 50 and stronger growth for ages in the 50s and early 60s, followed by a mixed pattern at higher ages. The general pattern is for deficiency at ages below 50 except for most single ages in the 20s, meaning that the ages today of over-represented children will continue to show growth if they copy their reference cohorts. The growth from the mid-50s to about 70 is the strongest, with some doubling of the numbers at particular ages, and most growth in excess of 30 per cent. Ages above the mid-80s are generally deficient, meaning that there will be a change towards younger pensioners by 2013.

Like the other periphery types, the centres will also generally lose ground in the ages under 50, increasing by

Figure 39. Finland: Natural growth potential from 2003 to 2013. Percentage. National average and types of peripheries



up to 40 per cent in the late 20s and early 30s. Growth above age 85 will generally be higher than on the national level, or the loss lower. The growth in some cohorts in the reproductive ages may augur a younger population, but so far there seems rather to be an ongoing relative ageing of the population, as evidenced by declining cohort sizes in younger age groups.

The independent municipalities and the hinterlands of Norway have prospects at every single age that are below the national level (Figure 40), showing a long-term relative decline in their populations. For the independent municipalities, the only two single ages with a small growth before the ages of the post-war baby boom are 20 and 21 years, indicating that the independent municipalities have not had any long-term positive gain from the higher birth numbers of the latter half of the 1980s that lasted into the latter half of the 1990s. For the hinterlands, the growth covers the span from 15 to 24 years of age, i.e. the ages connected to secondary education and many of the years in advanced training. The very strong deficits in the reproductive age span is about double the national deficit, indicating strong competition between regions for these cohorts, which have up to 20 per cent growth deficiency even on the national level.

The most pronounced natural growth will come at ages where, in 2013, we will find cohorts born during World War II, and especially cohorts born in the first decade after the war. This will be the only age span with strong numerical growth in the two types of periphery, i.e. growth of 20

to 50 per cent in the age span covering ages 60 to 70. The life stages covered by ages 70 to 90 will decline, meaning there will be a reduction in numbers older than 70, despite growth for the very oldest.

The independent centres will show a different trend in Norway from that in Sweden, with stronger development at most ages and indicating long-term population growth. The only exception to this will be in ages connected to reproduction, including children's early school years and entry into the labour force. Here, however, we are comparing new cohorts with reference cohorts currently represented on the age bias index by up to 130.

The centres have much in common with national development, but with somewhat more deficiency for the reproductive stages, and somewhat stronger growth for ages undergoing upper secondary education and advanced education. The declining ages in reproductive life stages are, as cohorts, currently over-represented on the age bias index, so the results should be viewed in the light of today's high representativity of those 10 years older.

The growth in the post-war baby boom cohorts and the growing cohorts born during the war are generally a fraction higher than the national levels. The decline in ages in the 70s and early 80s is less than on the national level, while growth above these ages somewhat higher.

The centres of the Icelandic periphery do not show the kind of marked natural changes for ages up to 50 that we have seen so far for the peripheral types in the other Nordic countries (Figure 41). However, the post-World War II

Figure 40. Norway: Natural growth potential from 2003 to 2013. Percentage. National average and types of peripheries

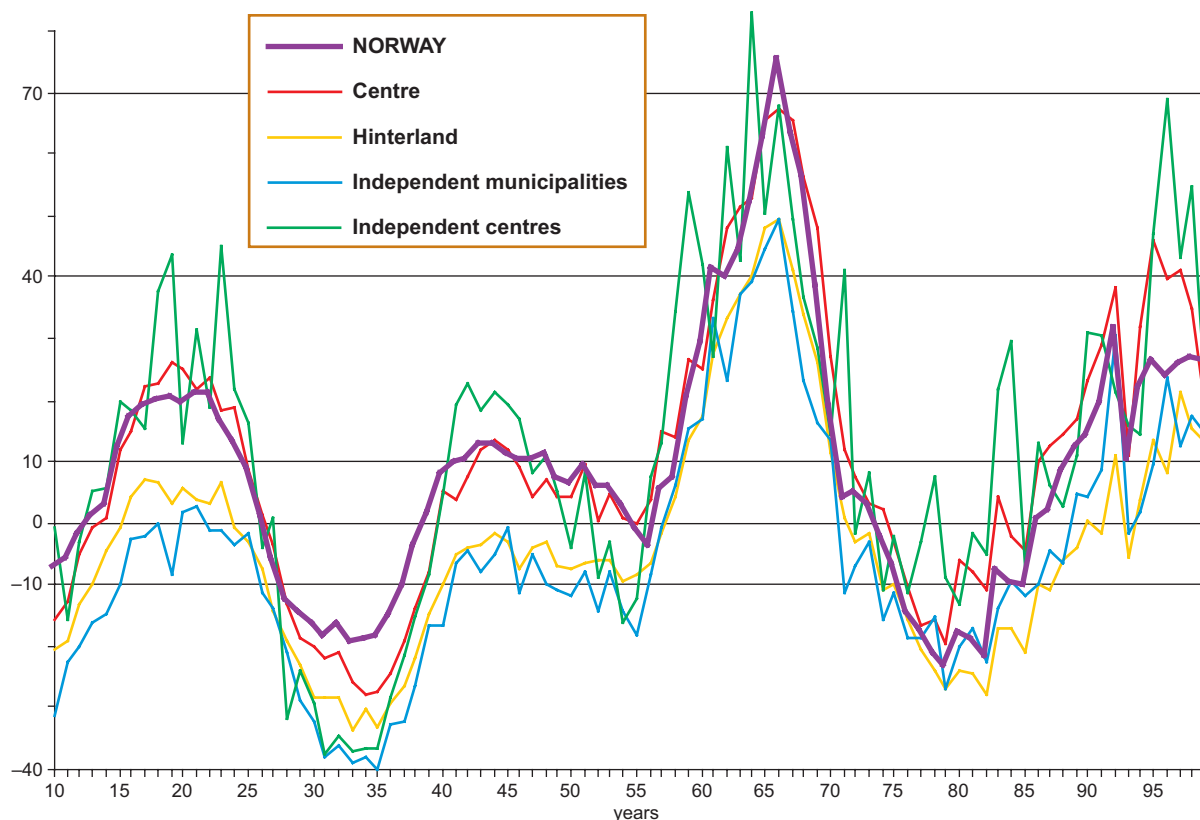
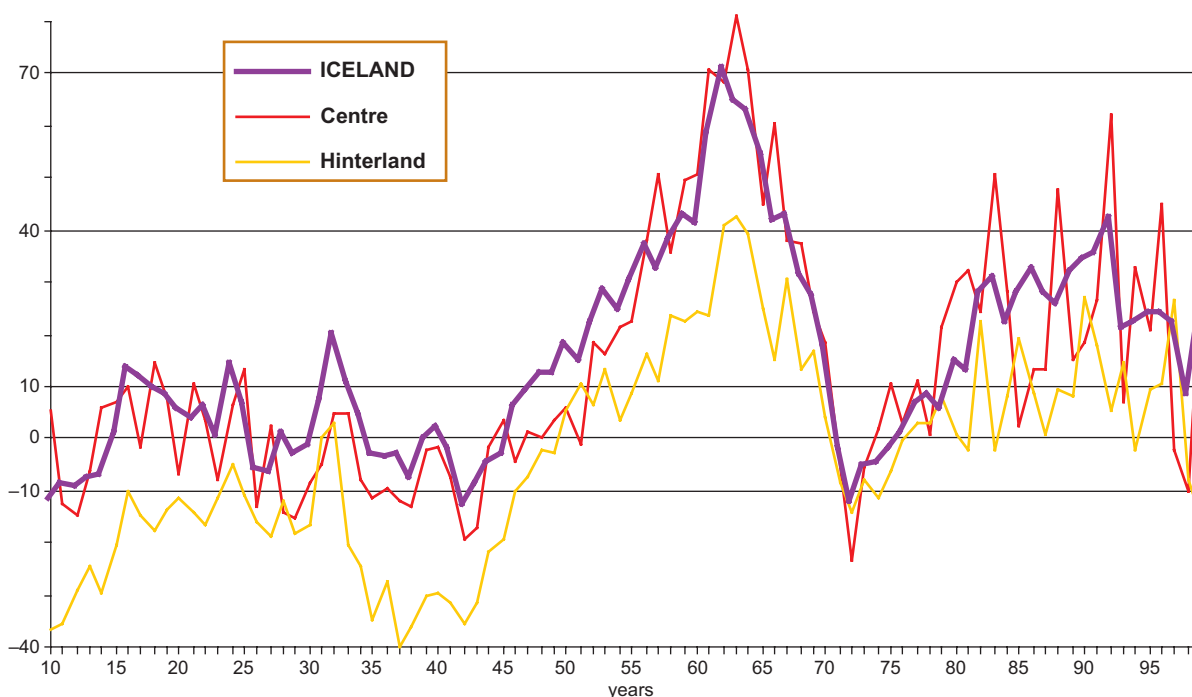


Figure 41. Iceland: Natural growth potential from 2003 to 2013. Percentage. National average and types of peripheries



baby boom is very pronounced, bringing up to 80 per cent growth (1948 cohort) in single cohorts on the brink of becoming pensioners. They show natural growth potential for cohorts born up to 1960 and a much longer period of growing cohort sizes than in the peripheries of other countries, although not longer than in the Icelandic hinterlands, and shorter than in Iceland as a whole.

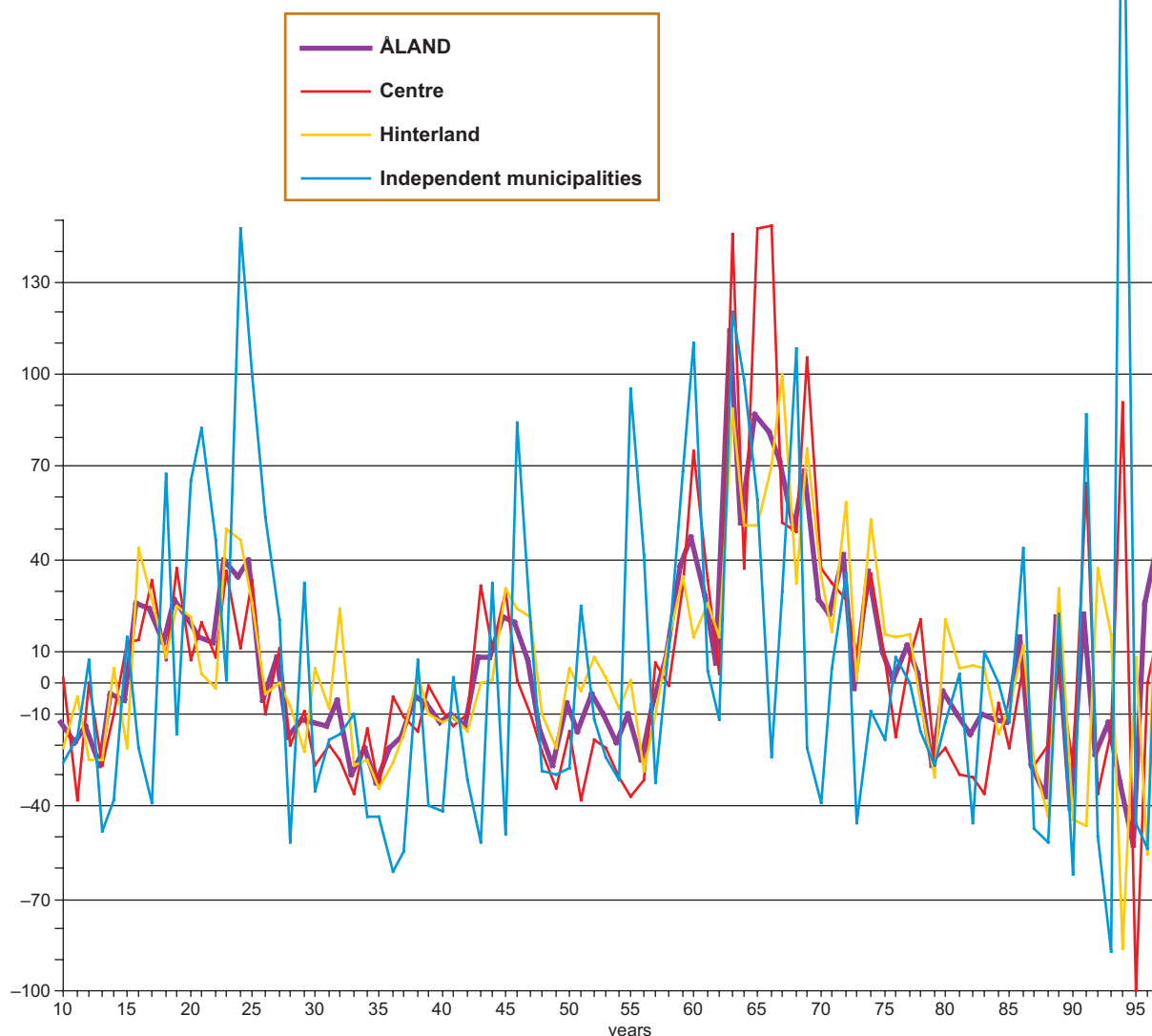
The hinterlands of the Icelandic periphery have slower growth, or stronger deficiency, at every age well into the 90s. The hinterlands clearly have a declining share of the Icelandic population, and will actually decrease at almost every age below 50, tilting the age biases more towards higher ages than before. There will be natural growth in the age span from 50 to 70 in 2013, and a modest growth at ages above 75.

The prospects of the different periphery types on Åland show marked changes for the independent municipalities

and the centres, compared with the country as a whole for certain ages, but fewer marked changes for the hinterland (Figure 42 on next page).

The centres tend to show growth comparable with that of the country, but stronger growth for the group in their 60s in 2013, the oldest cohorts among the baby boomers. Growth in these ages will be up to 150 per cent, creating a marked ageing trend. The hinterland shows some tendency toward stronger natural growth at ages in the early 30s than in Åland as a whole, but the differences are mostly negligible. The independent municipalities will vary quite a lot between ages, being few in number, but will show some tendency towards natural growth larger than in Åland as a whole for groups in their 20s. However, these are ages where the independent municipalities have not done well with regard to age biases in 1993 or in 2003 or for cohort changes, for that matter.

Figure 42. Åland: Natural growth potential from 2003 to 2013. Percentage.
Åland average and types of peripheries



7.6 Conclusions

The population changes for cohorts show very clearly that, compared with the more central parts of each Nordic country, the demographic changes in the peripheries are primarily where age biases are changed by losses in cohorts in their 20s and 30s. More often than not, the losses in the younger cohorts are not compensated by family migrations at higher ages. In other words, the ageing of the peripheries primarily involves losing population in the reproductive stages which, in a situation with small differences in urban as opposed to rural fertility, means ageing of the population as the number of children is reduced, as are the numbers of people of parental age.

At the same time, a minor gain of population in cohorts born in the 1940s, and often in the 1930s as well, seems also to change the bias towards higher age groups, but this is not currently of the same importance as the migration patterns of young adults. In these older age groups, the migration numbers are small, but the migration balance can be very biased. These groups can get cheaper dwellings in the periphery than elsewhere since the pressure on the housing market is lower in geographical areas without population growth.

The material shows clearly that the baby boom generation will become pensioners by 2013. These cohorts have

been like a wave going gradually through the demographic life stages and explaining many changes by their sheer size. By 2013, their impact will primarily be a marked growth in the number of people in their last 10 years of occupational activity. The first cohorts of the post-World War II generation will, however, have become pensioners. We have seen that these cohorts already show a tendency towards migration to the most peripheral parts of the periphery in some Nordic countries. It is difficult to say whether or not this represents adaptation to life as pensioners.

The possibilities of the elderly population for migration are greatly influenced by the economic value of their dwellings, if they own them. The low value of many peripheral properties may impede migration to central parts of the country. On the other hand, migration in the opposite direction can be easily accomplished in economic terms. The migration pattern of elderly can therefore be more difficult in the direction of centralisation due to the

influence of their financial situation on the realisation of desire to migrate.

When people no longer need to consider the workplace when deciding where to live and perhaps start to think about adjusting their dwelling place to their stage of life, possibilities arise to adjust the place of residence to where one actually prefers to live. If we concur with Laslett (1991) that there is a third age between age 60 and 80 where people concentrate to a greater extent on matters for which they did not have time during their working years, we have to ask what consequences this will have for the distribution of pensioners. Positive migration balances may be an indication that, for some groups, the peripheries are better able to meet requirements after they have worked for years in more central parts of the country. The migration of pensioners may, however, go in other directions as well, as the trend in property acquisition along the Mediterranean has shown.

8 Two Nordic example areas

8.1 The choice of example areas and some basic characteristics

Within a large area of the Nordic countries which, in a Nordic as well as in a wider European (ESPON Space, NUTS 2) context, is characterised by a rather top-heavy population pyramid, we selected two groups of municipalities as tentative examples of ageing communities or ageing territorial populations. This chapter examines more closely the demographic situation and recent dynamics of these areas in the context of area characteristics and regional positions. The two contiguous areas defined by the five Swedish and four Norwegian municipalities, respectively, are (number of inhabitants in 2003 in parenthesis):

1. The area defined by the municipalities of *Bräcke* (7 406), *Ragunda* (6 079), *Örnsköldsvik* (55 047), *Sollefteå* (21 384) and *Ånge* (10 948) in *Västernorrlands* (244 319) and *Jämtlands* (127 947) län (counties) in Sweden.
2. The area defined by the municipalities of *Engerdal* (1 512), *Stor-Elvdal* (2 888), *Rendalen* (2 193) and *Ringebu* (4 644) in *Hedmark* (188 281) and *Oppland* (183 582) fylker (counties) in Norway.

The selected areas belong to the Norwegian and Swedish *peripheries*, as defined and delimited in this project. In the Swedish case, the municipalities represent one independent centre and two independent municipalities, while two municipalities are classified as hinterland according to our classification. In the Norwegian case, two municipalities are classified as hinterland and the other two as independent municipalities.

The Norwegian examples

Of the four neighbouring and contiguous (in area) Norwegian municipalities in our project, Stor-Elvdal, Rendalen and Engerdal are located in Hedmark County, and Ringebu in Oppland County. The two counties together are known as the *inland counties*, being the only two among the 19 Norwegian counties that do not have any coastline. The counties have had a long period of population growth below national levels, interspersed by periods of population loss. The main problem has been lower fertility levels than in the rest of Norway, which, since the mid-1970s, have resulted in deaths outnumbering births. In most years since the mid-1970s, there has been positive net migration.

The main geographical divisions in the counties are be-

tween i) the southernmost territories which are within the wide Oslo labour market region, ii) the central parts around Lake Mjøsa where the three principal towns of the two counties are located, as well as several other principal centres, and iii) the valleys, being much more sparsely populated and with rather small regional centres. All our four sample municipalities are located in the latter territories.

Even with reference to the very sparsely populated territories of the Norwegian inland valleys, much of our Norwegian study area is rather thinly populated. Rendalen and Engerdal are the only municipalities in eastern Norway (comprising eight counties) with less than one inhabitant per square kilometre. Stor-Elvdal also belongs to the most sparsely populated municipalities of eastern Norway, with 1.4 inhabitants per square kilometre. Ringebu is more typical for the peripheries in eastern Norway, with 3.9 inhabitants per square kilometre.

The municipalities are either part of functionally rather weak regions, some of them also weakly connected to the functional centre of the region where such a centre exists. One of four employed people living in the municipalities works outside their labour market region, except for inhabitants of Engerdal municipality, where this is the case for one out of six.

Ringebu, Rendalen and Engerdal are classified by Statistics Norway as *mixed agriculture and manufacturing municipalities*, and Stor-Elvdal as a *less central, mixed service industry and manufacturing municipality*. They all have a relatively low level of retail trade, i.e. supply rate (the actual sales in retail trade of a municipality's retail sector compared with the trade potential of the municipality's population). A supply rate of 100 indicates sales equal to the potential of the population, and numbers below 100 indicate a level lower than the potential. In 1997, the rates for the retail trade, excluding motor vehicles and automotive fuel, for the municipalities were:

- Stor-Elvdal 77
- Rendalen 59
- Engerdal 61
- Ringebu 81

This means that much of the inhabitants' purchases are made outside the municipalities, owing to the shortage of any strong trade centres.

Ringebu is the southernmost, somewhat loosely integrated, municipality in a region covering the central Gudbrandsdalen Valley, but it is also under the influence of the town of Lillehammer at the southern end of the valley. About 20 kilometres further up the main valley from the north-western border of Ringebu, we find the main centre of the mid-Gudbrandsdalen Valley, namely Vinstra. One of the two main roads between eastern Norway and central Norway passes through the municipality, as does a main railway line.

The municipality is home to two urban settlements, Ringebu and Fåvang, the first being the municipality's administrative centre. According to the census of 1900, Ringebu had reached the criterion population level of 200 inhabitants required in the Nordic definition of urban settlements, as did Fåvang in 1946. By 1950, the two settlements had increased their populations to 792 and 352 respectively, growing to 1 276 and 698 by 2000. Over the past 150 years of census-taking, the lowest population of the municipality was indicated by the 1890 census, with 4 276, and the highest in 1950 with 5 710 inhabitants. As early as 1865, the population was 5 010, which was higher than the 2001 census number of 4 702.

In Ringebu, most of the population lives within a few kilometres of the River Lågen, the main river in the Gudbrandsdalen Valley. The rest mainly live along the river valleys created by the River Frya or the River Tromsa. This means the population is relatively concentrated along a 25-kilometre stretch, since the mountainous parts of the municipality do not have a resident population, but many holiday cabins.

Stor-Elvdal is part of a labour market region where the only other municipality is Rendalen. Stor-Elvdal municipality is, however, regarded as *independent* in this analysis because the functional ties are rather weak and there is no clearly defined centre of the labour market region. The nearest centre is Elverum, further south in the valley. One of the two main roads between eastern Norway and central Norway passes through the municipality.

The administrative centre of Stor-Elvdal is Koppang, with 1 233 inhabitants in 2000. It was registered for the first time as an urban settlement in the 1910 census, and grew to 823 inhabitants by 1950. The population of Stor-Elvdal was 2 917 in the 2001 census, down from the peak census number of 4 580 in 1950. We have to go back to the census of 1865 to find a lower population than today (2 734).

The majority of the population of Stor-Elvdal lives within a few kilometres of the River Glomma, and some people live along its tributary, the Atna.

Rendalen is part of a labour market region where the only other municipality is Stor-Elvdal. The municipality is, however, like Stor-Elvdal, regarded as *independent* in this analysis. Rendalen is an eastern parallel valley to the main valley of northern Hedmark, Østerdalen, and as such it is located east of one of the main arteries between eastern and central Norway, giving it a less central location than that of Stor-Elvdal.

The administrative centre of Rendalen is Bergset (238 inhabitants), the other urban settlement Otne (324 inhabitants). Of these, the oldest urban settlement is Otne, registered for the first time in 1960. The population at the 2001 census was 2 237, the lowest number since the 1855 census, when the number was 2 152. The highest population in any census was in 1950, namely 3 882 inhabitants.

As in most valley-oriented municipalities, the population is concentrated close to the main river.

The municipality of *Engerdal* has been created by geographical territories given away by three municipalities, instead of the usual partitioning of a municipality into two separate entities. It is a separate area east of Rendalen, a parallel valley to the main valley of Østerdalen. Engerdal borders on Sweden. The population of Engerdal has traditionally been thinly spread out (there is still no urban settlement in the municipality). It has been oriented towards primary industry in an environment where farming has been marginal. The neighbouring municipality of Trysil has recently become important as an employer in the southern part of the municipality, and the municipality is regarded as Trysil's *hinterland*.

The population at the 2001 census was 1 514, the lowest since the 1930 census. The highest number at any census was in 1960, with 1 807 inhabitants.

The Swedish examples

Of the five Swedish municipalities in our sample areas, Bräcke and Ragunda are located in Jämtland county, Örnköldsvik, Sollefteå and Ånge in Västernorrland county. With the exception of Örnköldsvik, the municipalities have no coastline. Bräcke and Ragunda both border on the municipality of the main city of their own county, namely Östersund, and the main city of Västernorrland, namely Sundsvall. The two municipalities are, as could be expected, classified as *hinterland* municipalities. Örnköldsvik is classified as an *independent centre*, while Ånge and Sollefteå are classified as *independent municipalities*.

Örnköldsvik has the highest population density of the municipalities, with nine inhabitants per square kilometre. Ånge and Sollefteå have four inhabitants per square kilometre, while the population density of Ragunda and Bräcke is two inhabitants per square kilometre. In other words, every municipality has a lower density than the densities we defined as criteria for counties to be included in the periphery.

As there are fewer municipalities in Sweden than in Norway, and at the same time twice as many inhabitants, there are on average far more inhabitants in Swedish than in Norwegian municipalities. Accordingly, we find the territory of the five Swedish municipalities to be much more populous than the Norwegian sample territory. The five Swedish municipalities have a total population of 101 000, compared with 11 400 in the four Norwegian municipalities. The Swedish sample area also has more numerous and larger centres.

There are 20 urban settlements in Örnköldsvik municipality, the major one being Örnköldsvik with 28 765 in-

habitants as of 1 January 2001. The total population living in urban settlements was 40 702, leaving 15 000 of the total number of municipal inhabitants of 55 702 at the time living in sparsely populated areas.

There are seven urban settlements in the municipality of *Sollefteå*, the major one being Sollefteå with 8 712 inhabitants as of 1 January 2001. The total population in urban settlements was 13 257, which means that 8 721 out of the total municipal population of 21 978 were living in sparsely populated areas.

There are six urban settlements in *Ånge* municipality, the major one being Ånge with 3 057 inhabitants as of 1 January 2001. The total population of the urban settlements was 6 529 out of a total municipal population of 11 234 at the time of the census, leaving 4 705 to reside in the sparsely populated areas of the municipality.

There are four urban settlements in *Bräcke* municipality, the major one being Bräcke with 1 697 inhabitants as of 1 January 2001. The total population of the urban settlements was 3 481 out of a total municipal population of 7 577, and the total population of the sparsely populated areas was 4 096.

There are four urban settlements in *Ragunda* municipality, the major one being Hammarstrand with 1 147 inhabitants as of 1 January 2001. The total population of the urban settlements and the sparsely populated areas was 2 747 and as many as 3 566 inhabitants, respectively, out of a total municipal population of 6 313.

The Swedish sample municipalities are generally among the municipalities in the two Swedish counties with the largest relative decline in population over the past 32 years, in the usually most reproductive and economically active age groups, namely the age groups from 21 to 27, 28 to 34,

35 to 41 and 42 to 48. These five municipalities all have substantially higher rates of decline in these age groups than the average trend in the two counties, with Örnköldsvik closest to the county average.

The most *favourable* situation in the two counties in terms of the numerical development of these age groups during the past three decades seems to be in the municipalities of Öresund, Krokomb and Åre (which are not among our sample municipalities), with an apparently rather different attraction to women and men, respectively, among the municipalities (for instance, between Krokomb and Åre).

As for the younger segments of *elderly* inhabitants (63 to 69, 70 to 76), the Swedish sample municipalities, with the exception of Örnköldsvik, experienced a far steeper relative *decline* in numbers during the past three decades as a whole, than the average development of the two counties involved (namely a substantial *fall* in the age group from 63 to 69, and a small *increase* in the age group from 70 to 76, at the county level).

Among the older segments of elderly people (77 to 83, 84 to 90 and 91+), the picture of municipal differences in growth levels is less clear, and varies from age group to age group. Örnköldsvik seems to be the municipality among the five examples that gained inhabitants fastest in these segments in the period, and faster than the county average (except for the very oldest segment). Ranking lowest in this respect is Bräcke. However, Bräcke gained very old inhabitants relatively faster than the other four municipalities and the county average. The sample municipalities are not among the most ageing in their counties according to the criterion of long-term percentage growth in the number of elderly inhabitants alone, but they may nevertheless be regarded as having developed relatively aged populations (cf. below).

8.2 Some basic recent demographic characteristics

All but one of the five Swedish municipalities belongs to the 'most elderly' (measured by the share of inhabitants aged 65 or older) sixth of all Swedish municipalities in 2003. Only the largest municipality by population numbers, Örnköldsvik, belongs to the next oldest sixth. All the four Norwegian municipalities belong, by the same criterion, to the most elderly sixth of all Norwegian municipalities in 2003.

The most elderly sixths of the Swedish and Norwegian municipalities are marked by a share of elderly inhabitants (65+) of more than 22.1 and 20.4 per cent respectively. The 'youngest' sixths of the municipalities have a share of elderly inhabitants of less than 15.4 per cent (Sweden) and 13.3 per cent (Norway). The median value of all Nordic municipalities is just above 17 per cent.

In a European and global perspective, more than one-fifth of the population aged 65 or older may appear radical and not be expected to appear as a European average until

just prior to 2025 (like the average situation of the more developed regions in the world as a whole). In the less developed and least developed regions of the world, which comprise the better part of the world's population, the share of elderly people (65+) will only just have reached 14 per cent, and some 6 per cent of the total regional populations, around the middle of the century (cf. United Nations 2001). Against this background, our Nordic sample areas and even the counties they belong to stand out, on average, as examples of *realised adaptation* to what is considered rather a dramatic *long-term prospect* of change in the demographic structure of most of the world.

The peripheral age-profile is to varying degrees characteristic of all the sample municipalities. One common trait is significant *under-representation* in relation to a Nordic, as well as a national, average representation of the age segments usually characterised by higher/advanced educa-

tional activities or early/intensive stages of economic activity/employment, and family formation/reproduction (21 to 27, 28 to 34), and consequently even an under-representation of children (0 to 6), although this is not without exceptions. Another common trait is a corresponding substantial *over-representation* of all age segments above about age 60, especially of people in their late 70s and older (there is, however, some variation in degree of over-representation). In respect of these two aspects, there appears to be (and to have been for a while) a wide span of rather different regional-demographic situations in relation to ageing within the Nordic territory, representing a seemingly great variety of potential challenges and corresponding paths of adaptation and adjustment (cf. below).

Another characteristic of all nine municipalities is that they have been experiencing *overall population decline* in each of the past three five-year periods from 1988 to 2003. The exception to the rule is Engerdal municipality in Norway, which had slight population growth in the first five-year period (1988–1992) owing to a positive migration balance. Throughout most of the period, the selected municipalities generally experienced negative natural popu-

lation change *as well as* net out-migration. Rendalen is the only municipality among the nine municipalities with net in-migration in all three periods, but the municipality had a severe natural population loss (excess of deaths) in the same periods.

While the number of deaths stayed at approximately the same relative level from period to period in most of the municipalities, *there was a significant decline in the relative number of births from the first interval to the last one* in several municipalities. This was particularly true for all the Swedish municipalities, and to a somewhat less and more varying degree for the Norwegian ones. The variation and development of the relative gross migration streams seem to be far less clear. The total mobility level varied considerably among the nine municipalities and even changed significantly from interval to interval in some of the municipalities, although apparently not in accordance with any uniform pattern.

In the Swedish sample municipalities, general demographic losses seemed to increase from interval to interval, while three of the Norwegian municipalities experienced their largest relative fall in population numbers during the middle interval (1993 to 1997).

8.3 Ageing profiles of the example areas

Age structure

The present age structure of the sample areas and their municipalities is, as indicated above, characterised by an over-representation of people of pensioner ages and a general under-representation of people in the life stages of childhood and reproduction, compared with the Nordic average (cf. figure 43 A and B).

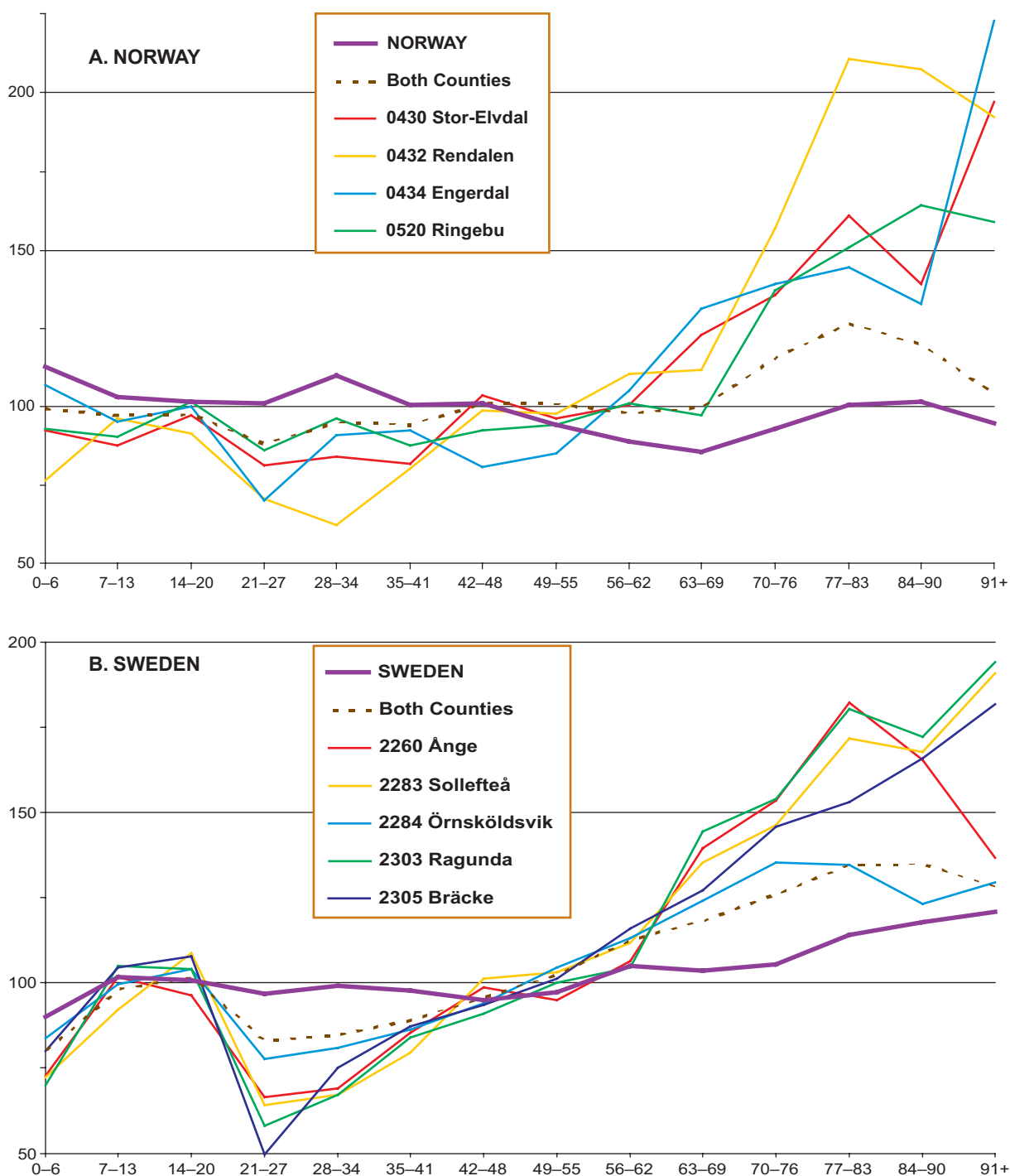
The Norwegian municipalities are part of two counties known for their age bias towards higher ages. On a Nordic scale, this bias is not as marked as when Norway is used as a reference, but the seven-year life stages from 63 to 69 and upwards are all over-represented. The four municipalities have more over-representation of people at life stages above about age 70 than the counties viewed together and, with the exception of Ringeby, even at stages above 56 to 62. As none of the municipalities has a centre that developed into a regional centre during the 1970s, there are no *generational* differences connected with the establishment of centre functions in any of the municipalities, nor are there any signs in the age structure that can be interpreted as resulting from the strong development in public employment in the decades from the 1960 onwards.

Of the four municipalities, the most aged seems to be Rendalen. The strong ageing in this municipality is really only found in the life stages from 70 to 76 years, where the index is never lower than 150, and for the age groups 77 to 83 and 84 to 90, it even rises above 200 (50 per cent and 100 per cent over-represented). The over-representation in

older life stages is likely to continue, as there is a strong under-representation in stages from ages 21 to 41, where there is a total of more than 25 per cent fewer people than the level required to reach the Nordic average, and even more compared with the Norwegian average level (specifically, the age group 28 to 34). As long as this under-representation is preserved, it is highly unlikely that the municipalities will experience any change from the over-representation of people at the later stages of life.

The Swedish municipalities are not generally characterised by over-representations of people in pensioner stages as high as that in Rendalen, but they are generally more demographically aged than the other Norwegian municipalities. At the same time, the two Swedish counties involved are more aged than the corresponding two Norwegian counties. However, they have very serious representation problems in the reproductive life stages, especially in the seven-year stage from 21 to 27, but also in the age segment from 28 to 34, where the municipalities are under-represented by at least 25 per cent. The Swedish municipalities usually have lower representations in these stages than the Norwegian. Ageing by low representation in this reproductive age group is, in other words, stronger in the Swedish municipalities. In Sweden, these low representations in reproductive stages also entail marked under-representations of the youngest group of children, which thus reinforce ageing. With over-representations of at least 25 per cent in the age group from 63 to 69, about 50 per cent for those aged 70 to

Figure 43 A and B. Age structure 2003, 14 age groups: National average, average of the two counties involved, and each municipality of the selected example areas in Norway and Sweden. Index, Nordic average =100



76 and above 50 per cent for those aged 77 to 83, there is a tendency towards increasing over-representations from age group to age group among the elderly. This is generally broken only by the somewhat lower under-representation at ages 84 to 90, a picture that actually includes all other age groups besides that aged 21 to 27. In other words, the over-representation of older age groups will continue.

The ageing of the Swedish sample municipalities is stronger than in any of the Swedish periphery types (Chapter 6). The over-representation of the elderly is stronger, but there is otherwise a rather complex pattern for the dif-

ferent municipalities compared with municipal types. However, the higher representation of elderly means that the representations at ages younger than the pensioners are generally weaker represented than in the Swedish periphery. The over-representation at old ages is also stronger in the Norwegian sample municipalities, and they do not have the positive representations at ages under 20 that mark the Norwegian periphery compared with the other mainland Nordic peripheries. The sample municipalities of both countries are, in other words, more biased than their respective national peripheries towards older ages.

Population change 1988–2003

At the county level, the relative trend for the genders in Norway is primarily the same until those life stages where differences in mortality and mortality development make growth in the female population much stronger than in the male population. When looking at the municipalities, on the other hand, there are marked differences between the

genders and between municipalities. When interpreting the changes, it must be borne in mind that they are compared with a situation where the losses for the two genders may have been very different, and that some of the changes observed may actually compensate for older differences.

The characteristic demographic wave movements as birth cohorts of different sizes move up the age variable is

Figure 44 A and B. Per cent population change by gender and 14 age groups from 1988 to 2003 (15 years). Norway: Average of the two counties involved and each municipality in the selected example area.

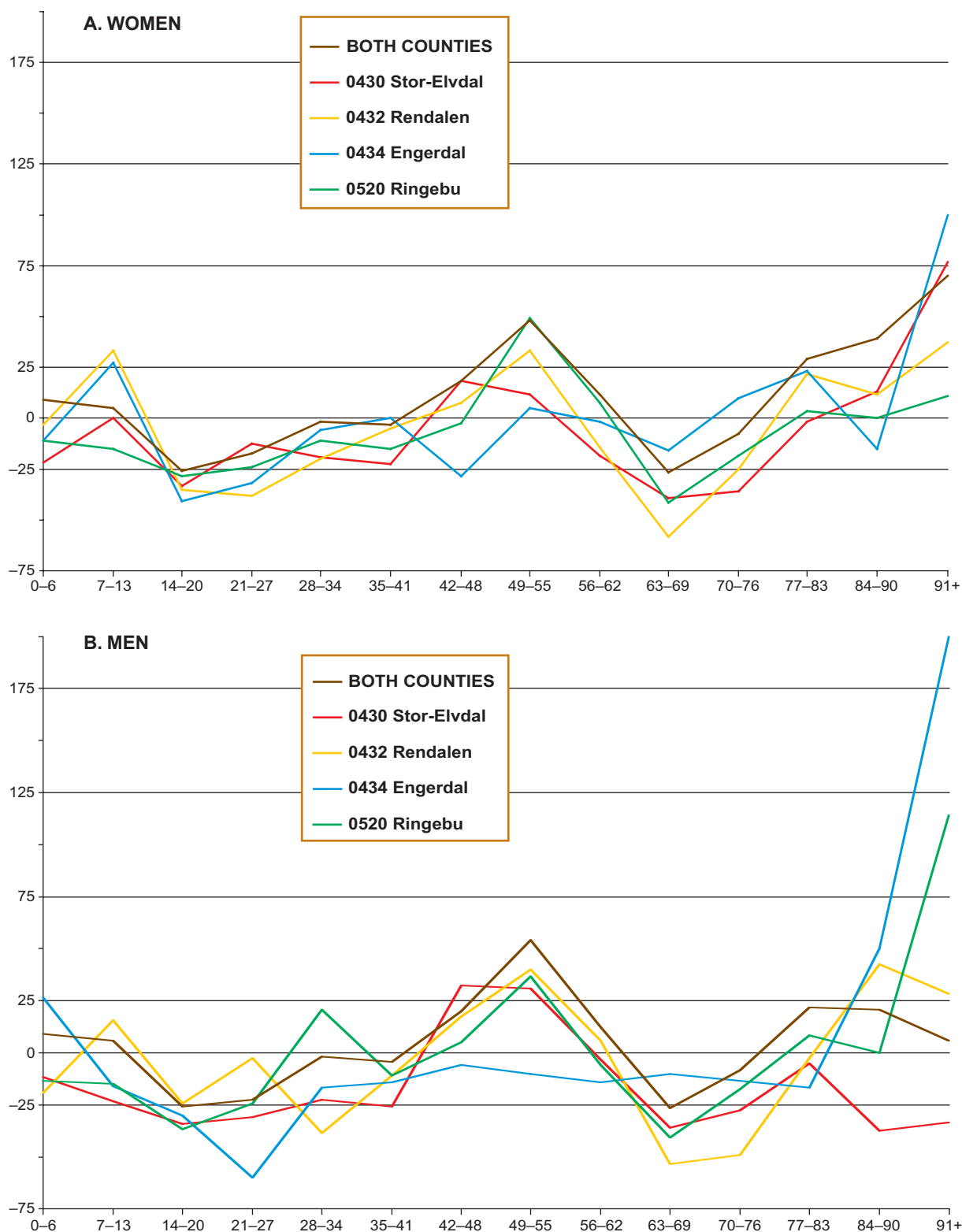
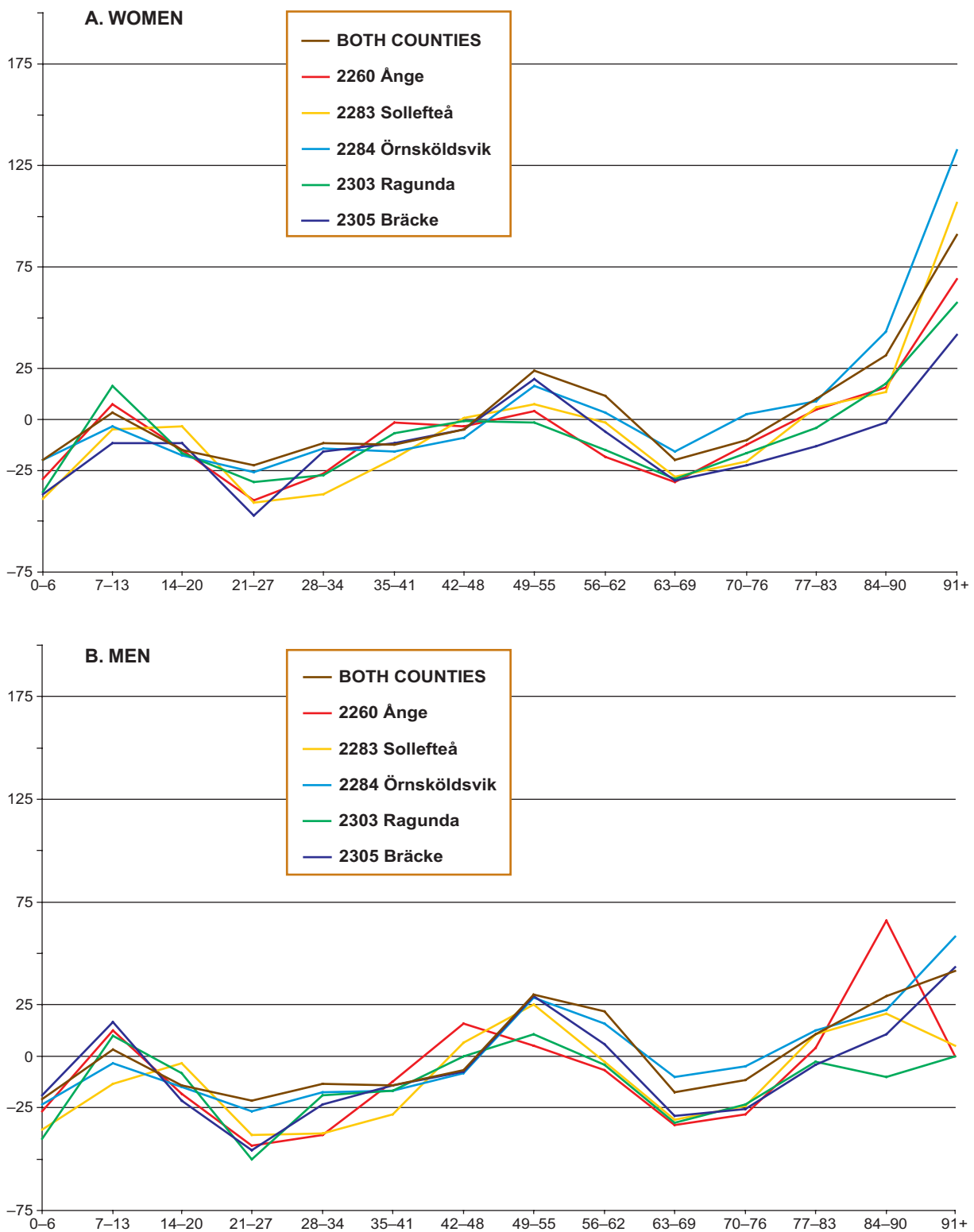


Figure 45 A and B. Per cent population change by gender and 14 age groups from 1988 to 2003 (15 years). Sweden: Average of the two counties involved and each municipality in the selected example area



generally visible in the age-specific pattern of relative population change in the four *Norwegian* sample municipalities.¹

¹For instance the birth cohort aged 56 in 2003 (born in 1947) in Norway was 55 per cent larger than the birth cohort aged 56 ten years earlier, in 1993 (born in 1937). In the Nordic countries in total the number of people aged 56 rose by almost 60 per cent from 1993 to 2003, mainly through the substitution of one birth cohort for another.

In addition, changes in longevity typically influence growth patterns, particularly in the upper half of the age variable. However, the levels and partly even some other aspects of change vary considerably despite the visible general pattern.

In Figure 44, the wave pattern is obvious, although it varies considerably between municipalities. The significant growth of the age group from 49 to 55 from 1988 to 2003

comes about as the relatively small birth cohorts of the 1930s are replaced by the relatively much larger birth cohort of the late 1940s and early 1950s (the early baby boom cohorts). Most municipalities gained population in this demographic plus-sum game, but there are exceptions, notably Engerdal.

In the 63 to 69 age group, the number of people normally drops as the small birth cohorts born in the 1930s replace the significantly larger birth cohorts of the early 1920s during the fifteen years period from 1988 to 2003. Once again, Engerdal is an exception to the rule, and there are generally large differences between the municipalities in growth rates for this age group as mortality starts to influence the pace and pattern of population growth. In the younger age groups, migration among youth as well as among younger parents and their children contributes to obscure the wave pattern. However, there is a visible general loss of population in the 14 to 20 age group as the still large birth cohorts around the change of the decades 1960 and 1970 (just before/in the beginning of the fast fertility decline during the 1970s and early 1980s) are being replaced by the smaller birth cohorts of the 1980s (the *decline* in the number of births in the wake of the fertility fall culminated in 1983, and then the number started to rise again, which is also apparent from the figure).

The results for Engerdal in Norway, with stronger losses for males than females at most stages of the working years (except ages 42 to 48) may, as mentioned, be partly a question of former differences having been modified. The ten-

dencies throughout Norway are that differences in the size of male and female populations of adults are being reduced. Basically, the differences are related to changes in local job recruitment and to who takes over family businesses, including farms.

The wave pattern seems to be more uniform among the selected Swedish municipalities, cf. Figure 45 (page 83). There is, for instance, a remarkably large and uniform loss of population in the five municipalities, on the magnitude of a 25 to 50 per cent decline in a 15-year period, in the strategic 21 to 27 age group, i.e. the age group usually engaged in higher/advanced educational activities and/or in the initial stages of labour force participation and family formation. Even the percentage loss or rise in the number of elderly inhabitants, people in their 60s, 70s and 90s, seems to follow much the same pattern in the different municipalities, especially among women, while there are more variations among the oldest age groups of men. There are considerable differences between the municipalities in growth rates of the elderly population from 1988 to 2003, especially the age groups 84 to 90 and 91+. This is also the case among the four Norwegian municipalities.

In the five Swedish municipalities, the population declined in all age groups between ages 7 to 13 and 42 to 48. As an average of the two counties involved, the declining age span even covered the 42 to 48 age group. This situation is most characteristic for the male population. Among the Norwegian municipalities, the pattern of change is less clear.

8.4 Population change according to crude components

When considering the different components in a regional context, one should bear in mind, for instance, that in- and out-migration are to a large extent influenced by national business cycles, as much of the migration is connected to the early work stage of younger cohorts and is therefore dependent upon the labour market. In the development between five-year periods, the differences in migration balances are strongly influenced by the development of job opportunities, while in the long run, the difference in migration behaviour between cohorts is generally smaller than that in migration between years, viewing migration in a centre-periphery context. The net change is generally more negative in peripheral locations when there is an expansive national economy. National depression can thus be interpreted as the strongest medicine to combat ageing in the periphery, although not necessarily the medicine that most people would choose.

Today, as fertility in most regions falls below reproduction level and the difference in fertility between regions decreases, the relative importance of migration for the regional distribution of population has increased. As there is

no reproduction surplus to distribute, the migration balance decides which regions will get smaller from one generation of adults to the next.

The balance between births and deaths on a regional scale is in some ways more complex than the migration balance, as it involves to a greater extent decisions covering several generations. As there are generally a number of generations in between those dying and those born in a specific year, the relative number of births compared with deaths shows only one aspect of the proportion of the very old to the new cohorts. This can be interpreted as an aspect of reproduction where reproduction of the parental generation is not the issue, but where the excess of births over deaths is an indicator of multigenerational change. Thus we may be in a situation where the parental generation is reproduced, but where deaths still outnumber births because the parental generation is smaller than the oldest generation. In aged territories, only positive, or even strongly positive, net migration can balance the net population change, given today's fertility levels.

As already mentioned, the net population change of

the nine municipalities has been almost exclusively negative during the three five-year periods studied. The population losses from 1998 to 2002 have been stronger in the Swedish than in the Norwegian municipalities being analysed, with exception of the independent centre municipality Örnköldsvik, which has seen the least negative development of all the sample municipalities. In the other five-year periods, the pattern that reflects national differences was less clear, although particularly strong losses for Stor-Elvdal and Engerdal in the middle period stand out. What changes in the crude components of change are behind these net population changes?

The contribution from births was reduced from the first to the last period in all the municipalities, especially the Swedish ones, where the reductions have been around 2 to 2.5 percentage points. For the Norwegian municipalities, the differences between periods are rather small, i.e. about 0.5 percentage points. Today, the contribution of births varies from approximately 3.5 per cent to 4.5 per cent in the Swedish municipalities and from 4 to 5 per cent in the Norwegian ones. The changes in Sweden mirror the marked changes found in the age bias for the youngest children in the Swedish peripheries from 1993 to 2003 (Chapter 6).

The contribution of deaths to net population changes in the nine municipalities from 1998 to 2002 varied between 6 and 10 per cent, being highest in Rendalen and lowest in Örnköldsvik. Changes in the contribution of deaths are generally far smaller than births, with the exception of Ringeby, where deaths contributed relatively little in the middle period. Since they are small, the changes mean that the reductions in the contribution of births are more important than the changes in the contribution of deaths. The relatively small changes in the contribution of deaths also indicate that the numbers in the oldest cohorts have been relatively stable over the 15-year period. For the Norwegian municipalities there is a tendency towards a minor increase in the contribution of deaths, which together with the small reductions in births, make the net balance more negative than before. Some of the Swedish municipalities show a small reduction in the contribution

of deaths, but it does not compensate for the decline in the number of births. The contribution of deaths ranges from approximately two percentage points higher than the contribution of births (Engerdal and Örnköldsvik) to six percentage points higher (Rendalen). The difference is most commonly about four percentage points.

In-migration and out-migration are the components representing by far the largest contribution to demographic change on the municipal level, but the most important question is whether there is a great difference between in- and out-migration, tilting the net balance strongly in a positive or negative direction. When migration contributes a total of up to 80 per cent of demographic change among the nine municipalities (Engerdal 1993 to 1997, probably influenced by the existence of a refugee camp, where everyone moving in and out of the camp was registered as a migrant), and around 30 to 70 per cent for the other municipalities, this underlines the importance of the level of balance between in- and out-migration to recent and prospective population changes and distribution. The size of the Swedish municipalities means that more of the migration will be outside statistics, as a larger share will in all probability be within municipal borders, the hinterland migration to the centre being to a large extent intra-municipal instead of between municipalities.

We have already mentioned the need for a strong positive migration balance to combat ageing, as the age structure in certain types of areas is currently very biased. This can also be seen in the migration statistics, where in each five-year period the seriously aged municipality Rendalen has a migration surplus, yet a loss of 3 to 5 per cent of total population. In other words, the population is too aged for a small migration surplus to be adequate, given the present fertility level. Rendalen is the only one of the nine municipalities with a positive migration balance for all three-time periods; none of the others has this for more than one period. A negative net population change generally results from a combination of deaths exceeding births and from a negative migration balance in a situation where balanced migration is not sufficient to combat ageing.

8.5 Two ageing societies

The *Norwegian* sample area as a whole experienced population loss through all the three of the five-year periods from 1988 to 2003. Consequently, the total populations of women and men in 2003 were 12.4 per cent and 13.8 per cent lower, respectively, than in 1988. The total population size of the two counties taken together was practically unchanged during the same period.

Among *women*, the only expansive age segments of the population in the period in the sample area were the age

group from 49 to 55, presently dominated by the major baby boom cohorts, and the three oldest age groups (mainly among people aged 91 or more). In younger groups of middle aged and elderly inhabitants (56 to 62, 63 to 69, 70 to 76), a substantial *decline* in population numbers was the main characteristic trait, especially in the 63 to 69 group containing the small birth cohorts of the 1930s in 2003. There was no consistent unambiguous trend throughout the three five-year periods.

Table 6. Norway: Population change in 14 life-cycle groups from 1988 to 2003. Five-year intervals. Average of example municipalities and average of related counties. Population 1988 = 100

Men	Norwegian example municipalities (4)			Norwegian example counties (2)		
	1993	1998	2003	1993	1998	2003
0– 6	100.6	92.7	90.6	110.7	112.0	109.4
7–13	92.0	90.1	87.3	92.6	96.9	106.2
14–20	79.2	66.9	67.1	85.1	73.1	74.4
21–27	112.7	91.2	70.3	105.3	93.4	77.9
28–34	94.8	100.7	90.7	97.6	102.0	98.2
35–41	88.9	84.5	84.4	94.2	91.8	95.7
42–48	122.7	113.8	112.7	126.1	121.2	119.8
49–55	106.6	129.7	127.8	110.7	146.6	154.0
56–62	83.8	80.3	95.8	86.7	86.5	112.1
63–69	80.6	65.6	60.4	90.1	77.9	73.4
70–76	102.3	89.9	72.0	105.4	103.6	91.7
77–83	104.8	101.8	99.1	107.7	114.2	121.6
84–90	97.7	109.2	100.8	100.7	110.8	120.8
91+	118.2	122.7	154.5	98.8	89.9	106.0
Total	96.1	90.4	86.2	99.8	99.1	100.0
Women	1993	1998	2003	1993	1998	2003
0– 6	106.2	96.9	87.5	109.8	112.2	109.4
7–13	91.8	95.0	101.5	91.8	95.1	105.1
14–20	85.4	66.3	67.5	86.7	74.1	74.6
21–27	108.1	91.3	74.6	107.2	98.9	82.8
28–34	96.9	87.8	86.3	97.3	98.4	98.1
35–41	90.8	90.3	86.7	96.6	94.3	96.9
42–48	112.0	96.9	100.2	121.5	118.2	118.7
49–55	113.8	139.6	128.1	112.0	143.4	148.3
56–62	78.3	78.1	94.3	86.1	87.0	111.5
63–69	86.0	67.3	57.5	91.4	77.9	73.2
70–76	105.8	98.9	77.7	107.7	107.7	92.8
77–83	115.1	113.6	108.4	112.4	120.8	129.1
84–90	91.3	103.4	103.4	107.7	126.5	139.1
91+	104.5	93.2	145.5	123.3	140.5	170.1
Total	97.6	91.3	87.6	100.8	100.6	101.7

Typical of the demographically declining Norwegian sample area was also a substantial fall in population size among most of the younger female age classes (age groups under 42 to 48), especially the age groups 14 to 20 and 21 to 27 where the population declined by almost a third and more than a quarter respectively. The considerable percentage growth among the very oldest (91+) relates to a numerically small age segment, even following the rapid growth period from 1988 to 2003.

The general female pattern with regard to population development in the Norwegian area also applies roughly to the male population segment. However, at the two-county average level, some deviant aspects may be observed compared with the sample area (the four municipalities). For instance, the county average shows an *increase* in the

number of children (0 to 6, 7 to 13) for both genders, much stronger growth in the middle-aged groups (42 to 48 and 49 to 55), currently consisting of the baby boom generation, and considerably faster expansion of the two elderly age segments 77 to 83 and 84 to 90. The sample area seems ambiguous as to whether the distribution game is of a plus-sum or a minus-sum nature.

The Swedish sample area as a whole has experienced population loss through all the three five-year periods from 1988 to 2003, although at a somewhat lower level than the Norwegian. The total population of the two counties taken together has been reduced only slightly during the same period. The most dramatic aspect of change in the Swedish situation is the decline in the number of children (0 to 6) of almost 28 per cent; however with an initial growth (1988

Table 7. Sweden: Population change in 14 life-cycle groups from 1988 to 2003. Five-year intervals. Average of example municipalities and average of related counties. Population 1988 = 100

Men	Swedish example municipalities (5)			Swedish example counties (2)		
	1993	1998	2003	1993	1998	2003
0– 6	108.3	91.3	72.6	114.4	99.2	78.9
7–13	96.5	102.1	97.7	96.6	104.6	103.1
14–20	95.1	86.2	86.3	93.2	84.4	86.0
21–27	96.4	80.5	65.8	105.1	93.2	77.9
28–34	93.6	91.4	74.8	96.2	101.1	86.6
35–41	92.3	83.1	81.0	90.8	82.8	85.3
42–48	116.3	105.4	97.1	114.7	101.3	93.3
49–55	104.6	127.8	123.5	111.8	139.2	130.2
56–62	88.7	91.2	106.5	92.9	96.4	121.4
63–69	89.5	77.0	78.3	89.0	81.4	82.1
70–76	99.3	97.1	83.7	101.4	96.5	87.9
77–83	104.9	103.5	108.2	105.9	107.8	111.1
84–90	115.9	126.4	122.1	113.0	125.7	129.4
91+	102.1	112.3	127.4	114.5	124.5	141.2
Total	98.6	94.2	88.9	100.7	98.2	94.4
Women	1993	1998	2003	1993	1998	2003
0– 6	110.6	93.1	72.1	115.9	100.7	80.0
7–13	97.2	101.6	97.5	95.2	103.2	103.0
14–20	94.0	84.8	86.2	93.7	84.0	85.0
21–27	97.2	83.0	67.5	103.4	94.6	77.4
28–34	92.1	91.6	78.2	96.3	99.2	88.3
35–41	95.7	86.6	85.6	92.2	85.9	87.1
42–48	108.7	100.3	94.3	112.1	100.2	94.8
49–55	103.0	117.5	112.4	109.6	132.1	123.8
56–62	88.5	86.2	97.4	91.8	92.7	111.2
63–69	91.3	83.2	76.9	90.9	83.3	80.2
70–76	103.5	98.9	91.3	103.0	98.7	90.0
77–83	101.0	102.0	104.7	103.5	106.2	109.5
84–90	124.7	130.5	125.1	119.0	129.8	131.6
91+	134.7	170.9	200.4	131.0	164.5	191.2
Total	99.1	94.9	89.8	100.8	98.6	94.7

to 1993) of 8 to 10 per cent, this is far above the parental groups, which are decreasing at the same time, showing the sample municipalities to have had a higher fertility level than Sweden in general at the time.

Among women, the three most crucial age groups for reproduction (21 to 27, 28 to 34 and 35 to 41) diminished by 32.5 per cent, 21.8 per cent and 14.4 per cent, respectively, from 1988 to 2003. For the two youngest age groups, the most recent five-year period has in particular seen serious reductions in sizes. The losses for men are two to five percentage points higher than for women. The first 'post-reproduction' age groups, on the other hand, are generally growing, although a reduction in the number of those from 42 to 48 in the last of them reduces total numbers for this group. This shows us how age groups are gradually re-

duced up the age scale as the smaller cohorts resulting from population losses by migration grow older. For both genders, all age groups younger than 49 years have diminished since 1988. In that respect, the situation is the same in the sample municipalities of both countries.

Among the older age groups, the strong growth is really only found for those from 84 to 90 years of age and older, particularly among women. The growth is somewhat stronger in the sample municipalities than in the counties. Among men, the 70 to 76 age group is among those with the strongest losses, losing as much as 16 per cent in the five-year period ending in 2003. The 63 to 69 age group was reduced even more, and for both genders. The balance between the older age groups is, in other words, tilted towards the oldest. What we see, then, is a redistribution of

the age structure towards the very oldest age groups, but where also the large number of people in some of the first baby boom cohorts increases the level in the seven-year age group they dominate at any given time.

What we basically see is ageing of the population in a situation with negative population development. In cases where the numbers of elderly in an age group are still increasing, this means that cohorts joining the elderly segment of the population belong to the cohorts that grew more than their parents' cohorts owing to high fertility levels. What we see is the result of the pre-1960/1970 situa-

tion of above-replacement level fertility, and so far above that negative migration did not reduce the cohort to below reproductive levels.

As there is a percentage reduction of the population in reproductive stages at the same time as the population in life stages at ages from 77 years is increasing, this means we have growth in certain older life stages by the younger among old cohorts, and a reduction in cohorts of reproductive age that increases the relative share in older life stages as the total population drops. Increasing numbers at older ages camouflage the trend at younger stages.

9 Ageing in the Nordic periphery: Summary and tentative conclusions

9.1 Some of the immediate background

The immediate background of the renewed interest in demographic ageing is the recent or 'modern' fertility decline which in most European (and several other) countries took place from the middle of the 1960s to the middle of the 1970s (with some earlier as well as some later starters among the countries). After a major fall in fertility rates, fertility tended to remain stable or to decline more slowly. There are no European examples of enduring upward shifts although some fluctuations have taken place.

The tendencies towards stable and declining populations affect population structure in characteristic ways, *and these structural changes are frequently the main focus of concern rather than the drop in total population numbers.* The most obvious consequence of the general shift from high to low mortality and fertility is the phenomenon of *ageing*.

However, these are not uniform demographic trends within national populations. Studies in several countries indicate considerable territorial differences in fertility levels

and timing of fertility trends, not seldom according to dimensions associated with rural-urban, centre-periphery etc. At sub-national levels the mechanisms of regional-demographic change – especially the role of migration – in many places have become strongly influenced by the emergence of a regional-demographic zero-sum or minus-sum game as national populations gradually grew more slowly, stopped growing altogether, or even started to decline.

The potential for demographic ageing may be expected to be found among the regions where long-term weakening of the natural growth potential is at work, indicated in a direct but insufficient way by a negative rate of natural population change. However, certain regions may be able to permanently compensate – and possibly in the long run even remedy – the loss of natural growth potential by attracting migrants, potentially at the cost of other regions which are becoming increasingly sensitive to negative migration balances

9.2 Centuries of population ageing

Population ageing is said to have been the most pronounced demographic change in the 20th century. It is not a new or emerging tendency, or a tendency currently entering or characterized by a particularly intensive phase in an historical perspective. The population of the European and other western countries has become gradually 'older' for a very long time as an inherent aspect of a characteristic phase of the 'demographic transition'. The periods of transformation varied in length from country to country, usually taking from around one to around two centuries. The present general debate on the implications of demographic ageing is thus probably more related to other aspects of social change than demography.

The primary *related* processes to demographic ageing – usually assigned a causal status – are the decline in fertility and mortality. Especially in the early stages of the demographic transition fertility decline is asserted to have been the main determinant of the timing and extent of

population ageing, although a fall in mortality usually marked the commencement of the transition as such. At the later stages of the transition mortality decline at all ages, but gradually more at older ages, increasingly came to enhance its influence on the development of the relative size of the older age groups in the population.

In some European countries even the waves of overseas emigration in the latter two centuries – and especially the levelling out of these waves in the beginning of the 20th century – influenced demographic structure with an ageing bias, particularly in the first half of the former century. *All the three main determinant factors mentioned above, are unfortunately highly unpredictable, which makes future demographic development much less foreseeable than we like to think – even at rather aggregate territorial levels like the nations.*

Some rather recent demographic period-specific events impact demographic structures in our time and in the near

future in more immediately visible ways as the age cohorts they affected most, continuously reshape age pyramids. Such events are the relatively high numbers of births between the middle of the 1940s and the middle of the 1960s

– known as the *baby-boom* – and the entering of longer periods of below replacement level fertility apparently in more and more countries in the years from the end of the 1960s.

9.3 Recurrent concerns with population ageing

It is not evident what will be the implications of these demographic events for future development in different areas of society, beyond certain immediate effects following the mere numerical projections of different strategic age groups – even some of which burdened with considerable uncertainty. When we leave the aggregate levels of nations and large regions and move down to more detailed territorial divisions, the challenge is increasing in difficulty.

A limited survey of available research and literature reveals that very few projects and reports so far seem to focus specifically on population ageing as a sub-national territorial phenomenon, in the sense that they explicitly set out to illuminate territorial variation in the phenomenon (the geography of ageing) and/or especially focus the need to

establish a better basis for detecting and understanding possible non-demographic impacts at the territorial level.

However, changes in the demographic balance of young and old – between the lower and upper part of the age pyramid – as societies moved slowly through the different stages of the development known as the demographic transition, has recurrently been the subject of scientific and political consciousness and controversy over much of the former century. There is presently, as indicated, a renewed awareness and debate regarding alleged menacing aspects of population ‘ageing’ – especially commencing from the beginning of the 1990s and sometimes from the beginning of the 1980s.

9.4 The recent focus on population ageing

What in many western countries appear to be unprecedented durations of periods of fertility at below replacement level, combined with the good news of still increasing life-expectancy, inevitably will influence the development of age structures and growth levels – in several geographical areas with variants of population ageing as likely outcomes.

However, much of the discussion seems to relate to either broad, rather general questions of a macro-economic or macro-social nature, often with an intergenerational-distributive dimension, or to a group or individual perspective (Hicks 2003). The first important United Nations statements on population ageing, and the later follow-ups covered a wide range of areas and issues where ageing was

assumed to pose challenges that could not have been foreseen, for instance within fields of health and welfare, family and households, education and technological change, labour market and economic growth.

Around the middle of the 1990s the public pay-as-you-go pension systems of many countries became a central issue in light of the forthcoming retirement of the so-called baby-boom generation. The debate grew more polarized and became partly ideological. The perspective is still largely ‘macro’, and neither related to the territory nor so much to individual and family welfare. The OECD picked up the ball and organized policy thinking on several of the issues and perspectives from the ‘ageing’ debate around the turn of the century.

9.5 The alleged significance of the relative size of broad age-groups

Some of the main recurrent political concerns over the implications of demographic change relate to the development of the relative size of broad ‘functional’ age groups. One assertion is that the share of persons within the po-

tentially most economically active age-span need to be of a certain size in order that society may stay economically and in other ways functionally ‘sustainable’. Another assertion concerns potential implications of the numerical

relation between children/youth and elderly persons in the population; the basis for the preoccupation with 'demographic ageing'.

How exactly these 'functional' age groups ought to be defined is not at all obvious, however, and will – moreover – vary considerably between different societies as well as over time, the *rationale* nevertheless being a presumption that production as well as consumption behaviour (in a broad sense) – and particularly the relation between and the relative intensity of the two modes of behaviour – are systematically and to a great extent dependent upon age.

Important modifications need to be made to this kind of socio-demographic reasoning. One of the most obvious and necessary modifications is that the actual socio-economic

significance to society of the kind of purely demographic relationship mentioned, is mediated by and through a complex set of non-demographic structures and conditions, for instance the determinant factors of actual economic activity (labour force participation etc.) for different groups, the educational and broader human capital aspects, the technology and broader productivity aspects, and the general level of income and welfare in society.

All these aspects are assigning 'weights' to the individual members of the respective 'functional' demographic groups with regard to their socio-economic role. At the consumption side even more mediating factors enter the arena, making the socio-economic significance of pure demographic structure even more complex to assess.

9.6 Is there a Nordic demography?

One of the basic lessons of demography is that history matters. The age structure of any given territory is influenced by long term developments, summing up aspects of the behaviour of all individuals of every cohort alive, and influenced by demographic waves older than today's living cohorts. Very many individual decisions behind today's regional distribution of population are very old decisions, and a large share of the population in ageing regions will have terminated their inter-municipal migration. For example most people in their 80s today have lived within the same municipality for at least 40 or 50 years, terminating their inter-municipal migrations within years of establishing a separate family, while their cohorts' fertility level will mostly have been established before the age of 40. Considering that most people will not migrate after about the age of 35, this means that approximately one half of the Nordic population have reached an age with little migration. As the population younger than 35 are often under-represented in peripheral territories, a stable number of elderly can gradually result in higher shares of elderly in the population.

By the long term development of the demographic patterns, the regional demography of ageing we see today is the result of different historical conditions, and differences in the evaluations of places, giving regional demographic implications between cohorts. Also, with time different geographical territories get into new functional ties, and matters concerning distance can have changed drastically, meaning that the locality and its situation will often have been differently evaluated before and after such changes when decisions about living/not living at a place have been taken, and that regionalization criteria based on today's situation will not be accurate for regional aspect of older generations' choices.

The Nordic territory is a reference territory without any administrative functions giving structural implica-

tions that make this level fundamental for demographic comparison. However, as the Nordic countries constitute one of the regions within Europe, and the one within Western Europe where the periphery is constituted by distance and population density, differentiation in ageing between the periphery types and between the periphery types of the different countries can tell something about the effects of policies. For example we can read something about the results of the Swedish policy where women don't need to work before getting a second child to get rights to maternal salary. The Nordic level also gives new angles to national debates on for example ageing, as the pattern of single nations can differ widely from the Nordic one. Amongst others, this means that identical future developments in fertility and migration will not create demographic homogeneity within Norden, but rather let the difference in patterns that have evolved through centuries persist.

The differences in ageing tell something about different national histories and the typology of the periphery tells something about how it has worked within the country. If we, for example look at the age structure of the different Nordic countries, we can notice that the baby boom started earlier in Sweden than in the other Nordic countries, Sweden not taking part in World War 2.

Having Norden as reference territory tells about when different countries have seen related developments, and when differences of demographic development have occurred. Why is the representation of elderly so high in Sweden? What is the connection between the high representation of elderly in Sweden and the low one in Finland? Why is the representation of older people in the Finnish periphery growing so fast? Perhaps then, the importance of the Nordic territory as reference is quite simply that it is not a territory that has been imperative to the development of any part of any nation within the territory, making the differences between countries clearer.

The different Nordic countries have very different municipal structures. The municipalities influence the demographic situation, as they are the authority that dictates location of many functions. The fact that a territory constitutes a municipality secures a more consistent development than for other territorial units. Each municipality need to have a number of services for their inhabitants that are made obligatory by law, there is a need for an administration etc. This means that even before one looks at what is actually done by the municipal authorities, it is clear that it gives a basis for local occupation, and the geographical pattern of many services within the municipality has meaning for settlement, the municipality often being the largest single employer within the municipal borders. The municipalities of the different Nordic countries have however not the same responsibilities, meaning that the influence of municipal borders will vary. In countries where many municipalities have traditionally had very few in-

habitants, like in Iceland and the Faroe Islands, the influence of a territory constituting a municipality has been of less importance for the demographic development.

Quite often the demography changes after municipal mergers, where for example new suburbs can be created further out when the suburbs of a city merge with the city municipality. For the periphery, the mergers of the 1960s and 1970s were more important, as they to some extent coincided with the growth in municipal service work places. This created a more centralized distribution of municipal jobs than what would have occurred without the mergers, and creating centralizing tendencies in the migration pattern. For a number of centres a situation of a centre municipality without hinterland became the result.

We have seen that many regional support subsidies have been oriented towards geographical locations inside or outside defined regions where municipal borders are decisive for being inside or outside possibilities for support.

9.7 Ageing in the Nordic periphery

The present study has been focusing on some important demographic characteristics and patterns of variation within the Nordic periphery, with a special emphasis on the phenomenon of demographic ageing. First we had to determine how to define the 'Nordic periphery' in this context.

The Nordic periphery can be defined according to:

- Travel distances
- Low population density

By a subdivision of this periphery into four periphery types we have aimed at discovering to what extent the general picture of the demographic structure and the contemporary tendencies of change in the age element in Norden are valid within the different peripheries.

Periphery and ageing

When considering ageing in the periphery and in different types of periphery the national debates on ageing that are usually oriented towards fertility and mortality issues will have to be expanded with the effects of migration. Migration is of course also of some importance at the national level, but are really only of minor importance for national cohort sizes. At territorial levels on the other hand, migration is often very important for differences in age structure because of its redistributive effect within a nation.

As migration is mostly concentrated to a few life stages, the effects on the age structure of the distorted age distribution of migrants are especially important. As the migrations are concentrated to life stages marked out by education, entering the labour market and establishing them-

selves with families, the consequences become particularly great as the distribution of this segment of the population also strongly influence the number of children. In other words, the life stages that by their size will decide if the older cohorts shall increase or decrease their share of a territory's population and strongly influence the regional representativity of the older age groups are dominating the migration process.

The main issue on fertility in a periphery context is if the total fertility rate is above reproduction level, giving the peripheries some population surplus that can be lost by migration but still being above reproduction level. This was the case when the cohorts that are now part of the elderly population were born and is also the case for the new cohorts that will be included in the elderly population of our prospects towards 2013. Today however, most parts of the periphery show fertility rates below the reproduction level.

One important aspect of mortality for ageing in contemporary Norden is connected to the possibility of a long period of increase in life expectancies. Such a situation would give a long lasting ageing if the fertility rate is stable (without a long time increase in life expectancies, the age structure will stabilise even if the fertility rate are below the reproduction rate). Further, in a Nordic comparative situation it is important if there will be an equalisation in mortality rates, where particularly Greenland today differ negatively from the other countries, and where we can still see the former lower life expectancies of Finns in their age structure.

In studies of regional ageing we can use a main division between:

- Older cohorts increasing their relative share of the total population by deficiencies in reproduction caused by low fertility and/or negative migration in younger age groups
- Temporary ageing by difference in size of older cohorts (demographic waves)

The first of these two types is based on demographic occurrences including all living generations, where the contemporary development of ageing mainly involves the decisions of younger cohorts in the reproductive stages, while the latter basically involves older demography.

The periphery

We have defined a periphery for each Nordic country, and then made a grouping of the municipalities within these peripheries into four periphery types. The periphery has been delimited by the number of inhabitants per square kilometre in counties and other NUTS3 regions (10 inhabitants per square kilometre) and municipalities (2.5 inhabitants per square kilometre) and an archipelago criterion. Municipalities located close to national centres have been excluded from the periphery. Centres within the periphery have not been excluded. No part of Denmark is regarded as peripheral in a Nordic sense. We have defined and delimited the following periphery types:

- *Centre*: The centres are towns with a defined set of hinterland municipalities, based primarily on labour market regions.
- *Hinterland*: The hinterland is constituted by municipalities situated close to a centre
- *Independent centre*: The independent centres are not part of a labour market region when the municipal division are used for the delimitation.
- *Independent municipality*: Independent municipalities are not part of a labour market region with a defined centre.

The Nordic periphery with its different types is shown in table 8.

Ageing in the Nordic peripheries

In the project, we looked partly at indicators of ageing and partly at ageing by regional demographic representativity, cohort changes and natural growth potential. Among our finds are:

Degree of ageing, by indicators:

- The main division is between the peripheries of the island and mainland countries respectively, with the highest degrees of ageing in the mainland peripheries (Åland excepted).
- The main division among the mainland country peripheries is – as a rule – between the centre and periphery within the peripheries.
- The Swedish peripheries of the periphery have the relatively highest shares of elderly population (followed by similar peripheries in Norway), the relatively highest shares in the older parts of the ‘working age’ population (followed by similar peripheries in Finland) and especially low support ratios (20–64/65+).
- The Norwegian and Swedish peripheries of the periphery – together with Åland – have the highest shares of old persons among the elderly.
- The groups that are often compared in order to create an image of ‘ageing populations’ are the elderly (65+) and the group of children/teenagers (0–15). This ratio has the value one or higher in certain types of peripheries in Sweden and Finland, and independent municipalities in Åland. It is as low as 0.5 or lower in the centres of the periphery in Norway, Iceland, Greenland and parts of the Faroe Islands.
- There is – judged from the points above – no basis for a common conception of the Nordic peripheral demography in an ageing perspective; rather the variation between countries and types of peripheries are significant – and partly different for different indicators.

Age biases:

- The periphery became demographically speaking relatively older from 1993 to 2003.

Table 8. *The size of the Nordic periphery and its different periphery types, by country. Number of inhabitants in 2003 as a per cent of all inhabitants of the respective country*

NORDIC COUNTRIES	Not Periphery	Periphery Total				
			Centre	Hinterland	Independent municipality	Independent centre
DENMARK	100.0	0.0	0.0	0.0	0.0	0.0
FAROE ISLANDS	0.0	100.0	57.3	20.7	22.0	0.0
FINLAND excl. Åland	90.5	9.5	3.6	1.7	3.2	1.0
ÅLAND	0.0	100.0	40.5	50.6	8.9	0.0
GREENLAND	0.0	100.0	0.0	0.0	74.8	25.2
ICELAND	68.5	31.5	10.3	21.1	0.0	0.0
NORWAY	84.0	16.0	6.7	6.5	2.3	0.6
SWEDEN	88.4	11.6	6.2	1.9	2.3	1.1
NORDIC AVERAGE	89.9	10.1	4.5	2.7	2.2	0.8

- The periphery differs more from the Nordic level in an underrepresentation of persons in reproductive stages than by numbers at ages usually considered as ageing
- There are two main patterns for representation of the aged population:
 - A western one for Iceland, the Faroe Islands and Greenland, with low representations for the aged population, where cohorts aged above 50 are under-represented.
 - An eastern one, with overrepresentation for at least parts of the elder population, where Finland has very low representation for age groups above 80 years of age.

To some extent there is a centre-periphery axis within the periphery concerning age biases, where the most peripheral ones are the independent municipalities:

- The independent municipalities usually have the highest representation of the elderly, and also have among the lowest representations of persons in the reproductive stages.
- The independent municipalities have worsened their relative position since 1993.
- The hinterland municipalities have partly the same pattern as the independent municipalities, created by loss in younger age groups, giving an increased share of elderly, but
- On Åland the hinterland municipalities compensate for the migration loss, and in Finland they partly compensate for the loss by migration in the family stages.
- The centres have by and large the youngest population among the four periphery types, with lower representation of elderly and the highest representation for much of the reproduction stages.
- The independent centres in Norway have the same pattern as the centres, while Finland and Sweden is developing a pattern resembling the one in the most peripheral municipalities.

Population changes for cohorts 1993–2003

- The changes are greatest for cohorts under education and/or in their early labour force years.
- The losses in these cohorts are generally either just partly compensated for, or not compensated for at all by changes in other cohorts.
- The centre types distinguish themselves by growth for cohorts in life stages with particularly strong reductions in the rest of the periphery.
- The centre growth is particularly strong on Greenland
- Independent centres in Sweden distinguish themselves with a pattern like that of the other peripheries except

the centres, while centres on Iceland follows a weakened periphery pattern.

Prospects based on natural growth potential (2013):

- Compared to the national levels, the peripheries lose population in the reproductive phases.
- The infusion of the elderly are reinforced by growth in age groups born in the 1940s and parts of the 1930s.
- The demographic wave of the baby boom generation has reached retirement ages, which mean that the number of new pensioners after 2013 will be very high.

As much of the periphery has a stronger ageing level and tendency than the countries outside the peripheries, the periphery need a positive net migration to be able to counterbalance ageing in a context where fertility is relatively low (the differences in territorial fertility levels was markedly reduced as a result of the fall in fertility since the mid 1960s). Unlike at the national level, where one will get a stabilisation of the age structure with stability in fertility and mortality levels, this is not enough in the peripheries, as the consequences of migration influences the age structure very strongly. It is more demanding to make the migration pattern positive in many peripheral geographical areas than in central parts of a country as there is need for a stronger development in jobs to support a certain growth in population there than in more central locations.

Possible migration by the elderly is strongly influenced by the value of their dwellings, where the low value of peripherally located properties can be a hindrance towards centralising migration, while migration in the opposite direction will often have a better economic basis. Migration by the elderly can become more important in the future should the presumptions of a third age (60–80 years) where the focus will be on subjects that has been subordinate to the requirements of economic life up to the age of retirement be true.

When using Norden as our reference for comparison, we have used a geographical reference without any administrative functions that should have demographic implications. This means that no country or nation has a demographic age structure close to the Nordic one. On the other side; Norden is one of Europe's regions, and one where the signs of the periphery is long travel distances and low population density. Differences in the patterns of ageing between periphery types can thus tell about the effects of different national policies. A Nordic reference can also make more visible other perspectives on ageing, as the debates are often marked by the national situations.

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