

Demographic drivers and future forests

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This working report is one in a series of ten reports which focus on external drivers that have a potential of affecting the Swedish social-ecological forest systems in the future. The drivers were chosen after discussions in Future Forests' Core Team of researchers and in Future Forests' Panel of Practitioners. The reports are essential inputs to the research program's scenario analysis of possible futures for the Swedish social-ecological forest systems. Other reports on *External drivers affecting Swedish forests and forestry* are:

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*Future Forests analyzes conflicting demands on forests systems
to enable sustainable strategies under uncertainty and risk*

Content

1. Introduction	3
2. The global scene.....	5
Growth and Decline	5
Ageing	6
3. The Swedish Context	8
Trends of Growth and Ageing.....	8
Concentration and Dispersion	10
Migration and mobility.....	12
Internal Migration	12
International Migration	13
Temporary mobility.....	14
4. Conclusions	16
5. Take home messages.....	17
References	18

1. Introduction

Over the past centuries, Swedish forests regions have been reshaped by three major population waves: when scarcity pushed the growing populations into sparsely settled forest regions, when industrialization and urban growth drained the populations and restructured the use of forests, and finally when forests became part of the consumption landscape occasionally colonized by the urban and peri-urban populations. The dynamics of population landscape is one of many intertwined forces shaping the history of Swedish forests, intimately related to other demographic processes on a global level. And, although the first and the second population waves have faded, the traces of all three waves will probably persist in producing future forests. The demographic processes create a landscape of people with different relationships with forests – some living far away, others close by, some dependent on the forest for their livelihood, others frequent visitors, and all of them to some extent mere consumers of forest products. Obviously, the socio-demographic composition and geographical location of the population on local, national and global levels are vital to the future of forests, and the trends of population growth on a global and national level are most certainly a key determinant.

World population is growing at a rapid pace, having doubled in only the past decades, and will continue to grow over the coming years. And of the many potential drivers influencing the future of forests, the increasing world population is evidently a crucial one. Clearly, the continuous population growth has affected the global demand for forest products and the expansion of populations in forest regions has in many parts of the world triggered clear-cutting and the eradication of woods. But at other sites, population growth has also facilitated more intensive and diverse utilization of forests and instigated development in the forest sector. Moreover, in dense regions population growth and urban sprawl into forest areas have resulted in land-use conflicts, when for instance recreational interests and forest preservation have clashed with the demands of urban activities. Further, population increase may have indirect influences on the future of forests, for instance through the effect on economic growth, technological development, political stability, and climate change. And obviously there are many possible consequences of population growth for forests, which are outside the scope of this paper.

Yet, the current debate over the population-resource nexus is more comprehensive and goes beyond the population growth debate, partly due to the new forecasts of changing trends and a future global population decline (Lutz et al 2000; UN 2008a), but also since other features of population change could be important drivers. Ageing populations, urbanization and changing migration patterns are vital issues in the population debate, and evidently, may in different ways affect the future of forests. For instance, can the use of and attitudes to forests as well as the demand for forest products differ between generations and change over the life course (see e.g. Rydberg and Falck 2000), hence making the anticipated age transition crucial for the future of forests. Similarly, differences in attitudes, use and demand could be found between urban dwellers living more distant from forests and the rural populations who might depend on them for their livelihood (Rydberg 2001). Moreover, demographic changes on the local level may influence the access to infrastructure, services and labour and thus the opportunities for forestry and forest industries. And further, the use of and attitudes to forests may also be influenced by migration and other forms of geographical mobility, since people with a long experience of proximity to forests may have different attitudes from those who moved from urban areas or from the other side of the globe (Rydberg 2001; Blomqvist 2003).

Indeed, the possible interrelations between population change and the utilization of forests are complex. Yet, in this paper the aim is not to speculate too much about the possible effects of population change but rather to outline some of the more plausible future population scenarios as a point of departure for further discussion about future forests and the interrelations with population trends, but also to some extent how the demographic drivers may interact with other drivers.

Though the demographic processes on the global scene are here a point of departure, the relations between population trends and the utilization of forests in the Swedish context are highlighted. The paper is based on the assumption that a changing population structure will affect the future of forests; e.g. the demand for forests products, how people use forests and attitudes to the utilization of forests. In focus are four features of current and future populations and to some extent the consequence of demographic trends for future forests.

Growth and decline. Given the assumption that population size is a major determinant of resource demand and harsher land-use competition, the paper discusses trends, determinants and consequences of population growth and decline on a global level. Will the long period of population growth continue? Or will the tendencies of a slow-down result in a more comprehensive break in population growth throughout the world?

Ageing. Furthermore, the paper also reviews another of today's most debated population issues: the trends, determinants and consequences of population ageing. How quickly will the ageing process proceed? How is the age structure transition related to the prospects for economic growth? What could be the consequences for future forests from ageing on a national and global level?

Concentration and dispersion. Here the focus is on the Swedish context, since the spatial distribution of the Swedish population in relation to forests is crucial for people's everyday contact with forest environment and presumably for their attitudes to forest utilization, e.g. for earning a livelihood or for recreational use. Hence, the changing population geography – through urbanization, counter-urbanization and suburbanization – is a key issue in the paper. What are the prospects for population growth in rural and forest-rich regions? What are the trends of local population redistribution in Sweden and elsewhere? What are the implications for the future of forests?

Migration and mobility. Duration of residence and place of origin (rural, urban or extra-national) could also be of vital importance in people's use of and attitudes to forests. Hence, the paper also discusses the trends and implications for future forests from international and internal migration, both permanent and temporary in the Swedish context. What are the prospects for further immigration to Sweden? What are the current trends for internal geographical mobility? How might the mix of long-term and recently arrived long-distance migrants influence the future of forests?

2. The global scene

Growth and Decline

Looking back into the literature on natural resource utilization, a key topic is the impact of population growth, including its direct effect on resource demand as well as its indirect effects of demographic changes on economic growth. In the classical work *'The Population Bomb'*, Paul Ehrlich (1968) argued that population growth would have devastating consequences on economy, environment and resource preservation, and echoes of these arguments were key elements of the population debate in the 1960s and 1970s (Meadows 1972). More recently, population growth is also identified as a key issue in the climate change debate (UN 1993; Nakicenovic and Swart 2000). Alternative views, though, have seen population growth as a driver of more intensive resource exploitation, economies of scale and human capital formation and thus as a trigger of economic development (Boserup 1965; Wilkinson 1977; Bloom et al 2003). And many authors have claimed that population change, apart from the more direct effect of population growth on resource demand, also affects economic growth and indirectly influences the utilisation of natural resources.

Looking back at the figures of world population increase, the growth rate of the past centuries has been exceptional in human history, with an increase during the 19th century from about 900 million to over 1,600 million and a doubling of the world population from about 3,500 million in the late 1960s to the present number of almost 7 billion (see Figure 1) (McEvedy and Jones 1978; UN 2008a). Population projections have long anticipated a continuous population growth, and the forecasts have influenced the notions of population change as a main driver of many of the global challenges (Ehrlich 1968; Nakicenovic and Swart 2000). However, age-specific fertility rates have fallen in almost every country and in many cases quite rapidly, parallel to a general socio-economic development (UN 2008a; Lutz et al 2000). Yet, world population continues to grow and will do so for some time. But growth rates do indeed vary between different continents and countries: While the population growth is still increasing rapidly on the African continent, many Latin American and Asian countries are experiencing a slow-down in population growth and in Japan as well as several European countries, population growth has turned into decline (UN 2008a).

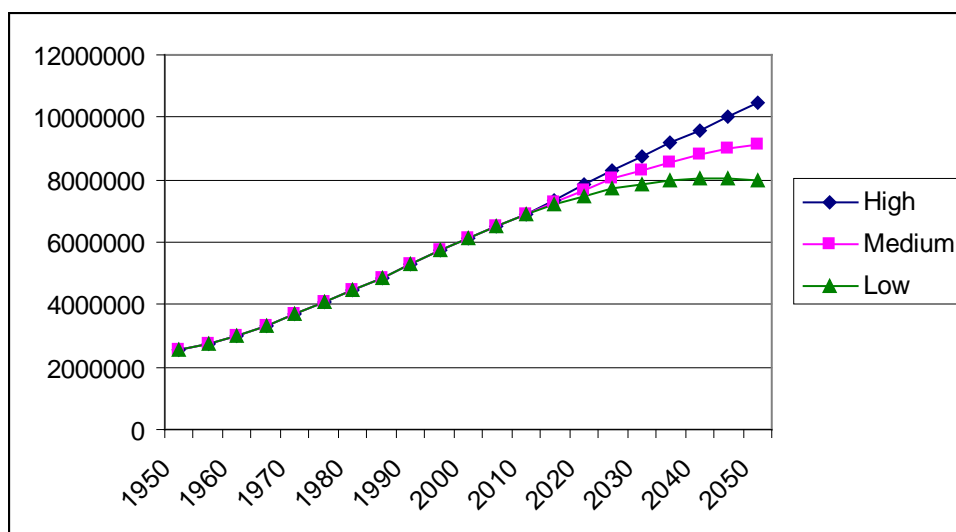


Figure 1: World Population Development and Prospects the high, medium and low scenario of UN forecasts, elaborated data from UN 2008a.

Looking forward and scrutinizing the current global trends and population forecasts, a new pattern slowly becomes evident, since influential population research institutes – such as IIASA and UN (Lutz et al. 2000; UN 2008a) – anticipate a slow-down in world population growth, a population decline in the developed countries and, eventually before the turn of this century or perhaps even before the middle of the this century, a decline on a global level as well (see Figure 1). Hence, the problem of the future is related not only to population growth, but probably also to the opposite trend of population decline on national, continental and global levels. Following the projections of the leading research institutes, the forecasted decline will in its first stage appear mainly in eastern and southern Europe, but the IIASA anticipate a decline also in Latin America, Asia and in North America before the turn of the century (Lutz et al 2000). Although these figures differ somewhat from those in the UN Population Division forecast, both institutes foresee the trend toward a decline, creating a new demographic and economic landscape surrounding Sweden and its forest sector.

While the future of forests, e.g. the competition for forest land and demand for forests products, will still be influenced by global population growth for some time, it may in the foreseeable future be increasingly affected by a more general population decrease or at least by zero growth, with possible consequences for population growth in forest regions, for the supply of labour in the forest sectors and the level and geographical distribution of demand for forest products. In a first stage, demand would start to fall in the European market and rise on the Asian market, and in a latter phase demand would be reduced even in Asia and subsequently on a global level. But this is of course a very speculative supposition, since demand can be influenced by many other factors including economic growth on the national and global level.

Ageing

In recent decades, the focus of the population debate has shifted from population growth to ageing. A major challenge for the future is the fact that the elderly form a growing share of the world population; in a first stage in the developed countries, but also in a later stage in today's developing countries (Lutz et al 2000; UN 2008a). The literature on population ageing identifies a variety of potential consequences, including heavier support ratio, a greater care burden, changing consumption patterns and influences on values. Here the trends in population ageing are discussed in relation to possible effects in the use of forests and attitudes to the utilization of woods (see further Nordlund 2009), as well as the implications for economic growth and thus for the demand for forest products (see further Jonsson 2009).

Looking back, the European countries has followed the stages of the demographic transition, with a steady growth of young population in the second stage of the transition, an increase of middle-aged people in the next stage and eventually in the fourth stage of the transition an increase of the share of elderly. Interestingly, the trends of developing countries indicate similar future prospects. Though increasing longevity contributes to population ageing (Vaupel 1997), the main driver is decreasing fertility. Hence, the rapid decline in birth rates in countries like Japan and Germany has resulted in a quick ageing process, while some developed countries, for instance the US, with high levels of immigration and relatively higher birth rates, have experienced a slower ageing process (Hurd and Yashiro 1997; Lutz et al 2000).

Looking forward, the forecast of population ageing indicates a rather rapid ageing process in, for instance, Japan, Germany and Eastern Europe, and although the future trends are evidently difficult to foresee, forecasts of the demographic transition indicate that the ageing process could develop into a general global phenomenon (UN 2008a; Lutz et al 2000). In several newly industrialized countries as well as developing countries, the demographic transition is moving quickly toward an ageing population and the transition from a young to an old population can in many countries, for instance China, be very quick. From a short-term perspective, population ageing is caused mainly by previous low birth rates and increasingly smaller age cohorts and fewer

women of reproductive age (a negative population momentum) (Lutz et al. 2000; Lutz 2007). This is the irreversible part of the ageing process. From a long-term perspective, however, ageing is also determined by future birth rates, and a major question is whether we will see trends of increasing age-specific fertility rates in the future, counteracting today's trend of continuous ageing and population decline. But according to the so-called *low fertility trap hypothesis* (Lutz 2007; Pool 2007), the increasing costs of an ageing population limit the possibilities to invest in children, hence ageing populations instigate further fertility decline and ageing could be enhanced through a cumulative causation process. However, this hypothesis is not uncontested and Myrskylä et al (2009) has claimed that advances in development may actually reverse fertility rates.

Obviously, the current ageing process may have some major impacts on the future of forests, although it could be difficult to anticipate what these effects might be. A variety of potential consequences are outlined in the vast literature on population ageing, one being the effect on economic growth. And as mentioned, several authors regard the age structure transition from a young to an aged population as a major determinant of countries' future economic performance. Already Coale and Hoover (1958) demonstrated the relationship between age structure and economic development. And in contemporary literature, several authors (e.g. Lindh and Malmberg 1999, Bloom et al. 2003) argue that the analysis of age structure is the key to understanding the link between population change and economic growth. In the early phases of the demographic transition, countries have a large share of children and a high support ratio. Decreasing birth rates, however, result in a relative increase in the share of people of productive age while in later stages of the transition the share of elderly people increases and subsequently the support ratio increases once again (Lindh and Malmberg 1999, Bloom et al. 2003; Pool 2007). There is a human capital gain in the early phase of the demographic transition and a loss in the latter phase, with consequences for economic growth (Bloom et al. 2003, Lindh and Malmberg 1999).

Consequently, if the population development does not deviate too much from the forecasts of the leading demographic institutes and the age composition has the anticipated effect on countries' economic performance, we have good reason to expect a changing geographical pattern of demand for natural resources, including forests products, whereby demand would decrease in today's developed countries and increase in the developing countries, starting in Asia and Latin America and then continuing to Africa. Following this argument, today's developing countries will also eventually experience an ageing process with potential consequences for economic growth and demand for resources (Lindh and Malmberg 1999; Bloom 2003; Pool 2007). This argument may seem rather speculative, but it is a possible scenario that would move the centres of demand for forest products farther afield from the Swedish woods and change the relative position of the Swedish economy on a global scale. It is also important to mention that the age structure transition hypothesis is not undisputed. Lee and Mason (2009) for instance point to the possible counteracting effect of more investment in the human capital of the young generation in a society with fewer children, which may have positive effects on economic growth.

3. The Swedish Context

Trends of Growth and Ageing

Looking back, Sweden experienced a rapid population growth when passing through the second and third stage of the demographic transition, while in the last decades a slow population increase has been possible due to immigration. Variations in the size of age-cohorts, such as the baby boom of the 1940s and 1980s, and ups and downs in the immigration rates, such as the peak in the late 1960s and the late 2000s, are the most dramatic events in a rather steady growth.

Looking forward, the official projections of the Swedish population by Statistics Sweden (SCB 2009), provides, in contrast to the rather dark picture of population development in Europe, a quite optimistic forecast for Sweden's population. The base scenario foresees an increase from today's 9.2 million to over 10 million in 2030 and a more slow increase to a bit over 11 million people by the end of the century. However, with the high fertility scenario the projections anticipate a population of about 13 million in 2100 whereas the low immigration alternative forecasts a population of 9.8 million in 2100 (see Figure 2). Hence, none of the five scenarios predicts a population below today's level and in fact all the scenarios result in rather marginal changes in the national population over the coming century. We know, however, that rather small changes in the migration and fertility assumptions have major effects on the outcome of the projections over the coming century. For instance, the assumptions about net migration are based on the current migration situation, with rather high immigration and a high migration potential. Changes in the relative economic situation in Sweden in relation to potential emigration areas could dramatically change the preconditions for having a large positive net migration. Previous research also indicate that the country's rather child-friendly policy (subsidizing child families, child-care and parental leave) is important for the rather high birth rates in Sweden (Hoem and Hoem 1996; Neyer 2003; Lutz 2007), hence these rates may fall if this economic subsidy is not maintained in times of economic recession or financial problems for the public sector. Evidently, one may contest the assumption that Sweden will remain unaffected if the world actually turns into a place of population decline.

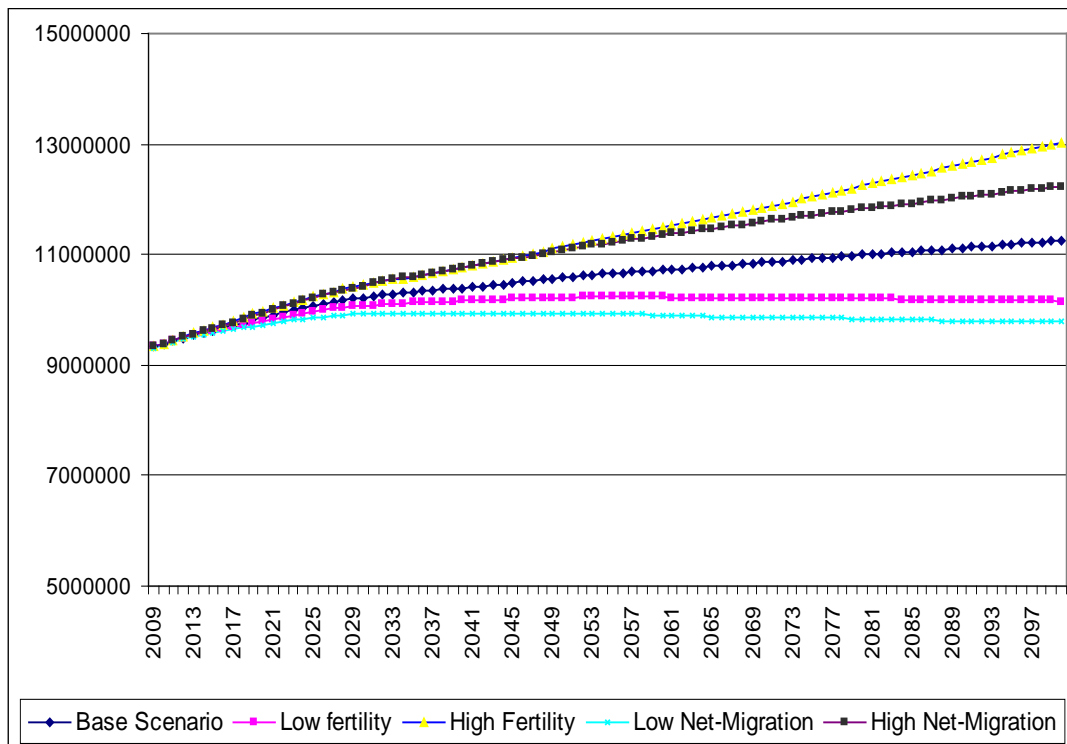


Figure 2: Statistics Sweden's population forecast for 2009 – 2100, five alternative scenarios (Elaborated data from Statistics Sweden 2009).

But, whatever the national population trend will be, the size and the age distribution of the future national population will clearly be crucial not only for the national demand for forest products and alternative utilization of forests, but also for other features of the national population development, including regional population development, internal migration and mobility, which could indirectly affect the human impact on future forests in the Swedish context. A further characteristic of the contemporary Swedish and European populations is the so-called *second demographic transition*, including socio-demographic features such as higher divorce rates, postponement of child-bearing and increasing numbers of single households (Lesthaegae 1983; van Kaa 1987), which may influence the geographical distribution of people and supply of labour. But an increasing number of households may also stimulate the demand for natural resources (Lutz et al 2000) (see also Jonsson 2009).

Though Sweden early experienced a process of population ageing, the trends towards an ageing population has not been as rapid as in many other developed countries. In the Swedish case, the share of aged people is somewhere between the figures for US and Japan, due to rather high immigration and, in a European comparison, quite high total fertility rates. Similarly, the anticipated future ageing trends are not as pessimistic in Sweden as many other European countries (Statistics Sweden 2009), but the percentage of people over 65 is anticipated to increase from today's 18 percent to almost 25 percent in thirty years time. In search for a solution to the ageing process, an increase in the number of immigrants has been suggested (Hedberg and Malmberg 2008). However, simulations using Swedish data show that the ageing process can only be countered if immigration is increased dramatically or if the immigrant population includes a much higher number of young adults than is the case today (Rauhut and Malmberg 2004). Increasing fertility may also counteract the ageing process, but it will take half a century to see a positive effect on the support ratio (ibid), since increasing birth rates result in higher costs for society; hence countries like Sweden may be caught in the low fertility trap.

A key topic in the literature on population ageing is its impact on consumption patterns, attitudes and behaviours, and the emergence of a so-called “silver economy” when the growing share of grey-haired elderly with strong purchasing power become major actors in the economy (Kunz 2007). Similarly, habits and preferences of the elderly may affect the utilization of future forests, since previous studies indicate that the elderly tend to be more engaged in the recreational use of natural environments (see e.g. Rydberg and Falck 2000). If these attitudes to the utilization of forests are age-specific, we may expect more positive attitudes to the preservation of forests for recreational use, among both people who live close to forests and people in urban areas. However, the attitudes observed among today’s elderly may be cohort-specific rather than age-specific. And in the next generation, when urban background will be more common, the attitudes may be different.

Concentration and Dispersion

A quick gaze at a Swedish map indicates a negative correlation between the distribution of forests and human populations, and a similar pattern is found when looking at the global level. According to the estimates (UN 2008b), the majority of today’s world population lives in urban areas, and since the urbanization process is continuing, especially in the developing countries, we can anticipate an increasing urbanization on a global level in the foreseeable future and it is very likely that the everyday contact between humans and forest will become less common.

In times of globalization, the future of Swedish forests is obviously shaped by processes on a global scale, but also by the local processes, populations and other actors located close to the forest areas. For instance, the population in forest-rich regions is the base for labour recruitment to the local forest sector, and local demographic changes will affect the supply of service and infrastructure, crucial also for economic activities. Obviously, the interrelations between population change and the future of forests could also be the opposite, since changes in forest employment may influence population development in remote regions. Moreover, the interests of the local population sometimes clash with those of the forest sector (e.g. preservation versus intensive cultivation). A changing composition of the local population could also result in diverging interests in how the forest should be used. In more densely populated areas and peri-urban zones, changes in population size and composition may cause various types of land-use conflict between urban and forest-based activities or between exploitation and preservation interests. Hence, the redistribution of populations, for instance the size and composition of local populations in the forests-rich regions, may be crucial for the future of forests.

Looking back, forest-rich regions have experienced a history of population growth and decline, in Sweden as in the rest of the developed world, due to a first phase of rural colonization and a second phase of urbanization. However, urbanization was not merely a relocation of people, but also a major shift in the form of livelihood, and moreover, a change in ways of living, social relations and people’s attitudes – the so-called *urban way of life* (Wirth 1971; Pacione 2003). Not only did people move to the city; they also adopted a new life style, but also in rural areas through *urbanization of the countryside*, values and lifestyle shifted in times of modernization. In Sweden the urbanization process includes a first phase of small town urbanization, starting in the 1880s, and a second stage of city urbanization starting in the 1930s (Borgegård et al. 1995; Håkansson 2000). In the pre-industrial resource-based society of the 19th century, populations grew in the forest-rich regions in the northern and southern parts of Sweden, both on a local level when the population expanded into the local peripheries and on a regional level, for instance through the colonization of the inlands of Norrland (Bylund 1956; Borgegård et al. 1995). New opportunities for livelihood and employment in the resource-based economy of forest regions were triggers to in-migration, but population expansion was also a determinant of more intensive utilization of forest resources. However, the 19th-century population redistribution created a dispersed settlement pattern, the frame of which we can still see. Kaltenborn et al. (2001) claim that this dispersed

settlement in the Scandinavian countries resulted in a nearness to nature, which in turn entailed a special relationship with nature and recreational life.

Beginning at the end of the 19th century, the dispersion trend started to alter when people began moving into the smaller local centres. On a regional level, the population dispersion continued until the 1930s when major cities became the attraction for the migration flows (Håkansson 2000). Urbanization peaked in the 1950s and 1960s, with high out-migration from regions with resource-based economy to the industrial regions and the three metropolitan centres (Andersson 1987; Borgegård 1995; Håkansson 2000). In the forest-rich regions, population decline has dominated since the 1950s, initially as a consequence of decreasing employment opportunities in the resource-based economy, for instance when livelihood opportunities in sawmills and forest industries vanished in the post-war decades. Still in 1970, about 65,000 people were employed in forestry in Sweden, more than half of these in the seven northernmost counties, while in 2004 the corresponding figure had fallen to approximately 17,000 (Skogsstyrelsen 1980; 2008). This is a rather dramatic decline, with severe consequences for labour-market and population development in areas highly dependent on forestry. Clearly, the mechanization of forestry and forest industries is one chief driver of decreasing labour demand, out-migration and population decline in many sparse regions, not least in the northern part of Sweden. As described in the so-called “*vicious circle model*” (Myrdal 1957), the population loss also resulted in the dismantling of infrastructure and services (Wiberg 1983), with negative outcomes not only for the future population development, but also for the possibilities to maintain industries and attract investment, for instance in the forest sector. Similarly, Fyles et al. (2008) claim from a Canadian perspective that the limited supply of labour in rural areas may lead to increasing labour costs; restraining growth in the forestry sector in remote parts of Canada, and evidently a similar risk may apply to the more sparsely populated regions of Sweden.

In the early 1970s Sweden experienced the so-called “turnaround trend”; the out-migration from urban centres to suburbs and peri-urban countryside (Borgegård et al. 1995). And whereas population has continued to concentrate on a national level, the trend has been opposite on a local level where deconcentration has continued since the 1960s, due to the opportunities for commuting and growing access to motor vehicles. And in fact, on the local level, people live more dispersed than in the 1960s (Håkansson 2000). Thus, today many have access to rural landscapes and forests in the vicinity of their housing areas, although the large forests are far away. According to Hörnsten (2000) only about one percent of the total forest land is classified as urban forests, while in contrast this area is visited 250 times more frequent than other parts of the Swedish forests. So, one consequence of the urbanisation process is a concentration of the area for land-use conflicts between recreational interest and other forest interest to the urban zone and to some extent a further deconcentration to the peri-urban zone. But still, almost half of the of the visits to a Swedish forest are made outside the urban zone (Rydberg and Falck 2000).

Looking forward, the prospects for major changes in the regional distribution in Sweden are quite small. For instance, research on internal migration trends shows no long-term tendencies toward increasing migration rates over time (Bengtsson and Johansson 1994; Lundholm 2007; Eliasson et al. 2007) and the regional age composition, shaped by migration in earlier decades, is a major and stable determinant of the future regional age composition. The declining rural areas in the forest-rich regions have an ageing population and a relatively small share of young women of reproductive age and, due to labour-market and education opportunities, the out-migration of young people from these areas persist. So, indeed, major demographic and socio-economic features trigger further population decline in the peripheries. Looking at the European trends (Geppert and Stephan 2007), regional divergence seems to dominate within nations, with increasing competition for labour, continuous out-migration and brain-drain from more peripheral regions, possibly resulting in cumulative vicious circles. Current trends seem to indicate a population concentration also in the near future, while on the local level the trends are less certain,

since the growth of population in peri-urban areas is highly dependent on the preconditions for commuting.

However, the forces of continuous regional concentration and population decline in peripheral regions have been and will probably in the future be counteracted by various forces, including the role of regional policy, but also by patterns of immobility and to some extent by counter-urban mobility.

Migration and mobility

Internal Migration

It is often claimed that contemporary society is characterized by mobility and that we live in “Age of Migration” (Castles and Miller 2003), but in most contexts migration show no trends of increasing (Bengtsson and Johansson 1994; Fischer et al 1997; Lundholm 2007; Statistics Sweden 2009). Moreover, mobility is often in focus in the literature and the debate, whereas the crucial role of immobility is often neglected (Hammar 1997). But in fact, most people tend to stay in the same region for a long time and even throughout their life-course, and while people are increasingly mobile at young ages, settled people aged over thirty with family, job and house tend to be less mobile, in both urban and rural areas. Fischer et al. (2000) found that 92% of those aged over thirty stayed in the same region for at least a ten-year period, and in this group we see tendencies toward decreasing mobility (Lundholm 2007). One explanation is people’s investment in place-specific human capital, for instance social networks and local knowledge, crucial to both leisure and work-related activities; a capital that takes a long time to accumulate and will be lost in the case of migration. In many cases, long-term residents have become so-called *local insiders* who rarely move away from their place of residence and who are highly dependent on the local preconditions for employment and leisure activities (Fischer et al. 2000; Fischer and Malmberg 2001). And if we take forest industries and hunting as examples of employment and leisure activities, the link to future forests is obvious. In most rural settings the long-term resident population is a major actor in shaping the future of the local forests.

But although immobility and the presence of long-term resident people is a dominating phenomenon in any locality, the number, composition and motives of in-migrants are also crucial for the demographic structure. And while migration to the major labour market still dominate in the Swedish context, several studies of residential choices indicate an increasing importance of social and environmental motives (Garvill et al. 2000, 2001; Lundholm et al 2004). One possible consequence of this could be increasing preferences for rural residence. But previous studies indicate that remote rural areas are seldom attractive destinations, while rural areas of the periurban zone are more important attractions, especially for young families (Hjort and Malmberg 2006). In a study of young adults in Sweden, rural and urban residents with a rural background regarded a natural environment as a more important feature of their current living environment compared to lifelong urban residents (Hjort et al. 2009). Heberlein and Eriksson (2005) found that urban residents with a rural background differed from those born in the city in their attitude to wilderness. Obviously, the in-migration of rural residents to urban areas still leaves traces of the rural background in the minds of the urban population. But on the other hand, coming generations will to a greater extent have an urban background and probably more “urban” attitudes to utilisation of forests, as a scene for consumption of recreation and events.

In the Swedish context second homes are important for maintaining the contact with the countryside and their rural background, and as many as 46 percent of Swedes have access to a second home (Marjavaara 2007). Thus, summer holidays may be the time when many Swedes visits forests outside the urban regions. One further consequence of out-migration is an increasing share of forest owners living far away from their properties; this may influence how forests are

utilized, although in a study from Värmland, Karlsson (2007) did not find any major differences to local forest owners. In conclusion, many people who now live in urban areas have their roots in the rural parts of the country. They may have ties to their home area and interests in the natural environment in their area of origin – links that may disappear in the next generation.

In the debate over future population trends in rural areas it is often assumed that retired and wealthy people would move to live in rural areas, in their previous second homes, in their place of origin or in some of the attractive regions in Sweden, as a parallel to the British moving to the sun coast (King et al 1998) or American pensioners settling in places like Florida (Serow 2001). This phenomenon undoubtedly also exists in Sweden but, thus far, its effect on local and regional population trends from return migration to rural areas is very marginal since migration rates for people over 65 rather low (Lundholm 2009). However, some international retirement migration can be found in parts of rural Sweden and several municipalities have great expectations regarding the positive effects of international migration on their future population trends.

International Migration

Sweden's rather stable population growth throughout the post-war period has, as mentioned, been possible thanks to a rather high immigration rate, as both a consequence of the direct migration effect and a result of lower birth rates, and the rather optimistic population forecasts by Statistics Sweden are based on assumptions of a quite high and stable immigration from abroad. Immigration has also contributed to the rejuvenation of the Swedish population and has been a major driver behind the regional concentration of the Swedish population, since most migrants end up in the major urban regions. Hence, one important issue for Sweden's future population change is how plausible these scenarios will be from a short-term and long-term perspective.

According to Fyles et al. (2008), Canada's positive future population trend can be maintained through the adaptation of the immigration policy to the needs, thus assuming that there is a constant immigration potential. But for instance Hammar et al. (1997) questioned the common assumption of unlimited immigration potential. Perhaps the changing population and economic trends will dramatically alter the preconditions for immigration to Sweden. And if many European countries experience a rapid ageing process and even decline, the competition for labour may be harsher, and if the forecasts of rapid economic growth in for China, India and Latin America come true, potential immigrants may be more likely to choose more proximate alternatives to the Swedish. So, perhaps the projections of Statistics Sweden are based on implausible assumptions about the immigration potential. And, evidently, a low immigration scenario would result in a very different demographic trend for Sweden when it comes to population size, composition and geographical distribution. On the other hand, trends of further economic growth in today's developing countries may result in increasing migration pressure at least in the short run, since we know that economic growth in a first stage tends to trigger out-migration, while in a latter phase improved economic opportunities in the country of origin may restrain out-migration and facilitate the return of previous migrants (Fischer et al. 1997). Also, the possible return of current immigrants residing in Sweden is a factor that may change the preconditions for future population trends.

Nevertheless, a most likely forecast for the coming decades is a continuous immigration to Sweden from developing regions and this is also the assumptions in the forecasts from Statistics Sweden (SCB 2009). This will partly counteract the country's ageing process and also affect its regional distribution. Moreover, the immigrant population originates primarily from cities and thus constitutes a predominantly urban group in the Swedish population; previous attempts to distribute the immigrant population have proven rather unsuccessful (Borgegård et al. 1998). A major ground for immigration to Sweden is family unification, hence recent migrants settle where the previous migrants already live and the major division between urban areas with large immigrant populations and rural areas and small towns becomes more apparent. But although the population

forecasts of Statistics Sweden assume a continuous high immigration to Sweden, the share of (first-generation) immigrants in the population will increase only slightly (see Figure 3). However, at any rate, immigration results in an increase of the urban population, and many immigrants live separated from contacts with forest and most of them lack previous relationships with the kind of nature that Swedish forests constitute, which could be important for their value and attitudes to nature, wilderness and forests. And Blomqvist (2003) found differences in attitudes to utilisation of forests, when immigrants were compared to native Swedes.

But apart from the immigration into urban areas, some international migrants may have moved to Sweden with the objective to settle in remote rural areas. These migrants probably have other relationships with and attitudes to Swedish nature and forests. They could potentially have a great influence on the future of forests in the local arena. But though many municipalities have put effort into triggering this kind of immigration to their region, the outcome has thus far been rather limited (see for instance Nedomysl 2004). And the expectation of huge immigration from for instance Germany or the Netherlands should be viewed in relation to the negative population forecasts for these countries.

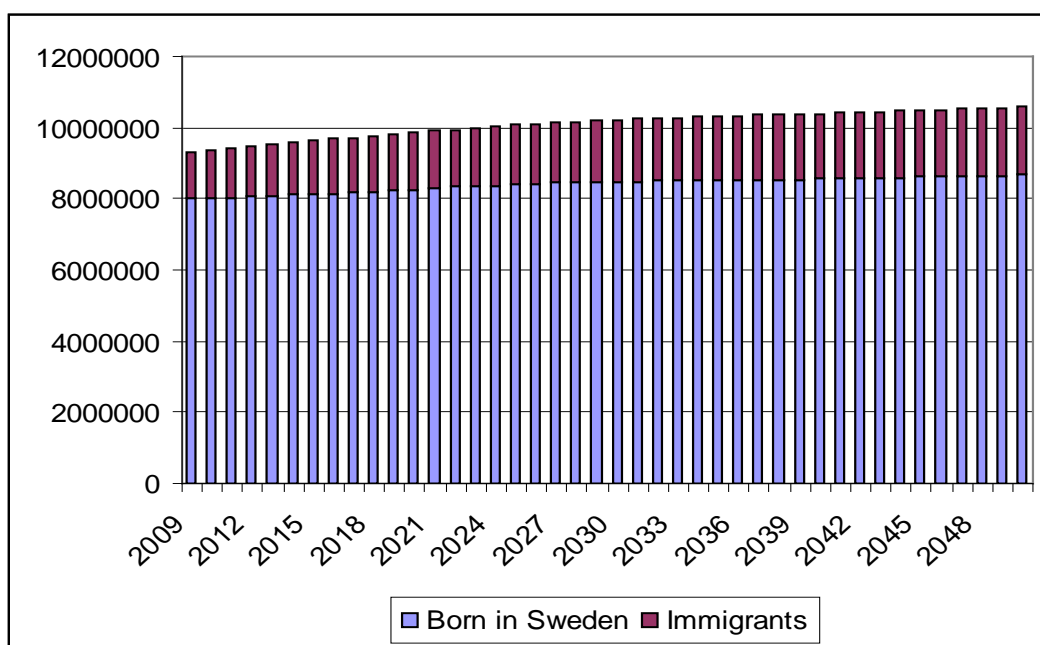


Figure 3: Immigrants as a share of the total Swedish population, main alternative in the population forecasts for 2009-2100 by Statistics Sweden 2008.

Temporary mobility

Though it is often claimed that we live in times of mobility, statistics reveal diverging mobility trends, and while internal migration is rather stable over time or even decreasing (Lundholm 2007), we find a constant increase in temporary mobility and, in fact, people travel much greater distances today than ever before (SIKA 2009). Temporary mobility in different forms becomes increasingly important. People commute to jobs, travel for holidays and go for visits. And while the focus in the population literature is on the permanent resident population, any place has a “*second population*” of temporary workers, visitors or residents – commuters, tourists, second-home owners, etc. – who are of vital importance in the local society. From an everyday perspective, increasing commuting and everyday travel have a more important effect on the size of functional regions than does urbanization. Consequently, in their daily life, people potentially share their space with a greater number of people than ever before and also have access to a wider geographical area, due to improved transportation (mainly cars) and changing behaviour. As a

consequence, people have potential access to more recreational areas, including forests, and every forest acre is potentially accessible by more people. If temporary mobility on a weekly or yearly basis is added, this pattern is accentuated further. More important than the potential access to many places, however, are probably the multi-local or bi-local features of Swedish society. Not only do people commute between their work and place of residence on a daily basis, they also have second homes (Müller 1998; Marjavaara 2007); a holiday cottage or an urban apartment to facilitate long-distance commuting. The bi-local feature is usually a link between the urban and rural societies – a way for modern urbanites to maintain contact with, for instance, forests.

4. Conclusions

Population trends, on local, national and global levels, are one of many important drivers influencing the future of Swedish forests. And in a way, the major features of population trends in the coming decades are easy to foresee on an aggregate level. However, on local and regional levels and in the far future, forecasts often become ‘guesstimates’. Even more difficult is anticipating the consequences of future population trends. But obviously, changes in world population growth are vital to the demand for forest products. And, scrutinizing the forecasts of leading research institutes, some distinct features of potential importance for the future of forests can be found. For some time, at least, global population growth will continue and presumably contribute to increasing demand. However, the forecasts also foresee a slow-down of world population growth, and by the mid-21st century a decline, starting in today’s developed countries. Simultaneously, the world population is ageing and which may constrain economic growth in developed countries, while in the developing countries the effect of the age structure transition could be the opposite, triggering further economic growth and demand for natural resources. Hence, the new trends in world population may influence demand for Swedish forest products in two ways. By contrast to the more pessimistic population forecast for Europe, the projections for the official Swedish population are based on rather hopeful assumptions. And if the forecasts come true this will have some more positive effects on future demand on the Swedish market, although in Sweden as in other contexts the demand is certainly determined by so many other unforeseeable factors, including economic growth and technological development.

In the Swedish context, the impact on future forests may also have been influenced by changes in the population geography and population composition as well as the geographical mobility. While population colonization in the 19th century resulted in a dispersed settlement pattern and population growth in forest regions the trends of the 20th century created a regional concentration and urban growth with a relative decline in forest-rich regions and population decrease in rural areas. Since urbanization in Sweden is a rather recent event, many people still have their roots in a rural landscape. Forests have been part of the childhood landscape – the familiar environment just around the corner – but also the base for livelihood, as the main income or as an additional source. Urbanization separated the population from forest lands, but the counter- and suburbanization processes in the 1960s and onward relocated many people to peri-urban areas, and today the urban and peri-urban forests are the major scenes of forest-based recreation. Forests are part of the consumption landscape, occasionally visited by urban and semi-urban populations. Looking at the current trends of population redistribution in Sweden, we see few signs of a changing pattern; the settlement pattern is quite stable and a slow decline is the most likely outcome in the more sparsely populated forest regions. And on the local level, the dispersion into peri-urban areas has dominated for many decades, but the future trend is more difficult to anticipate since the expansion of commuting zones is highly dependent on future transportation costs.

Whilst the focus is often on the mobile population, it is important to remember that despite population decline in rural areas a majority of the population in the forest-rich regions are people who have continued to live in the same place for decades: local insiders with both a rural origin and a rural residence. On the national level, however, contact with the rural landscape and attitudes are obviously changing. New generations have a predominately urban background; their contact with forests is shaped mainly by visits to urban forests or occasional visits to the rural areas. Also, the international migration tends to reinforce the urban element in the Swedish population and change the relationship with the Swedish forest, through both the constant immigration from abroad and the emigration and return of many native Swedes.

Further, previous research on how people use forests indicates differences between the young and old, and the possible consequence of an ageing population for Swedish forests is another crucial issue. One conclusion could be that recreational activities such as berry picking and walking would

increase, since they are more common among the elderly, but if the lifestyle of today's elderly is cohort-specific rather than age-specific, this may be a temporary trend.

Despite urbanization, many people in Sweden today have the opportunity to maintain contact with forests, not only due to an everyday accessibility but also through different forms of temporary mobility, e.g. visiting second homes or relatives in rural areas. There is a link back to rural life, maintained over generations and through activities in daily life or during holidays, for instance. There is also a link through the property many people have in rural areas – forest lands or second homes. Hence, the dispersed population landscape of previous centuries is still influencing how people use contemporary forests and the attitudes to how they should be utilized, among people in general as well as political and economic actors.

5. Take home messages

1. Though the world population will continue to grow during the coming decades, demographic forecasts anticipate a slow down or even a global population decline, by the mid-century, which may influence the future demand for forest products and the geographical location of growing markets.
2. The age structure transition will result in an ageing population in developed countries while some of the today's developing countries may experience an increase in the share of people in productive age. This could affect geographical distribution of economic growth and the global demand for forest products.
3. Since elderly people may have other attitudes and opportunities to the utilization of forests, ageing population may also influence the way people value and consume forests and forest products.
4. Though urbanization in the Swedish context is today rather slow, forest-rich regions will probably continue to experience a population decline, with possible negative effects for labor supply in the forest sector. And consequently most people will in the future have their direct contacts with forests in the peri-urban zones.
5. In the future, population increase is dependent on immigration. And since most immigrants, similar to the majority of the native born, settle in urban areas and have an urban background, their attitudes to for instance recreational activities in the Swedish woods may be different from that of the generation who moved to the cities in the 1950s, 1960s and 1970s.
6. Temporary mobility and multi-local settlement patterns could be one way for people to maintain their direct contacts with the forests regions although most people in the future will live in the cities.

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