

Is regional expansion sustainable?

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Abstract

The expansion of regions is increasingly due to people commuting longer distances to work. Three studies into some of the effects of regional expansion in the Greater Stockholm region show that this kind of expansion sometimes is neither profitable to society nor to the individual. Our studies focus on: migration and commuting patterns; commuting from children's perspectives; the effects of commuting on disposable income; and finally, some of the environmental effects.

Not everybody can commute and women tend to be relatively worse off compared to men. Our study on the impact on disposable family income in Greater Stockholm shows that large increases in salary are also needed to compensate for the costs of commuting. Normally only one parent (the father) commutes, and the mother then takes on more than half the responsibility for the children and home. To manage this, mothers choose jobs closer to home and they reduce their working hours. Thus women experience reduced income and career possibilities in these families.

Our studies demonstrate the need to broaden the perspective in discussions on regional expansion. As regions develop and expand, increased knowledge of a range of consequences is required to strengthen the positive effects and mitigate the negative ones resulting from this change.

Introduction

Regional expansion means that regions defined by functional activity are growing in area. The most prominent example of this is labour market regions.

A classic starting point for regional development is that regions must increase their population as a basis for increased economic growth. At the same time, it is a reality that Sweden is sparsely populated (approx. 20 inhabitants per km²). Sweden is a prosperous country. This prosperity was built up during the last century when Sweden was becoming an industrial society. During industrialisation, people migrated from rural areas to find work in newly-industrialised urban areas. Today, migration patterns are more diverse; people do not necessarily need to migrate to find work. As radically improved transport and communications in recent decades have reduced the need for the labour force to live nearby, workers can now commute across regions that are larger in area. This regional expansion is currently occurring through the integration of previously separate places (such as small towns on the urban fringe) into larger cities through improved transport and communications.

For quite some time now, young people have been an important group in overall patterns of residential mobility in Sweden. Between the ages of 19-23, many young people move to a university town to study or work. There are approximately 25 university towns in Sweden. A few years later, some young people move again, this time to one of the three large cities (Stockholm, Gothenburg or Malmö). By the age of 30 many people have children, and then many of them move to the suburbs. Most people tend to settle permanently in the area they live at this age (Boverket 2004a). As a result, one half of Swedish municipalities suffer from an emigration of young people and thus have an ageing population. Regional expansion with increased commuting is a means to try to change this.

The Swedish Government's major goal for regional development is to create well-functioning and sustainable labour market-based regions, with good levels of service provision, in all parts of the country (Swedish Government proposal number 2001/02:04). Today, Sweden has eleven economically strong growth regions. All eleven are metropolitan regions or regions with universities or other higher education institutions. Greater Stockholm is by far Sweden's strongest region. Stockholm is also the only Swedish region that is fully competitive in comparison with similar regions in Europe. Small and medium-sized regions are in many cases vulnerable to structural changes in the private and public sectors. The aim is that each region should contribute as much as possible, considering its specific circumstances, to national aggregate growth. More new viable enterprises are needed to create dynamic industry and commerce. New enterprises are important bearers of change and innovation (Nutek, Swedish Agency for Economic and Regional Growth 2006). Debate on regional expansion and increased integration within regions focuses on developing the functional aspects of regions. The usual starting point is to divide Sweden in terms of its different regional labour markets, but regions defined by other aspects (such as higher education, services and the housing market) may have different geographical territories than regions defined by the labour market alone. Regional expansion most often means that labour market regions have become larger. Through increased opportunities for both employers and workers to choose a labour force and jobs respectively, security has increased for both, as more alternatives are available. The size of labour market regions varies however; according to the individual worker's profession, level of education and gender. In the Greater Stockholm region in 1999 for example, there were fourteen labour market sub-regions for less-educated women, while for highly-educated men there were only three (Dahl et. al. 2003).

Long commuting distances are most usual for people who live in large cities or in rural settlements. Travelling one hour in each direction is considered the maximum tolerable limit by most people. This acceptable upper limit has not changed during the last twenty years (Swedish Board of Housing, Building and Planning 2004). Most people however, spend much less time getting to and from work. This development, where much more of the day is used to commute and many people have work a long distance from home, has many consequences for both the individual and society.

The Swedish Board of Housing, Building and Planning has as its vision that all people shall live in a high quality residential environment. In this vision, a good and healthy living environment is central. At the Board, we discuss what is important for residential quality and a good and healthy living environment. Part of the Board's task is to be a source of information on the consequences of regional change and regional expansion for both the human residential environment and the physical environment. Some of the important questions in this knowledge building include how society and individuals are affected by regional expansion and what influence increased commuting has on people's experience of their residential environment. It is also important to illustrate different economic, ecological, social, cultural and political consequences of an increasingly larger part of the population using an increasingly larger part of its time away from home.

In Table 1 below, a number of possible effects of regional expansion are summarised. These are divided according to the pillars of a sustainable society: democracy, social circumstances, economic circumstances, effects on the physical environment and cultural aspects.

Table 1. Possible positive and negative effects of regional expansion

	Positive effects	Negative effects	Unclear effects
Democracy			
		Local democracy and participation suffer due to time limitations brought about by more time away from home	
		Resident participation suffers due to time limitations brought about by more time away from home	
Social sustainability			
	More types of residential environments to choose from	Dormitory suburbs with increased anonymity and reduced security	Distance to services may increase or decrease?
	Economic viability of local services increases	Increased traffic noise	
		One parent must take an inequitable responsibility for the home and family	Effects of parental absence on children?
		Equality between the sexes decreases when one parent (most usually the father) commutes	
		Reduction of contact within the family	
		Tighter time margins, increased stress and a more sedentary lifestyle	
Economic sustainability			
	Increased supply of well-educated labour	Increased social costs through increased transport needs	Increase or decrease of disposable income?
	Increased supply of appropriate jobs for a greater part of the labour force	Disadvantaged groups find it harder to access the labour market	Increased salary for individuals?
	Life-cycle income increases and career paths are enhanced	Greater time costs for single people	
	Increase in the tax base		
Ecological sustainability			
	Increased possibilities for developing environmentally-friendly transport	Increased stress on the physical environment	
		Open space reduced to cater for infrastructure and suburban expansion	
Cultural sustainability			
	Cultural environments in rural settlements can continue to have a permanent population	Reduced attachment to both place of residence and place of work	
	Increased potential audience size in and around smaller towns leads to increased supply and choice of cultural activities		

Some consequences of regional expansion

Different studies on regional expansion usually focus on the effects of a larger labour force for economic growth. But as the table above illustrates, there are many other aspects that are influenced by regional expansion. It is not possible at one time to take up all the consequences, so the Board has chosen to gather three different studies in a report to illustrate some of them. The questions that the studies attempt to answer are:

- How has commuting grown and who commutes?
- What guides the choice in place of residence and how does this affect children?
- How are children influenced by their parents' commuting?
- How cost-effective is commuting for families?
- What are the environmental effects on increased work-related commuting?

How has commuting grown and who commutes?

Commuting in Sweden has grown both in terms of the number of people commuting and the distances travelled. The average commuting distance has grown by just over 50% since the beginning of the 1970s when it was estimated at approximately 10 km per day. Today, the equivalent Swedish average is 15.6 km. For the Greater Stockholm region, which is Sweden's largest commuting region, today's average is 18.4 km (Svedin 2005). The region has just under three million inhabitants and 47 % of the population is in the labour force (Statistics Sweden, 2005), and in 2002 just under 530 000 people commuted daily to work (Östling Norrman 2003).

There are large differences in commuting distance and mode of travel between different groups of commuters. These differences depend upon gender, level of education and also where people live. Swedish men commute on average twice the distance that Swedish women do, and the longest commuting distances are travelled by well-educated men.

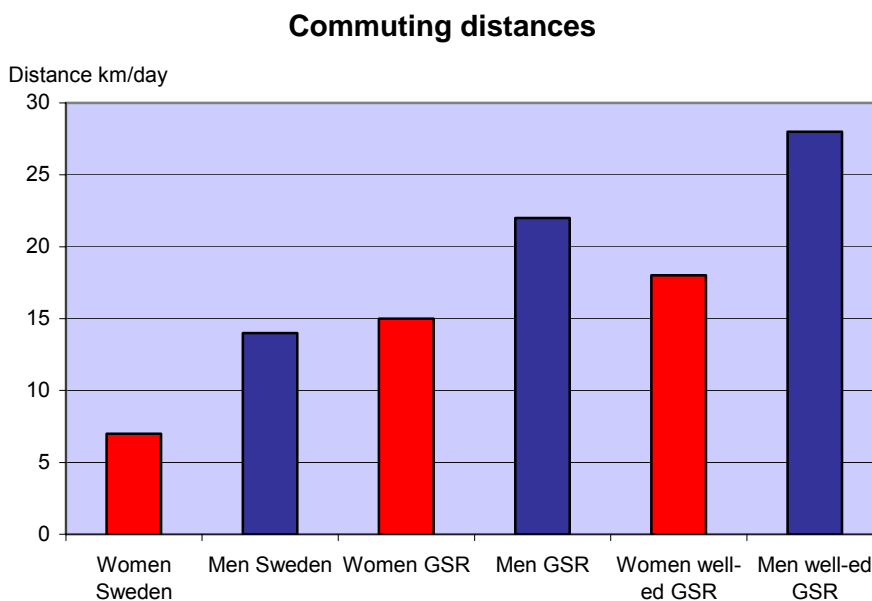


Figure 1. *Commuting distances are dependent on gender, level of education and also where people live. (GSR= Greater Stockholm Region; well-ed GSR= Well-educated Greater Stockholm Region)*

A region with a limited number of larger labour markets has until now been best utilised by the most mobile group, in other words men with high levels of education (Dahl et. al 2003). This lifestyle probably cannot be copied by other social groups, without the situation becoming socially unsustainable (Swedish Institute for Transport and Communications Analysis 2004). Women with children between 0-6 years of age reduce their travelling considerably compared to when they didn't have children. This emergent difference in travel behaviour between women and men remains throughout the life cycle (Nordström 2005). Women often take jobs for which they are over-qualified to avoid long commuting distances and are therefore restricted to a smaller and more localised labour market thus having fewer possibilities to develop their skills. Women therefore gain the least from regional expansion.

What guides the choice in place of residence and how does this affect children?

An important lifestyle change in recent years has been that individuals (and especially younger people) have become more mobile (Nordström 2005). The Swedish government's proposal for regional policy states that it is possible that only 20% of people who move from one place to another do so for reasons related to their work (Swedish Government Proposition 2001/02:04). Other studies show this figure may be up to 40% (Niedomysl, 2006). For individuals that are psychologically prepared to move, there are often good possibilities for feeling at home in a new place. (This may also be referred to as having a degree of attachment to a place). Childhood can be seen as a preparation for adult life and personal adjustment to the residential environment, thus attachment to a place can be seen as part of this preparation. An attachment to a place as home is presumably formed early in life and is therefore hard for the individual to influence. The individual with a higher education has often had to move away from their childhood home in order to undertake their education. Moving early in adult life means that it is often easier to adapt to new environments later in life.

Studies show that young people who have grown up in rural areas generally believe they will only move to urban areas for a limited period to undertake further study or to get specific employment experience. They believe they will then return to their home region to settle and bring up their children (Nordström 2005). A study that investigated young people's predisposition to move away from, or stay in their childhood home town or village concluded that attachment was dependent on gender, attachment to the particular place and integration into local social networks, and further that working class boys expressed the strongest desire to remain in their home town (Trondman 2000 in Nordström 2005). Furthermore, it is probable that stronger sense of attachment to a childhood home town strongly influences an individual's future plans – if the individual wants to stay in their home town, they choose their workplace to fit this desire – if the individual wants to move away then they can more freely choose the location of future employment and a range of potential professions. Regional expansion based on increasingly better transport and communication can be a way to improve the labour market for those who prefer not to leave their home town (Swedish Institute for Transport and Communications Analysis 2004).

Children are a determining and motivating factor in the decisions that parents make about their family's future. One of the important issues in the decision-making process is that children should enjoy a good residential environment in which to grow up. The mobility of families with children has been influenced by three factors for quite some time:

- The physical size of the home
- The family's economic circumstances, and
- The age of the children (Nordström 2005).

Recently, two new patterns have begun to emerge in terms of the place of residence of families with children. One group of families stays as long as possible in the inner city, while the other group chooses to move out to small country towns and rural settlements near the urban fringe (Nordström 2005). The growing tendency to remain in the inner city depends on the work situation of the parents, especially today where women have an increasing interest in an independent professional career. Women as a group prefer the inner city, as it is close not only to jobs, but also to childcare and other services. The large range of activities on offer and the local pulse of the inner city are two social advantages that many mention as reasons for remaining in the inner city with children. Those who instead choose to live in small country towns outside of large cities (and their suburban areas), do so as their choice of place of residence is guided by criteria other than closeness to the workplace (Nordström 2005). A study conducted by the Uppsala Kommun¹ found that of those households which moved to small country towns in their area, 70% were families with children (Uppsala Kommun 2004). These families are most interested in living close to other families and in smaller places there are services such as schools and childcare. The choice to live in small towns and rural areas has led to a calmer and more secure residential environment. These families also feel it is easier to interact with other families in a small town than it is in larger, more anonymous cities (Uppsala Kommun 2004). Families need access to one or often two cars to be able to live in these smaller places if the parents don't work locally. For most people that choose this type of residence, it means they live an urban lifestyle in a rural setting.

Life in large cities and life on the countryside each entail different types of freedoms and limitations for children, both in terms of their relationships with their parents and in terms of their ability to explore the local environment (Nordström 2005). Children who are living in rural settlements must take the bus to school in towns, and because they also undertake many of their free-time activities in town, often spend less time at home than children who live in urban areas. They are also often dependent on adults (most often their parents) to be able to travel to activities when city children of the same age are able to travel by cycle or public transport. In cities it is the amount of traffic on the streets that limits children's mobility rather than distance to activities. As development becomes denser, especially in city centres, the spaces that children can access outdoors are more limited, which reduces their mobility (Nordström 2005).

How are children influenced by their parents' commuting?

For many individuals, regional expansion means increased commuting and that more time is used to travel to and from work. No studies exist that demonstrate the effects on children due to their parents longer commuting or the ways that families manage this situation (Nordström 2005). Children are affected by the absence of their parents regardless of the reason behind it. The daily care needs of children can partially be met through publicly provided childcare and private social networks. But children receive most of their sense of security from their parents and this cannot be replaced by other adults. The presence of adults is important for children and young people of all ages, but the need for parental contact decreases as children grow older. Children of preschool age require the presence of parents and the amount of time together is determined by the child's need for rest and play. Children in the early years of school need the attention of their parents especially concerning school time, getting to school

¹ Uppsala Kommun is the local authority that covers the City of Uppsala and surrounding villages and rural areas. The entire area covered by the local authority was home to 182 076 people at 31 December 2004 (Statistics Sweden 2006).

and their homework. Teenagers also need contact with their parents, but this need is mainly for someone to listen to them. The presence of adults determines children's and young people's level of trust in adults, and their understanding of what it means to be an adult (Nordström 2005).

An ongoing relationship with adults is the most important factor in the small child's development of an internally consistent sense of self and an understanding of what is happening in their immediate environment (Nordström 2005). Continuity is also required for children to be able to feel secure while they explore their immediate environment. An appropriate quantity of time with small children cannot be replaced with increased quality of time with them, as they do not have the same understanding of time as adults do. Parents strive to adapt to different needs to give children the space to avoid being drawn into the adult world's understanding of time earlier than necessary. This means that a child does not necessarily need to recognise a parent's increased absence as negative. This is because the other parent often takes a greater responsibility so that the child's daily routine does not change (Nordström 2005). The need for children to have at least one of their parents nearby means that in most cases, mothers cannot commute. This will remain so as long as the primary responsibility for the care of children resting with fathers remains the exception rather than the rule.

How cost-effective is commuting for families?

The changes in disposable income of family economies when at least one family member starts to commute have been calculated by Svedin (2005). The calculations cover four different types of households in the Greater Stockholm region:

- Lifestyle commuter – a person who originally lived and worked in Stockholm, but whose family has moved to a small town as they prefer the lifestyle there. The commuter keeps working in Stockholm after the move and commutes there from the new family home.
- Newly-employed commuter – a previously unemployed person who lives in a place where the local labour market is weak and begins commuting to access available work in another part of the region. The commuter does not change place of residence after finding work elsewhere.
- Career commuter – a person who originally lived and worked in a town some considerable distance from central Stockholm, but who has chosen to work in central Stockholm to further their career.
- Peripheral commuter – a person who lives in one of the peripheral parts of the region who needs to commute to work as there are no appropriate local jobs.

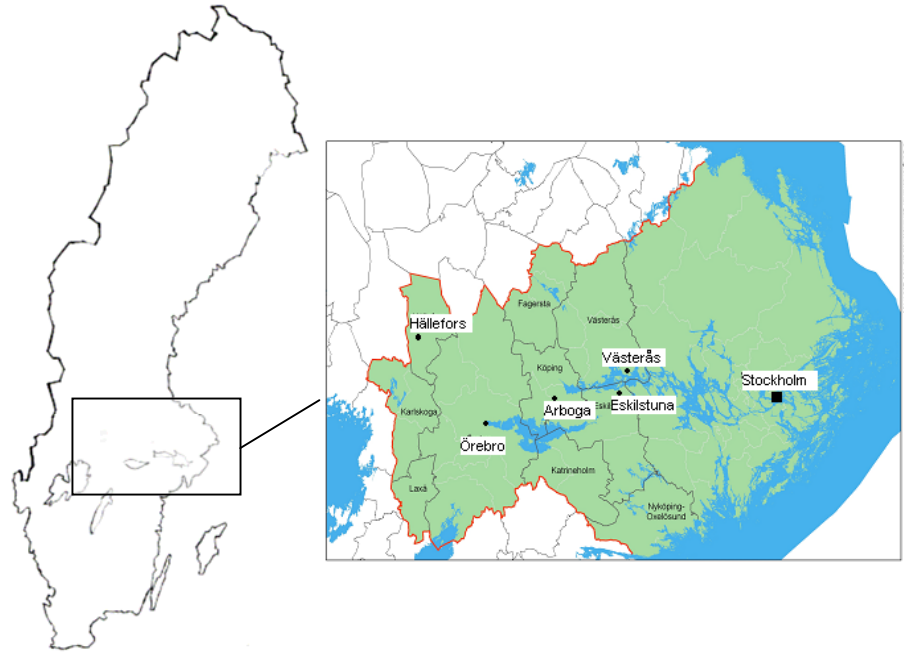


Figure 2. Sweden and the Greater Stockholm Region

The four calculations are based on travel times and actual travel costs. The study only includes families with young children. The reason for this limit is that the time aspects of commuting have consequences for the entire family's life. One premise of the calculations is that when one adult in the family starts commuting and thus spends more time away from home; the other adult correspondingly reduces their working hours. Furthermore, the costs of housing, childcare, resultant reductions in the length of the working week and insurance are also taken into account (Svedin 2005). The salaries of the different kinds of work, which are used in the examples, are shown in table 2 below. The calculations focus only on the time when commuting begins, which means that changes in the value of housing and longer term gains in income that can be expected over a longer timeframe are not included. A comparison for each household type was also undertaken where travelling time is valued in the same way as time spent in the workplace (Svedin 2005).

Table 2 Average salaries Sweden 2003 (Statistics Sweden, Income structure statistics [Lönestrukturstatistik] 2003)

	Men (Euro)	Women (Euro)
Well-educated officials Stockholm region	3 300	2 600
Industrial worker East-central Sweden (excluding Stockholm)	2 400	
Pre-school teacher (public sector) East-central Sweden excluding Stockholm		1 600
Private sector official Sweden	2 800	
Public sector official East-central Sweden excluding Stockholm		2 100
Nurse (public sector) West-central Sweden		2 500
Industrial worker West-central Sweden	2 200	
Unemployed people get 80 % of their most recent salary the first 100 days, thereafter € 73 per day for another 260 days.		

The results from this study of household types show that there is little difference in income between

- A *lifestyle commuter* family, where both adults are well-educated officials, that has moved from Stockholm to a detached house in the large town of Eskilstuna (approx 91 000 inhabitants) situated 116 km southwest of central Stockholm. This journey takes slightly over one hour each way by frequent long-distance trains, and costs approximately € 300 per month. The non-commuting partner takes on more responsibility for the children and home, and thus reduces working hours.

and

- If the same family instead had chosen to buy a detached house for twice the price in a middle-ring suburb of Stockholm. The suburb Hässelby is situated 18 km west of central Stockholm and is accessible by the Stockholm metro. The journey to work takes roughly 30 minutes each way at a cost of less than € 60 per month.

If travel time is valued in the same way as time at work, then the commuting adult would be able to work in Eskilstuna for up to € 385 less per month (or almost 12 % lower salary) and still gain financially.

The *newly employed commuter* household is exemplified by a family in Arboga where the man in the family (previously unemployed) has got a job in Västerås. Arboga is a small town (13 400 inhabitants), which has lost many jobs in recent years. It is situated 52 km west of Västerås. Due to shift work this commuter has to travel by car, which costs him € 220 per month. The commuting time is one hour and a half per day (45 minutes each way). The cost for childcare rises too. So in spite of a considerably higher salary (+ € 700 each month) the calculations show that this family increases their disposable income by only € 145 each month. If travel time is valued as work time however, this family is almost € 250 per month worse off than before.

The calculations for the *career commuter* family show that income needs to rise by nearly 40% (from € 2 800 to € 3 900 per month) to compensate for the extra cost of commuting from Västerås to Stockholm (compared to living and working in Västerås). If travel time is valued as work time again, the monthly income needs to increase by a further € 550 per month. Similar to the lifestyle commuter example, the non-commuting parent reduces working hours to be able to take more responsibility for the children and home. Västerås is a large town by Swedish standards, with 131 000 inhabitants. It is situated 108 km northwest of central Stockholm. The most convenient connection is by long-distance train, which takes 53 minutes one way, and costs almost € 340 per month.

The example of a *peripheral commuter* is taken from the most western part of the Greater Stockholm region. Here a nurse commutes from Hällefors to Örebro. Hällefors is a small industrial municipality which has lost many jobs during the last decades, and thus has a high unemployment rate. Sixteen percent of the 3 122 working inhabitants commute to other municipalities to work. Hällefors has less than 7 700 inhabitants and is situated 80 km north of Örebro. Örebro is the seventh largest town in Sweden with 127 000 inhabitants.

There is no economic gain either where the nurse commutes from Hällefors to Örebro. If she could find work in Hällefors instead of in Örebro, she could earn about € 590 less than the salary she would need to earn in Örebro to make it worthwhile commuting. The higher salary

earned in Örebro is needed to cover increased travel costs and the reduced salary for the non-commuter in the family who works part time to compensate her longer time away from home. Taking into account the unemployment insurance she would get (for a year) if she did not work in Örebro, the family would be at least € 100 per month better off if she didn't commute.

<p><i>Lifestyle commuter</i> Eskilstuna – Stockholm</p> <p>Disposable income unchanged</p>	<p><i>Newly-employed commuter</i> Arboga –Västerås</p> <p>Increase in disposable income + € 145</p>
<p><i>Career commuter</i> Västerås – Stockholm</p> <p>Income needs to increase by 40% (€ 1 100)</p>	<p><i>Peripheral commuter</i> Hällefors – Örebro</p> <p>Income needs to be + € 590 compared to working in Hällefors</p>

Figure 3. Economic consequences of commuting

The study shows that it is rarely economically beneficial for parents to commute in families with children, especially where parents must, or would like to reduce the time their children spend away from home (Svedin 2005). Over a longer time perspective however, families without children or with older children can probably receive economic benefits from commuting. The study also shows the positive effects of regional expansion in terms of increasing possibilities to live where one wants to and still be able to reach interesting jobs is limited in the more peripheral parts of the region (Svedin 2005).

What are the environmental effects on increased work-related commuting?

During the last thirty years, passenger transport has grown by approximately 50% and is expected to grow by a further 30% by the year 2020 (Swedish Government proposition 2004/05:150). Furthermore, Sweden has the highest average vehicle fuel use in the European Union (Swedish Road Administration 2005). Commuting has grown both in terms of the number of commuters and the distance they travel, with the average commuting distance having grown by just over 50% since the start of the 1970s.

Increased commuting results in an increase in daily passenger movements that can be made by public or individual means of transport. Public means of transport may use the road network (buses) or may be dependent on a fixed-track network (such as trains, metro or trams). The most common form of individual transport is the private car. The highest proportion of public transport in Sweden occurs in the Greater Stockholm region, where 40% of all journeys are made using public transport. In total, 55% of Swedes report that they usually commute to work by car. Most of these people drive their own car. New public transport connections only partially replace commuting by car (Axelsson 2005). Svealandsbanan is a new high-speed railway line from Stockholm to places such as Västerås and Eskilstuna that is used by commuters (see Figure 4). Using this new railway, a journey from Eskilstuna to Stockholm takes one hour today, compared to one hour and forty minutes before it was built. Four years after the railway opened a study of its passengers showed they consisted of three groups:

- 60-70% who used public transport before the new railway opened
- 25-35% who were new commuters in general (they had not commuted previously)
- 5% had previously commuted by car (Haders 2001)



Figure 4. Svealandsbanan a new high-speed railway line from Stockholm to places such as Västerås and Eskilstuna. (Source: Swedish Railways Region east 2005)

Other studies point out that improving fixed-track public transport networks also generates increased car usage. As connections are improved, more people see the possibility to commute greater distances, but few of them commute by public transport.

The increased proportion of car traffic leads to noise and increased carbon dioxide, nitrous oxides and particulate emissions, amongst others (Swedish Environmental Objectives Council 2004). These emissions affect climate, have negative effects on human health and contribute to excess levels of nutrients and acidification in the physical environment. In several Swedish urban areas today the environmental quality standards for many substances are exceeded (Swedish Environmental Objectives Council 2004). More than two million Swedes live in homes whose outdoor areas are affected by noise that exceeds national guidelines (Swedish Environmental Objectives Council 2005). Even if this type of noise does not lead to serious illness, it is still important in terms of its effects on general wellbeing and quality of life. The level of noise along highly-trafficked streets is unhealthily high. The increase in traffic ‘eats up’ to a great degree the positive effects of noise mitigation measures (such as noise walls and new windows) put in place in recent years (Swedish Environmental Objectives Council 2005).

Further to increased noise and emissions, development of the transport network requires the construction of more infrastructure, where more and more land is required. During recent years, the area of unexploited land in the Greater Stockholm region has decreased by 2 km² each year, due to the construction of new roads for example (Axelsson 2005). Larger and wider roads and new railways with faster trains require barriers that restrict the mobility of people and animals. A landscape criss-crossed by more roads and railways risks being split up into small packages where valuable natural and cultural environments are fragmented at the cost of both biological diversity and opportunities for human recreation. In a similar way, water resources are negatively affected through increased deposition of pollutants and the disturbance of aquifers. Furthermore, greater areas of land are affected by noise (or increased noise) and more people are affected as a result (Axelsson 2005).

Is regional expansion sustainable?

Regional expansion is considered important for growth. At the same time, our three studies show that it can be difficult to get regions to expand and grow in a sustainable way. Ever expanding regions can result in outcomes that are neither socially sustainable nor sustainable in terms of family economies. When regional expansion is built on increased passenger movements and these occur through existing forms of transport, this leads to many environmental effects that negatively influence the health of humans and the environment itself, which results in societal costs both in the short and long term.

These three studies show that the questions we have chosen to investigate closely cannot always be answered, due to fundamental gaps in our knowledge. There are no studies, for example, of the effects of parental commuting on children, or on how families manage situations where one or both parents commute. The answers to other questions are not always those that are expected. The studies demonstrate the need to broaden the perspective in discussions on regional expansion and in impact assessments of growing regions. As regions develop and expand, increased knowledge of a range of resultant consequences is required to strengthen the positive effects and mitigate the negative ones. It is also important to discuss the sustainability of commuting from a socioeconomic perspective. In such a discussion, the effects upon individuals must also be included. Furthermore, reference needs to be made to the effects on families and especially children. This can occur through analysis of the consequences for different groups defined by age, ethnic background and family situation, to name a few.

Who gains from larger regions?

The ability to adapt to new environments varies and this variation is dependent upon gender, attachment to place and social integration, which also influences the individual's mobility. Increased opportunities to commute can give those who do not wish to move the opportunity to participate in a larger labour market.

Not all people however, can gain from the larger labour market that regional expansion brings with it. When choosing their place of residence, most families with children are most concerned with finding an environment that is beneficial for their children to grow up in. For many this means choosing to live in smaller places where the labour market is not as big as it is in large cities. In order to balance everyday life with their careers, one or both parents need to be nearby to their children. This often means that women choose to either live in the inner city (with a good range of different work opportunities) or to work close to home instead of pursuing a career, which would require them to travel longer distances to work.

Economic advantages of regional expansion for families are questionable

Commuting also often means that the other parent in a family must put their career on hold, at least while the children are young. For the family's disposable income to increase, large increases in salary are required in order to compensate for the costs of commuting. Despite this, the preferences of individuals and families guide their behaviour and how they evaluate different factors involved with commuting. Regardless of the outcome in economic terms, families may judge the total outcome as positive. This often occurs, especially when families decide that the quality of the residential environment is more important than a long journey to work.

We travel more in larger regions

As one hour's commuting time in each direction as the limit for how long the majority of people can consider travelling, regional expansion requires good transport and communication alternatives that are quicker than cars. One strategy to reduce the negative effects of increased daily commuting is to coordinate the planning of housing, workplaces, infrastructure and services in a region, at the same time as technical solutions are sought which together can lead to reduced emissions and noise.

Public transport should be developed in places where the population is adequately dense and where interchanges can be developed to ease changes from one mode of transport to another (e.g. from metro to bus). In less densely populated areas, people may still need to use cars, but the regional environmental discharge will be improved as public transport use is increased in densely populated parts of the region. Developing opportunities for commuting in peripheral places (where public transport is limited), should lead to increased opportunities for individuals to be able to both choose a desirable residential environment and be able to increase their employment and career opportunities.

We need to understand more

Some examples on the need to continue investigating the human consequences of regional expansion include: How increased distance between work and home affects families (and especially children) needs to be studied more closely. This suggestion needs to be seen in relation to unemployment (for example) in the family. To be able to illustrate the consequences for families and children of growing regions and increased commuting, it is important to understand how families manage such changes and how parents continue to meet the child's need for parental presence. Furthermore, it is important to understand how children experience this changing situation.

Larger regions lead to increased passenger journeys, the majority of which occur by car. Car traffic generates many environmental problems. Large roads that carry high levels of traffic and high-speed railways become barriers that affect the mobility of people and animals. Increased road traffic leads to increased noise. When planning different solutions to urban growth, in many cases it can be as important to analyse how people experience this increased nuisance as it is to analyse measurable negative effects on health.

In cities, the mobility of children is limited by heavy traffic, while in rural areas, mobility is limited by distance and the absence of cycle paths and public transport. These different types of limits to children's mobility should be considered as important in the planning and development of public transport and cycle paths in housing development at (or just beyond) the urban fringe as well as with the building on green areas as the density of development increases in urban areas.

References

Boverket [Swedish Board of Housing, Building and Planning]. 2005. Adolfsson Jörby S (editor). *Är regionförstoring hållbar?* [Is regional expansion sustainable?]
The report includes the three following studies:

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