Low-carbon transitions and the good life
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Preface

Following the Swedish Environmental Protection Agency’s annual Climate Forum event, an idea emerged in late autumn 2008 about trying to initiate a discussion surrounding the notion that reductions in greenhouse gas emissions always entail sacrifices. The theme for the 2008 Climate Forum was “The Climate Impact of Consumption” (published as report 5903) and the final speaker, Professor John Holmberg of the Chalmers University of Technology, presented examples of projects where a reduction in emissions with a climate impact had gone hand in hand with other socially desirable outcomes. In the follow-up work after the Climate Forum, discussions were held on the prospects of establishing a research project on the theme that lifestyle changes that were beneficial in adapting society to climate change should also be beneficial for people’s well-being.

The Swedish Environmental Protection Agency has consequently financed a research team to use both its own theoretical analyses and studies of the literature to link together research on the low-carbon economy and on well-being and to ask questions such as:

- What factors that promote well-being can also be positive from a climate point of view? One example is that cultural experiences can enhance well-being, at the same time as being a type of consumption which has relatively low energy use.
- What factors that promote well-being can also be negative from a climate point of view? Individual mobility is, for example, positive for well-being, but it can be negative from a climate point of view.
- Is it possible to collate existing knowledge regarding the links between climate impact and well-being: in what ways do they go hand in hand conflict or are independent of each other.
- Is it possible to identify gaps in the knowledge and issues of interest? Of these gaps and issues, which ones are “knowable”, i.e. what can be illustrated by means of empirical research.

The overall aim was to produce knowledge that can contribute to ecologically sustainable development with the focus on the area of climate change in Sweden. The intention of the research initiative was to provide a basis for a prospective research programme.

The research assignment was undertaken by Jörgen Larsson and Sebastian Svenberg at the University of Gothenburg’s Department of Sociology, in collaboration with John Holmberg, Jonas Nässén and David Andersson from the Chalmers University of Technology’s Division of Physical Resource Theory, and is presented in this report.
Kristian Skånberg was the Swedish Environmental Protection Agency’s project coordinator. The researchers are personally responsible for the report’s contents. The report therefore does not necessarily reflect the views of the Swedish Environmental Protection Agency.
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1 Summary

The societal discussion on the switch to long-term sustainable emission levels is dominated by the idea that technological improvements can solve the problem without any need for changes of lifestyle. Others oppose this belief and instead point to an urgent need for sacrifices such as reduced air and car travel. The notion that lifestyle changes would imply reduced quality of life is so widely embraced that it may in itself be an obstacle to bringing about a political change towards reduced greenhouse gas emissions. But the limited amount of research that has examined the actual relationship between emission reductions and quality of life has not come to any clear conclusions. This report looks into an exciting and unexplored “third way” in the climate discussion, where we ask whether a greater focus on human welfare could, quite simply, become a driver towards sustainable development rather than an obstacle.

The report begins (Chapter 3) by giving an account of the various theories about what characterizes a “good life” and how it can be measured. Chapter 4 describes the various societal and individual factors that have been proven to influence individual well-being. We also look at the small field of research that has explicitly investigated the links between well-being and greenhouse gas emissions. The report’s contribution to this field of research is presented in Chapter 5 and consists of an analysis of three areas that we think are of particular interest. The first area of interest is urban development, which is of crucial significance in enabling people to reduce their greenhouse gas emissions and in attaining a high level of well-being. Research in this area shows that the choice of modes of transport and commuting distance, besides the impact on greenhouse gas emissions, have a major impact on well-being and stress levels. We also examine what a change in consumption mix, towards more services and less material goods, would mean for greenhouse gas emissions, and for human well-being. The third key area identified is individuals’ use of time, particularly in prioritising between work and leisure time.

We conclude (Chapter 6) with a discussion of how the links between households’ greenhouse gas emissions and well-being could be analysed using practice theory. Practice theory makes practices (e.g. commuting, holiday travel and cooking) the central objects of the analysis. The climate impact of a certain practice can be analysed by studying the consumption that it generates. This also makes sense from a behavioural point of view as it enables a matching of emissions with each practice’s impact on people’s quality of life. The last chapter (Chapter 7) identifies issues for future research that we believe may be important in contributing to new understanding in this area of research.
2 Introduction

A successful transition to a low-carbon economy represents one of the greatest challenges of the century. By “transition to a low-carbon economy” we are referring here to a long-term process of change leading to sustainable levels of greenhouse gas emissions from a climate point of view. Our focus is the long-term transition to what sometimes is called a “low-carbon society”. Defining the actual goal of such a transition is primarily a political issue. The EU and Sweden have adopted what is known as the two-degree target, which means that the average global temperature at the Earth’s surface should not rise more than two degrees above the pre-industrial level (European Council, 2005). A reformulation of this climate target to address emissions levels depends on a number of different parameters such as uncertainties in climate sensitivity, uncertainties in the carbon cycle (Caldeira et al, 2003), and when the emissions reductions are to start.

An approximate picture of what is required is given by Meinshausen et al. (2006), who show that having a 75% likelihood of reaching the two-degree target requires global carbon dioxide emissions to be halved between the base year of 1990 and 2050, to then approach zero at the end of the century. The scenario includes the fact that global carbon dioxide emissions increased by 36% between 1990 and 2007 (Boden & Marland, 2010). It is also reasonable to assume that emissions in rich countries need to decrease even more quickly, as measures in developing countries will take time. Åkerman et al (2007) therefore assume that Sweden needs to implement an 85% reduction in greenhouse gas emissions by 2050.

Figure 1: The extent of the climate challenge and components in relation to the transition to a low-carbon economy. The upper line shows the total historic global energy supply and how it can be expected to increase, while the lower line shows the equivalent usage of fossil fuels and how it has to be reduced to enable society to achieve the long-term climate targets. The “gap” between the lines needs to be filled by technological and behavioural changes.
The very substantial emissions reductions also have to take place at the same time as the global population and economy are growing. Figure 1 illustrates schematically the components that the transition to a low-carbon economy comprises in the direct sense, such as changed consumption patterns, energy efficiencies, new forms of energy and carbon capture, but the political and societal changes that facilitate such measures are naturally of equal interest. Low-carbon transitions require a forceful climate policy, which in turn requires normative changes in order for it to receive democratic support.

Why then is it relevant to introduce a quality of life discussion into the climate issue? To start with, it is naturally possible to view the transition to a low-carbon economy as one of several ecological, societal and economic preconditions for future generations’ quality of life. This is central to the concept of sustainable development, as in the frequently cited definition from *Our Common Future*: “development that satisfies the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Human needs are described differently in different theories, but one common conception is that satisfaction of needs constitutes a fundamental condition for a good life (Maslov; Max-Neef, 1991; Gough, 1994).

However, the focus of this study is not on avoiding the negative effects that climate change can be expected to lead to in the future, but on how the actual reorganisation of society might affect people’s quality of life. We focus on the transition to a low-carbon economy such as might occur for Sweden or similar industrialised countries.

A common standpoint in the environmental debate is that the transition to a society that is sustainable in climate terms will fundamentally have to take place through new technology, and that it does not need to affect people’s behaviour to any appreciable degree, for example that we will be able to continue driving cars to the same extent as at present, but that the cars will not cause any significant climate impact. Others instead emphasise that the transition to a low-carbon economy will require substantial sacrifices, e.g. that we will not be able to fly as much. A third position has recently entered the environmental debate and means that the transition to a low-carbon economy will require certain behavioural changes, but that they will primarily be *beneficial* to people’s quality of life, for example that increased consumption of services can enhance our quality of life. This third position appears attractive, but there is no research into actual links.

From the point of view of policy instruments, it also seems likely that society’s climate strategies need to be formulated in such a way that they do not conflict with people’s quality of life. People’s expectations regarding the effects of changes on their quality of life may, however, differ significantly from the actual effects, an aspect that will be dealt with later in this report. Accordingly, neither is it possible
to make the claim with any certainty that climate measures with beneficial actual effects on quality of life will gain political acceptance.

The aim of this report is primarily to examine the state of knowledge by presenting research that investigates links between the transition to a low-carbon economy and people’s quality of life, but also to make some initial attempts to identify possible strategies to support both “a good life” and low climate impact. The report will consequently be able to provide a basis for continued research in this area. We also hope that readers outside academia will find it worth reading and of interest and that the work will thus be able to contribute to the public discussion on the transition to a low-carbon economy.

The report is arranged in such a way that Chapters 3 and 4 present an account of objective and subjective theories concerning quality of life. These chapters recapitulate previous research and are not necessary reading for those who are familiar with this field of research. Chapter 5 constitutes the report’s main contribution to the research and analyses the links between the transition to a low-carbon economy and people’s quality of life. Chapter 6 looks more closely at how the practice perspective could be used for continued analysis in the field and Chapter 7 outlines future research areas.
3 Measuring the good life

There are numerous everyday expressions that are used to describe the good life, happiness and satisfaction, e.g. joy, doing well, being content, elation, living well etc. The research has developed various measures that seek to define the good life in either subjective or objective terms. It is also possible to distinguish between theories that use material conditions and those that also use other non-material values to define quality of life. Table 1 below summarises the various options and in the following section we will examine the different theories.

Table 1: Different perspectives on quality of life.

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3.1 Objective measures

Perhaps the most widespread measure of welfare is gross domestic product (GDP). GDP measures the economic activity within the nation state and is frequently used at a macro level as an indicator for comparisons of living standards between different countries. GDP has been severely criticised as a way of measuring welfare as it does not satisfactorily gauge actual welfare (Wolvén, 1990). This measure is often used to describe welfare, presumably because it is supported by the assumption that increased economic productivity functions as a rough indicator of welfare and also because GDP is a practical and reliable measure. In section 3.1.1 we present an account of how the development of utility theory in economics links income and well-being. A further reason why GDP continues to be used as a measure is that no other established measure is available. A number of alternatives have, however, been formulated and section 3.1.4 gives an account of these more broadly-based objective measures. Two more specific objective measures of welfare are examined in 3.1.2 and 3.1.3.

3.1.1 Income, preferences and well-being

Economic theory has had a major impact on how societal changes are assessed and evaluated, and this section takes a closer look at the link between level of income and well-being, as well as how the theory that links these concepts has emerged.

The development of economic theory can be usefully described as a series of attempts to encapsulate and explain how different outcomes can be assigned a particular value. Early economic studies concerned measuring production costs and income distribution, but they lacked a theory of how to evaluate different outcomes in relation to each other. The so-called labour theory of value solved this
problem by assuming that the value of a product or service could be linked to the amount of work that was put into it (Ricardo, 1823). However, it was hard to apply the theory, and economists instead started to become interested in the philosophical theory which postulated that the good lay in maximising the *utility* in which the action resulted. It was now possible to evaluate different outcomes or situations on the basis of their “utility” for people and thereby allocate them a value. It then remained to compare the alternatives and select the outcome that maximised the “good”. Jeremy Bentham, the father of utility theory, variously defined utility as something that could be described in terms of pain/pleasure, while on other occasions he considered that it was possible to quantify utility in monetary terms (Bentham, 1781).

During the 1930s the emerging science of economics was inspired by logical positivism, and came to focus on the possibility that economic transactions could function as indicators of utility. The work of Vilfredo Pareto and Eugen Slutsky was rediscovered, showing that many assumptions that were present in economic utility theory could be abandoned without impairing the comparisons. Along with Paul Samuelson’s theory of “revealed preference”, these works had a major impact among economists and the *ordinal revolution* was underway (see Robbins (1932) for an overview).

Samuelson’s theory is of particular relevance for our reasoning and, to put it simply, is based on the idea that examining the actual choices individuals make between different “baskets of commodities” can describe their preferences (Samuelson, 1938). Supported by assumptions about rational individuals, it now became possible to argue that consumers’ preferences, manifested through their actual choices, represented a better estimate of “utility” than the original Benthamite attempt. In other words, a shift takes place from a utilitarian concept with the principal aim of measuring the individual’s hedonic level of happiness to satisfaction of their preferences. This shift makes it possible to use objective measures of income to estimate well-being, as increased incomes lead to increased potential to satisfy different preferences. The assumption is simply that higher incomes give people more options to steer their lives towards whatever gives them more happiness. However, preference/gratification of need is a weaker measure of well-being than people’s actual conception of their lives, and we will return to criticism of preference-based theories of happiness research in section 4.2.2.

### 3.1.2 Standard of living studies

In the Swedish context, new ways of measuring welfare emerged in the work of the Low Income Commission, LIU (1970). What was looked for was a measure that was able to describe people’s circumstances more subtly than GDP and incomes were able to. It was also during this phase that the focus, above all in Sweden, fell on an objectively oriented way of measuring welfare, *disposal over resources*, rather than *gratification of needs*, the more subjectively oriented of the two alternatives (Wolvén...
1990). Erik Allardt has played a central role in the sociologically oriented studies that have examined people’s welfare in the Nordic region. He has written about how the development of objective factors emerged, and how characteristic of the period much of the research on quality of life has been, as well as how partitions between political cultures still remain. In Scandinavia, quality of life in the subjective sense has been somewhat absent in the research on social conditions. Instead, the majority of major research projects have concerned the development of objective factors such as measures of quality of life and welfare (Allardt 2003).

In global terms, Sweden was early in developing social indicators (during the 1960s and 70s) with the aim of measuring social circumstances, quality of life and changing trends. An extensive statistical survey was initiated with links to the government’s Low Income Commission, the Standard of Living Study, which within a few years was developed into a list of nine components1 that were regarded as important resources for the individual. The study describes these components as “disposal over resources in money, possessions, knowledge, mental and physical energy, social relations, security etc., by which the individual can control and consciously govern his/her conditions of life” (Johansson & The Low Income Commission 1970: 25 cited in Allardt 2003, own translation). In the actual selection and formulation of the components, consideration was given to the criterion of ability to exercise political influence, an aspect that was subsequently heavily criticised (Wolvén 1990).

Allardt maintains that prevailing social theories, culture and political development have a bearing on the way in which knowledge about standards of living and quality of life is produced, as well as how this knowledge gains political significance. The Low Income Commission was institutionalised through the “Institute for Social Research” (SOFI) and had a political base in Swedish social democracy. In contrast with the research in the Scandinavian countries, North American research has been more interested in subjective well-being. Allardt points out that while the standard of living surveys were developed according to the contemporary social democratic ideas, the research concerning subjective well-being is linked more to traditional American ideas related to the individual.

3.1.3 Capabilities

The capabilities approach (Sen 1985; Nussbaum 2001) is a theory that singles out particular skills or capabilities as universally central values in our lives. These values all relate to the concept of freedom and individuals’ opportunities to act. The theory was highly influential, inspiring the UN to produce the Human Development Index (HDI), which is also discussed in Chapter. 3.1.4 below (Teschl &

1 Health, eating habits, housing, conditions during childhood and relationships with family and friends, education, occupation and workplace conditions, financial resources, leisure time and recreation, political resources (Allardt 2003).
The capabilities approach takes as its starting point how a combination of external circumstances together with a person’s attributes and life situation results in the individual’s actual capacity for freedom of action. Sen maintains that it is not possible to determine precisely what these capabilities are, while Nussbaum has supplemented the theory with a list of the ones that should be included.

The capabilities measure was developed as an alternative value scale in welfare economics, but also represents criticism of the subjective theories of well-being that we will look at in Chapter 3.2. The criticism points out that the liberating aspect in a measure of quality of life is lost if the focus is on people’s satisfaction and thereby reconciliation with their material situation (Teschl & Comim 2005). According to the critics, in a situation where many people live lives characterised by an unequal allocation of resources or under difficult conditions, a focus on adaptation preferences can have the effect of concealment. Sten Johansson (1970) expressed the problem as “satisfaction with one’s situation thus registers the poor person’s forbearance as well as the affluent person’s dissatisfaction” (own translation).

From the subjectivist approach, there is agreement that the capacities emphasised by the advocates of Capabilities are important, but that they are instrumental, not final values. According to this reasoning, quality of life cannot be reduced to a number of objective factors, precisely because people react differently and have their own experiences and unique expectations (Diener, 1999). Nussbaum and Sen, on the other hand, maintain that capabilities are central values in people’s lives, regardless of whether they enhance our happiness or not.

3.1.4 Other measures of welfare – one index or multiple indicators?

As mentioned in the introduction to Chapter 3, one possible reason that the GDP measure is still used as a welfare indicator is that no other measure has been successfully established. The situation could be described in terms of the fact that the GDP measure has a high level of reliability (the data are well defined, carefully collected and checked), but has low validity (it does not measure what we want to measure, i.e. quality of life). However, there have been many attempts to capture people’s quality of life by using more factors, but still being sufficiently simple to be able to replace the GDP measure as a welfare indicator. These measures often include economic, social and environmental factors and are therefore partially outside this chapter’s original focus, but we have decided to provide a brief review of the measures that are considered to be most relevant. We will start by examining different indices and then look at indicators that should together reflect development.

Monetary indices: Attempts have been made to adjust GDP so that it provides a better description of the environmental and social aspects of the trend in welfare (see Sterner 2001 for a more detailed discussion of how environmental aspects
can be included in the measure). Both the *Index of Sustainable Economic Welfare* (ISEW) (see Daly et al. 1994) and the World Bank’s *Genuine Savings* (see Hamilton 2000) make adjustments of national accounts for costs that affect welfare positively or negatively, and also make environmental adjustments based on pollution and changed natural resource bases. ISEW analyses for Sweden show that welfare increased until about 1980, but since then it has levelled off or fallen slightly.

**Non-monetary index:** Of the non-monetary indices that are applied, UNDP’s *Human Development Index* (HDI) is the most established. HDI is based on three parameters (UNDP, 1998): life expectancy at birth, educational level (measured through ability to read and schooling), and standard of living (measured through “actual” GDP per capita\(^2\)). HDI is comparatively simple and has also had a relatively major impact. The New Economics Foundation in the UK has launched the *Happy Planet Index* which sets happy life years in relation to ecological footprint (NEF, 2009). 143 countries have been ranked and the USA comes 114th, Sweden 53rd and Costa Rica first.

A relevant question is whether it is meaningful to weigh up a number of widely differing parameters in order to produce an index that gives an overall picture of welfare, or whether it is more interesting to assess separate indicators for different aspects of welfare. Sociologists and environmental experts are often critical of the attempts to create an overall index. Statistics Sweden too is critical of this type of attempt, writing: “Welfare cannot be reduced to a summarising index analogous to economic statistics. Instead we work with a set of social indicators that jointly capture a broad field of inquiry” (SCB, 1997 page 602, own translation). The National Institute of Economic Research also shares this opinion, writing: “The idea of one single overall measure, frequently called Green GDP, has previously been discussed, but is of less relevance today. The reason is that such a measure contains simplifications and values that are difficult for many parties to agree on. If new measures of welfare and sustainability are established, a beneficial side-effect might be that the GDP measurement will be able to resume its original role: as an instrument for macroeconomic analysis, and nothing more.” (Skånberg, 1998, own translation). On the other hand, it is emphasised from some quarters that even though it is very difficult to produce an index that reflects development, it is necessary in order to replace GDP as a welfare indicator.

The French President Nicolas Sarkozy initiated a project that came to be known as the *Stiglitz Commission*, as it was led by the former Deputy Director of the World

\(^2\) “Actual GDP” is calculated using Atkinson’s formula for “utility of income” where income is recalculated depending on how well it is distributed among the population.
Bank and Nobel Prize winner, Joseph Stiglitz (Commission on the Measurement of Economic Performance and Social Progress, 2009). The Commission’s final report observed major shortcomings of GDP as a welfare measure. A large number of factors were listed that, alongside income, are important to assess the welfare of a country. For example, it discussed the fact that the amount of leisure time has an important quality of life aspect. However, the Commission did not provide a properly worked-out proposal for a measure of progress.

An exciting European collaboration that also focused on producing indicators instead of constructing an index is the European System of Social Indicators (EUSI) (see Berger-Schmitt & Noll, 2000). This system comprises a well-reasoned theoretical framework. EUSI’s aim is to measure quality of life, social cohesion and sustainability. These three areas are measured through two dimensions. For quality of life, the first dimension is objective living conditions such as working conditions, health status and material standard of living. The second dimension is subjective well-being and comprises both life satisfaction and hedonic level (which we will look at in more detail in the next chapter). In terms of social cohesion, it comprises firstly inequality/social exclusion and secondly social ties between people. Sustainability includes maintaining society’s capital. A part of it is human capital, which includes aspects that affect people’s education, capabilities and health, while the other part is natural capital (Berger-Schmitt & Noll, 2000).

3.2 Subjective theories

As we previously noted, a satisfactory concept of happiness should accord with the notion of happiness as a valuable mental state. Subjective well-being (SWB) has come to be the most comprehensive overall term in the research that measures quality of life as a subjective quality. Subjective well-being is a fairly broad term, the application of which includes both affective states (pleasure and discomfort) and satisfaction with life as a whole or with a particular aspect of life (Diener et al. 1999). Subjective well-being therefore implies that happiness is both a state of feeling good overall, at the same time as valuing one’s life positively (Brülde 2007). In this report we will use the terms happiness and subjective well-being synonymously and with the same meaning. The following chapter examines the central subjective theories on quality of life and various answered and unanswered questions that a subjective theory faces.

3.2.1 Affective states and life satisfaction

Pure emotional experiences of pleasure or discomfort are referred to as affective states, or hedonic levels. Affective states can be different types of pleasure, e.g. elation, peace of mind, pride or joy, but can also be feelings of discomfort, e.g. anxiety and agitation, depression, guilt and shame or envy (Diener et al. 1999).
Unlike the affective aspects of happiness, life satisfaction reflects a person’s cognitive appraisal of his/her life as a whole (Diener et al. 1999). Although the affective components are of key significance to happiness, life satisfaction can be emphasised as an equally important component. It can be likened to an attitude to one’s own life as a whole, an appraisal a person makes of their life based on whether the life the person is living is close to what they would like it to be (Brülde 2009). Total satisfaction implies that the person would not want to live their life in any other way than they do, and that the person places a high value on their life in general because it is in line with their goals and desires (Kahneman, 1999). It is worth noting that there is a relatively weak correlation between the affective states and life satisfaction ($r<0.5$, Argyle, 2001). It is therefore entirely possible to “feel good” at the same time as being dissatisfied with one’s life and vice versa.

Domain satisfaction is satisfaction within an isolated area of a person’s life, for example, the experience of family life or work situation. Satisfaction with one’s material situation can therefore be understood as a domain satisfaction in respect of economic aspects of one’s life.

- **Life satisfaction**: Satisfied with one’s life – The desire to change one’s life, Satisfaction with the past, Satisfaction with future prospects, Significant others’ view of one’s life.
- **Domain satisfaction**: Work, Family, Leisure time, Health, Finances, Oneself in a social context.

Besides providing knowledge about satisfaction with different areas in life, domain satisfaction can also be used to provide an aggregated measure of people’s total satisfaction in the form of an amalgamated average value. This way of measuring life satisfaction entails what is known as a bottom-up model. Such a model presupposes that the happiness that people experience in isolated domains or during individual phases together constitute this person’s overall subjective quality of life. However, the research does not appear to provide support for such a model as the correlation between life satisfaction and average domain satisfaction turns out to be weak (Brülde, 2007).

### 3.2.2 Absolute or relative needs?

Research that attempts to define well-being in subjective terms can be summarised in two different explanatory models (Wilson, 1967):

1. **The prompt satisfaction of needs causes happiness, while the persistence of unfulfilled needs causes unhappiness.**
2. **The degree of fulfilment required to produce satisfaction depends on adaptation or aspiration level, which is influenced by past experience, comparisons with others, personal values, and other factors.**
The first approach assumes that an individual’s well-being is a direct consequence of needs being satisfied, while the second principle is based on the insight that needs are relative and changeable and can be reformulated by the individual over time. The two approaches also represent the development that has taken place in the area, where the earlier definition accords with theories from antiquity onwards, while the second approach summarises the development that has taken place as a result of the interest taken in these issues by psychological and sociological research since the 1960s (Wilson, 1967). While, in line with the first theory, attempts have previously been made to find answers to what the most important needs are and how they are satisfied, modern research has become more interested in experiences, context and adaptation as key concepts in understanding an individual’s quality of life. The relativisation of the concept of well-being has also strengthened the notion that subjective well-being cannot be reduced to objective factors (Diener et al., 1999).

A model that has been very important to the relative well-being concept is adaptation-level theory, which is based on the fact that the “subjective experience of stimulation does not follow at the absolute level of an addition, but from the discrepancy between the addition and previous levels” (Brickman & Campbell, 1971: 287). A development of this theory in the context of happiness research emphasises that the affective consequence of an event is partially associated with previous experiences, but also with expectations and awareness of other possible outcomes (Kahneman, 1999). It could be said that the discrepancy, as it is articulated in the adaptation level theory, is partly based in previous experiences, but also in expectations linked to cultural norms within which a person lives. It can be added that the emotional effect of a change or event becomes stronger if it is unexpected for the person who experiences it; an emotional reinforcement occurs (Kahneman, 1999).

This theory is also manifested in what is known as the habituation effect, which is used to describe the phenomenon that events or changes that initially have a significant effect on our happiness are counterbalanced after a certain time by habituation to the new as the happiness level returns to what it was before the change (Brülde, 2009). For example, it might concern positive changes such as acquiring a new home, or negative changes such as needing to take a job with a lower salary. However, habituation seems to be somewhat stronger with regard to positive changes. The habituation effect consequently has to do with the permanence of a happiness effect. Events in life that have a short-term happiness effect, e.g. purchasing goods, salary increase or a larger living space, have a very minor effect on subjective quality of life in the long term. This circumstance constitutes a part of the criticism that happiness research levels at the preference theory that was discussed in section 3.1.1. In section 5.3 we will look more closely at research that examines habituation effects from different types of consumption.
The theory of the hedonic treadmill is also used to describe habituation effects and is based on two mechanisms: firstly that objective changes lead to a higher standard level, a new zero point, and secondly that changes supply the pleasure of novelty, but with a consequential diminishing of the happiness effect (Kahneman, 1999). The theory suggests that retaining happiness requires stimulation to be constantly reinforced if we are to be able to satisfy our expectations.

However, Kahneman (1999) believes that a certain amount of care needs to be taken in conclusions regarding the hedonic treadmill. An action that is neutral in the hedonic sense, because it is habitual, can nevertheless play an important role for the person’s subjective well-being as terminating the action could produce a negative effect for the person. For example, people do not unequivocally evaluate travelling by car as having a positive effect in itself (Jakobsson-Bergstad et al., 2009), but that does not mean that the conclusion can be drawn that people who, for example, grown up with car use can stop using a car without experiencing some kind of loss.

3.2.3 Goals – endeavour or accomplishment?

Linked to the above theories on needs gratification there are also two explanatory models concerning how goals and goal fulfilment relate to increased well-being. In this context a distinction can be made between what are known as telic theories and activity theories.

Telic theories assume that the happiness level in an individual is largely determined on the basis of the person’s prospects of achieving their goals (Diener et al., 1999). According to the theory, an environment that enables goals to be fulfilled leads to increased well-being for the individual, while those who do not have the necessary resources in the particular context to achieve their goals suffer from reduced subjective well-being. The approach thus presupposes, as with the first theory on needs gratification, that when goals (as well as needs) are fulfilled, this then leads to enhanced well-being.

Activity theories instead assume that life satisfaction arises in the relationship between endeavour, desire and result, where the individual’s endeavour is defined as the central determining factor for well-being (Diener & Seligman, 2004). Perhaps the most clearly articulated specific theory in this area is Csikszentmihalyi’s flow concept, which assumes that pleasure arises when a person performs activities with a level of challenge that is precisely in line with their capacities (Diener 1984).

Activity theory employs the philosophical terms intrinsic and extrinsic values to describe why activities can have a value in themselves and not simply to achieve the objectives towards which one is striving (Brülde 2007). With intrinsically motivated action, the execution of the activity is the objective in itself (Ryan & Deci 2000). An instrumentally-oriented action is instead performed with the idea of an
objective towards which the activity is leading; for example, exercising in order to
become fitter. The activity is then valuable in the instrumental sense and not the
intrinsic sense. Purely intrinsic or extrinsic activities are unusual as people often
experience some meaning in instrumental activities. In activity theory, the terms
are used instead as extremities on a scale where intrinsic or instrumental aspects of
an action are more or less present, and a person can act in accordance with predo-
minantly extrinsic or intrinsic values (King et al., 2004; Ryan & Deci, 2000). In
section 4.3 we look more closely at research that investigates how different activi-
ties affect individuals’ well-being.

3.2.4 Values
It is important to discuss the relationship between values, creation of meaning and
goal fulfilment. If one concurs with the view that the good life should include good
deeds, then there is also the implication of moral standpoints concerning which
actions are good. A life that does not accord with morally respected qualities will
probably be less valued by the person who is, as it were, evaluating, even though
the way of living makes the person happy in the affective sense. It can then be
asked whether the criteria for a good life can really be determined on the basis of
universal moral rules, or whether a person in the independent sense can make ap-
praisals on the value of their life. Moral bases are chiefly determined by norms
which manifest themselves in the time and place in which the person lives. For
example, dependent on cultural and historical contexts, homosexuality can be asso-
ciated with shame. In historical terms, many people have suffered on account of
our society’s view of what is the “right” sexuality and thereby deemed the right
form of sexual pleasure. At the same time there is currently no cultural consensus
in our society that only heterosexually oriented people can live the good life, and
there are not many people who evaluate their lives morally on the basis of sexual
orientation. Appraising one’s own life is thus regulated by a strongly normative
aspect and is the object of power and norms in society, within which constant ne-
gotiations take place regarding moral rules for the good life. Another example is
that the affective aspects of happiness are not always concordant with a person’s
goals. A person who endeavours to show a lot of sympathy can sometimes feel
malicious pleasure that increases the person’s affective level. However, the feeling
does not accord with the person’s goals and can therefore be regarded as a less
significant happiness than that which arises when this person has the opportunity to
help others. To sum up, happiness that accords with a person’s goals and values
can be a highly valued state, but it can also be a manifestation of assimilating one-
self and fitting in with society’s system of norms.

When an individual’s values come into conflict with each other so that the person
experiences opposing intuitions concerning which action should be performed in a
situation, it is usually said that the individual is exposed to cognitive dissonance
(Festinger, 1956). Festinger defines cognition as opinions, conceptions or know-
ledge. When two different cognitions are compatible then consonance prevails;
however, when they are incompatible dissonance arises, which also entails a feeling of discomfort. If the cognitions are important for the individual, then there is a high level of discomfort that in turn generates a pressure to reduce the dissonance. This is a highly relevant discussion as, at the level of the individual, the environment and climate change issue often precisely concerns incompatible goals and inner conflicts linked to people’s everyday lives. For example, flying long distances on holiday or continuing to eat beef might be enjoyable if one likes it, but simultaneously that enjoyment might conflict with awareness of the environmental consequences.

3.2.5 Methodological issues

A further difficult aspect of subjective well-being theories that needs to be weighed up is methodological complications linked to the self-reporting that a large proportion of the studies use. The answers that respondents give in opinion polls on subjective well-being have been shown to be influenced by factors such as mood when answering the questions, the order in which the questions are asked, and the setting where the person is located at the time of the interview (Schwarz & Strack, 1999).

It generally seems to be most difficult for people to make an assessment of their satisfaction in an overall sense (e.g. life satisfaction) compared with individual parts of their life (e.g. domain satisfaction or affective level). The responses are substantially affected by the context and an extremely selective memory. The answers people give rarely correspond to a satisfactory overall assessment, but rather reflect the feelings and thoughts about their own life that are predominant at that particular moment. If, for example, the interviewer addresses marital status in one of the first questions, this has a greater effect on the overall assessment of the individual’s quality of life than if the question on marital status comes after the quality of life question. Furthermore, people tend to present themselves as more/less happy depending on how other sections of the research are designed. At the same time it is generally the case that people who consider themselves to be happy are also regarded as happier by the people around them and vice versa. Those who define themselves as happy in surveys also smile and laugh to a greater extent during personal interviews (Diener, 1984).

Investigating a person’s life satisfaction is thus associated with a number of problems, while estimates of domain satisfaction and affective levels are less problematic in this respect. The problem with instantaneous estimates of personal well-being is that they are at risk of varying substantially and are heavily dependent on the situation respondents are in at that particular moment. Daniel Kahneman (1999) has developed a method to deal with this problem. The method proceeds on the basis that researchers measure happiness over time through a number of regular reports on the respondents’ well-being at that moment, and they are subsequently converted into an average level for the period concerned. According to Kahneman, this methodology reflects a person’s actual level of happiness to a greater extent
than is possible when evaluating survey responses (Kahneman, 1999). The advantage is that it becomes possible to avoid systematic discrepancies in responses and that the subjective well-being reported is closer to the actual instantaneous level of well-being for a certain period, instead of the respondent trying to remember an average over time. The method does, however, require fairly substantial resources and furthermore takes up a lot of the respondent’s time. In surveys with larger samples that measure affective well-being, the (assumed) random variation is not such a serious problem as any trends appear in the statistical analysis. Larger statistical surveys should therefore be a way forward.

3.3 Discussion

We have now examined the various measures of quality of life that appear in the literature and their different advantages and disadvantages. Somewhat simplified, it is perhaps possible to describe the relative merits of the different measure in that objective measurements, for example, the components of the Standard of Living Surveys (section 3.1.2), have a high level of reliability as the data on which they are based is well-defined and verifiable, while they can be accused of having a comparatively low validity as they measure the external conditions for a good life instead of how the life is actually experienced by the individual living it. Correspondingly, the reliability of subjective measurements can be questioned, while they have higher validity in both cognitive and affective self-estimates of well-being (although well-being is not the only value in a good life, it undeniably represents a very important factor for many people).

The concerns of this report make it likely that the choice of measure is of major significance to the links that can be found between quality of life and greenhouse gas emissions. If material standard of living measures are used to estimate the degree of quality of life, in principle it postulates a positive correlation between increased quality of life and increased greenhouse gas emissions, as opposed to if a subjective measure is selected, where this connection also depends on people’s habituation to a higher standard of living (see section 3.2.2).

In the following sections we have decided to place the emphasis on subjective well-being (also referred to as happiness, see section 3.2.1). That is not to say that happiness theory is the best quality of life theory in all respects. It is basically a question of valuation, and as mentioned previously, there are also advantages with the objective theories. One reason to narrow down the rest of the report to just one type of quality of life measurement is that it enhances the clarity of the analysis. Happiness theory is also being increasingly embraced and disseminated in the quality of life discussion, and the research in the field is expanding rapidly, making this an interesting choice for an in-depth discussion. However, we do not wish to exclude the possibility that there might be grounds for continued research in this
area to take a wider range of quality of life theories into consideration, as described earlier in this chapter.
4 Factors determining happiness

The factors determining individual well-being can be divided into knowledge of social circumstances, personal values, together with conditions of life and events that can explain variations in subjective well-being between individuals, social groups, ages, periods of time, geographic areas or nations. It might entail finding psychological explanations at the level of the individual, but also comparing different types of societies with each other, groups within society or a particular way of living.

Sonja Lyubomirsky (2008) has conducted meta-studies of happiness research and draws a number of overall conclusions from her own and other research into the factors determining happiness. She breaks our prerequisites for happiness down in a diagram that shows that as much as 50% of our happiness is determined by genetic predisposition, 40% is determined by conscious actions, and only 10% by external circumstances and our surroundings. The significance of genetic predispositions has been examined through studies of twins and in other ways. It concerns people having different “basic levels” of happiness, which can, however, be interpreted other than as genetic disposition. Claims are made that the basic level that can be found is actually due to early relations with parents, or that studies of twins are not reliable as twins grow up in environments that are not particularly different to each other (Layard 2005). Others maintain that there is no basic level if you look at long time spans in people’s lives (Veenhoven 1994).

Lyubomirsky also summarises the features and behaviour that are usually common to people who display a high level of happiness (Lyubomirsky 2008: 29–30).

- They devote a great amount of time to their family and friends, nurturing and enjoying those relationships.
- They are comfortable expressing gratitude for all they have.
- They are often the first to offer helping hands to coworkers and passers-by.
- They practise optimism when imagining their futures.
- They savour life’s pleasures and try to live in the present moment.
- They make physical exercise a weekly and even daily habit.
- They are deeply committed to lifelong goals and ambitions (e.g., fighting fraud, building cabinets, or teaching their children their deeply held values).

The interesting question in this pilot study is which factors can be positively or negatively influenced by the transition to a low-carbon economy. It is also of interest to understand factors that are not appreciably affected, and that can thereby be separated out from the discussion on climate impact and quality of life. Below we will provide a brief account of the different explanatory levels and focuses for
comparison that are used to break the determining factors down. This involves a
classification and does not express the strength that different levels have in relation
to each other. The classification is derived from Swedish philosopher and happi-
ness researcher Bengt Brülde (2007), but the account of determining factors is also
derived from various meta-studies. Happiness research is a very large area and as
we have found Brülde’s overview and classification useful, we have consequently
based our analysis on it. The sources for the section below are Brülde (2007, 2009),
supplemented by other sources that are referenced when used.

4.1 Large-scale societal factors

This category describes differences in average happiness between populations in
different nations. These factors can involve how equal a society is, its material
wealth, the overall level of security, public institutions, how individualistic or col-
lectivist the culture is, as well as which values are operative. In other words, this
category includes overall social, economic, political and cultural factors.

Many of the welfare state’s institutions, such as well-managed health and education
systems, are important for the well-being of the country’s inhabitants. On a natio-
ical level, factors such as the average level of education among the population are
important for the level of happiness in the country. Societies with greater equality
between the sexes also lead to a somewhat higher average level of happiness for
both men and women. A democracy that functions well is another significant factor
when comparing different nations.

The core welfare system itself is, however, a controversial issue in happiness rese-
arch, and there are some contradictory results. Some countries with comprehensive
social security systems, e.g. the Scandinavian countries, the Netherlands and Au-
stria, have higher levels of happiness than other nations, and there are less differen-
ces between the citizens’ subjective well-being in these countries. However, there
are no clear-cut results showing that greater well-being in nations is linked to a
high proportion of GDP being invested in the public sector. There are significant
differences in happiness between the unemployed and people who have jobs, and
this connection is also found in countries with high unemployment insurance. At
the same time, people in communities with an equal distribution of income report
higher average happiness than communities with a more unequal distribution of
income, even though the absolute level of income is higher in the latter case
(Schwarz & Strack 1999).

In rich countries with a high overall level of income, the increase in income that
has taken place during the last 30–50 years has not produced any equivalent increa-
se in the country’s average level of happiness (Argyle 1999). This levelling effect
in the relationship between material prosperity and well-being is known as
“the Easterlin paradox” (Easterlin 1974). The effect is noticeable in societies where
average pay per year is equivalent to more than about SEK 100,000. Some researchers have questioned whether it involves a total levelling as they feel that an increase in the absolute income level continues to produce a slight increase in happiness in the richer countries as well (Deaton 2008; Stevenson & Wolfers 2008).

People are happier in individualistic cultures than in collectivist cultures, which seem to relate to the opportunity for self-determination and motivating one’s own actions (Diener et al. 1999: 284). In addition, it has been observed that interpersonal trust is an important factor for the population’s average happiness. Interpersonal trust depends on the occurrence of corruption, presence of social networks, and benevolence.

4.2 External living conditions

This is a level with factors that explain differences between individuals or average values in specific groups or social classes. This includes aspects that have a direct effect on the individual’s well-being, such as positive and negative events, social position, housing environment, income, level of education etc.

Income is important for individual well-being, but principally in relative terms rather than in absolute values (Argyle 1999; Layard 2005). Absolute level of income only has an effect on well-being up to a certain level of needs gratification. On an individual level, the graph for absolute level of income and well-being shows a very weak connection in rich countries (Easterlin 2001). As mentioned above, rich people in a society are significantly happier than persons with a lower income living in the same society, but here too there is a somewhat diminishing effect. Income is important as long as money is used to meet requirements such as food and housing, but the effect of increased income is minimal when it comes to being able to afford a larger car or a new flatscreen TV. On the other hand, a connection is found between satisfaction with one’s financial situation and well-being. This suggests that relative income, as perceived in comparison with one’s own expectations, comparisons with others or one’s own previous level does matter to a person’s well-being. This implies that the lower-paid within an occupational group are generally dissatisfied with their level of income, just as certain people in low-paid groups might be satisfied if they are relatively better paid than others in the same group.

Women generally have a lower income than men, and professions with more women than men are lower paid. While women who work in sectors where women are over-represented are more satisfied with their work situation, because they compare themselves with other women; women in male-dominated professions tend to be less satisfied with their income as they compare themselves with men’s pay.

Social class affects quality of life. This is partly related to leisure activities (Argyle 1999), but more important reasons are work situation and occupational status.
Unqualified working class occupations lead to lower satisfaction with one’s own life situation, because of reduced opportunities to control one’s work situation, along with lack of variation and meaning (Brülde & Nilsson 2010). Class is generally a stronger determining factor in unequal societies.

4.3 Observable individual factors

This category encompasses factors that are linked to the individual, such as age, gender, physical health and activities. These factors can affect a person’s well-being directly but they also affect other people’s perception and treatment of that individual. It also includes friendship relationships, whether the person is married, has children, a job, or what the person does in his/her spare time. Age is loosely connected to a person’s well-being. Apart from a few years in their teens when people report a somewhat lower level of happiness, it is only among the very oldest that a significant negative effect from age appears (Argyle 1999). Gender and happiness are related in such a way that women report somewhat larger fluctuations between positive and negative feelings compared with men who are slightly more even minded. Another important overall factor is unemployment, which has a strongly negative effect on happiness.

*Illness* does not have any unequivocal or clear-cut effect on happiness. However, chronic illness makes it hard for a person to do what they want or to be socially active, leading to diminished happiness. At the same time, there is a strong habituation effect associated with suffering from a protracted illness, meaning that people become used to ill-health or disability as long as their condition is fairly stable (Argyle 1999). It is, however, important to emphasise that the habituation effect does not exist for mental illnesses (Layard, 2005). Brülde (2009) points out that good health conceivably has a considerably stronger effect on people’s happiness in a society with inadequate health care. Argyle (1999) also refers to results demonstrating that to some extent happiness can explain good health, in other words an inverse relationship.

What several of the most important determining factors have in common is that they concern *social relations* in one way or another. Social relations are generally speaking a strong factor in both mental well-being and physical health (Myers 2004). It can also be observed that socially outgoing people tend to be happier to a greater extent (Argyle 1999). Married people are happier than those who are not married, which also indicates the importance of marriage as a social relationship. On the other hand, parents are about as happy as couples without children.

Satisfaction with one’s *leisure time* is linked to subjective well-being in general, even more so than satisfaction with work, according to some studies (Argyle 1999; Brülde 2009). There are certain types of leisure activities that have a greater effect on happiness than others. Participation in social activities or meeting friends is very
positive. Sport and training activities also produce beneficial effects, partly due to their social aspects, but also the physical exercise *per se* is a positive factor both in the short and long terms (Mutrie & Faulkner 2004). It has also been shown to lead to an enhanced ability to withstand stress during other daily activities. Undertaking challenging activities during leisure time or at work that are not too taxing also has a positive effect. To a large degree it is a matter of setting one’s own objectives in the work that is undertaken. Voluntary work during leisure time is very positive according to Argyle (1999).

Killingsworth & Gilbert (2010) have conducted an extensive study that deals with people’s level of happiness while participating in various activities. The results are summarised in Figure 2 below. The study involved a selection of 2,250 participants from different countries and in different occupational groups. These persons were provided with a program for their mobile phones through which they responded to questions regarding what they were doing and how they felt when they were engaged in different activities. The figure shows that a person’s activity is not particularly significant for how they feel.

![Figure 2: Perceived happiness from different activities. The farther to the right in the figure, the greater the happiness. The size of the balls shows how often the activity is reported. Killingsworth & Gilbert (2010).](image-url)

As mentioned previously, activities, which have a social character, seem to be associated with a high level of happiness, e.g. making love, conversing and
playing, but physical activities such as training and walking are also highly placed. At the other end of the scale it can be noted that, for example, using a computer or commuting are common activities that do not give us as much of a return in the sense of happiness. Similar results on the effects of different activities’ on happiness have been demonstrated in other studies, including a study carried out in Texas where 900 women responded to questions about the effect of different activities on happiness. This study also revealed that having sex produces the greatest positive effect on happiness, while the activity producing the least happiness was commuting (Kahneman et al. 2004).

Care should be taken in drawing too drastic conclusions from reasoning on the importance of activities. For example, people are not happiest when they are at work, but people who have jobs are happier than people who do not. Likewise, people who watch TV are quite happy during the activity, but it has also been observed in other studies that watching TV tends to take time away from activities that produce greater happiness in the long run, such as more target-oriented social or self-developmental activities.

4.4 Psychological factors

Psychological factors include a person’s cognitive attributes, such as how they think about and perceive their life, future and past. This level also includes self-esteem, social skills, potential to manage stress, temperament etc., as well as the underlying goals that motivate a person’s actions. Social skills are correlated with a higher level of happiness, and it has also been observed that extrovert people tend to be happier than those who are introvert (Argyle, 1999). A person is generally happier if they focus on and are interested in other people; self-absorption leads to a lower level of well-being. High self-esteem has positive happiness effects, but this relationship is weaker in collectivist cultures (Diener et al. 1999: 281). How people perceive themselves overall is of greater importance than simply being very self-confident about something specific one does in life, e.g. work.

Values and driving forces are interesting factors because they are also to a large extent inherent in behaviour. An action does not simply contain the immediate “dividend” of happiness, rather there are expectations and comparisons which are in turn affected by norms and social conditions. Striving for, and achieving, material goals generally produces a stronger habituation effect than do idealistic values and goals (Kasser & Sheldon 2009). It is also rarely the case that people include the “full” habituation effect when, for example, they invest time and work in being able to buy particular items or living in a larger house (Layard 2005). It involves the relationship between expectations placed on a goal and what dividend the goal ultimately provides, but also what efforts are required to achieve the goal (Argyle, 1999).
Tim Kasser (2004) has studied the difference between acting according to intrinsic or extrinsic goals and values, and he shows that extrinsically oriented people are generally less happy, which also confirms the results of a large number of previous studies (Belk 1985; Cohen & Cohen 1996; Richins & Dawson 1992; Ryan & Dziurawiec 2001; Williams et al. 2000). Lower life satisfaction, less happiness, fewer strong positive feelings, more frequent strong negative feelings, narcissism and physical ill-health are all proven effects of predominantly extrinsic values. Extrinsic goals such as money, possessions and status can be tools used to enhancing subjective quality of life, but not as goals in themselves. Intrinsic values, on the other hand, entail focusing on factors such as personal development and social relations. These goals produce more of an effect on happiness when they are achieved. Kasser (2004) considers that happiness is affected negatively for people with materialistic values partly because they are to a large extent striving for goals that do not have an intrinsic value.

An additional psychological factor that impacts on our well-being is the difficulty in assessing the future well-being effects of different actions. There seem to be great differences between the anticipated and actual effects of different decisions on subjective well-being. These difficulties are due to a number of different mechanisms, and we will examine them below. One important mechanism is the difficulty in foreseeing the effects that different events have on one’s future feelings. There are preconceived notions that individual events and external circumstances will have exaggerated positive or negative effects on happiness. Loewenstein and Frederick (1997) asked test subjects to estimate the effect of a number of hypothetical events on their quality of life, plus what effect similar events earlier in their lives had had on them. It showed that the test subjects overestimated the effect of the hypothetical events in comparison with their previous experiences. So it appears there is an inability or unwillingness to include the impact of the habituation effects on different events, even though there is an awareness of this effect from experience. There is a strong belief in the positive effects of, for example, an increase in income or a new TV, but the actual effect of such an event is not equally substantial (Loewenstein & Schkade 1999). The ability to estimate the effect of different choices becomes more precise when prioritising between different aspects. In the previously mentioned study by Loewenstein & Frederick (1997), income comes much further down the list of priorities if it is simultaneously in competition with family life, friends or a satisfying job. Based on the results of the study they wonder whether people would act differently if they put more thought into prioritising their choices, and also were better equipped to assess for the habituation effect of external changes such as a larger house, increased income or new possessions.

Perhaps the fact is that people generally find it difficult to imagine the future. In his book “Stumbling on Happiness” (2007), the psychology professor Daniel Gilbert suggests that human beings want to “pilot the ship” themselves and be in control of
their life situation “...however, the fact is that for the most part we are steering in the dark – not because the rudder does not respond, and not because we do not find our destination, but because the future is so utterly different than what it looks like when we consider it in advance” (Gilbert et al. 2007: 41). With reference to various research findings he claims that we make three fundamental mistakes when thinking about the future. The first is that we believe in the fantasies our brain produces about the future, in the same way that we misconstrue our memories of an experience as accurate. We fill in the information we do not have, which leads to Gilbert’s second mistake; namely that fantasies about the future are largely the result of present feelings and conceptions. This is the actual difficulty in estimating a change to what we know to be true in the present. Finally, Gilbert emphasises the difficulty in fully assessing what feelings we will experience when these events actually take place. In other words, our conceptions of future changes are not just distorted; it is also hard for us to judge how we will experience these changes.

4.5 Discussion about the significance of norms and values

4.5.1 Norms

According to Wilson (1967), the happy individual is young, healthy, well-educated, well-paid, free of worries, religious, married, has a high work ethic and entertains reasonably demanding ambitions (note that this description is somewhat different from that of Lyubomirsky (2008) at the start of Chapter 4). It is notable that this person fulfils many of Western society’s norms. So how should we view this? Do the norms reflect universal aspirations that human beings have had at all times, or could it be the case that we become happier by fulfilling society’s norms independently of how they are configured?

Our collectively shared conceptions of what makes us happy are formed jointly in society under the impact of different messages, symbols and norms. We make different choices on a daily basis, which have significance for our happiness. Climate change is also inevitably a consequence of our everyday practices. Use of energy and consumption of resources are not simply a result of people’s individual choices, rather they follow a society’s cultural values and material conditions. Advertising and marketing can affect individuals’ goals and values. In the world of advertising, happiness and life satisfaction are used as driving forces in persuading us to buy everything from spa experiences and holidays, to cars or renewable electricity. It is therefore likely that it also has an effect on our shared conceptions of what makes us happy. Tim Kasser (2004) suggests that, for example, advertising sells cars by promising safety, autonomy, capability and social proximity. In other words, by using those factors that actually have a major impact on our subjective well-being and that the advertising’s message would prefer us to associate with the car. Paolo Corvo (2010) emphasises the selling of holidays driven by, among other
things, notions of intense happiness. The image of paradise is symbolic and geo-
graphically far away from everyday life.

Business professor Mats Alvesson suggests that to succeed in its task, advertising
needs the consumer to feel a sense of dissatisfaction in not having the thing being
marketed (Alvesson 2006). Advertising often conveys a picture of what others are
consuming, and if a person is unable to afford it, it can create a feeling of dissatis-
faction. Juliette Schor (1998) also points out that it is not just advertising, but also
the actual TV programmes and articles in the media that promote the picture of
what is a normal level of consumption. She suggests that TV series, reports from
individual homes etc. usually depict an upper middle class environment and as the
media takes up so much room in our everyday lives, this then becomes part of our
reference group. However, the consumption norms of the new reference group are
impossible to achieve for large groups of people. Schor observes that if perceived
consumption needs increase faster than the possibility of satisfying them, then there
is an increased sense of poverty.

4.5.2 Post-materialistic values

The post-materialistic theory was developed by Roland Inglehart (1977), who, after
exhaustive research, argued that Western society had changed so as to increasingly
liberate individual values from a focus on material needs, and they were instead
targeted towards different forms of self-realisation. The changed values also impact
on the decisions that individuals feel should be taken in society and the degree to
which these are oriented towards one’s own needs, a strong economy or national
security for example, or whether greater emphasis should instead be put on issues
such as the environment and freedom, which concern security in terms of funda-
mental needs.

Inglehart’s empirical basis was derived from surveys that were conducted through-
out the world. These show that economic uncertainty and insecurity lead to people
focusing more strongly on satisfying their material needs (Kasser 2002), which is
also revealed in the form of materialistic values increasing somewhat during eco-
nomic recessions. Delhey’s (2010) research has given Inglehart’s theory empirical
support. He compared 48 countries using the World Values Study and conducted
regression analyses to see how important post-materialistic aspects, for example,
having a creative job and being satisfied with one’s income, explained people’s life
satisfaction. The results did not just reveal that the post-materialistic aspects are
more important in rich countries, but also that income, in absolute terms, becomes
less important the richer a country is. Nor, in a post-materialistic society, is status
necessarily synonymous with manifesting one’s economic resources.

Richard Wilkinson & Kate Picket (2010) suggest that, based on patterns of behavi-
our, it is possible to find aspects that indicate a connection between economic ine-
quality and materialistically oriented actions. For example, the greater the income
differentials in a nation, the higher the average number of hours worked. In addition to this, unpaid credit card debts have increased in those parts of the United States that are most unequal, and in line with the increased inequality in the UK and the United States since the 1980s, the level of savings has fallen appreciably while indebtedness has increased. However, Wilkinson & Picket suggest that the type of status-related consumption that occurs in most rich countries is a manifestation of a social effect and the endeavour to fit into society’s norms, rather than acquisitiveness and economic resources as values per se. This suggest that humans are social beings rather than genuinely materialistic.

The American economist Robert Frank (2004) suggests that higher income has no effect on well-being, quite simply because people use money for things that do not give them satisfaction, in particular the sort of consumption that entails keeping up with the neighbours. Spending less money on status-enhancing consumption would give people more freedom for other things, but only if everyone made that choice. He likens it to an arms race, where no nation (individual) can unilaterally decide to disarm.

The theory of the emergence of a post-materialistic society presupposes in part absolute satisfaction of material needs, but also that economic equality leads to status not necessarily being synonymous with manifesting one’s economic resources. Besides increased subjective well-being, there are potential environmental benefits in maximising opportunities for aspects that are in line with post-materialistic values (in addition to self-realization and relationships high value is placed on the environment/nature). Improved opportunities to develop at work (e.g. through training) or improved opportunities to choose increased leisure time in order to obtain more time for self-realization and social intercourse are structural changes that can enhance well-being.

The difference between materialistic and post-materialistic values can be linked to emission levels in three ways. The first is the type of consumption, the fact that materialistic (extrinsic) values are associated with a high material standard: more material goods, a bigger house and a bigger car. Post-materialistic values entail prioritising services, travel and experiences. However, claiming that materialistic consumption patterns have less of a climate impact than post-materialistic ones is simplistic, and more research is needed to clarify whether there is any link between materialistic/post-materialistic values and consumption patterns that have an impact on climate.

The second link is that materialistic values signify a driving force for increased consumption levels in general, including the desire to work and earn more to enable consumption for increased status, convenience and material security. An overall increase in consumption levels in a society leads to increased emissions, and
materialistic values can reinforce such a driving force, which in the long run has an obvious climate impact.

*Finally*, it is also possible to imagine that a post-materialistic society can pave the way for political decisions that prioritise environmental considerations and long-term thinking. Research has been carried out showing that materialistic values are linked to a greater unwillingness to accept social changes (Burroughs & Rindfleisch 2002; Schwartz & Boehnke 2004). It is also more difficult for materialistically oriented individuals to resolve the “resource dilemma”, a type of gambling with distribution of resources that tests people’s ability to take long-term responsibility (Kasser 2002). Environmental considerations may, however, involve gaining social status by taking personal responsibility, which in some ways can be a strong force *per se*. 
5 Links between emission reductions and quality of life

In this chapter we analyse a range of conceivable ways in which change could take place that could lead to both a reduced impact on climate and increased well-being. Section 5.1 contains a primarily quantitative, straightforward analysis of the relationship between greenhouse gas emissions and subjective well-being at an overall level. Sections 5.2–5.4 contain analyses of three sub-areas that we feel are of particular interest in the context, although far from providing a comprehensive analysis of all aspects of the transition to a low-carbon economy. In the introduction we briefly outlined the principal elements that an adaptation of the energy system to climate change might consist of in the future. The parameters set out in Figure 1 can also be linked as a series of five factors as shown in the equation below (Figure 3), where the product of the factors represents the total carbon dioxide emissions from the energy system.

\[
\begin{align*}
\text{CO}_2 &= \frac{\text{CO}_2}{\text{energy}} \cdot \frac{\text{energy}}{\text{energy service}} \cdot \frac{\text{energy service}}{\text{BNP}} \cdot \frac{\text{BNP}}{\text{cap}} \cdot \text{cap} \\
&= \text{Choice of fuel CCS} \cdot \text{Energy efficiency} \cdot \text{Composition of consumption} \cdot \text{Level of consumption}
\end{align*}
\]

Figure 3: Breakdown of the energy system’s carbon dioxide emissions into five factors: An explanation is given below the equation of how these factors can be interpreted. Factors 1 and 2 on the left are basically technical, even though the application of the technology can naturally depend on lifestyle and behaviour (CCS refers to carbon capture and storage), while factors 3–4 on the right are more directly linked to lifestyle and behaviour. The term energy service refers here to “what we want to get out” of energy use, e.g. transport (passenger-km), lighting (lumens), or heating (m² living space, °C). However, this equation is a simplification as the factors cannot always be assumed to be mutually independent (‘rebound effects’, e.g. the fact that fuel-efficient cars lead to cheaper transportation, resulting in an increase in their use (see Nässén & Holmberg, 2009).

This chapter focuses on the behaviour-related factors on the right of the equation. The reason that we do not address the technical factors to the same extent is not that we doubt their significance in terms of the transition to a low-carbon economy, but that these changes can be expected to have less importance for people’s quality of life. The section is organised as follows. In section 5.2 we address the question of shorter working hours which we view as the principal way of influencing factor 4 in the equation. In 5.3 we deal with the issue of a changed mix of consumption, which therefore affects factor 3. In section 5.4 we highlight the sub-area of urban development, with respect to ideas pertaining to density of urban structures etc. Such a strategy might affect both factor 3 through planning away some of the
actual need for transportation, and factor 2 in that it facilitates energy-efficient solutions such as public transport.

A large part of the literature on low-carbon transition scenarios focuses on the technical aspect, but the three sub-areas we illustrate here are also relatively common. Azar et al. (1998), for example, present a post-materialistic scenario encompassing a larger services sector than is the case today and a trend towards shorter working hours. They include an overall decline in car use; considerably reduced travel to work, through fewer working days and more car pools etc., while private car use during leisure time increases somewhat. Similar scenarios are to be found in two other futurological studies: *Images of the Future City* (Gullberg et al. 2007) and *Two Degrees Target in Sight. Scenarios for the Swedish energy and transport system by 2050* (Åkerman et al. 2007).

### 5.1 Overall relationships

In the public climate debate, it is often implicitly assumed that emissions reductions would lead to reduced well-being. The assumption is that policy instruments and other climate measures will force people to refrain from what they strive for, things and possibilities that form the basis of our well-being in the long run. This section gives an account of the research that more explicitly examines how subjective well-being and reduced greenhouse gas emissions relate to each other. This research field is relatively unexplored, and the studies that have been conducted look into differences between well-being and climate impact in different countries, as well as between individuals within a society.

A comparison of greenhouse gas emissions from consumption and average well-being in different countries display a weak positive correlation (Figure 4). A causal link between climate impact and well-being is naturally implausible, as increased greenhouse gas emissions do not have a direct effect on people’s well-being. Instead the correlation is caused by two underlying circumstances, namely the strong link between a country’s GDP and the population’s total emissions of greenhouse gases (Figure 5), as well as the positive, though decreasing, correlation that exists between a country’s GDP and the population’s well-being (Figure 6). The correlation between well-being and consumption-related climate impact is consequently caused by both these relationships, and it is therefore of interest to examine them in more detail.

The relationships in the figures suggest that an increase in GDP in a poor country increases well-being and greenhouse gas emissions, while an increase in a richer country increases emissions without resulting in the same increase in well-being. Based on these connections, some researchers have argued that emissions reductions in rich countries consequently need not represent “happiness sacrifices” for the sake of future generations, but that rather it is possible to formulate policies that simultaneously benefit both well-being and sustainability (Zidansek 2007).
Figure 4: Comparisons by country of subjective well-being and consumption-accounted greenhouse gas emissions. The index for subjective well-being is derived from World Values Surveys 1995-2007 and is calculated as a combination of self-reported happiness and life satisfaction. Greenhouse gas emissions for 2001 are calculated by Hertwich & Peters (2009) using a model that takes into account imports and exports of goods between countries. With this approach, emissions from production of goods in, for example, China that are exported to Sweden are consequently counted as Swedish emissions.

Figure 5: Comparisons by country of consumption-accounted greenhouse gas emissions and GDP per capita. The greenhouse gas emissions for 2001 are calculated by Hertwich & Peters (2009) using a model that takes into account imports and exports of goods between countries. The GDP figures also apply to 2001 (Human Development Report 2003\(^1\)).

\(^1\) http://hdr.undp.org/en/media/hdr03_HDI.pdf
Figure 6: Subjective well-being and GDP per capita: The subjective well-being index is based on the average results from all reported surveys of life satisfaction and hedonic level between 1995 and 2007. We can observe in the figure that the countries that have a high GDP have quite a high level of happiness on average, but that at the same time there are a large number of countries, particularly in South America, that have a relatively low GDP but that nevertheless have a high level of average well-being (Inglehart et al. 2008).

It is, however, important to bear in mind that we do not know whether this connection also applies inversely, that is to say that a decreasing GDP does not have any appreciable effect on well-being in rich countries either. On the other hand, it seems likely that emissions reductions made by consumers in richer countries should have less of a negative effect on well-being than if these reductions were made in poorer countries.

Kahneman & Deaton (2010) further studies how different measures of well-being relate to income using Gallup’s survey of 450’000 US residents. This analysis shows that life satisfaction also continues to increase with the log of income for really high income levels whereas the hedonic level (or affective state, see Section 3.2.1) does not increase further above an annual income of around 75,000 dollars. It is notable that this level is still much higher than what appears to be that case for cross-country comparisons (Figure 6).

During the period 1999–2009 the SOM Institute included a question investigating the respondents’ life satisfaction. During this period, 7% (29%–36%) of Swedes moved from defining themselves as “fairly satisfied with life in general” to “very satisfied with life in general”, while the proportion not satisfied with their life
remained constant during the period (Figure 7). During the same period Sweden’s GDP increased by 24%.

Research that has examined the link between well-being and climate impact for individuals within a society has also analysed different activities or consumer habits to see how they affect well-being, and subsequently estimated environment/climate impact deriving from the activity or the consumption.

![Figure 7: Swedes' life satisfaction 1999-2009. The figure shows that the proportion of people who are not satisfied with their life has been relatively constant at less than 10% of the population. The change has taken place between the group that are Very Satisfied with life in general and Fairly Satisfied, with the proportion of Very Satisfied persons increasing by 7% during the period.](image)

In an older activity study (Graef et al. 1981), the researchers tested whether leisure activities with a high level of energy intensity were correlated with a greater happiness effect when these activities were practised. The study only comprised 107 individuals. An Experience Sampling Method (ESM) was used, which entailed the participants in the experiment reporting what they were doing and how they felt on 56 occasions over a period of one week. It turned out that for women’s activities there was a significant negative connection between energy intensity and happiness effect, i.e. a less energy-intensive activity correlated with a somewhat greater happiness effect. The results also indicated that individuals with an energy-intensive leisure time tended to be slightly less happy than those whose leisure time was not as energy-intensive. As the study only included a small number of participants, no major implications should be drawn from the results, but the fact that the results point in entirely the opposite direction to what we would expect is undeniably a reason for reflection and ideas for new studies.

The psychologists Brown & Kasser (2005) have also conducted quantitative studies to explore the connection between well-being and environmental impact.
In two different studies they found a clear positive correlation between subjective well-being and low environmental impact (measured through questions on transport, diet and accommodation, as well as ecologically responsible behaviour, for example waste separation). In other words, individuals with a high level of well-being have a lower environmental impact.

Brown and Kasser also explored what mechanisms can explain this relationship. The first mechanism for which they found support involves the fact that satisfying intrinsic values (e.g. relationships and local community) is not dependent on material goods, while this does not apply to extrinsic values (e.g. financial success and popularity). The second mechanism explaining the connection between a high level of well-being and a low environmental impact is “mindfulness”. As with a focus on intrinsic values, in previous studies mindfulness has been shown to be correlated with a high level of well-being, and this study shows that mindfulness also promotes low environmental impact. The reason for this relationship could be that mindfulness can promote reflection in relation to consumption activities. The study is, however, a cross-sectional study (i.e. a comparison between different individuals) and it would be very interesting to investigate whether personal processes of change, in relation to intrinsic values and mindfulness, also entail a reduced environmental impact over time.

5.2 Shorter working hours

Historically, the trade union movement has been the main driver behind the gradual reductions in working hours that were implemented up to the 1970s, when the 40 hour week was introduced. However, in recent years the issue has once again become topical with a number of researchers and social commentators maintaining that increases in the rich world’s consumption must be moderated to avoid major climate change, and that reductions in working hours can be an effective way of achieving this (Sanne 2007; Victor 2008; Jackson 2009). This is basically a question of the extent to which society takes out increased productivity in the form of increased income and consumption, or in more leisure time.

Average working hours per person of working age decreased by 0.1% per year in Sweden during the period 1980–2005, and productivity increased by 2.0% per year (SOU 2008:105). Wage increases, adjusted for inflation, were 2.6% per year between 1997 and 2006, but lower between 1980 and 1996 (National Mediation Institute 2008). In other words, the lion's share of productivity development in Sweden has been taken out in the form of consumption and not in reduction in working hours.

The idea of reducing working hours has long been discussed within the environmental movement, but it has become more established in recent years. For example, the British Sustainability Commission includes job sharing as one of 12 steps
A report from the UN Environment Programme (UNEP) also mentions a reduction in working hours as an attractive option: “…channelling productivity gains toward more leisure time instead of higher wages that can translate into ever rising consumption also increasingly makes sense from an ecological perspective.” (UNEP 2008, p 81).

Table 2 below shows the possible effects of a general reduction in working hours, e.g. a reduction in the normal working week from 40 to 30 hours, both on the transition to a low-carbon economy and on people’s well-being. The two aspects are elucidated further in sections 5.2.1. and 5.2.2.

Table 2: Possible effects of a general reduction in working hours on the transition to a low-carbon economy and quality of life. The points included in the matrix have not been mutually appraised. Some might be of major significance while others might be less important.

<table>
<thead>
<tr>
<th>Goals</th>
<th>Successful transition to a low-carbon economy</th>
<th>High quality of life</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td>Slow increase in private consumption ⇒ less demand for energy services and lower production volumes</td>
<td>Reduced time pressure&lt;br&gt;More time for leisure activities&lt;br&gt;More time for social relationships&lt;br&gt;Reduced unemployment through job sharing</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>Slow increase in private consumption ⇒ slower change from old to new technology</td>
<td>Reduced tax revenues ⇒ More difficult to finance public welfare</td>
</tr>
</tbody>
</table>

### 5.2.1 Effects of shorter working hours on greenhouse gas emissions

As was shown in Figure 5, there is a strong relationship between income and greenhouse gas emissions. Consumption in rich countries generates more emissions than consumption in poorer countries. The same relationship applies to individual households, as shown in Figure 8 below where greenhouse gas emissions from Swedish households are plotted against their total consumption.
It is accordingly likely that changed priorities from material consumption to more leisure time would result in reduced emissions. However, very little research has been carried out into the environmental effects of a reduction in working hours. Schor (2005) conducted an analysis in which she linked data on national ecological footprints with average working hours. She obtained a significant correlation, which indicates that shorter working hours are associated with a lower environmental impact. Rosnick and Weisbrot (2006) conducted a regression analysis to identify the relationship between working hours and energy use between nations and found that a change in working hours of one percent results in a change in energy use of 1.3%.

Besides having an effect on emissions through reduced income (or a slower increase in income), reduced working hours can also affect emissions through more leisure time. Purely hypothetically it could, for example, be the case that the freed-up time would lead to increasing energy use due to changed use of time and consumption, e.g. more transportation (see Figure 9).
Nässén et al (2009) have analysed the question of how changed working hours influence energy use and emissions on a household level, through changed budgets for both money and time. We assume that people working fewer hours also earn less and consequently on average consume less. The analysis is conducted with respect to marginal consumption, in other words how the last SEK 100 note is spent. The energy use linked to this marginal consumption is calculated, as is the energy effect of what “the liberated time” is used for instead. The figure below shows how the 24 hours of the day are used on average during a working day. The area below the dotted line relates to energy use that is independent of how the time is used, for example, domestic heating. Energy use linked to other consumption is allocated to different activities. Energy use for work in the home consists, for example, of electricity for cooking and energy for the manufacture of bought white goods. Energy use linked to work is not included as it would lead to duplication. This energy use is instead charged to the individual who consumes these products.

A clear conclusion is that car travel is prominent, with a very high energy use per unit of time. If car travel were to comprise a large part of the additional leisure time that is freed up when working hours are reduced, then it might entail increased energy use, but the regression analyses show that this is not the case. Instead, the results indicate that a shortening of working hours of 1% reduces the household’s energy use and greenhouse gas emissions by around 0.8%, a little less for high income households and a little more for the low income households.
As working hours are of such relevance to energy use and consequently to greenhouse gas emissions, it is interesting to discuss the trend over time. We have gone further and constructed two simple scenarios regarding working hours and energy use. In the first scenario, working hours stay as they are and all increases in productivity are used for increased consumption. In the second scenario, half of the increase in productivity is used to reduce working hours.

In the scenario with reduced working hours, we assume slower replacement of products, which means that the pace at which energy efficiencies are made is somewhat lower in this scenario. Another important aspect is whether reduced working hours lead to reduced unemployment, which is often referred to as job sharing. In an overview (Bosch 2000) of the research into consequences of reduced working hours for employment figures in European countries, most of the studies show positive effects. According to the majority of studies, the result is between 25–70% of the theoretically possible effect, while a small number of studies find no or negative effects on the unemployment figures. More critical views emphasise that the unemployed do not necessarily have the skills required in the “time gap” and that companies will not employ more people, but rather reorganise production to suit the new circumstances (SOU 2002). A Swedish survey suggests that a reform of working hours would not produce more jobs in the long term (KI 2002).

---

5 The reason why we have not produced the scenario for greenhouse gas emissions is that we would then have had to make assumptions about the future energy mix.
Any positive effects would consequently entail sharing work in an economy, which would lead to lower unemployment, while it could also increase the amount of leisure time for those who are in work. A high job sharing effect would, however, decrease the benefit to the climate of reduced working hours as those who do have jobs increase their consumption when their income increases. We have assumed in the scenario that 30% of the reduced working hours are converted into jobs that are instead performed by someone else. The scenarios extend until 2040, with 2010 as their starting point. The scenarios are described in Table 3 below.

Table 3. Scenarios for working hours and energy use from consumption:

<table>
<thead>
<tr>
<th></th>
<th>Retained working hours</th>
<th>Shorter working hours</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumptions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity increase, % per year</td>
<td>2.0</td>
<td>2.0</td>
<td>Same as the average in Sweden 1980–2005</td>
</tr>
<tr>
<td>Average reduction in working hours, % per year</td>
<td>0.0</td>
<td>–1.0</td>
<td></td>
</tr>
<tr>
<td>Job sharing, %</td>
<td>–</td>
<td>30</td>
<td>The extent to which shorter working hours lead to increased employment for others.</td>
</tr>
<tr>
<td>Energy efficiency improvements, % per year</td>
<td>0.9</td>
<td>0.8</td>
<td>Derived from IIASA A and B scenarios (Nakićenović, Grübler et al. 1998)</td>
</tr>
<tr>
<td>Energy effect of a change in consumption of 1%</td>
<td>0.89</td>
<td>0.89</td>
<td>(Nässén, Larsson, Holmberg 2009)</td>
</tr>
<tr>
<td>Energy effect of a change in working hours of 1%</td>
<td>–0.06</td>
<td></td>
<td>(Nässén, Larsson, Holmberg 2009)</td>
</tr>
<tr>
<td>Results 2040</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time, hours</td>
<td>40</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Increase in private consumption, %</td>
<td>78</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Increase in energy use, %</td>
<td>30</td>
<td>12</td>
<td>Energy use in Sweden and abroad as a consequence of Swedish consumption</td>
</tr>
</tbody>
</table>

The results show that if we were to use half of the productivity increase in Sweden for reduced working hours, by 2040 we would have achieved a 30 hour working week. The scenario also includes a reduction in unemployment. Private consumption increases in both scenarios, but “only” by 45% with reduced working hours, compared with 78% with retained working hours. This is the reason why consumption-related energy use does not increase as rapidly. These results are interesting from a climate point of view, and indicate that reduced working hours would lead to 18% lower energy use compared with retained working hours. This suggests that shorter working hours would make it easier for society to meet the long-term climate targets. It is, however, important to interpret these results with extreme caution, as there are uncertainties that require further research. One uncertainty is what
impact a declining increase in consumption would have on technical development. The rate of replacement (e.g. slower replacement of car fleets) would probably be affected, but so could the type of technology that emerges in society.

5.2.2 Effects of shorter working hours on well-being

There is thus a great deal of evidence to suggest that shorter working hours can make an important contribution to the transition to a low-carbon economy. If this is the case, it would also affect future quality of life, as it reduces the risk of climate change. However, a reduction in working hours would probably also affect well-being in the short term. This is a highly complex question, to which we are not able to give a complete answer, but we will give an account here of some research and our own thoughts in order to shed some light on the issue. Reduced working hours have effects on both the working section of the population, and on society as a whole, and we analyse these effects below.

Effects of reduced working hours for the employed

As shown in Chapter 5.1, there is a great deal of evidence to suggest that the marginal effect on happiness of increasing income diminishes the richer we become. This applies to both comparisons of countries (Figure 6) and over time in rich countries (Figure 7). At the same time, several of the most important explanatory factors for a happy life, such as social relationships and meaningful leisure activities, are linked to access to leisure time. These correlations indicate that reduced working hours, where the individual replaces consumption with leisure time, can be positive, at least for the individual.

A study by Kasser and Sheldon (2009) uses the term time affluence. This term can be understood as the opposite of a life lived under time pressure, but also as a way of using “wealth” outside its usual economic sense. A questionnaire on time pressure and economic pressure is used to distinguish two groups: those who have time affluence and those who are well-off materially. The study shows that people who experience time affluence are less anxious and worry less about the past and the future than other people. Moreover, the results indicate that time affluence is linked to more intimate close relationships, and that more time is used for physical activities and personal development, which are strong determining factors for well-being. Better family relationships and personal development probably generate more lasting well-being, as the habituation effect (see section 3.2.2) of the values that are attained with reduced time pressure is not as strong as for increases in income. They also show that mindfulness, living more in the present, arises more frequently in people who have time affluence. Time affluence might possibly be more strongly linked to well-being than material wealth, at least for people who have already reached a certain material level. Lucia Reisch (2001) is another author that suggests that a new balance between material wealth and time affluence could entail increased happiness.
One way of illustrating the effect on well-being from reduced working hours in the future is to interview people about what they want from the future. Mona Mårtensson and Erika Lundell have conducted a qualitative study on how the residents of Stockholm reason in terms of the different future scenarios presented in the book “The Future City” (Gullberg et al. 2007). Various options for the future, including making priorities between time and money, were presented to 45 persons aged 38–59 in gainful employment. The vast majority wanted more free time, and this time would primarily be spent on social relations. Children are very central to this desire, even for those who have grown-up children or grandchildren. “Just being”, but also the opportunity for variety and spontaneity, are also of key importance to those who would like to have more time. This includes more travel, which they would prefer to do together with their family, as a way of meeting. However, reduced working hours restrict increases in consumption and consequently the rate of increase in terms of travel. However, shorter working hours do increase the opportunities to stay away for longer when travelling, as well as for travelling by slower (and consequently more energy-efficient) means of transport.

Many people experience that everyday life is characterised by time pressure: 31% of all adults without children, and as many as 47% of all people with children, frequently feel that it is difficult to make time for everything they need to do (Larsson 2007). The desire for reduced working hours is often linked to a longing for less time pressure in everyday life. Quantitative research shows that the length of the working week is strongly correlated with subjective time pressure (ibid), which in turn has been shown to have a negative impact on people’s well-being (Kasser & Sheldon 2009).

Time pressure is one of several factors that contribute to stress, which is detrimental to both health and well-being. A study was carried out in 2005–2006 in which 400 employees at 17 different public sector workplaces worked a six-hour day for a period of one and a half years (Bildt 2007). The results clearly showed that a six-hour day entailed a higher level of well-being for the participants in the study. They also showed positive effects for the participants’ subjective health, for example, reduced back problems and less difficulty in sleeping. However, this trial did not result in reduced absence due to illness, although the short trial period makes it difficult to draw any conclusions as any health effects might take time (ibid.). A quantitative meta-analysis of 21 different studies (Sparks et al. 1997) has also shown that there is a relationship between different types of ill-health and long working hours, but primarily overtime work.

Reduced working hours have previously mainly been associated with a reduction in what is referred to as normal working hours (defined as full-time). However, a reduction in the total number of hours worked can also be achieved in other ways, for example through longer holidays, longer parental leave, or better conditions for time off to study or to work less hours when the children are small.
Another alternative is individually reduced working hours for example by introducing a general right to work part-time, which would give everybody the right to shorten their working hours, just as Swedish parents of small children have today (Larsson, forthcoming). Legislation has existed in the Netherlands since 2000 entitling all full-time employees to reduce their working hours by 20% (Visser 2002). The opportunity to work part-time is viewed as a welfare reform: “In terms of income and wealth, part-time work may be a less than perfect choice, but if welfare is more broadly defined […] it may generate higher welfare” (ibid, page 38). Individually reduced working hours are also considered to have potential to increase well-being as “[t]he freedom to choose how to live contributes to the happiness of the chooser.” (ibid, page 38).

This reasoning is supported by the research as people who have influence and control over how long and when they work generally report higher estimations of their own health than those who have less opportunity to decide their working hours (Golden & Wiens-Tuers 2006; Malmberg et al. 2003). Difficulties associated with individual work time reductions are that these individuals have to deviate from the norms of most others at the workplace and also manage with a comparatively lower consumption level. These difficulties do not arise in connection with overall reduced working hours, and this probably lies behind the fact that just over half of Swedes are in favour of generally reduced working hours, while only one in six can imagine individually cutting their working hours (Sanne 1995).

In his research, the sociologist Paul Fuehrer (2010) has come to the conclusion that norms and the demands of society lead people to prioritise economic affluence, even though what they actually desire on a personal level is more time. Fear of inferior career prospects is a driving force behind not choosing to work part-time, but equally, there is a strong social norm to focus on work. Norms surrounding working hours are also governed to a large extent by gender. In one study, Larsson (2007) shows that the 40% of Swedish mothers in full-time work with small children would like to reduce their working hours even though it would mean lower pay (Larsson 2007: 8). The equivalent figure for fathers with small children is 15%. Ahrne & Roman (1997) observe that “the fact that men work full-time has been one of the more constant norms in Sweden in the post-war period” (Ahrne & Roman 1997, page 25).

From a well-being point of view, both generally and individually reduced working hours provide more time for activities that the research indicates contribute to well-being, e.g. time for social relations, sport, outdoor activities or involvement in clubs and societies. However, some people have highly attractive jobs and less attractive leisure time, and for them reduced working hours might be a negative factor. Moderately challenging work provides, for example, good prospects of flow experiences: a sense of being completely absorbed by the task in which one is engaged (Csikszentmihályi, 1999). This is an experience that some happiness
researchers view as extremely positive for happiness, while others question its beneficial effects in the longer term (Vittersø, 2003).

**Effects of reduced working hours for society as a whole**

Reduced working hours offer the possibility of both positive and negative effects for the population as a whole. If shorter working hours result in lower unemployment, it naturally entails positive effects for society. It reduces public expenditure due to unemployment, but would also entail reduced individual suffering as unemployment is strongly negative for well-being (Argyle 1999). Shorter working hours would also provide time for more involvement in clubs and societies and more socialising between people who are working and those who are not, e.g. children and pensioners. There is thus a potential for increased social capital. There is also reason to believe that reduced working hours would be beneficial to gender equality. A major Swedish trial with a six-hour day revealed that, on average, men increased the time they had available for both housework and children to a greater extent than women did, while the women gained a larger increase in leisure time (socialising, exercise, TV, etc.) than the men (Bildt 2007). Furthermore, it can be assumed that generally reduced working hours would enhance gender equality as women would not need to reduce their hours to part-time to such an extent. Women’s prospects of competing on the labour market would thereby be improved.

Reduced working hours may, however, entail difficulties when it comes to financing welfare services and pensions. The Swedish Long-Term Survey (Ministry of Finance & the Long-Term Commission, 2004) points to reduced opportunities to maintain welfare if private consumption does not continue to increase and if we do not continue to work and pay taxes to the same extent as we do at present. Demographic trends are moving towards a larger proportion of pensioners in the population, which also necessitates increased tax revenues. Demands on society’s welfare services are increasing in line with increased private incomes. This is partly due to demands for better quality from those people whose income is increasing, but also because the number of staff required for welfare services increases the costs more than in the capital-intensive and material-intensive sectors, where there is generally greater potential for productivity development. The Long-Term Commission suggests that raising taxes is not a solution, as it would impair competitiveness in relation to other countries. Also, financing health care through charges is not viewed as an option as this jeopardises the provision of care for all.

What nevertheless suggests that reduced working hours are not entirely impossible is that Sweden and many other countries succeeded in implementing successive reductions up to the 1970s, and that some countries, for example France and the Netherlands, have introduced reduced working hours more recently. There are various ideas regarding how today’s welfare society could be combined with shorter working hours. Perhaps changes in the tax system can be made that do not have a negative effect on companies’ international competitiveness, for example,
through increased tax on emissions from private individuals, increased VAT and marginal rates of tax (increased marginal rates of tax also reduce the incentives for long working weeks, which is positive for well-being). Perhaps people will also become healthier as a result of not working so much, thereby resulting in lower costs for sickness benefit and care. Another idea is that the voluntary sector would be able to play a greater role in a society where people do not work as much.6

5.3 Changed mix of consumption:
increased consumption of services

In a similar way to the potential for reduced working hours to free up time for meaningful activities and reduced stress, it is possible to imagine working hours staying as they are, but households purchasing leisure time through household services that in addition have relatively low emissions. Household services are, however, only a minor category in the overall consumption of services.7 Another important part comprises experiences and cultural services. In their research, Van Boven & Gilovich (2003) show that experiences and consumption of experiences produce a very positive happiness effect, which is stronger than for consumption of goods and furthermore has a more sustained effect on well-being. In the context of happiness, it might therefore be the case that experiences are preferable to possessions.

At the same time it has to be borne in mind that people value things differently. Care should also be taken in drawing any far-reaching conclusions based on these research findings. After all, it is equally possible for a product to fulfil a central role in an experience, although this is not always the case. In Chapter 6 we will take this discussion further and argue that the actual activities and “practices” are of greater importance to well-being than whether the actual purchase takes the form of a product or a service.

A shift of consumption towards an increased content of services should also, as with reduced working hours, be capable of leading to reduced emissions as services generally (with the exception of transport services) give rise to comparatively low emissions. Figure 11 shows a comparison of emissions per SEK for 105 different categories of consumption divided into six main groups.

As shown in Figure 11, the average emissions intensity from Swedish household consumption is about 37 grams of carbon dioxide per SEK spent (gCO_2 per SEK). A shift in the consumption mix towards goods and services that are below this level

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6 It is also conceivable that shorter working hours would facilitate a rise in retirement age as well as increasing productivity. However, these two consequences would “eat up” some of the climate benefits from reduced working hours as they would contribute to increased consumption.

7 The concept of “service” is very broad. According to Alfredsson & Scocco (2008), a service is defined by the fact that it is immaterial, that it involves interaction between producer and consumer, that it is not possible to store (non-durable), and that it is standardisable (heterogeneous).
would therefore lead to reduced greenhouse gas emissions per SEK consumed. The category of “miscellaneous services” has the lowest emissions, with a weighted average of 13 gCO₂ per SEK. It is, however, worth noting that most products are also below the average consumption (weighted average 23 gCO₂ per SEK). Hence there is reason to question the picture that is sometimes given in the environmental debate, where consumption of material goods symbolises the major threat to the environment (fuel, air travel and meat are among the forms of consumption that have the greatest impact on climate). However, there can be indirect links between consumption of material goods as status markers and drivers of increased consumption (see also the section on post-materialistic values, 4.5.2).

Figure 11: Greenhouse gas emissions from 105 categories of goods and services grouped in six main groups, (processing of data from Statistics Sweden’s Environmental Accounts). The figures include emissions in the production of goods and services. For a computer, for example, emissions are included from the computer factory’s energy use but also upstream in the production of the material used in the computer, as well as the transport linked to these materials. Emissions linked to imported goods and services have been calculated here as if the production took place in Sweden, which probably leads to underestimations of emissions.

Moving towards a service society?

There is a widespread perception that we are gradually on the way to becoming a service society. One of the first to argue this was Bell (1973), but the idea was also questioned at an early stage by Gershuny (1977) and others. The answer to the question largely depends on what is measured (share of labour or production) and how the division of production and consumption into goods and services is defined (Jansson, 2009).
Eva Alfredsson & Sandro Scocco (2008) have analysed the proportion of services in household consumption, and the results are shown in Figure 12 below. The categories in the figure are sorted according to the proportion of the costs that are wages and capital. Personal services are the most labour-intensive category, with wages accounting for 90%. It is this category that we usually associate with services, for example training, hairdressing or household services. Increased tax revenues and greater GDP have enabled an increase in the proportion of personal services in the economy, primarily, for example, nursery places, health care and education. Private consumption of personal services has, however, generally decreased during this period. Producer services are not provided to the end-consumer but instead to other producers, and do not need to be performed in the same time and place. The increase in what are known as intermediary services relates to telecommunications and data communications, air travel etc.


Alfredsson and Scocco show that no dematerialisation of households’ consumption has taken place since the 1960s. Overall consumption is growing rapidly and moreover, the proportion of goods in consumption is increasing slightly. All in all it therefore appears that we are moving towards an increasingly “gadgetised society” rather than a service society. The reason for this development is often assumed to be what is known as the service dilemma, which describes the tendency of services to become relatively more expensive than goods when wages increase. The dilemma consists in the fact that productivity in goods production is continuously increasing, while productivity in to the production of personal services cannot increase in the same way without a simultaneous decrease in the quality of the service. This is also known as “Baumol’s cost disease” (Baumol 1967).
The services in the economy that are increasing, the non-personal (producer, mediation and capital services), have a share of capital of between 40–90%, and it is actually the potential for productivity within this sector that enables its expansion in terms of increased job opportunities (Alfredsson & Scocco 2008). The increasing proportion of people who work in these sectors means that, from a labour perspective, we can claim that we are on the way towards becoming a service society. However, from the consumption perspective there is no trend towards an increased proportion of services.

In other words, the research shows that we do not appear to be on the way towards becoming a service society. If such a development is nevertheless desirable from a climate point of view, it might be interesting to examine how policy instruments could be used to change patterns of consumption. Axelsson (2009) considers that consumption of services should increase at the expense of consumption of goods, and that this can be promoted through a green tax regime that shifts tax from work to increased energy and carbon dioxide taxes. This would facilitate labour-intensive operations and increase consumption of services with a low impact on climate, while the shortfall in tax revenue from lower payroll taxes and income taxes would be offset by the revenue from the proposed environmental taxes. This is one example of a proposal that addresses the question of an increased proportion of services in the economy. Lower VAT for some service industries is another similar proposal.

5.4 Urban development to enable reduced energy use

In this section we discuss the options for designing urban development in order to reduce energy use, with the emphasis on transportation of people. We also examine the consequences that such changes would have for people’s quality of life. Transportation and mobility play an important role in people’s everyday lives. For example, almost all everyday activities include some type of transportation, and it is clear that over time the development of society, transportation and people’s everyday lives go hand in hand. Today’s transport system enables extensive daily journeys, which have a substantial impact on urban development and social relationships between people.

In this context, the term mobility entails both physical movements and communication that interconnects physical locations with each other (Urry 2007). The literature discussed in this section concerns mobility, sustainable transportation and subjective well-being. A number of future scenarios suggest that daily travelling habits will have to change as an element in adapting to climate change, and that mobility in cities cannot be based on a continued increase in motor traffic (Kahn et al. 2007; Åkerman et al. 2007). Taking the degree to which different urban structures lead to
a decreased or increased demand for transport into account at the planning stage is crucially important (Mossfeldt & Reneland 2005).

In their futurological study, the Australian researchers Moriarty & Honnery (2008) suggest that it is socially and ecologically unsustainable to maintain our current transport system. Even with major technological achievements, the costs will be too high in terms of emissions of greenhouse gases. If transportation would be powered by biofuels, the production of energy crops that it requires entails too extensive land use. The authors of the article suggest that, instead of continued expansion of a hyper-mobile society, we should be focusing on the possibilities for meeting basic human requirements within a low-mobility global society. They argue that today’s affluent societies should be the first to implement such a transition, and that resources should be freed up to enable similar changes in low-income countries. This picture of the situation is based on the conception that we should focus on a less mobile society. Another picture of the transition to a low-carbon economy is, however, that there is absolutely no need to cut back on a high level of physical mobility, rather that it is sufficient to switch to other fuels, e.g. electricity and biofuels, or that we need to travel to a greater extent on public transport, on trains and buses (Åkerman et al. 2007).

What is unequivocal is that today we are travelling more than ever. The illustration below shows that the number of kilometres per person and day in Sweden has increased from 8 km in 1950 to 39 km in 2008. It is also clear that most of this increase is accounted for by car travel.

![Figure 13: Domestic personal transport in Sweden 1950-2008. Source: Own presentation of statistics from SIKA (Swedish Institute for Transport and Communications Analysis).](image-url)
5.4.1 The car
The energy efficiency of passenger transport partly depends on the choice of mode of transport. During the last 50 years, car use, which is highly energy-intensive, has become by far the most common way to travel. It has been shown that the transportation choices that people make are partly due to deeply ingrained habits (Gärling & Axhausen 2003). Transportation choices are also a matter of social norms and identity. The car is not just a mode of transport, it is also a status symbol and an object of positional consumption (Litman 2007). Litman also considers the pattern of development to be self-reinforcing (see Figure 14 below).

![Figure 14: Cycle of automobile dependency. Source: Litman 2007, page 11](image)

Litman’s model describes the process of how the car is gradually acquiring an ever stronger position due to the fact that its increased use requires a certain type of infrastructure, which in turn provides increased opportunities for people to rely on the car in their everyday lives, and thereby also less room for those who are not car users.

Housing preferences seem to have a certain amount of impact on increased commuting distances. According to a study by Stutzter & Frey (2008), the “dividend” that long commuting times deliver, such as better housing, more profitable work etc., are not sufficient to reduce the negative effect that long commuting times have on life satisfaction. The study shows that life satisfaction becomes significantly lower for every additional ten minutes that a person commutes, despite the positive effects that the person concerned presumably assumed would ensue from the choice. Commuting times have also been shown to be a significant factor in relation to the sense of time pressure in everyday life (Larsson, 2007). The habituation effect is greater in terms of the benefits of long-distance commuting than the habituation of the stress effect (Frank 2004: 72; Åkerman et al. 1995). This mechanism is thus
based partly on the difficulty of assessing the effects over time that were previously described (see section 3.2.2).

Gatersleben & Uzzell (2007) have evaluated how cognitive and affective aspects interact in term of attitudes to different modes of transport. Feelings of danger, stress and a low level of convenience are the most common negative feelings, and these vary in intensity between different choices of transportation. Danger is a common negative feeling for cyclists, but not for public transport users. Feelings of stress as a result of delays are common to public transport users and motorists, but are almost never experienced by cyclists or pedestrians. The more cognitive effort a journey requires, the more stress it also produces, e.g. public transport that requires a lot of changes. On the other hand, physical effort, as with cycling or walking, is not linked to feelings of stress (Gatersleben & Uzzell 2007).

An extensive Canadian study also arrived at the conclusion that persons who cycle or walk to and from work “like” this way of commuting to a much greater degree. As many as 19% of those who cycled to work said that this journey was the best time of the day, while the corresponding figure for motorists was 2%. Another important factor in the extent to which people enjoyed their journey to and from work was how long the commute took. This study also compared those who commuted alone by car with those who shared a car, and no significant difference was found between these groups.

A report from the Centre for Consumer Science (CFK) at the University of Gothenburg addresses the role of the car for well-being in relation to everyday activities (Jakobsson Bergstad et al. 2009). The study asks what role daily travel plays in subjective well-being and what proportion of this effect can be explained by the car. The survey studies the emotional effect of daily car use and compares this with the more target-related motive of the journey. In general, the target-related motive for using the car explains more of the positive experience than the affective effect of using the car. The car’s function of facilitating everyday activities is thus more important to subjective well-being than the emotional effects of the actual car use. Important factors are reduced time pressure and stress in connection with these activities.

A study by Steg and de Groot (2006) uses 22 indicators of quality of life, including health, leisure time, security, status/recognition etc. The indicators are individual and social, as well as objective and subjective, but the emphasis is on subjective well-being. The aim of the study was to 1) examine the extent to which people feel that policy instruments in the form of higher prices for car use would affect their quality of life. 2) the extent to which people feel that they would modify their car use as a result of such instruments 3) how this differs between different nationalities. In other words, it entails expected, and not actual, consequences. The respondents had to list which of the indicators they felt would affect them most and
by how much. The scenario on which the respondents had to take a position involved a doubling of the price of car use and all peripheral costs. The general expectation was that the quality of life aspects “convenience”, “economy” and “freedom” would be most negatively affected, while “security”, “nature” and “environment/surroundings” would be the most positively enhanced. There is wide diversity in the responses between different nationalities. The study has had respondents in the Czech Republic, the Netherlands, Austria, Sweden and Italy. Respondents in Sweden and the Netherlands have the strongest negative reaction to the hypothetical change, while people in the Czech Republic and Italy did not feel that the negative aspects of the change would be particularly pronounced. The study’s conclusions in terms of changes in quality of life are that many of the respondents estimate that their overall quality of life would deteriorate relatively little as a result of the hypothetical price rise. The negative aspects in some areas are balanced by positive changes in others according to the responses received in the study (de Groot & Steg, 2006).

In another study, Steg (2005) has shown that motorists select the car as their commuting option not just on the basis of instrumental motives, but also based on norms and symbolic grounds such as demonstrating who they are. Litman (2007) suggests that both our commuting distance and selection of mode of transport are largely influenced by the pursuit of status. Cities lose density (urban sprawl) because people want to be able to afford to live in large houses and this leads to longer commuting distances. More expensive cars than what is “functional” are purchased, as they can provide higher status, and at the other end of the scale, modes of conveyance such as public transport are stigmatised or at least not associated with freedom and status. Car use is a social norm to which one has to relate, and its strong social position reduces the chances of changing to sustainable use of resources (Litman, 2007). People who have grown up with car use may experience deterioration in quality of life as result of reduced use, but it is also conceivable that the actual effect of changes at an overall level is not the same when they take place over a longer period. This is probably best studied by looking at changes over time, and monitoring societies through equivalent changes.
5.4.2 Densification, accessibility and shorter journeys

Transport choices and energy efficient transportation are part of the solution in achieving reduced emissions from passenger transport. Another important aspect is to look at the structural conditions behind increased travel, and the role that urban development plays in this context. Figure 15 below shows how energy use for transporting people relates to population density in different cities in the world (Newman and Kenworthy, 1999). In the sprawling cities of North America, energy use is considerably higher than in the denser European cities, which in turn have higher energy use than the much denser cities in Asia. However, the picture is the subject of debate as the graph can be partly explained by income levels. But the pictures do clearly show that the sprawling, car-based American cities (farthest up on the left of the graph) do not just give rise to high emissions as a function of income, but actually require considerably more energy use than, for example, Vienna, Singapore and Amsterdam, which have populations with a similar level of incomes.

Densification of cities is a recurrent objective as a facet of the transition to a low-carbon economy, and is presented in various contexts including in future scenarios (Virdis & IEA, 2003; Åkerman et al., 2007). It entails reducing distances within cities and sharing more types of activities in the same areas, instead of being too spread out and in individual segments.
In a report written for the Swedish Environmental Protection Agency, Mossfeldt & Reneland (2005) argue that accessibility should replace passability as the principal objective in transport and urban planning. Some people have greater opportunities for mobility due to the circumstances in the environment in which they are usually located, and there can be differences due to age, car ownership, income, disability etc. Mossfeldt & Reneland (2005) call this “mobility resources”, and suggest that quality of life decreases for people who have too little mobility resources in relation to their wishes and everyday needs.

Harris et al. (2004) suggest that the accentuation of time savings often overlooks many people’s needs and leads to inequality between different groups’ everyday opportunities. Their study has focused on differences in age, gender and spatial circumstances in relation to time savings and speed as objectives in urban planning. A focus on speed and time savings in traffic tends to be prioritised over issues such as environmental objectives and equal mobility resources. In some cases, the objective of time savings in transport planning can be replaced by accessibility as an objective, which entails meeting people’s needs, but with fewer or shorter everyday journeys as a result, many of which can be met more effectively through walking and cycling.

One way of viewing the link between mobility and quality of life is the way in which our social life is affected by our mobility options. People are dependent on either being able to move over long distances or living in an urban structure that offers accessibility. In one way or another, these circumstances affect social relationships between people.

Social capital is a term that addresses social networks and how they can be understood as a form of capital, partly through the value of social relations for individuals, but also as a social condition, for example, the totality of social contacts in a residential district, close relationships within a company or within a family (cf. Brunie 2009; Putnam 2001). Individuals with a high level of social capital have a higher quality of life and better health, both mentally and physically (Almedom 2005; Myers 2004). Societies with a high level of social capital are characterised by an abundance of interpersonal relationships and trust between people. John Urry (2002) suggests that daily travel is increasing as a result of dispersed social relationships. Examples of this might be friends from work where long journeys are required in order to socialize privately. We inhabit more and more geographically dispersed social networks.

Inaccessibility can lead to less social capital in an entire society or for certain groups. In a society with a high level of mobility, ties are not reinforced between people within the local community, rather relationships are more geographically dispersed. Furthermore, people with inferior mobility are excluded in this sort of society. Accessibility can accordingly be contrasted to mobility as the former
involves proximity, while the latter is about distance that can be bridged through physical transportation or communications and IT solutions (Urry 2007). It is possible that a society characterised by accessibility might achieve a higher level of social capital as a result of not imposing mobility or leading to exclusion. Older people risk being excluded from social relationships or restricted in their freedom of movement. Mobility is about bridging distances, and this is precisely what is more difficult for older people in line with, for example, no longer being able to drive or walk, apart from short distances. In terms of children’s mobility, growing dependence on cars in everyday life is an increasing problem (Freeman & Quigg 2009). In addition, this study suggests that the impact that children have on the climate as a result of transportation is also becoming ever greater. In the final analysis, it leads to reduced freedom of movement and autonomy for children, and Freeman and Quigg suggest that children’s quality of life is suffering as a result of less freedom and less spontaneous contacts with friends. They also suggest that car use in childhood shapes patterns of behaviour as adults.

Putnam (2001) examines what he suggests is declining social capital in American society. He observes that suburban cities, “peripheral cities”, that involve more commuting and fragmentation of spatial patterns in everyday life, are associated with a general reduction in social capital. Firstly commuting takes time away from socialising, and secondly the trend is the disappearance of meeting points for local communities and cities. Everyday activities take place in dispersed locations, and consequently not in city centres as has been the case for a long time (e.g. workplaces, shops and services).

In his study Putnam suggests that every ten-minute increase in commuting time leads to a 10% reduction in social capital. Besser et al. (2008) have also tested the relationship between commuting time and social capital. Journeys with a social function, to and from friends, relatives, religious activities, courses, culture and entertainment etc., are used as a measure of people’s social capital. The study reveals that the likelihood of the respondent not having made any socially oriented journeys on the day of responding increases significantly the longer the commuting time the respondent has.

This type of city also leads to more segregation and homogeneity within districts, which in turn is linked to less social engagement; particularly when it comes to political organisation. According to Putnam, statistical analyses show that long commuting times co-vary with a low level of social engagement. It has also been shown that commuting has a strong negative effect on informal social contacts. Putnam’s view is that social capital is very important for our overall subjective quality of life and that social exclusion or isolation has strong negative effects on our health, an observation for which there is support in other studies (Almedom 2005; Myers 2004).
Critics of Putnam’s analysis have, however, argued that it disregards changes in the character of social capital outside physically demarcated areas, such as how, for example, the internet offers entirely different social contexts that can involve networks at the global level (Currie & Stanley 2008).

The most important aspect from a quality of life perspective is the capacity to satisfy everyday transport needs. This can be done in different ways, e.g. by increasing opportunities to travel by public transport, but it can also be done through increasing accessibility in the form of decentralised services or a denser urban structure. It is estimated that if travelling and commuting distances are shorter, more people will include cycling or walking in their lifestyle and their everyday behaviour. Shorter commuting distances and teleworking from home can also relieve everyday pressures on time (Koslowsky et al. 1995; Larsson 2007).

One quality of life effect that is addressed in the literature concerning transport is also how commuting leads to a large range of negative health outcomes. A forthcoming Swedish study (Jakobsson, 2011) shows that people who commute more than an hour one way (by car or public transport) have a 30–50% increased incidence of sleep disturbance, perceived stress on an everyday basis and lower vitality, mental health and well-being, compared with people who walk or cycle to work. Previous studies have proven the relationship between long commuting times, unpredictability and the effect of unexpected delays on stress levels for both motorists and public transport users (Gottholmseder et al. 2009; Koslowsky et al. 1995). One study has also indicated that commuting is the everyday activity that respondents say produces the least positive effect on happiness while engaged in it (Layard 2005). This has also been confirmed in a study that empirically tests the actual effect on happiness of different everyday activities (Killingsworth & Gilbert 2010).

What is commuting like in Sweden as a whole and how can it be understood? Figure 16 below shows that the percentage of commuters among the employed increased steadily between 1975 and 2005. In 1975, 18% of the employed population commuted across municipal boundaries, while this figure had increased to 30% by 2005. It is often assumed that the proposed enlarged regions (from the present-day 21 counties to 6–9 regions) will have positive effects on economic growth, and infrastructural initiatives in buildings and services are being developed to provide for increased commuting in the future (SOU, 2003). However, as we saw above, this trend is not entirely positive, as increased commuting distances have negative effects on both well-being and environmental impact.
5.4.3 Different options within urban development

Per Lundin (2010) from the Royal Institute of Technology in Stockholm has produced an overview of traffic initiatives in a number of different Swedish cities and suggests that it is the car above all that predomnates in the initiatives. One clear example is that investments in bicycle paths in Stockholm have decreased by 80% in recent years. Based on this Lundin maintains that there is a gap between the visions and the policies and investments that are actually implemented. There are, however, numerous attempts underway to find alternatives in urban development. They entail both reducing distances in cities and breaking trends in terms of the car’s strong position in relation to passenger transport.

Jaccard & Rivers (2007) make an interesting comparison of the metropolitan areas of Vancouver and Seattle, which are similar in a number of respects such as climate, age, size, technology, trade and industry, land prices, energy prices and standard of living, but where urban development has gone in entirely different directions since the 1960s. For example, in Vancouver during the last 40 year period, the extension of motorways into the city centre has been stopped, and urban development has been actively planned in order to counteract the emergence of “suburban sprawl”, while Seattle has followed a more typical North American development. Jaccard & Rivers suggest that this is the main reason why energy use for transportation is 23% lower in Vancouver than in Seattle calculated on a per capita basis.
It can also be noted that the Economist Intelligence Unit ranked Vancouver as the world’s best city in which to live in 2010.8

Bogota in Columbia is another exciting example of how deliberate town planning to promote increased well-being can also lead to reduced energy use and environmental impact. During his period as mayor of Bogota, Enrique Peñalosa implemented a number of urban planning measures.9 An important starting point was justice, which Peñalosa had been contemplating since he was a child. He recognised that reducing injustices through redistribution of economic resources was highly problematic, but realised that it was possible through urban planning. He was concerned that poor people felt insecure and of less worth in a traffic environment dominated by cars. Pedestrians and cyclists lived dangerously, while the roads had the effect of creating barriers in the city. Instead of investing in expensive motorways, substantial investments were made in cycle paths, efficient bus systems, wide pavements, pedestrianised streets and squares in Bogota. This led to a more vibrant city and a safer and more effective passenger transport system, with considerably less environmental impact. This initiative also had other consequences. There was less public expenditure on motorways, which instead could be put into education and healthcare. Furthermore, Peñalosa suggests that this initiative entails less segregation as the rich have increasingly chosen to stay in the city as it has become less attractive to commute by car from exclusive segregated suburbs.

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9 The description of the Bogota example is from Enrique Peñalosa’s presentation when he received the Gothenburg Award for Sustainable Development, Nov. 2009.
6  Practice theory and everyday environmental impact

By way of conclusion we have chosen to look a bit more closely at practice theory, that we feel could be a useful perspective in future research into links between the transition to a low-carbon economy and quality of life.

People’s everyday environmental impact and attempts to control societies’ emissions levels can be illustrated from two fundamentally different perspectives: the individualistic paradigm and the system paradigm (Spaargaren 2010: 3–7). Within the individualistic paradigm (micro level), individuals’ choices and attitudes are important elements. Behavioural changes at the level of the individual are regarded as necessary, and the consumer is a key player and driver of the development of green products or ideas. The system paradigm (macro level) instead primarily concerns changes in the line of production, within which technical innovation and political instruments have to lead development towards a society with a lower climate impact.

A common way of classifying different types of emission calculations, to these paradigms, is to either observe where emissions occur, a production perspective, or what end-use they are associated with, a consumption perspective.

- **Production perspective:** Start out from all emissions/environmental impact that take place within a geographical area (country). Emissions from, for example, industrial production are included regardless of who uses the end-product. This perspective is the basis in, for example, most international negotiations within the environmental area.
- **Consumption perspective:** Start out from the fact that all emissions/environmental impact is allocated to the end-consumer, regardless of where in the world the production and emissions take place.

The consumption perspective offers a more difficult way of calculating emission levels (Swedish Environmental Protection Agency 2008), but it leads to an understanding of how factors such as standard of living and behaviour can be linked to a society’s emissions levels. Analysing consumption the focus can include *purchases* (private or public use of money), or activities and *practices* with which consumption is associated. All the activities in which individuals engage can be understood as practices, or as components of practices.

The term practices includes *activities*: what we do and for how long, *social aspects*: with whom and/or the practice’s social effects, *consumption*: which resources are used, *motive*: which functions the practice fulfils, as well as cooperation with *social, economic and physical structures*. Figure 17 below describes practices as a
possible link between individual and social structures (based on Chappell et al, 2000).

<table>
<thead>
<tr>
<th>Individuals</th>
<th>Practices</th>
<th>Structures</th>
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<tbody>
<tr>
<td>- Idées/conceptions regarding convenience, necessity or desires</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Habits</td>
<td>E.g. cleaning, cooking, commuting, travelling on holiday, child care, etc.</td>
<td></td>
</tr>
<tr>
<td>- Generation of meaning and formation of identity</td>
<td>- Use of time</td>
<td>- Institutions and infrastructure</td>
</tr>
<tr>
<td>- Quality of life</td>
<td>- Consumption</td>
<td>- Common rules and resources</td>
</tr>
<tr>
<td>- Economic resources</td>
<td>- Social interaction</td>
<td>- Norms and social structures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Technical systems</td>
</tr>
</tbody>
</table>

Figure 17: The practice perspective (cf. Chappell et al. 2000: 23).

*Practice theory* (Reckwitz 2002; Rouse 2007) emphasises practices as a central object of analysis (instead of, for example, attitudes, purchases, individuals or discourses) for studies of the social arena and for the relationship between society and individuals. Different theories have conceptualised practices terminologically as *everyday routines, habits, performativities, situation-bound rituals* or *interactions* (Repeke 2009; Spaargaren 2010). According to practice theory, human beings are profoundly affected by their habits and experiences of their surroundings, rather than, for example, rationally target-oriented. Pierre Bourdieu (1977) has described how practices make us a part of our surroundings, but also how our surroundings become a part of us, *embodied*, as it were. By *internalising* the world around us, history and the conditions behind our actions become concealed from us. A particular way of eating, a particular way of moving around etc., can also constitute a *distinction* between different groups in a society (Bourdieu et al. 1999: 19). The content of a practice becomes, as it were, conditional on the economic opportunities or cultural capital that an individual has.

Practices both create and are symptoms of rules and norms in society. Practices interact with culture and the social arena on a structural level, but also give individuals a way of thinking and comprehending the world based on what they do and are used to doing. The practices that are part of one’s everyday life also shape the perception of which actions are possible or restricted.

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10 Performativity is a mode of doing that forms identities and conceptions of reality: e.g. sexual identity understood as an effect of constantly repeated actions (Ambjörnsson 2006: 136–40).

11 Situation-bound rituals refers, among others, to Randall Collin’s micro-oriented interaction rituals theory: processes within which participants in a (well defined) social context develop feelings of group solidarity and shared moral principles as a result of shared experiences or actions. (Collins 2004: 47–49).
Shove (2003; 2004) has conducted interviews and case studies on the relationship between technology and everyday energy use and one example of these are indoor climate. Maintaining the same indoor temperature all year round, both heating and air conditioning, is taken for granted. This convenience entails a substantial demand for energy. A common view is that technology is simply satisfying a demand, but Shove suggests that technical strategies also create conceptions of what is necessary. Technology, norms and culture follow each other (co-evolution) and changed ideals of comfort in terms of indoor climate could, for example, mean that we become accustomed to wearing more or less clothes indoors.

Anthony Giddens (1999) suggests that we perform a large number of unreflecting actions in our everyday lives and that it is through precisely these practices that social structures are reproduced. One example of the application of Giddens' perspective is a study by Malene Freudendal-Pedersen (2009) addressing mobility and car use. She suggests that in our everyday lives we become part of structural car use and that this use can be called an unreflecting action. She uses the concept of structural histories to explain how certain social groups surround themselves with, and unreflectingly create, everyday truths such as “when you have children you can’t manage without a car” or “the commuter train is always delayed and you can’t rely on it”. The truths are reproduced and help to make everyday actions unreflecting as certain everyday choices become self-evident.

One important point in the practice perspective is that consumption and purchases are not central (apart from where shopping as a leisure-time activity is concerned), but rather how our practices generate consumption and climate impact. For example, transportation is not the end purpose when you want to meet friends, but it can be imposed in a society where transportation is a necessity and this consumption thereby becomes a part of the practice. Naturally, our practices and their configuration do not only affect the environment but also our quality of life (see section 3.5). People do not primarily perceive everyday life in terms of consumption of resources or use of energy; instead they feel involved in various more or less meaningful activities (Røpke 2009).

Practice theory also provides a way of understanding time use as an aspect in the analysis of climate impact and quality of life (Røpke 2009). A new practice can exclude other practices because it makes demands on time resources. Consideration of how to fit practices into everyday life is often called a life puzzle. The fact that many people are under stress can also lead to environmental actions being given less priority. A feeling of time pressure can, for example, be a reason to select fast (and environment-impacting) modes of transport.

Shove (2004: 20) suggests that in parallel with energy efficiencies, a discussion must be held on how we live our lives and the conveniences that we take for granted. If, for example, one changes to an energy-efficient car, it also becomes cheaper
to drive, which might result in longer driving distances. Profitable efficiency measures within one area can also free up funds for other practices (e.g. holidays abroad). These are also called rebound effects, which means that the energy gained from making efficiency improvements is in some sense devoured by increased demand for other goods and practices that have an impact on the environment, or more of the same (Jalas 2006: 14–17; Nässén & Holmberg 2009; Sanne 2006: 9–11). Together with a general increase in income, rebound effects partially undermine the prospects of reducing emissions through energy efficiencies. However, emissions levels differ widely, between households as well as within the same income group, leading to questions on how we transform incomes into everyday practices, and what these practices mean for our quality of life in the short and long terms.

6.1 Climate impact, innovation and changed practices

In order to compare environmental impact between different practices, or between goods and services, a basis for comparison must be determined (Algehed & Winnes 2010: 19). One way is to ensure common functionality, e.g. making dinner at home compared with dining out in a restaurant. Another way to compare is in money, e.g. what a particular sum of money means when it is used to buy furniture compared with a ticket to the opera. A third basis for comparison is time, e.g. the difference between two hours on the sofa in front of the TV compared with two hours at the cinema. Annika Carlsson-Kanyama & Anna Lisa Lindén’s (2002) research is an example where households’ energy use (excluding energy for transportation) has been divided into functions. The division means that the technology and energy use is not analysed in isolation from the user’s ends, such as when energy use is calculated from “household appliances” or “hot water”. Instead it is done in a context of people’s needs and convenience, e.g. under the functions satisfied and contented, entertainment and information or whole and clean.

Substitution options frequently arise within practices, e.g. when a practice lives on, but a new technology is used. Another type of consumption is thereby also linked to the activity. Røpke (2009) exemplifies this with the practice of photography, which has changed as a result of digital technology. Photography is not new per se, but today a new (digital) technology is used in its execution. It is also conceivable that, for example, more nearby journeys can replace long distance holidays by air, if the function in the practice of holidaying survives such a change, which is naturally not always the case.

Innovation is an aspect of how practices change and with it greenhouse gas emissions and quality of life effects linked to these practices. There are potentially elements of innovation (new procedures) that either reduce or increase climate impact from production (new materials, other ways of obtaining energy etc.) to use.
This need not be a linear process where an individual idea leads to something new, rather it can be practices that are remodelled through the meeting between technology and social context. It might be ideas that arise through the meeting of groups of people with different experiences. Innovation is therefore a mixture of many different parts of a process and it does not necessarily take place in production.

Innovation can equally well take place during use of a technology or through the way it is distributed (Chappells et al. 2000). One example of this is the service of delivering food directly to the door together with recipes for the week’s menus. It is a change in the process of how food is prepared at home, and is significant both for the way of purchasing the food (an alternative mode of transport) and for how the food is cooked (the planning is purchased as a service). Other examples of innovations of a social character are car pools and different forms of travelling together when commuting to work. Besides emissions, such changes also affect time use and social relationships and consequently can also affect quality of life in various ways (Koslowsky et al. 1995).

6.2 Practices and quality of life

The transition to a low-carbon economy means that existing practices will be changed in one way or another, or that entirely new practices will emerge and others disappear. It will affect everyday life in that time use may be viewed differently, new technologies will become part of different activities, transportation included in the practices will change or the cost of consumption linked to the practices will change, e.g. economic instruments that increase the price of certain types of energy or reduce the cost of services with a low climate impact.

The ways in which practices are executed and the values and goals they satisfy are of significance to people’s subjective quality of life. It might be relevant to ask how the social aspects are affected by the formulation of a practice, which values are strengthened or weakened and in what way the perception of control over everyday life is affected. With regard to the social aspects, activities can be executed individually or together with others. Eating fast food on the go can be understood as a completely different practice to sitting down and eating dinner with friends, but it nevertheless entails practices fashioned around satisfying the same function. Changes on a social level are also conceivable, e.g. the fact that when fast food becomes a common practice, social capital might deteriorate as people do not sit down and talk so often, but it could also entail fast food restaurants becoming more important meeting places than the home.

The range of practices in a person’s everyday life consists of more or less target-oriented activities (self-development, motivated by an objective). In general it is those activities with goals that correspond to our values that make us feel good. It is therefore relevant to analyse the drivers behind different practices. Who performs
a practice can also affect the formation of values regarding its social desirability. Certain groups can have more impact than others on the establishment of norms in society, which often concerns the distribution of cultural or financial capital.

The practice perspective entails not just recognising how activities are one way of maximising personal happiness, but also that social circumstances play a part in our choices and actions. Joseph Rouse (2007) points out that people do not make fully conscious priorities between different actions, but on the contrary are influenced by their previous experiences, habits and the surroundings when making different choices. According to this approach, it is also relevant whether practices are in line with what is socially desirable. Our emotional responses incorporate feelings such as shame or discomfort, feelings that are largely culturally and socially formed. It is clearly also the case that people can find meaning and satisfaction in an activity if they perceive that it contributes something positive to society and people around, e.g. choosing to cycle rather than drive, or to tidy up one’s residential area together with other residents. Tidying a residential district also has a collective effect in that interpersonal relationships are strengthened, which has been shown to have feedback effects for everyone in a society. One way of typifying these aspects of quality of life is to be found in a report from the UK Department of the Environment (Dolan et al. 2006).

One aspect concerning this structure is also naturally that changes that reduce our climate impact today have a positive effect on quality of life in the future. The consequences of one’s own actions for oneself in the future, and what it means for others, always have to be weighed up. Weighing up pros and cons when it comes to the climate issue is very difficult as the consequences of actions can be unclear. Changing one’s own practices voluntarily or as a result of policies can encounter resistance as long as the effects of the change are not visible, even though it would not entail any sacrifice in terms of quality of life.

To sum up, it is usually possible to derive consumption (use of resources) from some type of practice. A practice’s climate impact can be analysed by observing the consumption that it entails. The significance of the practice in the quality of life sense is also relevant, as are the effects that changes to a practice, e.g. as a result of the transition to a low-carbon economy, might have for people’s subjective well-being.
7 Future research

In order to achieve the two-degree target, Sweden and other industrialised countries will have to implement far-reaching reductions in emissions over the coming decades. This would mean the avoidance of a great deal of suffering in the long term, particularly in the countries that are most at risk from climate change, but the actual process of the transition to a low-carbon economy would impact on people’s quality of life. The social debate frequently assumes that these effects would be negative, for example through sacrifices such as less flying and travelling by car. The perception is so commonly embraced that it in itself constitutes an obstacle to bringing about a political process towards reduced emissions. At the same time, very little research has examined the actual relationship between reduced emissions and quality of life, and our review of the research that has been done does not point to any clear-cut link. In the concluding discussion we would therefore like to indicate a number of questions that need to be researched in more detail in order to augment knowledge in this area. We start from the structure used in Chapter 5 where some possible routes towards reduced emissions were sketched.

A significant portion of the transition to a low-carbon economy can probably be achieved through technical solutions, such as reducing the proportion of fossil fuels in the energy we use and increasing energy efficiency in the production of the goods and services we consume. Such development does not require any major behavioural changes and is therefore assumed to have a very minor impact on individuals’ well-being. At the same time, it appears to be the case that some people experience increased well-being when they consume environmentally smart goods and services, and research into what drives such consumption could be important in marketing new technical solutions.

When it comes to the make-up of consumption, in other words what we choose to spend our money on, there are a number of areas that need to be studied in order to improve understanding of the link between climate impact and well-being. We believe practice theory (Chapter 6) can be of use when analysing consumption patterns, as it can provide greater understanding of people’s actual everyday drivers. When people consume, they primarily perceive themselves as being involved in a range of activities, they do not usually reflect on the resources they are using. Interpreting consumption activities as integral to different practices can help us understand which activities different individuals and groups identify as important and to thus obtain increased understanding of how different purchases can be substituted in order to reduce environmental impact. It is also of interest that the consumption mix of different households differs so substantially in terms of impact on the climate and energy use despite similar economic conditions. This raises questions concerning which explanatory factors lie behind these differences and how they relate to well-being.
In terms of total consumption levels, this report has chiefly discussed the possibility and consequences of reduced working hours. Our own analyses indicate that a gradual reduction in working hours would result in significant emission reductions. Other research also indicates positive effects on well-being in conjunction with reduced working hours. However, a great deal of research remains to be done in elucidating how any potential reduced working hours could be designed: for example, would it be individual or collective? What job sharing effects would such a reform have in the longer term and how could they be maximised? What changes in behaviour and consumption patterns would reduced working hours lead to? How is the drop in tax revenues to finance welfare to be managed, and what indirect effects on well-being would this have?

By way of conclusion, we would like to emphasise that the research that has been conducted on the determining factors of happiness (Chapter 4) indicates that activities associated with a high level of happiness frequently have a low impact on the climate (e.g. socialising and physical activities). It is therefore of interest to examine how disseminating these results among the public might influence norms and attitudes in society. Changes to norms are significant in creating acceptance of more ambitious policy instruments in relation to the climate, while attitude changes largely concern private reappraisals of different behaviours and the future scenarios to which they lead. With increased understanding of the relationships between well-being and climate impact it is possible that people’s attitudes to adapting to climate change would change. Research into how these scenarios are created and what significance they have in shaping attitudes and norms are interesting future areas for research. A sub-area with particular relevance is the role of advertising in creating images of what constitutes a good life and how these images relate to the results of the research into happiness. Advertising often plays on people’s aspirations for community or self-determination and links together certain lifestyles and consumption habits with social status and success. The way in which the links to issues of quality of life, use of resources and climate impact appear in advertising is therefore a question that should be studied in more detail.
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Low-carbon transitions and the good life

A transition to a low-carbon economy requires far-reaching reductions in emissions, which in addition will have to take place at the same time as the global population is growing. A growing population also makes ever greater demands on welfare, while the ecological, social and economic systems that have to sustain this development are already under severe strain. It is commonly argued that emission reductions in a growing world economy can and should be achieved by technical innovations so that the transition to a low-carbon economy does not imply a negative impact on human well-being.

This report discusses whether there might perhaps be another way of understanding the situation. Is the presumed linkage between well-being and climate impact always negative? Could a greater focus on human well-being be a driver of, rather than an obstacle to, sustainable development? This report attempts to identify possible strategies to support both "the good life" and decreased emissions. By adopting this research approach, the authors aim to make a contribution to the discussion of low-carbon transitions in society.