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# Urban Mobility in the 21<sup>st</sup> Century

## Defining the Problems of Car-usage

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**Master Thesis in European Planning and Regional Development**

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# Urban Mobility in the 21<sup>st</sup> Century

## Abstract

This master thesis "Urban Mobility in the 21<sup>st</sup> Century" gives an insight into the challenges that come with car usage in today's society. Even though decision makers are trying to encourage people to use other means of transport, the car is still the predominant choice of transport for many people. With this thesis I have tried to answer the question of why people generally prefer to commute and travel by car instead of using public commuting systems.

The answers to this question are many. Different scientists have given their view of why people generally prefer to travel by car. One of the explanations is given by Zygmunt Bauman. He argues that we live in a society that demands consumption of both travel and merchandise as well as experiences. In this the car becomes the ultimate choice of transport, due to its apparent sense of speed, flexibility and safety.

This appealing sense of speed, flexibility and safety also partly explains why people prefer to use the car, instead of public commuting systems. The society we live in today is complex with many activities spanning a wide geographical area, giving the car many advantages both in flexibility and speed. The decision makers in the European Commission, the Swedish government and the British government have tried to handle this usage of the car in different ways, sometimes by encouragement in using other means of transport, and other times by hard measures like road pricing or increased tax on petroleum. When analyzing these different methods and comparing with the dominating theories on urban mobility, I found that some methods are more successful than others and also that certain methods can have side effects that are less desirable.

## Keywords

Urban Mobility, Transport, Commuting, Behavior, Sustainability, Urban Sprawl, European Commission, Problems, Car.

## Preface

With my background in sociology it was a given to write about behavioral dilemmas and political initiatives of urban mobility when I enrolled in the master program "European Planning and Regional Development" at BTH. My sincere acknowledgement to Mårten Dunér for his supervision and inspirational ideas on how to approach this subject. Many thanks also to Lars Emmelin, Jan-Evert Nilsson, Ana Mafalda Madureria, Eric Markus, Gösta Blücher, Andreas Faludi and Aleh Cherp for their dedication and inspiring lectures on matters that make a difference in our society. I would also like to thank Robert Blum for his valuable and important help on language and grammar in this thesis.

## Quick review

A secondary analysis of initiatives where decision makers in Sweden, The European Commission and Great Britain have taken an active approach in trying to handle the negative effects of car-usage. These initiatives are analyzed to see how well they correlate with different theories on urban mobility.

## 1.0 Introduction

The future of commuting- and transport systems can be a challenge for decision makers. In Europe one can see that even though sufficient commuting systems have been built up, people generally still prefer to travel by car instead of using the public commuting systems. This causes an increased demand on roads and parking spots, while at the same time causing challenges like traffic congestions, CO<sub>2</sub> emissions and urban sprawl. The European Commission has been working on different research projects, investigating what would be the future of transport systems. The Brundtland report from 1980 outlined the visions that would be guiding principles for forthcoming politics. In this report is presented the important balance between ecology, society and economy when developing politics, in which urban mobility plays a critical role, is presented. Regardless of the efforts taken by the European Commission with the Brundtland report and other following documents, there is still much to do regarding peoples choice of transport- and commuting system. In 2009 the European Commission finalized the "Action Plan on Urban Mobility", that outlines a strategy for handling urban mobility. The challenge is in creating an enhancement of mobility, while at the same time reducing congestion, accidents and pollution. In this, car usage plays a dominant role. Scientists within different disciplines have tried to explain why people still generally prefer to travel and commute by car, even though there are other more sustainable travel options. With this thesis, my aim is to find answers on how this behavior can be explained by different theories, and also make an analysis of different approaches taken by decision makers to tackle the negative effects of car-usage, and to see how well these initiatives correlate with the theories presented.<sup>1</sup>

### 1.1 Previous knowledge

My previous knowledge in this comes from my participation in the European Spatial Planning and Regional Development program at BTH, where we studied aspects of urban sprawl and the challenges that are ahead of us in building a sustainable society. I also have a political ambition where I have been investigating several solutions for an effective and sustainable transport- and commuting system in my hometown of Karlskrona, Sweden. With an increased interest in efficient energy solutions for cars, I have previously seen these as a solution to many environmental problems. As I studied the subject more in depth I have found that even though more energy efficient and sustainable cars are developed, urban sprawl and with them an increased demand on roads and traffic system, still cause environmental problems that are not totally solved with electric cars. Being a family father I have also experienced the challenges that come from daily commuting with kids going to school, activities and friends in several different places. Needless to say, I understand the reasoning that makes people take the car instead of using the public commuting system, when handling the complicated travel needs of their daily life. However, not all situations are alike, and as urban mobility is a complex issue with many different aspects that include both social-economic and behavioral dilemmas, I feel an urge of to learn more about the subject.

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<sup>1</sup> European Commission - 20100114 ([http://ec.europa.eu/transport/urban/urban\\_mobility/urban\\_mobility\\_en.htm](http://ec.europa.eu/transport/urban/urban_mobility/urban_mobility_en.htm))

## 1.2 Questions and views

- What is the explanation from different scientists on why people generally prefer to commute and travel by car instead of using public commuting systems?
- Is it possible to change people's behavior through efficient transport- and commuting system planning, legislation and environmental campaigns?
- What role does the car play, and why do discussions related to the car always seem to end up on a moral level?
- How do efforts taken by decision makers, in order to decrease our car usage, comply with scientists theories on urban mobility?
- What standards and values are related to the car - Freedom, class, status, convenience...etc?

## 1.3 Outline

First I will present the theories and investigations that I base my analysis on. Second I will present the methods I plan to use in order to gather and analyze information regarding urban mobility. Third I will present some initiatives taken by decision makers to handle the negative effects of car-usage. After that I will present an analysis of these initiatives to see how they correlate with the theories and investigations presented earlier. After the presentation and analysis of the initiatives, there will be a discussion on the result presented, and also a concluding remark on the subject.

# 2.0 Theories and investigations

In this chapter the dominating theories from different academic disciplines that try to understand the complexity of urban mobility are presented. These theories are divided into themes instead of author, due to the fact that there can be many scientists writing with bases on the same theme.

## 2.1 Density and travel patterns

My first understanding of the usage of the car depending upon where one lives, is that car usage is less dominant in high density (compact) areas. This is probably due to the fact that well functional public commuting systems are more in use in these areas. However, Bertil Vilhelmson has done some research within this area and found that this might not be true. Instead people generally prefer to use the car more in high density areas than in low density areas. How can this be, one may ask? Vilhelmson says that, in general, less distance is traveled in more densely populated areas, but only up to a certain level. Based on an investigation in 1997, people living in a medium-sized city in Sweden with an average of 50.000-200.000 inhabitants, traveled the least distance. In cities like Karlstad, Linköping, Umeå and Uppsala one can see that the observed activity space is much smaller compared to cities like Malmö, Stockholm and Gothenburg, being larger cities where the travel rate is higher. On the other hand, compared to a similar investigation done in 1978, one could see that people living in medium-sized cities then travelled farther than they do 1997. Vilhelmson explains this partly to socio-demographic shifts in the population related to an altered age composition. Often we hear that denser, more compact urban structures, promote the use of public commuting systems and the use of sustainable transport systems like biking and walking. Vilhelmson has found that between 1978 and 1997, there was no radical change in

the use of different means of transportation in urban areas, on the contrary the use of the car is still by far the most dominant mode of travel. On the other hand he found some exceptions, one being that in medium-sized cities the usage of the bicycle has gone up from 10 percent to 25 percent in daily travel activities. This in one way explains the decrease of travel in medium-sized cities between the years of 1978 and 1997. Vilhelmson's conclusion from this is that he questions the common assumption that compact cities would be the solution to lessen travel patterns. Instead he argues in his theory that increased density harbors a potential, that would be applicable under certain conditions. With specific conditions like rising costs of energy/fuel, changing values and preferences and the development of attractive alternative modes of transportation, this might create the opportunities needed for an increase in usage of sustainable alternatives like bicycling. Vilhelmson argues that the observed increase of bicycling in medium-sized Swedish cities the last 20 years is a good example of this.<sup>2</sup>

## 2.2 Need for speed

In another paper, Bertil Vilhelmson explains some of the activity patterns of people's daily travel- and commuting behavior. What he can see is that the spread of high-speed travel increased due to larger incomes, and as a result from that, the activity space of individuals has also increased. Generally, people travel up to 50 times more than in the beginning of the 20th century. Being able to travel fast has become a prioritized need of most households and cultures, as the range of activities, friends and relatives span a much wider area nowadays. How people shop, work, and spend leisure time has also been affected by the new possibilities that high-speed travel brings. What Vilhelmson also found is that, even though the average amount of travel is 45 km/day, men travel up to 60 km/day, greatly exceeding the average amount of travel.<sup>3</sup>

Even though sufficient public transport systems have emerged during the 20th century, since the 1950s, almost all growth in domestic daily mobility can be explained by increased car usage. In Europe, the car accounts for more than 80 percent of the totally daily distance of passenger travel. Vilhelmson states that by these statistics one can see that slower modes of travel have decreased over time. Vilhelmson explains that some municipalities have had success in increased usage of rail-based rapid transit systems, bus-priority plans and urban bike routes. However, if people have the opportunity, they still generally prefer to choose the fastest mode of transportation system, which in most cases is the car. Vilhelmson also argues that the need for mobility is built into the functioning and structure of the urban high-speed society. He finds that the form and the function of a modern city, together with citizens' lifestyles, may place complex demands on the mobility capabilities of individuals. The catchment areas of schools, shops, hospitals and diverse kinds of leisure activities also increase when the majority of people become more mobile.<sup>4</sup>

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<sup>2</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 156

<sup>3</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 145

<sup>4</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 146

Vilhelmson also argue that people generally must balance the time allocated to travel in relation to time devoted to stationary activities during the day. Therefore the time available for travel is severely limited. Thus is the need for speed in travel and flexibility is larger when coupled to various activities, work and leisure time during a day. The time-factor is therefore critical in determining people's chosen mode of travel.

*"The car - usually offering superior speed, door-to-door service, and a relative freedom of action and choice as to when, where, how, and with whom a journey will be made - has the upper hand over other means of transport"*

Bruton, 1993; Naess, 2005

Investigations have been made in Sweden showing that usage of the car is usually ten times faster than walking, four times faster than cycling and twice as fast as public transit. In this way the car becomes an important resource for speed and time-saving. On the other hand, similar investigations points out that the amount of time spent traveling remains fairly stable over time. In Sweden one can see that the adult population used an average of 80 minutes a day per person for journeys and travel during the 1978-2001 period, while in the same time frame the capacity for fast travel, measured by the number of cars, increased by 50 percent. Vilhelmson also concludes that there is a so called rebound effect when it comes to time-usage. Even though people gain access to time-saving machines like cars, washing machines, microwave ovens, computers and mobile phones, it does not raise the actual time they need for other activities in their daily life. Instead people generally demand more time-saving services. It is also hard to explain why the aggregated daily travel time of car users in various age groups, is similar to that of those traveling by other, much slower means of transport, even though there are some slight differences between men and women, the elderly and the young.<sup>5</sup>

Cecilia Jakobsson, in the Department of Psychology at Gothenburg University also notes in her research that the need for speed is dominant in order to be able to travel fast, convenient and affordable. Due to the many advancements in automobile technology together with massive investments in road infrastructure, no other travel mode is faster than the car for urban travel. Even when it comes to rather short distances, people still prefer the car. The reason for this they state is the convenience and alleviation of time pressure that it brings. In a study presented by Jakobsson, she states that the major reason for using the car is that "public transport services are too inaccessible and takes too long". The reason could also be "I need a car when I go shopping, because it is convenient not to have to carry the groceries". Even though people sometimes complain about the car, saying that they are too dependent upon the car or long for other alternatives, or that they desire a more sustainable and safe transport, they still prefer the perceived speed of the car.

Peter Headicar reviews an investigation done in the U.K. where they tried to find out what the top priority among commuters is. What they found is that the need for speed and fast travel is

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<sup>5</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 150

a top priority combined with comfort and cleanliness. Second to that is safety, third is affordability, fourth is accessibility and fifth is the need for a reliable, regular and timely travel mode.<sup>6</sup>

### 2.3 Why we travel

The reasons for why we travel are many. Bertil Vilhelmson gives us more understanding in this when he says that there are the activities performed to satisfy physiological needs like eating and sleeping, institutional demands like work and school, personal preferences like childcare and shopping, and personal preferences like leisure. Vilhelmson says that the actual and desired activity of an individual are also dependent on the composition, roles, and tasks of the household to which he or she belongs and on the significance of the home as a place of living, a place to which one returns, and the prime location of people's time spending.<sup>7</sup>

It is not only the mandatory tasks in life that makes people want to travel. Mokhtarian and Salamon<sup>8</sup> stress that travel itself can constitute an activity. A sense of speed, motion, control and enjoyment may motivate people to undertake "excess" travel.<sup>9</sup>

Bertil Vilhelmson argues that the motives for travel is a complex phenomenon. A more or less mobil lifestyle encompasses both values, norms, behavior and consumption patterns. Different lifestyles can be divided within three themes; geographical stability, daily commuting and geographical flexibility. These lifestyles occur simultaneously to various degrees in a population. Geographical stability means that an individual adapts his or her life to suit the conditions in the immediate vicinity of his or her home. A daily commuting lifestyle means that the individual expands the sphere of his or her activities in a way that is often repetitive and monotonous. In this commuting lifestyle, the journey to work is often considered a dominant feature of the extensive daily mobility of society. It also includes all the errands and activities that are the result of living within commuting distance. With a geographically flexible lifestyle, Vilhemson means those situations where one must travel far in order to get to work or recreation, and usually by car.<sup>10</sup>

Vilhelmson also mentions one important observation. Regardless of how travel is measured, wheter in total time, distance or frequency, about half of all domestic travel in Sweden is associated with free time activities. Trips related to work account for only one third of the

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<sup>6</sup> Headicar, Peter. Transport policy and planning in Britian. Taylor & Francis, 2009. Page 62

<sup>7</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 148

<sup>8</sup> (2000)

<sup>9</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 148

<sup>10</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 149

total distance traveled. Vilhelmson argues that there needs to be more focus on these optional activities, instead of just debating on how to solve the dilemmas of work commuting.<sup>11</sup>

An analysis of a classification scheme for activities according to their time and place requirements shows that some activities are absolutely bound to a certain place, while others may be in a range of alternative locations. For example, fixed activities can be school and ordinary work, while flexible activities can be visiting friends or exercising. There is also a difference between required and optional activities, where required activities can be eating lunch or house cleaning, while optional activities can be watching TV or jogging. What this analysis shows is that 60 percent of all trips on weekdays are fixed, both in time and space. On the weekends only 30 percent of all trips are fixed. On the other hand, over 70 percent of all trips on the weekends are to places or activities not so firmly fixed in time and space. This shows that the proportion of use of the car increases with the flexibility of the performed activities, while public transit is more closely connected with trips that are more fixed in time and place. Vilhelmson argues that this reflects the general drawback with public transit, due to the fact that it is limited to particular routes, stations and time-tables. Vilhelmson also states in his analysis that a factor like having several children in a family significantly affects flexibility in travel since one has less flexible travel time. One-person households are more flexible in their time use than married couples are. The analysis also shows that people who want to cut back on their working time spend more time on flexible travel activities than other people do. If one has a busy schedule with fixed activities during the weekdays, he or she may instead spend more time on flexible trips on the weekends. In this there is also a gender issue, generally men travel more to flexible activities than women do. According to this analysis roughly half of all trips made on weekends are of flexible character, while on weekdays only a fifth of the trips are flexible. In this Vilhelmson finds an indication of the structural dependencies on mobility in modern society and how speed is relevant for a flexible lifestyle. The spatial and temporal organization of society also shows how adaptive travel may be.<sup>12</sup>

Zygmunt Bauman argue in his book "Globalization" that we live in a time where we all travel. If it is not in front of the TV or the computer, we travel fast by car, train, airplane or by boat. A vital part of this travel behavior is consumption. In order for companies to reach customers in a global competition, they must create within the customer an urge to want the service or merchandize. If the customer buys the service or merchandize, they must also uphold an urge among the customers that they would buy it again. In order to do so, companies constantly try to develop new services and products that can appeal to the customer. The car industry is well known for this, as they try to manipulate this urge and sense of satisfaction among their customers with new models. A new car attracts in many ways, and instills a demand that is entertained by the use of the car. Bauman contends that this is one of the weaknesses of capitalism, since there is really no cure for this demand. The demand is instead assumed to be good, since it creates a development of both the economy and the products. Bauman contends that we live in a society of consumption, where the consumption of services and products upholds the economy, compared to the old society of production where basic needs were to be

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<sup>11</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 151

<sup>12</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 153

met. The question today is not if we work to live or if we live to work, instead we ask ourselves if we must consume to live, or if we live to consume. Bauman reasons that for the consumer in the society of consumption, there is no discomfort in being on the move. To search, to find, distills within us a hope for joy. Traveling is an urge for joy, which makes the arrival an unpleasant curse. This is not based on any greediness or the urge to acquire wealth, instead it is based on the enjoyment over new and unsurpassed excitement over new things. Bauman says that this excitement must be upheld, where the consumer is constantly tempted by new things and in that way remains in a state of constant excitement, most easily explained by the quote "Do you think you have seen it all? You have seen nothing yet!". Zygmunt Bauman also argues that travel in itself is an expression of freedom for certain people, likewise we travel to be able to consume and experience this freedom. In this the car becomes the ultimate choice of transport, in many instances, due to its convenience.<sup>13</sup>

#### **2.4 Reasons, habits, attitudes and motives**

It was earlier mentioned how Cecilia Jakobsson found that even though people prefer the speed and flexibility of the car, they still feel that they would not like to be that dependent upon the car. One conflict people mention in this is that they value the flexibility and speed of the car as an instrument to go about ones daily doings, but on the other hand feel that they long for a more sustainable and environmentally friendly transport system. In this, Cecilia Jakobsson claims that instrumental motives exist and are intimately linked to symbolic and affective motives such as feelings of freedom, independence, power, status or privacy. One thing to be aware of in this, is that the stated reasons are justifications and something that is socially acceptable to report. Jakobsson explains that instrumental motives for car use are related to the engagement in activities that are separate from travel in itself. These activities can originate from biological needs, social obligations, personal desires, work and leisure activities. These activities create a demand for travel, where speed, convenience and flexibility are factors that favor the car in an urban environment. Even factors that are external to the individual, have been shown to influence car use. These factors can be income, gender, number of children in the household, residential area and access to public transportation. Jakobsson states that well known factors like the location of the home, the workplace and other activity nodes are assumed to determine the frequency and the length of the car trips. In this, Jakobsson says, that not much is said about how these factors interact with subjective interpretations of the objective circumstances and expectations from others as reflected in norms, gender roles, and social roles.<sup>14</sup>

Jakobsson argue that influences on motivation can be divided into factors that are internal or external to the individual. Internal is a psychological factor while factors that are external to the individual may be refereed as situational or environmental. She says that motivation for choosing the car or public transport may be influenced by external factors like economic incentives with motivation and encouragement, legislation, available infrastructure, and social norms, internal factors, such as intentions, attitudes and personal norms. Jakobsson also argues that the incentives from the government in different nations, where they try to cope

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<sup>13</sup> Bauman, Zygmunt. Globalization. Studentlitteratur, 2006. Page 80

<sup>14</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction. Page 206

with peoples' car use by using external influences such as costs or regulations targeting behavior, may be less effective in strengthening motivation. This due to the fact that individuals feeling forced to do something are deprived of a valued freedom of choice. In other words, by using external economic incentives, people are forced to change their behavior which may not be appreciated. Governments may instead use strategies targeting people's knowledge and attitudes, even though this may not have effect in the short term. But this may be strengthened by information campaigns and social modeling, affecting knowledge and attitudes in the long run. It has also been showed that internal factors like beliefs, values, attitudes, personal norms and problem awareness may influence car-usage.<sup>15</sup>

Jakobsson refers to the Theory of Planned Behavior (TPB, Ajzen, 1985, 1991) in her presentation of internal and external factors. In the TPB, motivation to perform a behavior is assumed to be related to attitudes (positive or negative) towards the behavior, and subjective norms, which is based on judgment of significant others' (e.g., family and friends) opinion regarding the behavior, and the individual's desire to comply or defy the norm. This theory can for example be used when it comes to decision-making regarding trips, where they found that a distinction can be made between habitual and planned trips. Decision-making related to trips may thus range from being at a high level of awareness and deliberation when it comes to trips with a low frequency like vacation trips, to being at a low awareness, automatic and habitual for high frequency trips like daily work trips. When a behavior becomes habitual, no intention is formed, resulting in less conscious, more automatic processing of information. By this theory researchers have found that car users rated instrumental factors like convenience as more important for work trips and affective factors more important for leisure trips. The daily route to work becomes habitual and the leisure routes may be seen as planned routes with different levels of awareness.<sup>16</sup>

Anders Biel, a researcher involved within the program "Ways Ahead", argues that there is a significance of habits and social motives for environmental behavior. He has as a goal to develop a theory that can explain and predict human behavior in the field of environment. Anders Biel states that many people claim that they care about the environment, but their behavior is not always environmentally friendly. Habit is here seen as determinant for daily behavior. Anders Biel says that there is a trade-off-situation between habits and attitudes. If the habit is ingrained, the behavior is only affected a little by new attitudes. On the other hand, Anders Biel contends that changed attitudes can change the behavior, if the habit is not set strongly enough.<sup>17</sup>

Anna-Lisa Lindén also argues that the way from words to action, when speaking of climate issues, is usually sidetracked by many considerations that lead to differences in what one states to believe and what one later actually pursues. Between attitudes and actions, Lindén identifies some factors of great importance, that shed light on why people's behavior looks

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<sup>15</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 209.

<sup>16</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 210

<sup>17</sup> Johansson, Maria. Trafiken på avvägar - Finns det utvägar? Vinnova (2001). Page 13.

like it does. One of them deals with knowledge as a power of actions. Usually governments use different drivers in order to bring about change in a society. This can be information, economic instruments, laws/norms/rules and spatial planning. The potential for these instruments differs widely. A change in behavior can both spring out of individual free choice, but can also be the result of laws and regulations from the society. In this, one can see that knowledge, distributed through information, may be slow as a changing power. To inform people and households of the importance in changing their attitudes, behavior or lifestyle, means that one appeals to the recipients' interest in voluntarily listening and changing their way of thinking. In this aspect, information is considered to be a slow driving force to bring about change in people's attitudes. It is generally easier to make people realize that they have to change, and in this affect their attitudes, but usually harder to see actual results and to cause people to make changes in their daily behavior and lifestyle, that would make a difference. The more habitual and well integrated an action is, the slower is the information as a voluntarily way of changing behavior. If the information also is complicated, the fewer it reaches and even less people actually change their attitude and behavior.<sup>18</sup>

Lindén argues that economic instruments have a more catalytic effect in this aspect where they have as a goal to change people's behavior through negative consequences of their choices. Car use can for instance be an example of this where the government can use road tariffs, increased gas taxes and taxes on heavy car use, in order to change people's behavior and attitudes towards the car. What researchers can see from these economic instruments is that they usually affect people in the short term, but in the long run people get accustomed to the new prices and in order to adapt to the new situation they prefer to cut down on other consumption instead.<sup>19</sup>

Laws, norms and rules are often used to force the citizen to a certain behavior. Unfortunately these measures do not always work as intended. People have a tendency to find alternative ways and in that matter keep their settled behavior. Traffic regulations like one way roads, usually lead to a heavier load on nearby streets instead. Road bumps are another way of dealing with heavy traffic, which can be successful since it forces the driver to change behavior. Lindén argues however that it is important that, whenever planners and politicians take decisions in order to change people's behavior, they do not use instruments that counteract each other. For example, if measures are taken to cut down on heavy car traffic, other means of transportation like commuting by bus, needs to be reviewed so that there are enough frequency, routing and bus stops for a continued effort from the people in using these alternative travel modes. Otherwise there is a risk that people under this cross-pressure revert to old habits. Lindén thinks that every change in human behavior towards a more environmentally friendly approach, must be met by some feed-back. As earlier stated, if more people chose to commute by bus, the feed-back from the politicians and planners must be an increase of frequency, proper routing or more seats on the bus. Generally a combination of instruments usually has a greater impact than just using them separately.<sup>20</sup>

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<sup>18</sup> Lindén, Anna-Lisa. *Allmänhetens miljöpåverkan*. Carlssons bokförlag, Stockholm 2001. Page 108.

<sup>19</sup> Lindén, Anna-Lisa. *Allmänhetens miljöpåverkan*. Carlssons bokförlag, Stockholm 2001. Page 108.

<sup>20</sup> Lindén, Anna-Lisa. *Allmänhetens miljöpåverkan*. Carlssons bokförlag, Stockholm 2001. Page 111.

Lindén also argues that many changes in people's habits and behavior, take some effort from those involved and can also affect their surroundings. Changes people do must be replaced by other actions. For example, if someone chooses not to take the car to their work anymore, and instead go by bike or bus, this is a major change of lifestyle. Their time must be planned in other ways, clothes must be adjusted to wind and rain, errands and shopping must be re-planned. In many ways, the whole household might be affected by this change of lifestyle and travel mode. Whenever changes in people's life have many consequences for their convenience and daily life, the tougher it is to change and environmental aspects might become less important.<sup>21</sup>

Tommy Gärling and Satoshi Fujii argue in a paper that habits are less controlled than by conscious decisions. They mean that when car use becomes habitual, it is not determined by intention, attitude, subjective norm and perceived control in a way that is posited to be in the theory of planned behavior (TPB). They also contend that only observing that a behavior is repeated is not sufficient evidence for it being habitual. From this they conclude that a consequence to this is that the prevalence of car-use habits needs to be taken into account when designing and implementing policy measures targeted at reducing car use.<sup>22</sup>

One important aspect in this is the report made by Verplanken et al. (1997). He found that when making travel mode choice, frequent car drivers acquired less information about alternative travel modes than non frequent car drivers did. If someone in any way has started using a way of travel in diverse situations like shopping clothes, going out for lunch, commuting to school or going to the hospital, most likely they will stick to that behavior unless situational constraints and intentions occur that will cause them to change travel behavior. The common arguments for breaking these habits are often referred to as "money", "power" and "words". Payoffs and regulations are an example of the terms "money" and "power". Payoffs and regulations are then divided into pull measures or push measures. Pull measures refer to when there are increased benefits from using other travel modes than the car. These modes can be increased service levels of public transport, rebates on fares for public transports, or the construction of new bicycle and pedestrian roads. However, these actions might not break the habits of car use. What has instead has been proven to be successful in the long term are different short term push measures like road pricing, prohibition of car use and tariffs for parking. It is argued by Gärling that habitual drivers are usually unaware of pull measures which means that push measures are more likely to have positive effects. "Words" can in this example be the effects of communication measures. Gärling describes two kinds of communication measures that can potentially break a car use habit: individualized communications and mass communications. Individualized communications can be personal conversation, workshops, education, and travel feedback programs. Gärling argues that any kind of individualized communication where one provides the car users with information or messages that are customized based on their current travel behavior, are more likely to be accepted by habitual car users than mass communication. Mass communication TV commercials and informative brochures are more effective to be used

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<sup>21</sup> Lindén, Anna-Lisa. Allmänhetens miljöpåverkan. Carlssons bokförlag, Stockholm 2001. Page 116.

<sup>22</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 236

before a habit is set. Gärling on the other hand argues for a combination of these measures in order to tackle habitual car use.<sup>23</sup>

One important theory to consider when examining people's behavior, when it comes to urban transport- and commuting systems, is the "Rational Choice Theory". This theory emphasizes the role of enlightened self-interest in individual decision-making. The theory describes people as adding up the benefits and costs of various courses of action, and in doing so they try to do things that maximize their own goals and preferences.<sup>24</sup>

## 2.5 Norms of ecological matter

Linda Steg<sup>25</sup> and Tommy Gärling<sup>26</sup> argue that motorized traffic is a major contributor to environmental problems on a global scale. They state that the quality of life in urban areas is threatened if there is an increased growth of motorized traffic. It does not matter if private cars become electrified or driven by any new means of technology aimed at reducing the negative impacts per vehicle. The volumes of car traffic must also come down in order to sustain an environmentally friendly society. Therefore it is of importance that new policies target the demand for car use. The factors causing behaviors that contribute to these problems, which factors affect such behaviors and how the relevant behaviors may be changed to reduce the problems need to be understood.<sup>27</sup>

Even though we in the western part of the world often talk about the global negative environmental impact of the car and refer these sayings and visions to be accepted norms, it is not always followed by appropriate behavior. Instead the implications of habits and personal benefits may be stronger in our preferences. Ellen Matthies and Anke Blöbaum at the University of Ruhr in Germany argue that this is a major problem when analyzing the reasons for car use in the Western hemisphere. Given some examples of initiatives taken by diverse governments, like the British governments approach with "SustainableTravel", one can see that regardless of the initiatives, many major problems still exist. Matthies and Blöbaum argue that one reason might be that the social norms for reducing the use of the car is more developed than the personal willingness, perhaps the own scope of action is perceived to be limited. This leads to the question of how far ecological motives generally exert and influence everyday environmentally friendly behavior.<sup>28</sup>

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<sup>23</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 237

<sup>24</sup> Korsnes, Olav. Andersson, Heine. Brante, Thomas. Sociologiskt lexikon. Natur och Kultur, Stockholm. (2001)

<sup>25</sup> Department of Psychology, Faculty of Behavioural and Social Sciences at the University of Groningen in the Netherlands.

<sup>26</sup> Department of Psychology, Göteborg University, Göteborg, Sweden.

<sup>27</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. Introduction.

<sup>28</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 252

Matthies and Blabaum explain that in the theory of planned behavior, social influences are considered in the form of a subjective norm. By subjective norms they mean those expectations of others that influence the behavioral intention in parallel to behavioral attitudes. Several studies have shown that subjective norms can have an influence on behaviors related to choice of travel mode. What Matthies and Blabaum found is that subjective norms are not always in accordance with the promotion of ecological behavior. Instead, there are different social influences that are not ecologically oriented, for example, having high status in certain groups for driving a big car, that play a bigger role for choice of travel mode. Given the examples of several programs in Great Britain, Australia and The Netherlands, there seems to be a variety of individual behaviors related to sustainable travel. The programs suggests for example walking, cycling and using public transport instead of the car, but the popularity between them differ. Some behaviors like driving in a fuel-efficient way, are popular, while others like car-pooling are less popular. What they found from this is that environmental concerns may play a role for some car-sharing users, but most likely there seemed to be personal reasons, like the loss of car in a divorce, that led to the use of car-sharing. Even when it comes to the use of environmentally friendly cars, the low gas consumption may play a more important role for some potential car buyers than the assumption that the car is environmentally friendly. Incentives like using the bike or public transport had a medium popularity, but this was much depended upon if it was measured in a rural or urban area.<sup>29</sup>

Matthies and Blabaum have divided their presentation of norm activation and behavioral aspects in three different stages. First comes the attention phase where the individual has to become aware of the state that a valued object is threatened and in need of help. He or she also has to recognize that the individual behavior contributes to the problem and that he or she is able to change their behavior. In an investigation 539 car users were interviewed. The following is what the researcher found:

*”Respondents with higher problem awareness actually used their cars less often, felt guiltier when unnecessarily using a car, and agreed more strongly to the proposition that the government should take active measures to reduce car use.”*

*Steg and Vlek (1997)*

In another survey quoted by Matthies and Blabaum, it was found that the effects of values on the willingness to reduce car use are mediated by factors concerning the interpretation of the situation and the current feeling of moral obligations. In other words, a determining factor for a person to reduce the use of the car, is that they identify and become aware of the problem and are also aware of the consequences of their own behavior, something that might be hard for one single person to deal with.<sup>30</sup>

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<sup>29</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 257

<sup>30</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 260

The second phase is the motivation and evaluation phase where Matthies and Blabaum found that along with moral obligations also social expectations of others and other non-moral motivations like economical motivations, are seen as relevant motivations emerging in the motivation stage. Several studies imply that besides personal norms, many factors outside the person also influence the behavior decision. Their findings in different surveys and investigations confirm their assumption of their model that besides personal norms other extra-personal motives play a significant role in the reduction of car use. In this, social norms and habits play a crucial role.<sup>31</sup>

The third phase is denial. What Matthies and Blabaum found in this is that in group discussion with car users where different motivators for decreased car use had been the topic, not many of the participants were able to behave in accordance with their norms discussed in the group. A high level of environmentally friendly thinking could be present in group discussion, only to be neglected in real life. Instead there needs to be a commitment intervention combined with a habit-breaking strategy. Only when people are committed to something by making a promise, can change come about. In this commitment pattern moral benefits follow which give a self-satisfaction when they act in accordance with their personal values. Matthies and Blabaum conclude with the statement that merely the existence of strong personal norms to reduce private car use does not inevitably lead to appropriate behavior. Instead there are several personal factors that affect the choice of travel mode. Here both social aspects and different changes of habits play an important role.<sup>32</sup>

Anna-Lisa Lindén argues that people in Sweden, when it comes to climate issues, generally worry about problems that are far away in time. The long-term problems have a tendency to obscure the every day problems. Car use, exhaust and consequences for a more nearby air quality, are usually not that prioritized for the common Swede. This leads to the thinking that our own small actions, may not have an impact in a greater perspective. Usually, it takes issues of great importance in order to steer opinion to focus on climate issues related to our daily behavior.<sup>33</sup>

In the Swedish scientific research program called "Ways Ahead", different scholars give their explanation of why certain behavior from people can determine the outcome of environmental approaches taken by the government. The scholars within the project ask themselves what it is that determines the daily choices we make, when it comes to critical effects on the environment. The household is an important unit for consumption and daily transport. Therefore, activities within the household also have consequences for the environment. The practical actions taken in our daily life, vary with different circumstances. These circumstances can be everything from material conditions, like properties on our house, neighborhood, city and region, but also material conditions that are based on limitations and opportunities in the structure and life stage of the household, working conditions and other

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<sup>31</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 261

<sup>32</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 264

<sup>33</sup> Lindén, Anna-Lisa. Allmänhetens miljöpåverkan. Carlssons bokförlag, Stockholm 2001. Page 104.

socio-economic conditions. The scholars in this research program argue that individuals and households handle their material conditions in different ways and try to enunciate their daily practices according to varying tastes and preferences. Therefore researchers must have an understanding of an individual's whole daily life in order to classify, interpret and value those things that he or she does. They can not only study attitudes towards the environment. As a researcher one must instead be aware of a wider set of values, imaginations and motives that can be connected to the many components in our daily lives. One of the theories used in this analysis is the so called *Theory of Culture*, that reflects individual and household strategies of actions in order to make their daily life functional.<sup>34</sup>

## 2.6 A matter of social class, age and gender

In the report "Travel Patterns and Environmental Effects Now and in the Future, Implications of Differences in Energy Consumption Among Socio-economic Groups" by Anna-Lisa Lindén, one can see that travel patterns differ not only among different socio-economic groups, but also between men and women, elderly and youth. It is shown that elderly persons, persons with low incomes and women in general do not travel extensively. Middle-aged persons, persons with high incomes and men travel much farther. Here cars are the dominant transportation mode for all groups, but public transport is mostly used by young people and women. Anna-Lisa Lindén argues that current focus on policy measures has mainly been on technical issues. There must also be scientific knowledge from the social domain for devising efficient strategies for a sustainable society.<sup>35</sup>

Recent studies in Sweden by Anna-Lisa Lindén have also shown that men usually travel much more than women. Men in the age of 35-54 years travel the most with over 25,000 km per year. A study in Gothenburg also shows that children who grow up in households without a car, travel more with public transport systems than those who grew up with a car in the household. Those experiences that forms our youth also shape how we later on in life value certain phenomenon. Lindén also concludes that women generally work at places that have good public communications like hospitals, stores and offices while men more often work in industrial or different business accommodations that have a more peripheral geographical location with worse public communications.<sup>36</sup>

On the other hand, a study done in the U.K. by Peter Headicar shows that men and women make a similar number of trips by car but 74% of men's trips are made as drivers compared to women where only 58% of the trips they take are made by them as drivers. The same study also shows that men and women usually travel the most by car at an age between 30 and 59. At this age men and women generally travel around 10,000 miles a year, 8,000 of them by car.<sup>37</sup>

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<sup>34</sup> Hansson, Bengt, Ways Ahead .- Paths to sustainable development - Behaviour, organizations, structures. (Ways Ahead). Lund. (2001)

<sup>35</sup> Lindén, Anna-Lisa. Carlsson-Kayarna, Annika. Travel patterns and environmental effects now and in the future, implications of differences in energy consumption among socio-economic groups. Lunds university, 1998.

<sup>36</sup> Lindén, Anna-Lisa. Allmänhetens miljöpåverkan. Carlssons bokförlag, Stockholm 2001. Page 124.

<sup>37</sup> Headicar, Peter. Transport policy and planning in Britain. Taylor & Francis, 2009. Page 43

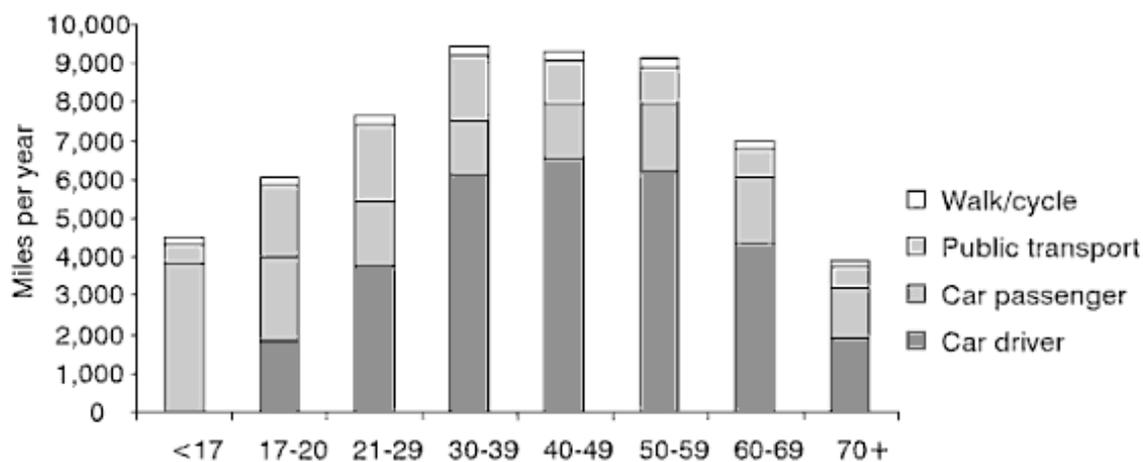


Figure 2.8 Travel per person by age group and by mode

Anna-Lisa Lindén also argues that socio-economical factors like what kind of job one has, or being part of a certain work culture, might have an influence on the capital of knowledge one acquires, as described by Pierre Bourdieu. This capital of knowledge may form the basis for values, attitudes and habits related to environmental aspects. Lindén gives an example from an investigation in England among people who work in environmentally hazardous industries. These workers were usually not involved in any activities promoting the environment. The more ones work is unilateral and one-sided, the less engagement one has in positive environmental activities. People usually state that the environment is important, but if unemployment is high, this is the most important concern. The ability to make a living and support oneself, is usually much more important than considering the environment.<sup>38</sup>

Pierre Bourdieu argues in one of his main theories that actions taken by individuals, are usually sprung out of consciousness and unconsciousness habitus. From this habitus, the individual turns over its social and cultural capital to realizable individual goals. Bourdieu explains habitus as a system of permanent but changeable dispositions, through which the acting individual, interprets, estimates and acts in his or her daily life. Habitus is the integrated principle that transforms the social position related characteristics, to those positions that constitute a certain lifestyle. The individuals settled behavior from earlier in life, weighs heavier than experiences later in life. Habitus gets its stability from its power of being a selective function. Habitus also tends to lead the individual into positions that confirm their earlier position, as it at the same time causes the individual to avoid situations that challenge and question their habitus. As an example, habitus might be the reason for people to only discuss sensitive topics, like within politics, with people that they assume have the same

<sup>38</sup> Lindén, Anna-Lisa. *Allmänhetens miljöpåverkan*. Carlssons bokförlag, Stockholm 2001. Page 117.

preference or attitude, while people might often avoid discussing sensitive topics with people they know think totally different.<sup>39</sup>

Pierre Bourdieu also argues that our pattern of lifestyle, taste and preferences correspondence with the room of social positions. The social room is structured and organized from two principles of differentiation. First, we have the total amount of social capital that the individual holds. Second, we have the distribution between economic capital and cultural capital. Anna-Lisa Lindén's theory on urban mobility and people's knowledge of environmental aspects, refer to Bourdieu and how he explains that cultural capital, partly stands for education, and partly for some kind of cultural skills, which means that one can handle the preferences of the legitimate culture. One who possesses cultural capital has learned in school and at home how to interpret the reference systems of the culture, acquired enough knowledge about history, language, politics and in this case, environmental aspects, in order to be a part of the power sphere of the society, and also that they have access to this cultural capital in its objective form like books, theories and techniques. This social capital can be seen as a resource that an individual has, being part of a certain group in the society. The examples are many, varying from being an academic, sport fan, politician, member of a church, rich business entrepreneur and so on. For example, if someone were to be an actor, most likely they have many valuable contacts within their field, contacts that might only be acquired since they are a part of that group, with the social capital of how to behave and act. When it comes to environmental aspects, knowledge of how ones choices in urban mobility and how ones scope of action affects the environment, might be a part of social capital and habitus acquired.<sup>40</sup>

Today the car can also be considered a socio-economical aspect, since Peter Headicar states in a report that income is the biggest single factor differentiating the population in terms of distance travelled by car. This investigation took place in the U.K. and shows that members of households with the highest income quintile travel over 11,500 miles a year on average, of which 80% is by car, while members of the lowest income quintile travel about 4,100 miles a year, of which 70% is by car.<sup>41</sup>

## 3.0 Method

Here I will give an overview of the method that I have chosen to use for this thesis. I will also present advantages and disadvantages of the chosen method, together with a theoretical discussion on the methodological bases that I use for my research.

### 3.1 Methodological bases

Within a great deal of social science the researcher has the hermeneutist approach as a base in his or her own research. Within the hermeneutist approach, one must ask one self how much of one's understanding of the subject is colored by one's own perception. As an example, if I

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<sup>39</sup> Kaspersen, Lars Bo. Andersen, Heine. 2003. Klassisk och modern samhällsteori. Studentlitteratur, Lund. Page 410

<sup>40</sup> Kaspersen, Lars Bo. Andersen, Heine. 2003. Klassisk och modern samhällsteori. Studentlitteratur, Lund. Page 409

<sup>41</sup> Headicar, Peter. Transport policy and planning in Britain. Taylor & Francis, 2009. Page 44

were to be an historian, being influenced by my own epoch, there would be a matter of miss-objectiveness when I would have to try to understand long gone epochs, where people lived and interpreted their daily life as being the only reality. It is of utter importance to ask one self the question if I as a researcher is being objective enough when stating certain conclusions. The hermeneutist approach makes it clear that it would be quite naive to believe that I as a researcher am not influenced by bias or my own interpretation. It is also an issue when analyzing documents, written by others to believe that they are written without any garbled communication, wrong facts, exaggeration or bias. This must be taken into account, even if the intentions of the sources are good. Political influence, partial statistics and sometimes even forced communications must all be of consideration when analyzing important documents.<sup>42</sup>

In my thesis, I hope that I will be well aware of being objective and not to fall under the influence of any bias. With my background as a sociologist, I must also not be partial to that academic discipline when analyzing theories from different fields. In many aspects, a complex area like urban transport needs to consider explanations from many different fields of science.

### **3.2 Choice of method**

Analyzing urban mobility can be quite a task since it is such a complex area which involves many different academic fields, giving their view on the present situation. I have chosen as a scientific method not to do the ground work, meaning that I would convey surveys, collect statistics or perform interviews. Instead I have chosen the method of secondary analysis. The basis of this method is to collect and analyze what other researchers have written about the subject, and also make an secondary analysis of public statistics and other researchers' results from surveys. There are both advantages and disadvantages to this method, but overall it has great potential and seems to be a proven method used by many students who might not be able to spend as much time as a professional researcher does on his or her investigations.

### **3.3 Secondary analysis**

With a secondary analysis I will be focusing on data that has been collected by other researchers. The aim of my investigation can also differ from the original investigation done by the researcher who collected the data. Secondary data can be both quantitative data and qualitative, where one can preferably use both. As stated earlier, there are several advantages and disadvantages to this method. However, as long as I as a researcher am well aware of them, there is much to gain from a secondary analysis. First of all, getting access to so much information that a secondary analysis can give, will bring both costs benefits and time saving to the committed project. Many times the data will be of good quality too, compared to what I otherwise would have been able to pursue myself. This is based on the rigorous selection procedure that otherwise is needed in a scientific research. Many investigations can be nationwide in their selection procedure which would be impossible to perform as a single student. The data can also be of good quality, given that it is developed by distinguished professionals or well known institutions like Central Statistics Office. Given that statistical data may change over time, it is also possible to do longitudinal studies that can show trends

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<sup>42</sup> Brante, Thomas. Andersen, Heine. Kersnes, Olav (2001). Sociologiskt lexikon. Natur & Kultur, Stockholm s. 115

and patterns in certain areas. As the data is presented, one can also gain huge time savings since data collection can be time consuming. Many times researchers gather a lot of data but leave little time for the important part of analyzing. By doing a secondary analysis, one can spend much more time on just analyzing, which can yield different results and new interpretations than originally presented. There is also a possibility to compare data over studies done in other countries, so called cross cultural studies. As a researcher this is of great value, since one can just figure the costs and time consumed on such a task done by the researcher himself.<sup>43</sup>

There are also several disadvantages to this method. One can be that the researcher doing the secondary analysis is not acquainted with the data and material presented. When collecting data as a researcher, one is usually familiar with the data and the structure of the data. With information that other researchers have collected, it takes time to get to know the material. One must also have knowledge about the different variables, how they have been coded and different complex aspects of how the data has been organized. The amount of the data can also be a complexity, since it raises questions on how to deal with the information. There can also be a lack of control over the quality of the information, even though a lot of data has been collected in accordance with scientific methods, one must still be aware of the limitations in some investigations. The lack of key variables can also be unfortunate, since some variables one is looking for might be missing in the present investigation.<sup>44</sup>

### **3.4 Method of data collection**

If I were to make a regular survey I would be limited in having to make some kind of selection. There have been several reports written about the complex situation of transport- and commuting systems. In taking part of all this, a selection of data must be done. My focus will be on the behavioral part which narrows it down to urban mobility that addresses the need for transport in citizens' daily lives. I will not address the issues that come from the transport needs of industries and businesses, even though it is a vital part of urban mobility. By narrowing it down like this, and with the intention to find an understanding of people's behavior regarding urban mobility, I think I can have a reasonable chance of getting some clarity on the subject.

My method of data collection will be on several levels. First I will confer with professors who have an understanding of the subject. Here Professors Lars Emmelin, Jan-Evert Nilsson and Mårten Dunér at the Institute of Technology in Blekinge, BTH, have been an important resource of knowledge and counsel regarding my chosen subject. Secondly I will use all available data resource centers like Google Books, Libris and BTH's own library to find academic articles and reports on the chosen subject. Thirdly I will use the search engines on the Internet to find interesting articles and ongoing projects within the subject. Fourthly I will use the European Commissions homepage to get an understanding of EU's approach on Urban Mobility and proposed legislation within environmental aspects like the Green Paper.

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<sup>43</sup> Bryman, Alan. *Social Research Methods*. Oxford University Press, 2001. Page 210

<sup>44</sup> Bryman, Alan. *Social Research Methods*. Oxford University Press, 2001. Page 211

In addition there are several organizations like Mistra, that conduct extensive research within projects like "Ways Ahead", that can be useful for my analysis.

### **3.5 The implementation of the study, data processing and analysis**

My aim with this thesis is to gain an understanding of the complex situation of urban mobility in today's society. This requires extensive secondary research of approved sources, defining what is important in order to answer my research questions and then analyzing this from the basis of a scientific approach. All my data for this thesis can be found in the various chapters' theories and investigations and initiatives on urban mobility, where I present, for my analysis, valuable theories and important projects.

### **3.6 Method discussion**

A weakness in the method secondary analysis method deals with the fact that much of the information presented is based upon my skill in being objective enough, but also that I will be able to find the "right" information for my analysis. Since my analysis is based upon material I have acquired myself, it is important that this material offers a fair picture of the situation. Urban mobility covers an area with many aspects, which means it is also important to narrow down the analysis to address certain areas that are valuable for my research. In this thesis I will try to focus on the earlier given questions on urban mobility, and in that I will try to deal with as many aspects as possible, even though I am certain that many aspects will not be covered due to limitations in time and form.

### **3.7 Public statistics**

When gathering data as a scientist, there is a big advantage in using public statistics. The information is usually already collected and that way one can save a lot of money and time when doing a secondary analysis from this. Another advantage is that the information is already gathered by other researchers so there is a lesser chance for reactivity (impact from the scientist) than by regular interviews. Another advantage is that I, as a scientist, can perform in depth investigations in a cross-sectional manner where I can combine ethnical background, social group, age, sex and geographical area in a more advanced study. I can also do cross-cultural analysis, in that I combine data from different countries.<sup>45</sup>

In my thesis I will use data from research that has already been gathered by other scientists. From the analysis made by these scientists I will make a secondary analysis to draw conclusions from my primary research questions.

### **3.8 Reliability and validity**

The reliability and validity in this thesis is based upon using extensive footnotes to every source that I have taken my information from. Using extensive footnotes I hope that whoever reviews this thesis can learn more and check up on all the information that I have used, so it is reliable and valid. The analysis is based upon my own acquired social science skills from approved methods used by social scientists, but may always be up for a discussion. There are obviously never any bullet proof answers in social science, even though the questions

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<sup>45</sup> Bryman, Alan. Social Research Methods. Oxford University Press, 2001. Page 212

imposed and answers acquired, may generate both a discussion and further development within the field of urban mobility.

### **3.9 Ethical standpoint**

When I, as a researcher investigate my main questions, there are several ethical standpoints that I have to take. First I must ask myself if there is any damage being done to the participants, secondly I must ask myself if there is any lack of consent from the participant, thirdly I must ask myself if I am encroaching on anyone's private life and finally I must ask myself if there is any kind of fraud, false pretenses or any withholding of information.<sup>46</sup>

Since I will only be using secondary information from scientists and researchers I don't think there is much chance of willingly breaking any ethical standpoints. Other than this secondary information from scientists and researchers, I will only use official documents and statistics from recommended and reliable sources. This will further diminish the chance of encountering any ethical dilemmas. Since urban mobility is such a "non-personal" subject, that doesn't include any personal interviews, I highly doubt that I will break any ethical standpoints in my research.

## **4.0 Initiatives on urban mobility**

This is a presentation on some actual initiatives regarding urban mobility to see how they correlate with the theories and investigations presented in the previous chapters. All initiatives have as an aim to reduce car traffic, the first by introducing road tariffs on highly trafficked routes, the second by encouraging people to use other means of transport instead of the car, and the third by increasing the taxes on fuels that are high in CO<sub>2</sub> emissions. I will also present the European Commissions view on urban mobility with the "Action Plan on Urban Mobility" from 2009, to see how it correlates with the earlier theories and investigations presented.

### **4.1 Road tariffs in Stockholm, Sweden**

In Stockholm, Sweden there has been a road tariff system since the 1st of August 2007. The reason for the Municipality working with this system is to improve accessibility and the environment in the region, and also to be able to better finance the road system in Stockholm. Owners of registered cars in Sweden, will have to pay tariffs when they use their car in to and out from the center of Stockholm. The tariffs vary depending upon the time of the day and the load of traffic. It is cheaper to travel when traffic is low.<sup>47</sup>

### **4.2 EU:s approach on urban mobility**

The EU defines Urban Mobility as a common challenge for all cities and regions in Europe. Their main focus is on how to enhance mobility and at the same time reduce congestion. The EU states that the cities and regions are usually in the best position to find the right responses to these challenges, taking into account their specific circumstances. Even though the EU has released several policy documents on the EU transport system, socio-economic objectives,

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<sup>46</sup> Bryman, Alan. Social Research Methods. Oxford University Press, 2001. Page 443

<sup>47</sup> The Swedish department of roads and transport official homepage - 20100216 <http://www.transportstyrelsen.se/sv/Vag/Fordon/Vagavgifter/Vagavgifter-i-Sverige/>

energy dependence, climate change or urban mobility, they still refer to the principle of subsidiarity, as a change within these areas partly depends upon actions taken by national, regional or local authorities. The EU has been focusing on urban mobility since 1995, when they released their first report called "The Citizens Network". After that came the "White Paper" in 2001 followed by the "Green Paper" in which EU outlines more specifically their approach towards a new culture for urban mobility. The "Green Paper" offered a wide spread of suggestions on how to bring about changes in towns and cities, and how to achieve smarter, greener and safer urban mobility. The following discussions on the "Green Paper" resulted in the European Commission's adaptation of the "Action Plan on Urban Mobility" in 2009.<sup>48</sup>

The "Action Plan on Urban Mobility" works as an inspirational document that proposes twenty measures to encourage and help local, regional and national authorities in achieving their goals for sustainable urban mobility. With this document, the Commission presents a plan that is supposed to work as a support package in the field of urban mobility. Local, regional and national authorities are free to use this support, and the tools that are offered. The European Commission contends that by using these tools, presented in the plan, local and national authorities will be better equipped to address the challenges of urban mobility.<sup>49</sup>

The Action plan is divided into six themes with a total of twenty points of action that give decision makers around Europe some guidance as to approach urban mobility.

▶ Theme 1 — Promoting integrated policies

This is a theme that focuses on developing an integrated approach to urban mobility. Many times different authorities do not cooperate as much as needed for the complex issue of urban mobility. This approach offers a link between professionals and decision makers within transport to professionals and decision makers within environmental protection, healthy environments, land use planning, housing, social aspects of accessibility and mobility as well as industrial policy. By this cooperation there is a greater potential for developing a strategic, integrated transport planning that deals with all issues and complexities of urban mobility.

▶ Theme 2 — Focusing on citizens

When developing a public transport system or an urban mobility network, aspects like reliability, information, ease of access and safety are important to meet the citizen's needs. In this there is also an effort to ensure an high level of protection of passenger rights which also includes passengers with reduced mobility. Action plans like energy-efficient driving and campaigns on sustainable mobility behavior are also included in this theme.

▶ Theme 3 — Greening urban transport

The EU has as a goal to strengthen markets in Europe for new, clean vehicle technologies and alternative fuels. The EU also has an interest in the policy whereby the

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<sup>48</sup> The European Commission official homepage - 20100309 - [http://ec.europa.eu/transport/urban/urban\\_mobility/urban\\_mobility\\_en.htm](http://ec.europa.eu/transport/urban/urban_mobility/urban_mobility_en.htm)

<sup>49</sup> The European Commission official homepage - 20100309 - [http://ec.europa.eu/transport/urban/urban\\_mobility/action\\_plan\\_en.htm](http://ec.europa.eu/transport/urban/urban_mobility/action_plan_en.htm)

polluter pays for the external costs which they cause on the environment through congestion and other damages caused by travel mode. By this strategy, the EU hopes that users will work harder on switching over to cleaner vehicles and more environmentally friendly transport modes. This strategy includes the EC rules for the charging of heavy goods vehicles that contribute negatively to the environment.

▶ Theme 4 — Strengthening funding

To see changes in urban mobility, decision makers usually have to work on investments in new infrastructure, vehicles, technologies, improved service, etc. This can be costly and the EU has promised to be of support, where they can encourage the use of funding, including the use of instruments by the European Investment Bank, which can provide significant incentives and help leverage private funds. The EU states that it is important to use existing funding opportunities and also develop innovative public-private partnership schemes. Over 8 billion Euros are allocated to clean urban transport during the current financial planning period, through the existing Structural and Cohesion Funds.

▶ Theme 5 — Sharing experience and knowledge

This theme outlines three action plans that focus on the need of helping stakeholders capitalize on existing experience and support the exchange of information, mostly on model schemes developed through community programs. The theme also focuses on upgrading data and statistics, while making them more available and easy to use. The Commission will also set up an urban mobility observer in the form of a virtual platform that can deal with all information, share this and facilitate the exchange of best practices. The commission also hopes that it can serve platforms for local and regional authorities around the world, to share experiences with each other regarding urban mobility.

▶ Theme 6 — Optimizing urban mobility

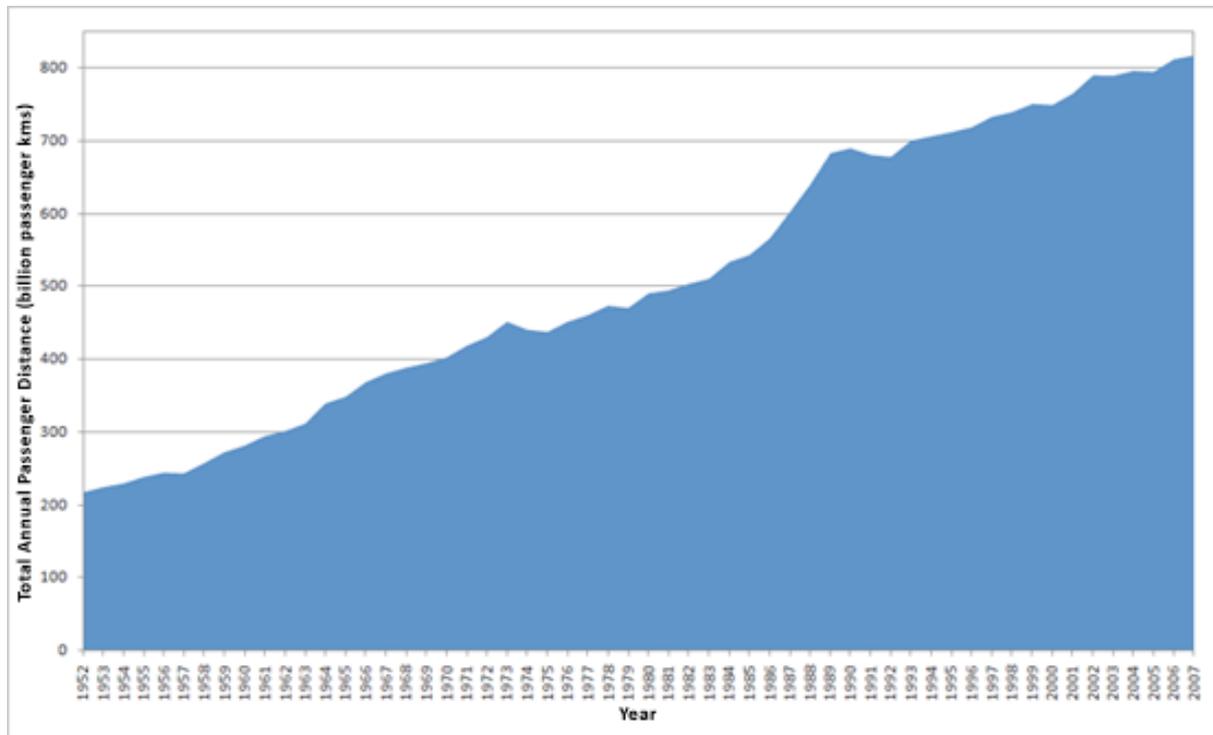
This theme presents how the European Commission is thinking when it comes to new initiatives on the technical and organizational front of transport and mobility. Amongst other things, one key issue is how to develop family-friendly transport systems that would lessen the dependence upon the car. Finding ways of encouraging families to walk, cycle, use public transport and explore new ways of mobility, are important in order to reach a broad sustainability that affects the society as a whole. Ways of encouraging employers to offer financial initiatives and parking regulations that can provide opportunities for employees to find new transport modes, are just as important. In this is also an initiative for finding new ways of dealing with efficient urban freight transport as well as developing intelligent transport systems like electronic ticketing or smoother traffic management for urban mobility.<sup>50</sup>

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<sup>50</sup> EUR-LEX official homepage - 20100317 - <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009DC0490:EN:NOT>

### 4.3 Sustainable travel in Great Britain

British authorities has outlined the program "SustainableTravel" in order to promote sustainable travel and help people with ideas on living more environmentally friendly. The background to this is that travel has increased significantly in Britain the last 50 years, and if nothing is done, this might cause severe environmental problems. In the following diagram<sup>51</sup> we see how many more people travel in Great Britain compared to earlier years. The different



travel modes are dominated by car and most of this growth has been in inter-urban areas.<sup>52</sup>

The program "SustainableTravel" encompasses several ideas and outlines a strategy that has as its main goal to influence people to use other travel modes than the car. The different ideas can be:

- ▶ Smarter Choice - Smarter choices are techniques for influencing people's travel behavior towards more sustainable options such as encouraging school, workplace and individualized travel planning.
- ▶ Shared Space - Shared space is a concept predominantly aimed at reducing the impact of motor traffic in places used by pedestrians. Shared spaces often feature minimal road signing and marking - some schemes also have a shared surface, where curbs are omitted and pedestrians share a common surface with vehicular traffic. With no clear indication of priority, motorists are encouraged to drive more slowly and interact directly with pedestrians, cyclists, and other motorists.
- ▶ Car Clubs and Car Sharing.

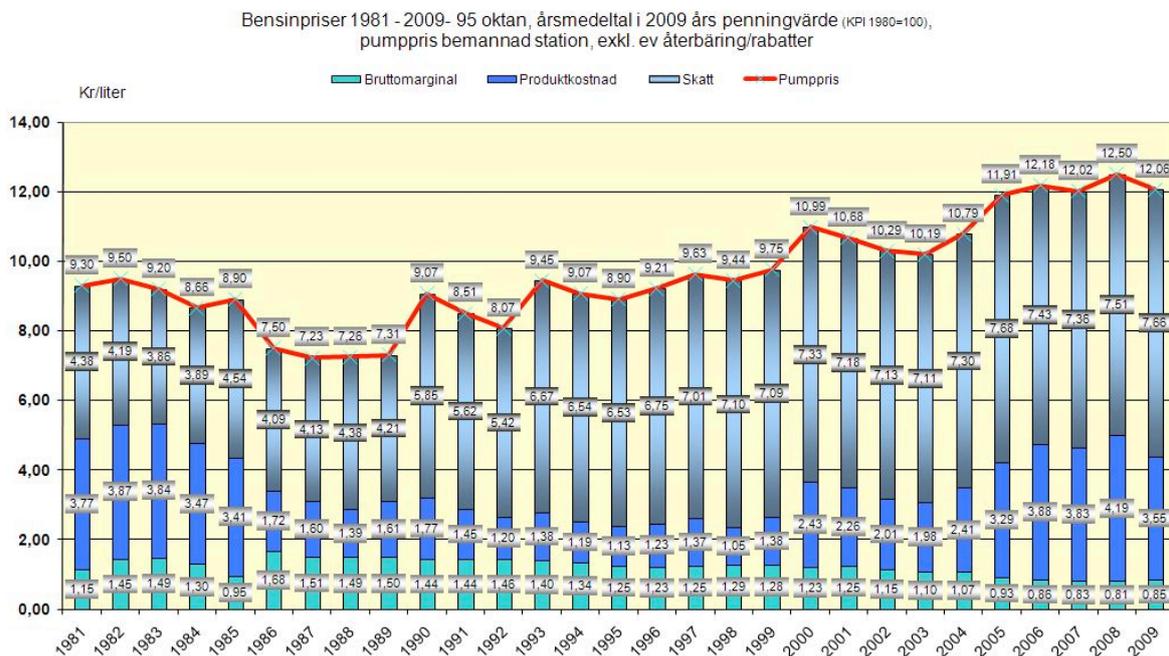
<sup>51</sup> (Transport Statistics Great Britain, 2008)

<sup>52</sup> Homepage of "Plan for sustainable travel" - 20100219 - [http://www.plan4sustainabletravel.org/data\\_trends/](http://www.plan4sustainabletravel.org/data_trends/)

- ▶ Cycling programs - Promote and help with ideas on how to get people to bicycle more.
- ▶ Guidelines on how to build sustainable transport into new developments.
- ▶ Travel Plans - A travel plan is a package of measures produced by employers to encourage staff to use alternatives to single-occupancy car-use.
- ▶ School Travel - Promoting safe and healthy journeys to school which in turn, can also help to reduce the use of the car and impact of the 'school run'.
- ▶ Travel Awareness Campaigns - Travel awareness campaigns aim to improve general public understanding of the problems caused by traffic growth and to encourage people to think about their own travel behavior. These include annual events such as the In Town Without My Car! campaign.
- ▶ Walking - promoting walking as a healthy and more preferable option to the motor car for short journeys.<sup>53</sup>

#### 4.4 Petroleum taxes in Sweden

Since 1990 Sweden has been working in lowering the amount of CO<sub>2</sub> in the atmosphere and has been able to reduce the amount of emissions by 12% percent. One of the many methods in achieving this is by increasing the amount of tax on petroleum for cars. According to the chart below by the Swedish petroleum institute, an average of 75% percent of the price on petroleum is to be considered tax.<sup>54</sup>



The reasons for the government in keeping these high taxes are many, but can also be seen as controversial by some. The deciding politicians think that the taxes work as a regulator so that

<sup>53</sup> The British Government official homepage - 20100219 - <http://www.dft.gov.uk/pgr/sustainable/>

<sup>54</sup> The Swedish Petroleum Institute - 20100329 - <http://www.spi.se/statistik.asp?omr=1&kat=1>

people do not use their car too much, besides being an important income for the state. The government has also taken initiatives to lower the tax on fuels like ethanol, in order to convince people to buy new cars driven by this fuel. Owners of new fuel efficient cars have also been given tax reliefs for the first years of their ownership. The government has also taken initiatives for the establishment of biogas-stations to promote the development of bio-gas cars.<sup>55</sup>

Critics to the government's approach on establishing more bio-gas stations argue that the legislation concerning the establishment of bio-gas stations also may have had the effect that many regular gas stations have gone bankrupt, since the legislation prohibits gas stations to only offer regular 95 and 98 octane gas, which has led to that many small gas stations in rural areas could not afford the often expensive investment in bio-gas facilities. As a consequence, this might have caused people in rural areas to take longer trips to fill up on gas, since local gas stations are fewer or non-existent. According to given statistics by the Swedish Petroleum Institute, there are approximately 800 fewer gas stations in Sweden since the year 2000.<sup>56</sup>

## 5. Analysis

I will here present a secondary analysis on the earlier initiatives presented to see how well they correlate with the theories and investigations. I will also present a conclusive analysis in order to answer some of the questions that I had for this thesis.

### 5.1 Road tariffs in Stockholm, Sweden

In Stockholm the municipality initiated a tariff for all people that travelling by car downtown. Analysis and evaluations from this project show that it turned well out, even though investigators have found that the traffic is slowly on its way up, increasing by 1% percent yearly. The investigator Karin Brundell Freij interprets this as people getting accustomed to the tariffs, and that many commuters have bought a less CO<sub>2</sub> pollutant car, which is free from road tariffs.

Reviews and analysis from the project have shown that the tariff system had a considerable effect on urban mobility. One study shows that the amount of car traffic was 18 percent less in 2008 than in 2005. Traffic congestion has also decreased together with more stable travel time. The effects on the environment have also been positive due to a decreased level of carbon dioxide and other pollution in the air. The tariff system has also made it possible to invest more money in public commuting system.<sup>57</sup>

A study done by Karin Brundell Freij at the department of Technology and Society in Lund shows the same result, in that the traffic has decreased 15-20 percent during the period of 2005-2008. On the other hand, the same study shows that the traffic recently has increased by

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<sup>55</sup> The official homepage of the Swedish Government - 20100325 - <http://regeringen.se/sb/d/12418/a/137097>

<sup>56</sup> The Swedish Petroleum Institute - 20100329 - <http://www.spi.se/sales.asp>

<sup>57</sup> The official homepage of the municipality of Stockholm - 20100216 - <http://www.stockholm.se/Fristaende-webbplatser/Fackforvaltningssajter/Trafikkontoret/Trangselskatt/Rapporter-2007/Rapporter-2009/>

one or two percent. Brundell Freij believes that this is due to less price sensitivity, meaning that people living in Stockholm have grown accustomed to the pricing of the tariffs and that it in many aspects has become cheaper to travel. Environmental friendly cars, that are excluded from the tariff system, have also increased which affects the total amount of traffic. Brundell Freij's analysis of this is that the tariff needs to increase by time, otherwise Stockholm will have the same amount of traffic within 15 years as they did before the tariffs were introduced.<sup>58</sup>

Also Gärling argues that short term push measures like road-pricing have been proven to be successful in the long term. On the other hand people have a tendency to get accustomed to the new prices and in order to adapt to the new situation they generally prefer to cut down on other consumption instead.

Road tariffs are also used in London, Great Britain, in order to deal with the increased demand on car traffic in the city. In the sixth annual Impact Monitoring report given by Transport For London in July, 2008 one can see that different groups of drivers have reacted in quite different ways to the introduction of the charging system. The investigators at TFL estimate that around seven in ten of those driving a car in the western extension zone in the city, prior to the introduction of charging, chose to continue to make their trip by car and pay the charge. Those who had made a change were most likely to have changed mode, although there was some evidence of a variety of other responses. The investigators at TFL say that the travel behavior of residents was largely unaffected by the introduction of charging. On the other hand they could see that travel into the original charging zone, particularly for shopping and leisure purposes, increased with the introduction of the residents' discount for this group. They also found that those who continued to drive in the western extension zone after the introduction of charging, were more likely to have considered another option of travel, if they were making "discretionary" shopping, leisure and social trips. Those traveling on employer's business were unlikely to have considered other options of travel mode. On the other hand they found that key workers, meaning people who enable public services, in many ways had changed their traveling behavior. This might be in concordance with Anna-Lisa Lindén's research, where she found that people who work in public services can more easily access public travel means, since most public services are located close to public travel means.

*"Almost nine in ten workers reported that the introduction of charging in the western extension was a factor in their choice to change their travel method. There was quite marked variation between occupations – for hospital workers 9 percent changed their mode of travel, compared with 19 percent of school workers and one third of police workers."*<sup>59</sup>

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<sup>58</sup> Eliasson, Jonas. Brundell-Freij Karin. Hugosson, Muriel Beser. The Stockholm congestion charging system: A summary of the effects. -Road Congestion Pricing In Europe: Edited by Harry W. Richardson, The James Irvine Chair of Urban and Regional Planning, School of Policy, Planning and Development and Professor of Economics, University of Southern California, US and Chang-Hee Christine Bae, Associate Professor of Urban Design and Planning, University of Washington, Seattle, US (2008)

<sup>59</sup> Travel For London Official Homepage - 20100408 - <http://www.tfl.gov.uk/assets/downloads/sixth-annual-impacts-monitoring-report-2008-07.pdf> Page 132.

What the investigators at TFL also found is that by introducing road tariffs like the charging zones in London, it might strike socio-economically. The financial cost of the congestion charge was difficult for a significant minority of people, but the introduction of charging did not have an impact on the general affordability of travel in London. The majority of London's residents were unaffected by the introduction of charge, with about the same number stating that they had benefited as those stating that they had lost out, although those most directly affected were more likely to say that they had lost out than benefited. The Investigators at TFL state that most London residents have been able to adapt to the introduction of charging without any detriment to their quality of life, although some concerns remain about the impact of charging on the social interaction of vulnerable groups. For instance several felt that the number of visits they received from friends and family had been reduced as a result of the new scheme. Some people explain that it is much more difficult to ask friends and family to come over for a visit, since it now costs money for them, resulting in that most visits now were made when avoiding charging hours. The travel patterns of some people, who assist people with disabilities, may also be negatively affected, since going by car may be seen as an efficient way of travel when helping these people, making it much more expensive to provide service for them.

*"Although many disabled people qualify for a Blue Badge, and therefore a 100 percent discount from the congestion charge, there was some concern that they may disproportionately lose out from congestion charging. In particular, TfL was concerned that careers and visitors might find it more expensive to visit, so disabled people may lose out in terms of help and social contact, and that services such as meals on wheels provided by voluntary sector organisations may have difficulties."*

*"Furthermore, those who find it difficult to use public transport, but do not qualify for a Blue Badge, may find their ability to travel is significantly reduced. In general, disabled people and careers were a lower income group disproportionately reliant on cars and less able to benefit from the increased investment in public transport brought about by congestion charging."<sup>60</sup>*

In answering the question if it is possible to change people's behavior through transport- and commuting system legislation, one can see that the system of road tariffs in Stockholm seemed to work, even though many people chose to buy more CO<sub>2</sub>-efficient cars to avoid the fee. Jakobsson argues that people who are forced to change behavior, may feel a deprivation of valued freedom of choice, resulting in less motivation to bring about a real change. Lindén also argue that people have a tendency to find alternative ways and in that matter keep their settled behavior. This can, for example, explain the increased demand on CO<sub>2</sub>-efficient cars. According to Vilhelmson, people generally prefer to use the car more in highly densely areas. He also found that the travel rate is much higher in large cities like Stockholm, compared to smaller cities. Since urban sprawl is a major concern in Stockholm, with large distances to travel for daily commuters, a tariff system for the roads downtown seem to be a proper

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<sup>60</sup> Travel For London Official Homepage - 20100408 - <http://www.tfl.gov.uk/assets/downloads/sixth-annual-impacts-monitoring-report-2008-07.pdf> Page 132.

system. The decision makers claim that they have used some of the income from road tariffs to improve the public commuting system, which is in accordance with the recommendations from Anna-Lisa Lindén, claiming that a negative pressure on people's travel behavior, must be met by a positive reinforcement on other travel modes. If measures are taken to cut down heavy car traffic, other means of transportation like commuting by bus, need to be reviewed so that there are enough frequency, routing and bus stops for an continued effort from the people in using these alternative travel modes. Lindén also found that when the government uses road tariffs, in order to change people's behavior, this only affects in the short term, since people get accustomed to the higher pricing and cut down on other consumption instead. This is also in accordance with the evaluation of the road tariff system in Stockholm, where it is shown that car traffic is slowly on its way up, increasing by 1% percent yearly. It is also as yet unclear how social aspects due to the road tariff system, have been affected in Stockholm,. The social aspects in London were more clearly investigated, showing some negative effects for some groups of people.

## **5.2 EU:s approach on urban mobility**

The European Commission outlined an "Action Plan" in 2009, suggesting six themes with several focus areas. Since plans for urban mobility depend largely upon national, regional and local legislation, the European Commission can only outline the Action Plan as suggestions for decision makers, on how they can handle the apparent problems. The principal of subsidiarity prohibits the European Commission from enacting any legislation on urban mobility that is specific for any nation, region or municipality. The European Commission is aware of the complex dilemma, stating that they both want to enhance mobility and at the same time reduce congestion. This is in concordance with my analysis of the Swedish Government approach on urban mobility, where they state that an enhancement of the infrastructure is important for both urban mobility and national competitiveness. This is also in concordance with Bauman's theories on globalization, where he state that we live in a global world with international consumption patterns that demand a need for travel, both virtually and physically.

The European Commission is open in their approach, stating that cities and regions are usually in the best position to find the right responses to challenges on urban mobility. This approach gives a lot of freedom in how decision makers can handle the dilemma of urban mobility. The Action Plan on urban mobility is supposed to work as an inspirational document with several proposals for decision makers. It states further actions on urban mobility largely depend on national, regional and local initiatives. This is also in concordance with the initiatives that I have presented in this thesis, where national, regional and local initiatives can differ largely.

The Action Plan can be divided into a number of themes. The first theme describes the need for an integrated approach on urban mobility with professionals from several different areas like environmental protection, health, land use planning and social aspects. This is in concordance with my presentation of theories and investigations, where one can see that urban mobility has become a complex problem, with many aspects to consider.

The second theme focuses on citizens. This theme describes the circumstances that decision makers need to consider, in order to develop a public transport system or urban mobility network that appeals to the citizens and at the same time is safe and easy to access. Several action plans on sustainable mobility behavior are also included. Analyzing this one can see that whenever decision makers take approaches on reducing car traffic, it must be met up by improvements in the public transport system. Anna-Lisa Lindén argues that people generally do not continue to use the public transport system, if improvements are not notable in both convenience and flexibility. If measures are taken, like with the road tariff system in Stockholm, infrastructure for public transport needs to be improved in order to sustain people's use of these other means of transport. Otherwise, in time, people revert to old habits, that are experienced to be more flexible and convenient. The plans on sustainable mobility behavior that are presented are in accordance with the long term measures that are used by the decision makers in Great Britain, when analyzing their "SustainableTravel" program. Scientists argue in this matter that laws, norms and rules are often used to force the citizen to a certain behavior, but do not always work as intended. Instead people try to find alternative ways to keep their settled behavior. Therefore it is important to work with encouragement and information on sustainable travel means, to bring about a long term change. Short term measures like road pricing usually work well, but must also be met up by behavioral campaigns and improved opportunities for public transport in order to be successful in the long run.

The third theme deals with the goal that the EU has in strengthening the market for new, clean vehicle technologies and alternative fuels. This has been achieved in Sweden, where increased petroleum taxes, lower taxes on CO<sub>2</sub> efficient cars and lower taxes on "environmentally friendly" fuels has been an approach taken. This does however not deal with the problem of traffic congestion and quality of life in urban areas. Linda Steg and Tommy Gärling argue that it does not matter if private cars become electrified or driven by any other means of technology, aimed at reducing the negative impacts per vehicle. The volume of car traffic must also decrease in order to sustain an environmentally friendly society. Therefore it is important that new policies target the demand for car use. On the other hand I can see that the European Commission outlines and is aware of these policies, but is also sensitive to the economical needs for Europe, including global aspects. This was also the approach of the Swedish government, when they decided to develop the infrastructure for car-usage, and in that way not work on reducing the volumes of cars instead. Behavioral changes among people may take time, and the car might stand for the predominant system for travel over a long period to come, which is why the European Commission may feel that it is of importance to sustain the development of new, clean vehicle technologies and alternative fuels.

The fourth theme deals with how decision makers can handle investments in new infrastructure, vehicles and technologies through the extensive funding program that the EU offers. The EU does not offer specific funding for investments in urban mobility, but many projects can be used within existing funding opportunities from the EU. The Structural and Cohesion funds have allocated over 8 billions Euros on investments in clean urban transport. This is in concordance with the theories that scientist have presented, where they state that in order to see steady change in people's mobility behavior, the decision makers must work on investments in both public- and other sustainable travel means. Often these investments are

expensive and it is not always clear how travel behavior among people might change. As one example we can mention the "SustainableTravel" program in Great Britain. Even though measures have been taken on improving public travel, people still generally prefer to travel by car. From 1950 onward, car-usage in Great Britain has continued to increase, and even though the initiatives from the "SustainableTravel" program have yielded some results in the 21st century, we still see an increased usage of the car within this period.

Urban mobility is a global issue. One way of handling this complex issue is by sharing experiences and knowledge. Theme five outlines the Commission's approach on sharing existing knowledge with shareholders. This is an important initiative, much reminding me about some of the literature I used for this thesis, where scientists from different academic fields share their knowledge on the subject in a combined publication and in conjunction with seminars and conferences. This theme also gives initiatives on building up an international database on urban mobility, that can deal with all statistics and information, and also distribute this knowledge to anyone who needs it.

Theme six deals with the question on how to develop family-friendly transport systems that would lessen the dependence upon the car. The European Commission states that it is important to find ways that would encourage families to walk, cycle, use public transport and explore new ways of mobility. Ways of encouraging employers to offer financial initiatives and parking regulations that can provide opportunities for employees to find new transport modes, are also a part of this theme. In some aspects, this is the most important theme issued by the European Commission. All through the theoretical part of my thesis we find many reasons for car-usage. Scientists state that the need for speed, flexibility, safety and comfort is, amongst other reasons, an aspects that makes the car the most predominant choice among families and work commuters. Since today's society is upheld by a broad range of activities like school, daycare, work, leisure, shopping, exercise and socializing in diverse places, there is a demand for a fast and efficient travel mode for these groups of people. Commuters that work in public organizations may have it easier since public travel means are more common close to their work area, but many working places within business and industrial areas, have an lack of public travel means, due to their remote location. Vilhelmson mentions on the other hand that work-related trips only account for a third of all travel done by car. Instead most travel is done at free time, where the need for flexibility and speed is important in order to be able to participate in various activities at different locations. Dealing with a family with the different individual needs, may also make it extra complicated to use other means of transport than the car. This is significant in several investigations presented in this thesis. By being aware of this dilemma, the European Commission gives an important contribution in dealing with the complexity of urban mobility.

### **5.3 Sustainable travel in Great Britain**

Matthies and Blöbaum has earlier been mentioned among the theories presented. They have done some analysis on the "SustainableTravel" program in Great Britain. What they found is that there seems to be a variety of individual behaviors related to sustainable travel. Below is a clip from the report given by Matthies and Blöbaum. This report states that whenever governments are taking initiatives like this, some behaviors are more popular than others. Driving in a fuel-efficient manner, seems to be rather popular while car pooling is not as

popular. On the other hand, this study was done in 2001 while the program "SustainableTravel" is newer than that. Some behaviors might have changed in popularity over time.<sup>61</sup>

*Table 1: Engagement in Different Private Car-Use Behaviours  
(According to Kaiser et al., 2001)*

<i>Behaviour</i>	<i>Difficulty<sup>a</sup></i>
I drive in such a way as to keep my fuel consumption as low as possible	83.9
I keep the engine running while waiting in front of a railway-crossing or in a traffic jam (-) <sup>b</sup>	83.2
I ride a bicycle or take public transportation to work or school	58.0
I drive my automobile in and into the city (-)	57.2
At red traffic lights, I keep the engine running (-)	56.8
I drive to where I want to start my hikes (-)	56.1
In nearby areas (within 30 km), I use public transportation or ride a bike	40.8
I own a fuel efficient automobile (less than 7 litres per 100 km)	23.1
I refrain from owning an automobile	23.0
I drive on freeways at speed under 100 kph	22.0
When I need an automobile, I rent one	21.7
I am a member of a car pool	4.3

<sup>a</sup>Percentage of people reporting the behaviour.

<sup>b</sup>Negative items are to be read "I refrain from . . .".

Matthies and Blöbaum also found that in spite of the initiatives taken by the government with the approach "SustainableTravel", many major problems still exist. In this I once again refer to the normative values, and why the role of the car ends up on a moral level, since Matthies and Blöbaum argue that the social norms for reducing the use of the car are more developed than the personal willingness, where one's own scope of action is perceived to be limited.

In an analysis made by Peter Headicar he states that the common feature of the "SustainableTravel" program made by the British Government is that they primarily aim at altering the way travel opportunities are perceived and responded to, instead of the more traditional approach of seeking to change behavior by altering the opportunities themselves. So instead of just making hard changes like road tariffs and increasing taxes on gas, these measures can be used in conjunction with behavioral changes to bring about the change intended. Headicar also states that a big difference compared to other approaches is that the "SustainableTravel" program is not based on any legal sanction or reward, instead individuals are free to adopt them as they see them fit.<sup>62</sup>

This also is well in accordance with Jakobsson's theories, where she states that people who feel forced to do something are deprived of a valued freedom of choice, which may not be as appreciated or successful. Instead the government can use strategies where they target people's knowledge and attitudes, even though this may not have an effect in the short term.

<sup>61</sup> Gärling, Tommy. Steg, Linda. 2007. Threats from car traffic to the quality of urban life: Problems, causes and solutions. page 255

<sup>62</sup> Headicar, Peter. Transport policy and planning in Britain. (2009) Page 259

Anna-Lisa Lindén argues that the way from words to action, when speaking of climate issues, is usually sidetracked by many considerations that lead to differences in what one states to believe and what one later really pursues. Also Anders Biel argues that many people claim that they care about the environment, but their behavior is not always as environmentally friendly. Also Matthies and Blöbaum argue that when one talks about the global negative environmental impact the car has, they are often referred to as accepted norms, but this is not often followed up by appropriate behavior. One reason for this might be that the social norms for reducing the use of the car are more developed than the personal willingness.

#### 5.4 Petroleum taxes in Sweden

The National Board of Environment in Sweden argues in a report given in 2001 that families living in rural areas generally have lower income relative to families living in urban areas. At the same time they found that families living in rural areas in general buy more expensive cars compared to families living in urban areas. They also noted that families living in rural areas in general buy cars with higher CO<sub>2</sub> emissions, in other words, bigger cars. Since the tax measures strike against high CO<sub>2</sub> emissions, families living in rural areas might sense a welfare decrease. Families living in rural areas are also generally more dependent upon cars. With fewer possibilities for public transport, the rural citizen might be negatively affected by tax measures that are targeted towards high CO<sub>2</sub> emissions.<sup>63</sup>

In the quote below, we can see the conclusion that the National Board of Environment draws when it comes to tax measures targeted at reducing the level of CO<sub>2</sub> emissions:

*”Thus, rural population will suffer the highest loss in welfare, and be affected relatively more by changes in the tax burden compared to the rural population, and so will also families with children compared to those without children. It should be noted that the similar distribution effects will occur also in the case of the registration tax scenario, but in that case the order of magnitude of the welfare loss and the tax burden effect will be larger. The main reason is that people in rural areas tend to buy larger, and less CO<sub>2</sub> efficient cars and they tend to have a stronger preference for the car, i.e. the price elasticity is smaller.”<sup>64</sup>*

In the chapter of theories and investigations, we found that Peter Headicar noted that members of households with the highest income quintile travel over 11,500 miles a year on average, of which 80% is by car, while members of the lowest income quintile travel about 4,100 miles a year, of which 70% is by car. These statistics are taken from Great Britain and may not be in concordance with figures in Sweden. Yet still, there must be some kind of applicability, when people in households with lower incomes and living in rural areas, travel more than people with higher incomes. On the other hand, Peter Headicar did not tell us if

<sup>63</sup> Jespersen, Malene Sand. Jordal-Jørgensen, Jörgen. Kristensen, Nicolai. Matstroms, Anders Pontus. Impacts from CO<sub>2</sub> differentiated vehicle taxes on CO<sub>2</sub> emissions from passenger cars. National Board of Environment, 2001, Stockholm, Sweden. Page 111

<sup>64</sup> Jespersen, Malene Sand. Jordal-Jørgensen, Jörgen. Kristensen, Nicolai. Matstroms, Anders Pontus. Impacts from CO<sub>2</sub> differentiated vehicle taxes on CO<sub>2</sub> emissions from passenger cars. National Board of Environment, 2001, Stockholm, Sweden. Page 140

people with lower incomes in Great Britain were living in rural areas or not. Adjusting the tax on gas might in this aspect be sensitive since it can negatively affect people living in rural areas that are dependent upon the car, but it might also negatively affect people within the lowest income quintile, since they already travel the least. According to an investigation in Sweden that was done by Anna-Lisa Lindén, it is usually middle aged persons, persons with high incomes and men, that travel the most. Targeting these groups would in that aspect be the most efficient in order to come about a change in urban mobility behavior, even though it is notable, according to Headicar, that women also travel by car quite a lot, but as passengers, and according to Bourdieu's reasoning on capital of knowledge, not all groups of men use the car as extensively, since certain groups of men already have a commitment and dedication to environmental concerns.

Some critics also contend that if the tax on gas increases too much, that would negatively affect the economy as a whole, since people's consuming behavior might change, while at the same time making it more expensive for the transport of merchandise and services. With reference to Zygmunt Bauman, a part of his theory "Globalization", dealt with the dilemma that we are all living in a society of consumption, where the consumption of products and services upholds the economy, compared to the old "society of production" where only basic needs were to be met. With this in mind, there still seems to be some kind of adjustment period among people when taxes are increased on petroleum. Karin Brundell Freij argues in her study that people have a tendency to get accustomed to higher prices over time, cutting down on other consumption instead, even though it has many positive effects in the short term. Tommy Gärling also concludes that short term measures like road pricing, increased tax on petroleum and tariffs for parking are successful in breaking settled habits among people.

In this analysis we find that increasing tax-measures may strike on other aspects that are not desirable. Increasing the tax on fuel may have a short term positive effect, since it can help in breaking negative travel habits and make people buy more CO<sub>2</sub> efficient cars, but on the other hand it might affect the economy as a whole since the consumption of merchandise and services becomes more expensive, creating further inequality among social classes and making it more expensive and less convenient to live in a rural area. Here it is not clear why people in rural areas tend to buy less CO<sub>2</sub> efficient cars. Is it that families are larger, or is there just the perceived need of a bigger car with more usage of it in a rural area, compared to the need of a smaller car in urban city areas?

## 6. Conclusive analysis

It is complicated to deal with initiatives that would emphasize more sustainable travel choices. Personally I remember one example when the municipality of Karlskrona in Sweden initiated a "car-free" Sunday downtown in 2008. Everything seemed to be working fine and a lot of people felt that it was a good initiative. What the municipality did not count on was that the "Veteran-Car Association" had their yearly manifestation downtown the same day, resulting in more traffic than ever. In several of the initiatives presented earlier we see both wanted and unwanted effects in traveling behavior. Even so we can see that the initiatives have, at least, resulted in a more sustainable direction.

### 6.1 Why questions related to the car end up on a moral level

One of the questions that I asked myself in this thesis is what role the car constitutes and why do the discussions related to the car often end up on a moral level? What are the normative values and argumentations that we see defined in this secondary analysis? Mårten Dunér, my advisor and as well professor at BTH, once asked the question of how we explain the dilemma while decision makers try to decrease the demand for car use, they might, at the same time might support more infrastructure development, designed primarily for car use. In a recent press article in the Swedish newspaper "Dagens Nyheter", the Prime Minister of Sweden issued investments in infrastructure for 482 billions SEK. The investments span a wide area of both improvements in railways and subways, regular roads and bridges, but are being criticized by the opposition for not being focused enough on sustainable investments in railroad and public traffic.<sup>65</sup>

Jonas Åkerman, a scientific researcher at the Department of Strategic Environmental Analysis at the Royal Technical University, KTH in Stockholm, argue that investments in infrastructure for cars, will negatively affect prospective investments in public transport systems. Åkerman also argues that the government is too optimistic in their approach, since they think that the increase in car-usage will be met up by electrified cars. Åkerman argues that the development of electrified cars, or cars driven by any other sustainable fuel, is not progressing as fast as the government estimates. Instead he thinks that the government's approach on more infrastructure for car-usage will negatively affect the environment.<sup>66</sup>

Is it necessary to improve the infrastructure for car traffic in order to sustain a competitive society, and in that sense sustain the possibilities for a consumption society according to Baumans theories, or should the moral decision be to focus more on sustainable investments like railroads? One complexity of this is that there must obviously be a demand for better infrastructure in roads for car traffic, which the government feels is appropriate to meet. The demand for better infrastructure in roads might have been measured with valid reports on the current situation, which makes it based on facts, while the opposition's proposal for more investments on railroad, might impose a moral environmentally friendly indignation to travel by train instead of by car, which makes it a question based on ecological values. Or does the opposition's proposal stand for a real demand, where the current government makes a big mistake in not focusing on development of trains instead?

My analysis of this is that the government meets an actual demand, in which it is a complicated task to encourage people to use other means of transport like trains and busses. Based on the theories and investigations earlier presented, where the need for speed, flexibility and freedom, makes the car the predominant choice among people, a proposal for more investments in infrastructure for cars is in line with the current behavior among people. In this aspect it would in this aspect be a vital risk for the government in not making investments in infrastructure for cars, since people's traveling behavior demands better infrastructure. In both Stockholm, Sweden, and in London, Great Britain, one can see that

<sup>65</sup> Dagens Nyheter - 20100401 - <http://www.dn.se/nyheter/valet2010/mangmiljardsatsning-pa-infrastruktur-1.1070357>

<sup>66</sup> Dagens Nyheter - 20100401 - <http://www.dn.se/nyheter/valet2010/miljoforskare-kritisk-till-miljardsatsning-pa-infrastruktur-1.1071198>

even though measures have been taken on reducing car traffic, with both road tariffs and "SustainableTravel" programs, to encourage people to use other means of transport, people still predominantly prefer to use the car. This combined with an annual growth of inhabitants, makes car-traffic problems like congestions, an important issue to solve with better infrastructure. This does not, however, exclude investments in railroad or other sustainable public transport systems, since the demand for those travel modes is an important alternative for many people and must also be encouraged. The discussion on a moral level, related to the car, is clear here. The decision makers give you some options; You can use the car if that's your preference, but, out of a sustainable moral concern, they would advise you to take the bus or train instead, even though they would never dare to only invest in those means of transport, since that would risk the nation's, the municipality's and the region's global competitiveness, and that is a less desirable effect.

That is probably one of the reasons why questions related to the car end up on a moral level. The choice for travel mode is up to the people themselves, and all the government can do is to encourage other means of environmentally friendly transport with certain initiatives like making it less expensive to own environmentally friendly cars, introduce road tariffs, increase petroleum taxes to a defined, politically accepted limit, or promote travel by public means.

The car is felt to be needed in the society, and if decision makers would make it really expensive or complicated to drive cars, by raising the taxes or not investing in infrastructure, for example, that might be an risk to the economy as a whole, since consumption might become more complicated and expensive, not to mention the global perspective in this where competitiveness is an important issue. Making it expensive and complicated to use the car might also, according to the earlier cases described, negatively affect people living in rural areas or making the car more of a social class object, more than it is today. This does not exclude the government from continuing to work on opportunities and circumstances for sustainable travel modes, with its basis in the combined efforts of both push and pull measures and other methods described earlier, where they try to adjust the behavior of people's travel modes. Many of these initiatives have been proven to be successful, and have also led to an higher demand on sustainable travel modes in some regions.

## **6.2 Why we travel by car and how decision makers handles it**

Another task that I had for this thesis was to find answers on why people generally prefer to travel by car, even when there are extensive public travel modes are established. Many of these questions are answered in the theoretical part of my thesis, with scientists who present extensive research on the subject. However, an analysis of the different initiatives taken by decision makers gives further clarification on this matter. I have therefore chosen to present some of the answers in this conclusive analysis based on the themes earlier presented in the chapter of theories and investigations.

In the chapter of "Density and Travel Patterns", Vilhelmson explained that people generally prefer to use the car more in high density areas than in less densely populated areas. Larger cities like London or Stockholm, have a much higher travel rate compared to smaller cities. This partly explains why the introduction of a road tariff system was needed in both cities. One may question why the travel rate with cars is much higher in high density areas like

London or Stockholm. Both cities have well developed infrastructure for public alternatives like busses, trains and bicycles, but still many people generally prefer to travel by car. Vilhelmson could also see that people did not use the car as much in mid-size cities like Karlstad, Linköping and Uppsala. Could it be that even though a city has a well thought out public travel system, it still has weaknesses due to its size, complexity and urban sprawl, which makes the car the preferred choice for many people? A smaller city may have an advantage here, since the planning system is not as complex and people generally live within smaller areas with lesser activity space.

One explanation might be the need for speed. Vilhelmson also explained that being able to travel fast has become a prioritized need of most households, as the range of activities, friends and relatives span a much wider area. This is even more obvious in a larger city, where a public transit system may be well developed, but still suffers from disadvantages when it comes to the passenger's perceived speed and sense of flexibility in their daily lives. The time-factor seems to be critical in determining people's chosen mode of travel. This might also explain why the car traffic in London has not gone down as much since the introduction of road tariffs, or why the road tariff system in Stockholm has had some initial success, but car traffic is now increasing yearly. Vilhelmson explained that people generally demand more time-saving services, and according to Anna-Lisa Lindén, they are willing to pay for it, even though they at first react by cutting down on car-usage, they get accustomed to the prices in time. In this one must also not forget that commuting to work only stands for 30% percent of all travel that people do by car in a week. Instead it is shopping, socializing, leisure, sport and other activities that stand for the main part of people's usage of the car. In these activities, which might span a wide geographical area, and especially in larger cities, the car is felt to be the most flexible and fastest transport system available today. The situation may differ depending upon which region is investigated, but in Sweden investigations have shown that using the car is usually ten times faster than walking, four times faster than cycling and twice as fast as public transit.

The need for speed in our daily activities only partly explains why we travel and generally prefer to do so by car. Mokhtarian and Salamon also underline that travel itself can constitute an activity. A sense of speed, motion, control and enjoyment may motivate people to undertake "excess" travel. Bauman explained that we live in a world of consumption. We travel to be able to consume and that travel in itself is an expression of freedom for certain groups of people. Consumption not only encompasses merchandise but may also include activities, leisure and other satisfactory urges that people may have. In the analysis of the road tariff system, one could see from the evaluation in London that it had negatively affected the social life of certain groups of people, since they are not able to travel as much. This is just one aspect of many that complicates decision making regarding travel. In Sweden one could see, for example, see from one investigation that an increased tax on cars and petroleum negatively affected people living in rural areas, giving them a welfare decrease.

Taking decisions that deal with the complexity of mobility was something that the European Commission was aware of, in that they wanted to enhance mobility and at the same time reduce congestions in their "Action Plan on Urban Mobility". They wanted to focus on the citizens' needs when developing a public transport system and did not mention any higher

taxes on petroleum, but instead said that they wanted to optimize urban mobility and strengthen the market in Europe for new, clean vehicle technologies. The focus was also on voluntarily action plans like energy efficient driving and campaigns for sustainable mobility behavior. This approach was also in concordance with research done by other scientists like Anna-Lisa Lindén, who claims that whenever decision makers encourage voluntarily motives, people generally feel more motivated in bringing about a more long term change. This approach was also in concordance with the "SustainableTravel"-program in Great Britain, which in many cases focused on voluntarily approaches.

Reasons, habits, attitudes and motives play an important role in behavioral changes. Cecilia Jakobsson claimed that even though many people prefer the speed and flexibility of the car, they still feel that they would not like to be that dependent upon the car. They value the flexibility and speed, but can on the other hand long for a more sustainable and environmentally friendly transport system. On the other hand, Anna-Lisa Lindén found that the way from words to action, when speaking of climate issues, are usually sidetracked by many considerations that lead to differences in what one states to believe and what one later really pursues. This might be in concordance with how decision makers handle the problems of urban mobility. People can participate in environmentally friendly efforts, but if it causes too many changes in discomfort and inconvenience in their life, they might revert to old habits. That is why it is important for decision makers to bring about changes in urban mobility that make it better for people's daily travel needs, and not only making it more difficult and expensive, though those measures might work in some cases like road tariffs, as they break negative habits. Anna-Lisa Lindén argued that it is important to meet initiatives like road tariffs with an improved public transit system in order to sustain any new habits among people. This also is in concordance with the initiatives from the European Commission, which state that they want to enhance mobility while reducing congestion at the same time.

Norms of ecological matter play an important role in peoples traveling behavior, if it does not mean too much discomfort in their settled lifestyle. Earlier there was an analysis on norms related to the car that dealt with the complexity of enhancing infrastructure for cars, while at the same time promoting less car-dependence. This analysis also showed a fine balance between people's and business's willingness and ability to deal with high petroleum prices while at the same time keeping a competitive nation that makes consumption in its different forms possible. Matthies and Blöbaum argued in this analysis that the social norms for reducing the use of the car are more developed than the personal willingness, where one's own scope of action is perceived to be limited. Anna-Lisa Lindén also argued that people in Sweden, when it comes to climate issues, generally worry about problems that are far away in time. This might be one reason that hard measures like road tariffs usually work best in the long run, even though these measures over time must be met by improvements in other travel modes, so that people do not revert back to car-usage and get used to higher pricing and cut down on other consumption instead.

It is also a matter of social class, age and gender in how people travel. Anna-Lisa Lindén argued that travel patterns differ among socio-economic groups and gender. Generally speaking, middle-aged persons, persons with high incomes and men usually travel much farther. What was also interesting to see was that children who grew up in households without

a car, travel more with public transport than those that grew up with a car in the household. This shows that travel behavior has a lot to do with attitudes and habits that shape our personalities. The study does not however show which social class these kids came from, and if that could be a contribution to the behavior, since people with lower incomes generally travel much less than people with high incomes. Neither did the study show whether these kids grew up with single mothers, who also generally travel much less with car. Lindén makes it clear though that women generally work in places that have good public communications like hospitals, stores, offices and schools while men more often work in remotely located industrial or different business accommodations that increase the dependence upon the car.

What is interesting in this is Pierre Bourdieu's study where he argues that our pattern of lifestyle, taste and preferences correspond with the realm of social positions, which shape our habitus and in the long run, our knowledge of how one's scope of action affects the environment. One of the strategies of both the European Commission and the "SustainableTravel"-program in London was to inform, inspire and educate people in how they can be more environmentally friendly, by using public means of transport or bicycling more. These measures could, according to several scientists, have an effect in the long run, even though it may take time. Not to forget in this is that people with high incomes generally travel much more by car, which makes the knowledge of how one's scope of actions affect the environment, applicable for all social classes. Whenever measures are taken against car-usage, it is important that it does not only affect people with low incomes. In London one could see for instance that there were some groups that had been negatively affected by the road tariff system, when it came to both economical terms and social aspects. In Sweden an increased petroleum tax might result in a welfare decrease for people living in rural areas, even though it might also affect urban areas, since people generally travel much more in highly densely urban areas.

Concluding this analysis I see that it is complicated to measure how initiatives from the government or municipality affect people's car-usage. There are many solutions that might work in lowering car-usage, even though I sometimes feel overwhelmed by the many challenges that urban mobility offers. Travel behavior and people's preferred choice of transport are changeable, but one can not be naive in thinking that the car will not dominate and be the preferred choice for many people as they go about their daily business in both urban and rural environments. That is why I feel that it is important to continue to implement the initiatives taken by the European Commission, that stand for a balanced and fully achievable target. The initiatives taken by the decision makers in Stockholm and London with regard to road tariffs and petroleum tax, may solve short term problems, but in the long run they must be matched by initiatives like the "SustainableTravel"-program or enhancement of public commuting systems, together with an ongoing development of CO<sub>2</sub>-efficient cars. The complexity of a society of consumption, according to Bauman's theories, gives us the need for a balanced and sustainable direction in urban mobility, considering both economy, ecology and people's behavior.

## 7. Discussion

Does this thesis cover all aspects of car usage and urban mobility? Most likely not! Since it is such a complex area I can only hope that I have been able to shed somewhat more

understanding on urban mobility. Defining the problems of urban mobility span a wide area, and in my presentation of initiatives I have only covered a few of all the initiatives that are taken by local and national decision makers in order to handle the complicated issue of an increased car-usage. These initiatives do however represent some vital issues, and the theories that I have used to analyze these initiatives are well in accordance with the measures taken and can also explain why they might not be as successful as anticipated.

There are however some factors that I would like to mention that have not been included in this thesis. Buying a car for instance is often an important and expensive investment. Once that investment is made, it may be that people feel that it is too expensive to not use the car, and buy a train or bus ticket instead. Once the initial investment of a car is made, following costs like petroleum and service, may be felt to be cheaper than using the monthly services that busses and trains offer. Even though going by train and bus is cheaper in the long run, many people still have to own a car for other purposes than daily commuting, since commuting only stands for 30% percent of all the trips people make. Using public services may still be an alternative for daily work commuting, even though having two cars within a family seems to be common. People often have to buy two cars in order to be able go about in their daily business. Another dilemma of car-usage is the obvious appeal of status that is felt by many. In many cultures and social situations, the ownership and usage of a nice car may bring a sense of self expression and status to the driver that is equally important for many people. A child that has grown up with commuting by bus or taking the bicycle to school, may feel a long awaited urge of freedom and status in getting his or her own car, something that public commuting system may have a hard time to compete with. This alone can bring about a usage of the car where the public transit system is excluded. I have mentioned some of this when I took up the urge for traveling for the experience of travel itself and in Baumans theories on consumption where buying and using a car, may be the uttermost expression of consumption. Another subject I have not touched upon is the situation in many Eastern countries where, for many people, the public commuting system earlier has been the only option, and the car stands for a new, more Westerly orientated lifestyle and identity. In this thesis I have only examined some of the initiatives taken in Western Europe, mainly focusing on Sweden and London, combined with the initiatives taken by the European Commission. It would of course bring a more proper picture of the problems involved, if I had included, for example, Eastern Europe, China and the U.S.A. On the other hand I think that an elaboration of this magnitude would be too extensive for the purposes of this thesis. By answering my main questions for this thesis, analyzing the initiatives and presenting the appropriate theories, I have given a proper understanding to the complexity of the subject urban mobility.

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