AFFECTIVE MOTIVES FOR CAR USE[1]

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1. INTRODUCTION

The massive use of motor cars causes serious problems for the quality of the environment, the quality of urban life and the accessibility of various destinations. Effective solutions for the problems associated with widespread car use require reductions in the volume of car traffic, based on behaviour change of many individual car users. Policy measures will be especially effective when they are directed at modifying the main determinants or motives for car use behaviour. This requires adequate knowledge about the motives for car use. These motives might be instrumental, but affective motives might play a role too. For the motor car is not only a means of transport, but it also fulfils other needs, such as the need for power, status and arousal.

The main goal of this paper is to examine which (instrumental and affective) motives are related to car use behaviour. The next section presents common sense knowledge on affective motives for car use, and illustrates that advertisers acknowledge the significance of affective motives very well, while policy makers hardly take these motives into account. Section 3 gives a short overview of studies on motives for car use. Section 4 presents the design and results of a study aimed at identifying different categories of car use motives. Section 5 describes the aim and design of a second study that is currently being performed, aimed at examining the influence of affective motives on car use and on preferences for policy measures aimed at reducing car use. The main conclusions as well as policy implications are presented in Section 6.

2. LOVE AFFAIR WITH YOUR CAR

In the Netherlands, policy strategies aimed at reducing congestion and increasing the urban quality of life focus on discouraging individual car use on busy times and in busy areas. Individual car use is made less attractive by increasing the costs of car use at certain periods of time (e.g., road pricing) or at certain places (e.g., raising parking fees). The government approaches the public as rational decision makers, the assumption being that people will reconsider their mode choice when car use is less attractive (i.e., more expensive). In contrast, the car industry and advertisers follow a rather different approach. They focus on emotions and feelings that are evoked by car use. Cars are advertised by using slogans as 'How adventurous are you?', 'The hidden power', 'Your favourite toy', 'Sexy and muscled', 'Go to the beach with your Spanish lover'. And why should a car have potentials to drive at a speed of 200 kilometres per hour, when there are no real opportunities to drive that fast? It seems that the tamed lion, totally controlled by an anonymous driver, must keep the characteristics of a wild animal.

Cars are and have often been connected with positive symbols, and people actually came to belief that the car expresses these positive feelings and symbols. Consequently, cars generally have a better image than other modes of transport. The car is a symbol of success, power, and individuality. The car provides freedom, although in practice one can be in traffic jams each day. It is very difficult to change prevalent images of different transportation modes. Information that is in contradiction with these images (e.g., the car is not providing optimal freedom) may evoke reactance and disbelief. Changing images of modes of transport requires a comprehensive and attentive approach, taking into account the motives and drives of people. In other words: attempts to influence car use behaviour require knowledge of the real motives for car use.

3. RESEARCH ON CAR USE MOTIVES

Currently, car use behaviour is mainly explained through cognitive and rationalistic behaviour models, in which travel mode choice is considered to be determined by preferences and attitudes towards available transport options (e.g., Everett & Watson, 1985; Golob, Horowitz & Wachs, 1979; Recker & Golob, 1976). Attitudes and preferences are mostly measured by asking people how favourably they evaluate several instrumental aspects or consequences of car use. Results of these studies show that attitudes and preferences towards car use are correlated with actual car-use behaviour. People generally have a positive attitude towards car use, especially because of its flexibility, independence, availability, speed, reliability, safety, carrying capacity, and comfort (e.g., Geller, Winett & Everett, 1982; Golob et al., 1979; Recker & Golob, 1976). Psychological analysis of car use reveal several affective aspects or motives may play a role too, such as feelings of sensation, freedom, power, status, and superiority (e.g., Flink, 1975; Marsh & Collett, 1986; Knapper & Cropley, 1981; Sachs, 1984). Appendix 1 gives a list of motives for car use that revealed from an extensive literature (see Slotegraaf, Steg & Vlek, 1997). As can be seen, many of these motives refer to affect and emotions evoked by car use. However, the supposed significance of these affective motives is mainly based on theoretical reasoning.

Empirical studies thus far especially reveal instrumental motives for car use. This might very well be a result of the research methods used. Researches do hardly search for affective motives is their studies. Yet, studies in which affect has been measured, reveal that travel behaviour, such as speeding, may be better explained if affective motives are included (Lawton, Parker, Manstead & Stradling, 1997; Reibstein, Lovelock & Dobson, 1980; Rothengatter, 1988). A second reason may be that conclusions about the significance of motives related to car use are generally based on self-reports. Yet, research has shown that people are inclined to justify and rationalise their behaviour (Marsh & Collett, 1986; Steg & Vlek, 1997; Tertoolen, Van Kreveld & Verstraten, 1998). Moreover, people might not be aware of their affective motives.

The studies presented in this paper were aimed at detecting affective motives for car use. In the first study, three methods aimed at measuring affective motives for car use were developed and tested. Each of these methods, in combination with different kinds of structural analysis, reveal which dimensions underlie the judgements of car use, and therefor, which different types (or classes) of car use motives can be

distinguished. The second study is aimed at examining the influence of affective motives on car use and on policy preferences.

4. STUDY 1: IDENTIFYING AFFECTIVE MOTIVES FOR CAR USE

The first goal of Study 1 was to demonstrate the results of three different methods designed to measure the affective motives for car use: the episode cognition method (most intuitive task), the Q-sort method and the semantic differential method (most explicit task). These methods especially differed in the extent to which rationalisation and justification processes may occur: the more intuitive the task, the less chance people will rationalise their behaviour. Second, Study 1 was aimed at examining which classes of motives for car use can be distinguished, by detecting the main dimensions that underlie the judgements of the (un)attractiveness of car use. Third, it was examined whether group differences exist in the evaluation of the attractiveness of different classes of car use motives. Below, the three methods are presented. The main results will be discussed in Section 4.2. Group differences in the evaluation of the (un)attractiveness of motives for car use will be reported in Section 4.3. Section 4.4 presents the main conclusions, and describes a motivational model to explain car use, which is based on the results of this study.

4.1 Method

Individual questionnaires were administered in a group setting. Respondents were selected to have a driving licence. For each task, a research assistant clarified the aim, questions and answers. Respondents gave their answers in writing, individually. As said before, three methods were developed and tested, which especially differed in two important respects, in order to check the assumption that affective motives are hard to measure because people are tempted to justify and rationalise their car use. First, there was a distinction in the extent to which the purpose of the task is clear and evident to respondents. Second, the methods differed in the cognitive process that was being addressed. It was expected that the more explicit and reasoned the task, the higher change people are tempted to reason about their car use and judge it in a socially desirable way, and the less change unconscious motives will emerge. Respondents started with the most intuitive task, were the researcher's aim was as implicit as possible. Next, they completed the Q-sort task and the semantic differential, respectively. Below, the three methods will be discussed in the order as they were presented to the respondents.

Episode Cognition

Respondents started with the most implicit task, the episode cognition. The essence of the episode cognition method is that people evaluate car-use episodes with respect to their similarity to one another. An episode is a description of a particular situation involving car use. This description is based on a systematic variation of 5 dimensions supposed to underlie a list of 60 car-use aspects, which was drawn up on the basis of a literature study on psychological motives for car use (see Slotegraaf et al., 1997). To detect these 5 basic dimensions, the 60 aspects, which emerged from the literature study, were categorised by 3 independent judges, following their similarity in content. Each dimension comprised several aspects, and each dimension had a positive and a negative pole. The following 5 dimensions were systematically varied in the episodes: (1) symbolic versus instrumental meaning; (2) superior versus inferior social comparison; (3) freedom versus restricted; (4) safe versus unsafe; (5) positive versus negative arousal. This procedure resulted in 32 car-use episodes, referring to different situations concerning car use. Examples are:

1. Finally, you bought your dream car. Your neighbour watches in admiration when you are testing your new car. The car holds the road well.
2. You drive 160 kilometres per hour on a quiet motorway. You have full control over your car. Too late you discover a police team's speed control. The fine will cost you a lot of money.
3. Your colleagues jeer at you and your ordinary car. You don't care, it brings you everywhere, and you have a nice shelter against rain. That's all you need, isn't it?

A complete overview of the episodes is given in Slotegraaf et al., (1997).

Respondents were asked to sort the episodes with respect to their similarity in at least 3 piles, whereby each pile had to contain at least three episodes. Respondents were not made aware of the rationale of the task. Therefor, there was a higher change that non-reasoned or affective and socially less desirable classification criteria emerged. Results were analysed by means of PRINCALS, which results in a distribution of episodes in a multi-dimensional space. This revealed which dimensions underlie the similarity evaluation of the episodes. These dimensions were interpreted on the basis of the episodes that correlate highly positively or negatively with a dimension.

Q-sort

The Q-sort method holds that respondents evaluate the attractiveness of the same episodes, following a fixed frequency distribution, a Q-sort, on a seven-point scale. In this study, the Q-sort implied a 2 - 3 - 6 - 10 - 6 - 3 - 2 frequency distribution of the 32 episodes; the scale points ranged from very attractive [1] to very unattractive [7]. The aim of this task was more explicit compared to the episode cognition. Again, a PRINCALS was conducted to determine which preferences dimensions underlie the evaluation of the attractiveness of the episodes. Again, PRINCALS plotted the episodes in a multi-dimensional space.

Semantic Differential

The semantic differential was based on the evaluation of car use with respect to the single 60 aspects. As a said before, the stimuli that were used in the other two methods, the episodes, comprised a combination of these aspects. First, respondents evaluated the attractiveness of 33 positive consequences of car use, such as prestige, freedom, kick, power, enjoyable, save time, independence. Next, 27 negative consequences were evaluated to the extent to which they found them unattractive.

Examples of these aspects are stress, traffic jams, aggressive driving behaviour, environmental problems and costs. In both cases, the aspects were evaluated on a five-point scale, ranging from totally disagree [1] to totally agree [5]. In this case, the aim of the task was quite clear and evident. A FACTOR-analysis was conducted to examine the correlation structure of the judgements of respondents, comparable to PRINCALS. The FACTOR-analysis revealed which dimensions underlie the judgements of the (un)attractive aspects of car use, and therefor, which classes of motives can be distinguished.

4.2 Results

Results on how people evaluated different motives for car use and whether affective motives were evaluated as more attractive when indirect research methods were used are reported elsewhere (e.g., Slotegraaf et al., 1997; Steg, Brand, Rooijers & Vlek, 1998a). In short, as expected, it appeared that if people were asked directly and explicitly to evaluate the attractiveness of aspects related to car use, they especially mentioned instrumental aspects. In that case, the affective and emotional factors did hardly come to the fore. However, if the aim of the research task was more ambiguous, and people were asked indirectly to evaluate the attractiveness of situations concerning car use, the affective and emotional factors did seem to play a significant role.

This paper focuses on the dimensions that underlie the judgements of respondents. As said before, all three methods made it possible to examine the dimensions underlying the judgements of the similarity and attractiveness of car use, and therefor, which different type of car use motives can be distinguished, by means of different kinds of structural analyses. This Section summarises the main results.

Episode Cognition
By means of a PRINCALS it was examined which dimensions underlie the similarity judgements of respondents, based on the episode cognition method. A three dimensional solution appeared to be the most appropriate. The dimensions were interpreted on the basis of the episodes that correlated highly positively or negatively with a dimension. The results can be summarised as follows. The first dimension distinguished situations in which something was wrong with the car, the car user was stressed and was not in control *versus* situations related to unsafe and macho driving behaviour, in which the car user was in control. The second dimension distinguished situations in which the instrumental function of car use was stressed on the one hand; these were mostly negative situations, which caused negative emotions. On the other end, the affective value of car use was stressed, attended by social comparison processes. The third dimension distinguished risky situations due to speeding, in which the freedom to move was stressed, from safe, static and restricted situations, in which the car user lost time.

Q-sort
A PRINCALS on the Q-sort data also revealed that a three dimensional solution is the most appropriate. The results can be interpreted as follows. The first dimension distinguished situations that stressed the negative emotions due to a threat or damage to the instrumental function of the car on the one end; the car user was a victim and was not in control *versus* situations in which the positive emotions due to the affective

value of car use was stressed; the car user felt superior and experienced full control over the situation. The second dimension distinguished dangerous situations that did have versus dangerous situations that did not have a happy ending. The third dimension distinguished situations about car ownership versus situations concerning car use.

Semantic Differential
First, the judgements of the attractiveness of the 33 positive aspects related to car use were subjected to a FACTOR-analysis. A three dimensional solution appeared to be the most appropriate; these three factors explained 42% of the variance in the judgements. The factors can be interpreted as follows. The first factor explained 25.8% of the variance and referred to the affective value of car use and to social comparison processes. Some aspects that correlated highly with this dimension were express yourself, prestige, distinguish yourself, sporty, driving a nice car, and the kick of car use. The second factor explained 10.3% of the variance in the judgements of the attractiveness of car use. This factor referred to the instrumental function of the car. Examples of aspects with high factor loadings on this factor are safety, nice road holding, passenger transport, comfort, and visiting other people. The third factor explained 6.1% of the variance, and referred to independence. Aspects that correlated highly with this factor are availability, independence, having a flexible schedule, and easy destination accessibility.

Second, the judgements of the unattractiveness of 27 negative car use aspects were subjected to a FACTOR-analysis. Again, a three dimensional solution appeared to be the most appropriate; the three factors explained 37% of the total variance in the judgement. The first factor explained 17.9% of the variance observed, and referred to the nuisance and inconvenience car users were confronted with, like infrastructural restrictions, traffic lights, not be able to reach the city centre, speed controls, and parking costs. The second factor referred to general negative personal and societal consequences of car use and explained 12.6% of the variance. Examples of aspects that correlated highly with this factor are traffic accidents, not be able to read or work during travelling, have to pay attention all the time, environmental consequences, and fog and slippery road conditions. The third factor explained 6.9% of the variance, and referred to the maladjusted behaviour of other road users. Examples of aspects that correlated highly with this factor are others driving too fast, criminality, and aggression.

4.3 Group Differences in Judgements on (Un)Attractiveness of Car Use Aspects

Based on the results of the FACTOR-analyses described above, three 'attractiveness' variables and three 'unattractiveness' variables were constructed, by computing sum scores of aspects that correlated highly with each of the six factors. The three 'attractiveness' variables were: affective motives, instrumental motives, and independence, respectively. The three 'unattractiveness' variables were: nuisance, general negative consequences, and maladjusted behaviour of others, respectively. The reliability of each of these composed variables was acceptable (Cronbach's alpha ranging from .90 to .66; see Steg, Brand, Rooijers & Vlek, 1998b, for details). All scores could vary from 1 'totally disagree' tot 5 'totally agree' that the specific factor or variable makes car use attractive or unattractive. Below, differences in judgements on

(un)attractiveness of these car use factors are discussed, for groups differing in car use (i.e., annual kilometrage) and car attitude. Only minor differences were found between groups differing in place of residence and in demographic characteristics. Therefor, these group differences are not reported here. Differences in vehicle use for commuting are not discussed because they overlap with differences in annual kilometrage (see Steg et al., 1998b, for a detailed overview of the group differences).

Attractive Aspects
Most group differences were found in the judgements of the attractiveness of the affective motives for car use. Figure 1 shows that people having a positive car attitude evaluated the affective and instrumental motives as well as the independence car use is providing as more attractive compared to respondents having a neutral or negative car attitude. Having a positive car attitude implied that people evaluated all positive aspects of car use as more attractive. Figure 2 shows that the higher people's annual kilometrage, the more attractive they evaluated the affective motives for car use as well as the independence car use is giving. No differences were found between groups differing in annual kilometrage in the evaluation of the attractiveness of the instrumental motives, and therefor, these judgements are not shown in Figure 2.

Unattractive Aspects
Most group differences were found in the evaluation of the unattractiveness of the general negative (personal and societal) consequences of car use. Figure 1 shows that people having a neutral or negative attitude towards car use evaluated these general negative consequences of car use as being more unattractive compared to respondents having a positive car attitude. No significant differences were found between groups differing in car attitude in the evaluation of the unattractiveness of the variables 'nuisance' and 'maladjusted behaviour of others'. Therefor, these judgements are not shown in Figure 1. Figure 2 shows that the higher people's annual kilometrage, the more unattractive they evaluated the nuisance and restrictions car users are confronted with and the less unattractive respondents evaluated the general (personal and societal) negative consequences of car use. No differences were found between groups differing in car use in the judgements on the unattractiveness of maladjusted behaviour of other road users.

4.4 Conclusions

In conclusion, car use seems to be determined by instrumental as well as affective motives. The different kinds of structural analysis, i.e., PRINCALS and FACTOR analysis, all revealed that the instrumental as well as the symbolic or affective value of car use and safety are important dimensions underlying the judgements of the similarity and attractiveness of car use episodes and aspects, respectively. Moreover, the first dimension or factor, which explained most of the variance in the judgements, especially reflected aspects related to the affective and symbolic value of car use. The dimensions can be interpreted as different types or classes of motives that influence car use (see Table 1).

Table 1. Dimensions underlying the judgements of similarity and (un)attractiveness of car use episodes and aspects

PRINCALS: similarity episodes	PRINCALS: attractiveness episodes	FACTOR: attractiveness aspects	FACTOR: unattractiveness aspects
1. macho driving, instrumental versus inferior car, no control	instrumental versus symbolic meaning	affective motives	nuisance, restrictions
2. instrumental versus symbolic meaning	safety	instrumental motives	negative personal and societal consequences
3. freedom versus symbolic meaning	car ownership versus car use	independence	maladjusted behaviour of others
macho driving,			

Most group differences were found in the evaluation of the attractiveness of affective motives and in the evaluation of the unattractiveness of the general (personal and societal) consequences of car use. These finding might have important policy implications, especially for the selection of target groups (see Section 6).

The observation that the motor car is far more than just a means of transport is not new. This research provides empirical support for this so often heard statement. On the basis of this study and on the basis of an extensive literature study, a motivational model to explain car use was developed, in line with general motivational theories and models that are commonly used in social psychology (see Steg et al., 1998a; 1998b). The model distinguishes three motives for car use: instrumental, social and affective (see Figure 3). The instrumental motives refer to the convenience or inconvenience of car use, and to the more or less objective consequences of car use, such as its speed, flexibility, safety, and environmental problems resulting from car use. Social motives refer to the fact that people can express themselves by using a car, and people can compare themselves with others. Affect refers to various emotions that are evoked by using a car, i.e., car use may potentially alter people's mood. A follow-up research, described below, is aimed at clarifying to what extent these motives influence car use of different groups in society, and whether these motives are related to policy preferences.

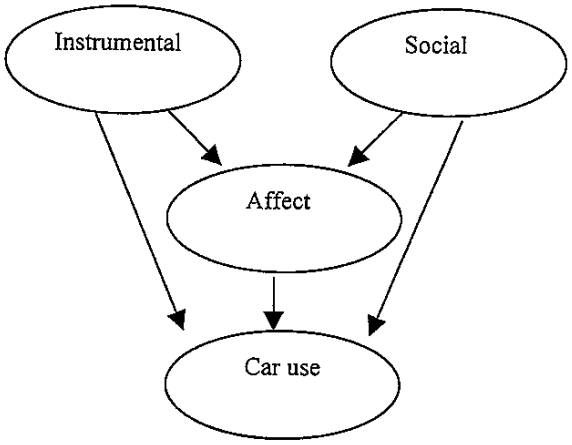


Figure 3. Motivational model to explain car use

5. STUDY 2: AFFECTIVE MOTIVES, CAR USE AND POLICY PREFERENCES

The second study is aimed at examening to what extent car use is influenced by instrumental, social en affective motives. Moreover, the relation between these three types of motives and the evaluation of the effectiveness and acceptability of policy measures aimed at influencing car use will be studied. Based on the results of this study, recommendations will be given on how to influence car use, by selecting and designing policy strategies and measures that are tuned towards important motives for car use.

Like in the first study, direct as well as indirect research methods will be used. However, this study will be less explorative, for it will build on the results of the previous study, and focuses on the main dimensions underlying the different aspects that make car use (un)attractive. The questionnaire focuses on the three types of motives that are shown in Figure 3. First, specific methods will be used that have proven to be appropriate to measure the three types of motives. The measurement of instrumental motives will be based on the attitude-behaviour model developed by Fishbein and Ajzen (1975). This model has often been used to study the relation between attitudes and behaviour. To measure social motives, we will focus on social comparison processes (Festinger, 1954) and social norms (Cialdini, Kallgren & Reno, 1991). Affect will be measured by means of a methodology developed by Mehrabian and Russell (1974). Their research revealed that all human emotions can be categorised in two dimensions: a pleasure dimension and an arousal dimension, and that all emotions can be characterised as a combination of pleasure and arousal (see also Russell, 1980). We assume that car use might influence people's emotions and mood, and that people might decide to use their car to experience positive affect (again). Second, as in the first study, an indirect research method will be used to examine the role of different kinds of car use motives: a Conjoint Analysis experiment (Louviere, 1988). Conjoint Analysis is less explorative than the methods used in Study 1, and makes it is possible to examine the relative importance of different kinds of motives for explaining car use behaviour.

Respondents will also evaluate policy scenarios on their effectiveness and acceptability. These policy scenarios differ systematically in three different policy dimensions: the extent to which people are restricted or not, equity versus unequity, and the extent to which the costs of car use will increase. The study will not only reveal to what extent the three types of motives are related to the evaluation of the policy scenarios, but will also reveal whether these evaluations are related to the three policy dimension. Data analysis is still in progress. However, the results will be available in September, and some preliminary results will be presented at the conference.

6. CONCLUSIONS AND POLICY IMPLICATIONS

Currently, car use is mainly explained through cognitive and rationalistic behaviour models, and consequently, the instrumental function of car use is stressed. However, car use seems not only to be determined by instrumental motives such as travel costs, time, and safety. Besides, affective and social motives, like feelings of sensation, power, and superiority, seem to play an important role. Although almost anyone recognises these affective motives for car use, the supposed significance of these motives has hardly been validated by empirical research. This paper presented two studies aimed at identifying different motives for car use. The first study revealed that three classes of car use motives could be distinguished: instrumental, social and affective motives. Affective motives appeared to be better elucidated when indirect methods were used, whereby the aim of the research task is not too apparent, for these methods might prevent the occurrence of rationalisation processes and socially desirable response patterns. Furthermore, the first study revealed that the more people used their car and the more positive their car attitude, the more favourably they evaluated the affective motives for car use and the independency car use is providing; a positive car attitude also goes along with a more favourable evaluation of the instrumental motives. Moreover, people with a high car kilometrage and a positive their car attitude evaluated the general negative (personal and societal) consequences of car use as less unattractive compared to people driving less or having a neutral or negative car attitude. The more people drive, the more they were bothered by nuisance and restrictions that car users are confronted with.

These results do not imply that policy measures based on influencing the instrumental aspects of car use (e.g., costs, time) will be ineffective. We do believe that these might be powerful instruments to influence car use behaviour. We also do not believe that governments should copy the approach taken by car industry and advertisers. For 'funny' messages might make people believe that the car user is not taken seriously, which is inconsistent with the image that a government would like to have. Moreover, it is easier to advertise a 'popular' product, such as the car, than trying to 'push' someone in a direction that is not his or her (first) choice.

However, the results of this study suggest that governments should not only focus on rational or instrumental aspects of car use. The car is much more than a means of transport to travel from A to B. People do not only use their car because it is necessary to do so, but also because they love driving. Car use is connected with strong feelings and emotions, even though daily experiences might not give any reason to cherish these feelings. This might be one of the reasons why attempts to influencing car use behaviour have not been very successful, and it might explain the

vast resistance against (effective) policies aimed at reducing car use. People selling illusions on freedom, like the car industry does, are most welcomed. However, telling the truth about not being free, e.g., because of traffic jams, is at least suspicious. Rowing upstream often raises resistance. It is important that policy makers have knowledge of affective motives for car use, and in ways to address these affective motives when designing policy measures.

The first study was not explicitly aimed at giving concrete policy recommendations. However, based on these results and previous studies, we listed the following general recommendations for designing effective traffic and transport policies:

1. Analyse the behaviour that should be changed by examening which instrumental, social and affective motives underlie the behaviour.
2. Prior to the intervention, assess how people will react on the policy measure(s) and anticipate on these reactions. Take people's feelings and emotions seriously.
3. Define specific target groups, and examine the motives of the different target groups separately. Use knowledge of advertisers and trend watchers on future developments.
4. Belief in your own policy, and express this in everything you do. Try to be consistent and trustworthy.
5. Do not rest. One good shot might not be enough. New behaviour will only become habitual when the behaviour is also attractive and stimulated in the long term.
6. Evaluate. Check to what extent the goals have been reached and inform the target group(s) about the results. This might strengthen their motivation.

The second study is explicitly aimed at examining the influence of affective motives on present car use and on policy evaluations. Based on the result of the second study, specific recommendations might be given on how to address different groups of car users, on which type of policy interventions will be most successful and on which policy strategies will evoke the least resistance. As yet, we cannot draw the policy implications from the second study, for the results are still being analysed. However, we will extent on the policy implications of the two studies in our presentation at the PTRC.

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Appendix 1. Aspects related to car use

Presence
Dependence
Aggression
Alter ego
Anonymity
Anthropomorphism
Archetype (knight)
Auto regulative capacity
Adventurous
Baggage capacity
Control
Accessibility
Shelter
Availability
Liberation
Shopping car
Comfort
Communication
Compensation
Congestion
Criminality
Economic utility
Ego gratification
Visiting family
Family car
Fantasy
Traffic jams
Flexibility
Security
Consumer item
Sound
Ease
yourself
Stimulant
Habit
Cosiness

Identification
Idol
Image
Impression
Indicator
Individuality
Domination
Jewel
Costs
Costume
Life style
Sex object
Luxury good
Power
Environment
Fashion
Necessity
Nostalgia
Independence
Unconscious decision
Distinction
Invulnerability
Arousal
Parking
Personification
Potency
Prestige
Privacy
Private taxi
Human right
Recreation
Affluence

Pleasure
Driving time
Risk

Rivalry
Choose own route
Space
Rest
Sensory stimulation
Social contacts
Toy
Sporty
Status
Style
Stress
Superiority
Technical object
Territory
Thrill
Pastime
Refuge
Challenge
Uniform
Safety
Addiction
Virility
Vitality
Predictability
Progression
Freedom
Weapon
Weather conditions
Working place
Reward yourself
Express yourself
Strengthening

Healthy
Rhythm

Figure 1. Evaluation of car use motives for groups differing in car attitude

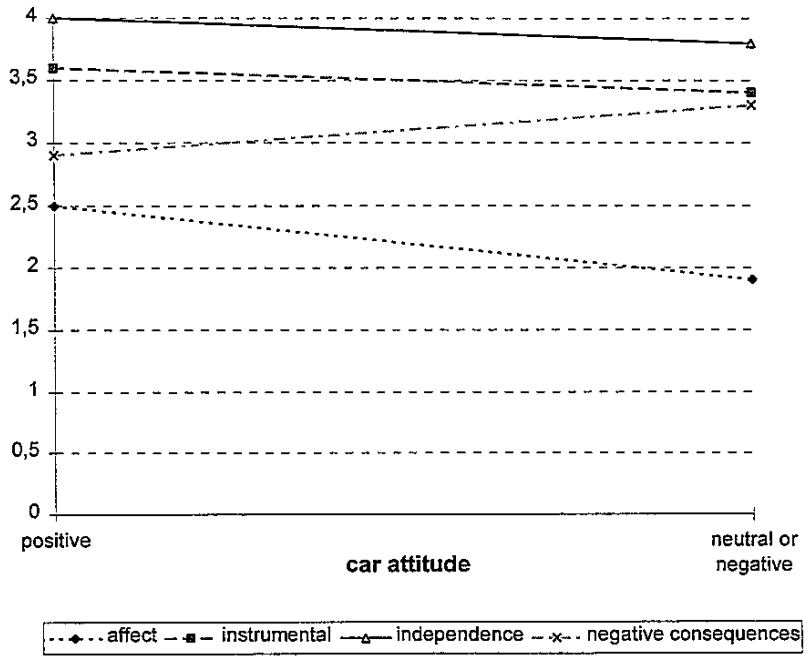
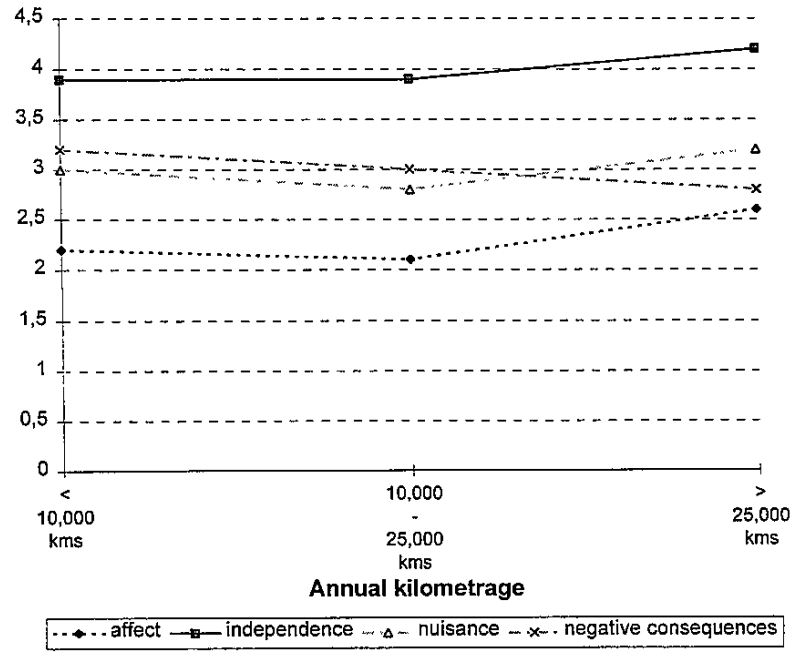


Figure 2. Evaluation of (un)attractiveness of car use motives for groups differing in annual kilometrage



[1] This paper is based on two studies on 'Cognitive-reasoned and affective-emotional motives for using a motor car'. The studies were funded by the Traffic Research Centre, and by the Ministry of Housing, Spatial Planning and the Environment. For an extensive overview of the results of the first study, see Slotegraaf, Steg & Vlek (1997) and Steg, Brand, Rooijers & Vlek (1998b). The report on the second study is not available yet.