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Car use: lust and must¹

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Abstract

Based on an extensive literature study and an explorative preliminary study, three categories of motives for car use are distinguished: instrumental, social and affective. Instrumental motives refer to the convenience or inconvenience 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 and their social position by using a car, and to social norms. Affect refers to various emotions that are evoked by using a car, i.e., car use may potentially alter people's mood, and people might anticipate these (positive) feelings while making travel mode choices. A survey study was conducted to examine whether these three categories of motives were correlated to car use for commuting during rush hours. Results revealed that all three motive categories were significantly correlated with the proportion of car trips. Car use could especially be explained by social and affective motives. Respondents who always commuted by car and male drivers evaluated the social and affective motives more favourably compared to respondents who also use other modes of transport and female drivers.

1. Car use: lust and must

The car is much more than just a means of transport. The way people talk about their cars, and the way cars are advertised make perfectly clear that the car is also a status symbol and that people can express themselves by means of their car. Moreover, driving is adventurous, it gives pleasure, thrill, and excitement. However, car use is still predominately explained through cognitive behaviour models that focus on instrumental factors related to car use, such as its speed, flexibility, and convenience. It is acknowledged that some deeper motives having to do with affect and symbolic functions of cars are playing important roles as well (e.g., Marsh & Collett, 1986; Sachs, 1984), but the supposed significance of these deeper motives is mainly based on theoretical reasoning. Little systematic research has been done on different (categories of) motives for car use. Yet, some recent empirical studies suggest that car use might be better explained when these deeper motives are taken into account too. For example, Stradling, Meadows & Beatty (1999) reported two affective benefits of car driving: being independent and getting a sense of personal identity from driving a car. It appeared that people who value these affective benefits of car use more are less inclined to reduce their car use. Sandqvist & Kriström (2001) found that people who indicate that car driving enhances the quality of their life are more likely to possess and drive a car. They conclude that people buy and drive cars simply because they like to, and not (only) because they have a real utilitarian need for a car or a practical reason to drive. Steg, Vlek & Slotegraaf (in press) also suggest that car use is attractive because of its affective and symbolic functions, next to its instrumental values.

Dittmar (1992) contends that material possessions, such as motor cars, represent instrumental values as well as by symbolic values. The symbolic values refer to the identity of a person. They are twofold: the expression of the self, and a social-categorical expression indicating one's social position or group membership. Moreover, according to Dittmar, the use of material goods might fulfil three functions: instrumental, symbolic, and affective. Applied to car use, this implies that car use has an instrumental function (i.e., it enables activities), a symbolic function (i.e., the car is a means to express yourself or your social position), and an emotional function in connection

with deeper, non-instrumental needs and desires. Note that these three functions might be intertwined, e.g., an instrumental motive may also serve as an emotional function.

Dittmar's (1992) propositions seem to be well in line with everyday practice of automobile marketing. In advertisements, TV-commercials and specific automobile magazines, it is apparent that, either explicitly or implicitly, appeals are made to people's sensitivities to power, control, self-esteem and social status. Car advertisements focus strongly on emotions and feelings evoked by car use. Cars are advertised by using slogans as 'How adventurous are you?', 'The hidden power', 'Your favourite toy', 'Go to the beach with your Spanish lover'. In contrast to car advertisers, governments follow a rather different approach. They focus on the instrumental function of cars, like travel time and costs. Attempts to reduce the use of motor cars will be more effective if they are directed at the main motives for car use.

Based on Dittmar's propositions and an explorative study on motives for car use, a motivational model to explain car use was developed (see Steg, Brand, Rooijers & Vlek, 1998; Steg & Tertoolen, 1999; Steg et al., in press). This model distinguishes three classes of motives for car use: instrumental, social and affective (see Figure 1). 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 and their social position by driving a car, that people can compare their car and car use with others, and to social norms. Affect refers to various emotions that are evoked by using a car, that is, car use may potentially alter people's mood and people might anticipate these (positive) feelings when making travel choices.

----- insert Figure 1 about here ---

Each of these three categories of motives are the subject of distinctive psychological theories and models, and measures of each of the motives categories have been developed based on these theories and models. Attitude models (e.g., Fishbein & Ajzen, 1975; Ajzen, 1985) usually focus on instrumental motives. It is assumed that attitudes are dependent on beliefs on outcomes of a

specific behaviour and evaluations of the importance of those outcomes. In most study, especially beliefs on instrumental outcomes are measured (e.g., costs, time, flexibility; see Steg, 1996, for an overview).

Three theories on social motives might be relevant to explain car use. First, social comparison theory implies that people continuously compare their possessions, behaviour and opinions with those of others (Festinger, 1954). Generally, people aim to be superior to others, while not being too deviant. Individual differences exist in the extent to which people are inclined to social comparisons. Second, the self-presentation theory (e.g., Schlenker, 1980) proposes that people present themselves in a way that is congruent with their self-image. This theory is relevant because people might get a sense of personal identity from driving a car (see also Dittmar, 1992). Third, the theory of normative conduct (Cialdini, Kallgren & Reno, 1991) stresses the importance of social norms in influencing behaviour. Two types of social norms are distinguished: injunctive norms (i.e., perceptions of expectations of others) and descriptive norms (i.e., perceptions of what others actually do).

Affect might influence behaviour, for people might anticipate emotions that are evoked by behaviour (such as car use; Manstead & Parker, 1995). According to Russell and colleagues, affective reactions can be categorised on two dimensions: pleasure and arousal (e.g., Mehrabian & Russell, 1974; Russell & Lanius, 1984). Russell claims that all human emotions are based on a combination of pleasure and arousal.

The main goal of this study was to examine to what extent instrumental, social and affective motives contribute to the explanation of car use for commuting during rush hours. Furthermore, it was examined which group differences exist in the evaluation of the three kinds of motives for car use between groups differing in car habit and socio-demographics.

2. Method

2.1 Respondents and questionnaire

A survey study was conducted in September 1999. All respondents lived in or around Rotterdam, a region in the Netherlands often confronted with traffic jams. Only respondents who regularly travelled during rush hours were asked to participate; 52% of them were willing to do so. The mean age of respondents was 42 years; 73% of the respondents were male. The socio-demographic characteristics of the sample were comparable to those of a similar study among car users who often are confronted with traffic jams (Bureau Goudappel Coffeng, 1997).

Respondents were sent a questionnaire on, among other things, their car use for commuting, their motives for car use, their possibilities to use alternative modes of transport, and their evaluation of policy scenarios. The results on the availability of alternatives and the evaluation of policy scenarios are not discussed here. A detailed overview of the study design, respondents, and results is given in Steg et al. (1999).

2.2 Measures

The measures of instrumental, social and affective motives were based on common measurements in Social Psychology (see Introduction).

A. Instrumental motives

The measure of instrumental motives was based on an 'expectancy-value' model (e.g., Fishbein & Ajzen, 1975; Ajzen, 1985). Respondents indicated whether using a car during rush hours is cheap, fast, independent, safe, environmentally friendly, easy, comfortable and private. Scores could range from 1 'very unlikely' to 5 'very likely'. Furthermore, they indicated whether these aspects are important for their travel behaviour; scores could range from 1 'not important at all' to 5 'very important'. Previous research revealed that these aspects contributed strongly to the (un)attractiveness of car use (see Steg et al., in press). For each aspect, scores on both variables were multiplied. Next, the mean product score over the aspects was computed. Scores on 'instrumental motives' could vary from 1 'negative' to 25 'positive'. The reliability of this scale was high (Cronbach's $\alpha = .87$). On average, respondents judged the instrumental motives not positively, but also not negatively ($M = 12.1$).

B. Social motives

Three indicators of social motives were used.

Social comparison and self presentation was measured by a seven item scale (i.e. 'I will not easily travel by bike or bus when all my colleagues travel by car', 'I do not like travelling by public transport if all my colleagues travel by car', 'Travelling by car suits me better than travelling by bike or public transport', 'I pay attention to what kind of car others drive', 'I like to know which transport mode others use to commute', 'I pity people who do not commute by car' and 'I feel ashamed when I do not commute by car'). A principal components analysis revealed that all seven items loaded high on the first factor ($r > .43$). Therefore, the mean score on the seven items was computed. Scores on this variable could vary from 1 'car is not important for self presentation and no social comparison' to 5 'car is very important for self presentation and strong social comparison'; Cronbach's α of this scale was .64. On average, car use appeared not to be very important for the self presentation, and people did not strongly compare their car use with others car use ($M = 1.8$).

Two kinds of *social norms* were distinguished, i.e. perceptions of expectations of others (*injunctive norms*) and behaviour of others (*descriptive norms*; Cialdini, Kallgren & Reno, 1991). First, respondents indicated what they think other people expect them to do, i.e. 'My family thinks I should not commute by car', 'My colleagues would think it is peculiar not to commute by car' and 'My friends think the problems of car use during rush hours are exaggerated'. Scores could vary from 1 'strongly disagree' to 5 'strongly agree'. It was not possible to create a new, reliable scale on the basis of the scores on these items. Apparently, these reference groups do not have the same beliefs. Therefore, scores on the three 'injunctive social norms' were examined separately. Scores on the first item were recoded as to make a high score reflect a pro-car norm. Mean scores on the three items were 2.0, 1.7, and 2.5, respectively.

Second, respondents indicated how their friends, family and colleagues, respectively, travelled to work. Scores on the variable 'descriptive norm' were based on the mean score on these three items and could vary from 1 'others never drive to work' to 5 'others always drive to work', Cronbach's α of this scale was .62. On average, most other people commuted by car ($M = 4.0$).

C. Affect

As said before, affective appraisals may be categorised on two dimensions: pleasure and arousal. Therefore, two indicators of *affect* were distinguished. Respondents indicated to what extent various emotions are evoked when they are commuting on five point scales. The following three items assessed the degree of *pleasure*: angry – happy; unsatisfied – satisfied, annoyance – pleasure. The mean score on these three items was computed; scores could vary from 1 ‘not pleasurable’ to 5 ‘very pleasurable’. Cronbach’s α of this scale was .81. *Arousal* was based on the items tense – relaxed; hurried – peaceful; aroused – calm. Again, mean scores were computed; scores could vary from 1 ‘not arousing’ to 5 ‘very arousing’. Cronbach’s α of this scale was .70. On average, respondents evaluated car use as not pleasurable nor annoying ($M = 2.8$) and as not very arousing ($M = 2.8$). Next, respondents indicated whether they felt in *control* when driving a car for commuting (no control – control and dependent – independent). Again, mean scores were computed; scores on this variable could vary from 1 ‘no control’ to 5 ‘in control’. Cronbach’s α of this scale was .69. On average, respondents felt in control while driving ($M = 3.9$).

D. Car use

Respondents indicated how often they commuted, and how often they used their car for commuting. The percentage of car trips for commuting was used as the dependent variable in the analyses.

3. Results

3.1 Correlations between car use and motives for car use

Apart from the variables ‘pleasure’ and ‘the expectations of friends’, all motives appeared to be significantly related to car use (see Table 1). In general, the more positive respondents evaluated the motives, the more often they commuted by car. Car use was especially related to the behaviour of others (descriptive norms). The more respondents thought others commute by car, the more respondents thought colleagues and family expect them to drive to work, the more they

compare themselves with other and the more important car use is for their self presentation, the more often they drove to work. Moreover, the more often respondents commuted by car, the more favourably they evaluated the instrumental motives, and the more they feel in control when driving. Arousal was negatively related to car use, i.e., the more often the respondents drive to work, the less arousing car use is to them. Apparently, car use was evaluated as arousing because driving in heavy traffic and traffic jams is stressful.

Table 1. Pearson's product-moment correlations between motives and car use

	% car trips
<i>Instrumental</i>	
Instrumental motives	.24***
<i>Social</i>	
Social comparison and self presentation	.17*
Descriptive norms (behaviour of others)	.40***
Expectations colleagues	.22*
Expectations family	.31**
Expectations friends	.06
<i>Affect</i>	
Pleasure	.10
Arousal	-.23**
Control	.25**

Note: *** $p < .001$; ** $p < .01$; * $p < .05$

3.2 Explaining car use

Table 2 shows that 28% of the variance in the percentage of car trips could be explained by the motives for car use. Especially social motives (behaviour of others, expectations of family, and social comparison and self presentation) and affect (arousal) contributed to the explanation of car use. Respondents commuted more often by car when others also drive to work, when their family

expects them to do so, when they compare their car use with others and think using a car suits them, and when they think car use is less arousing (i.e. stressful). Instrumental motives, expectations of colleagues and friends, pleasure, and feelings of control did not contribute to the explanation of the percentage of car trips.

Table 2. Stepwise regression of car-use motives on percentage of car trips for commuting

Motive	R ²	R ² -change	F-change	β
Descriptive norm (behaviour of others)	.16	.16	20.13	.30
Expectations family	.20	.04	5.83	.23
Arousal	.24	.04	5.25	-.21
Social comparison and self presentation	.28	.04	5.11	.19

3.3 Differences between respondents groups

First, it was examined whether group differences exist in motives for car use between groups differing in car habit. Two groups were distinguished: respondents who only commuted by car (59%), and respondents who also (or only) used other means of transport (41%). Table 3 shows that, in general, habitual drivers evaluated the motives for car use more positively than infrequent car users did. Respondents who always commuted by car evaluated the instrumental motives more positively, indicated that others more often use their car too, that their family expects them to drive to work, and thought that car use is less arousing (stressful) than respondents who also use other modes of transport did.

Table 3. Differences in motives for car use between habitual car users and infrequent drivers

Motive	Habitual drivers	Infrequent drivers
Instrumental motives ¹	12.8	11.0
Descriptive norm (behaviour others) ²	4.3	3.7
Expectations family ²	4.3	3.8
Arousal ³	2.7	2.9

Note: ¹ Scores could vary from 1 =‘negative’ to 25 ‘positive’. ² Scores could vary from 1 ‘anti car’ to 5 ‘pro car’. ³ Scores could vary from 1 ‘not arousing’ to 5 ‘very arousing’.

Furthermore, differences in the evaluation of the motives were found for groups differing in socio demographics. Table 4 shows that male respondents evaluated some of the social and affective motives more favourably than female respondents did. Male respondents compared their car use more often with others and think the car is more important for their self presentation than women did. Men also thought car use for commuting is less stressful and they felt more in control when driving a car than women did.

Table 4. Gender differences in motives for car use

Motive	Men	Women
Social comparison and self presentation ¹	1.9	1.6
Arousal ²	2.7	3.1
Control ³	4.0	3.6

Note: ¹ Scores could vary from 1 ‘anti car’ to 5 ‘pro car’. ² Scores could vary from 1 ‘not arousing’ to 5 ‘very arousing’. ³ Scores could vary from 1 ‘no control’ to 5 ‘in control’.

Table 5 reveals that younger respondents (20 - 30 years) evaluated car use as more pleasurable than the other age groups did (i.e. respondents older than 31 year).

Table 5. Differences between age groups in motives for car use

Motive	20-30 years	31-40 years	41-50 years	50 years and older
Pleasure	3.2	2.7	2.6	2.8

Note. Scores could vary from 1 ‘not pleasurable’ to 5 ‘very pleasurable’.

Finally, the higher income groups more strongly thought that colleagues expect them to travel by car than the lower income groups did (see Table 6).

Table 6. Differences between income groups in motives for car use

Motive	< Dfl 3500	Dfl 3500-4500	Dfl 4500-5500	> Dfl 5500
Expectation colleagues	1.4	1.6	1.8	2.2

Note. Scores could vary from 1 ‘anti car’ to 5 ‘pro car’.

4. Conclusions

On average, respondents did not evaluate car use during rush hours very favourable. Even so, a majority of the respondents (i.e., 59%) always commuted by car, while only 15% never commuted by car. This may partly be due to the fact that no feasible alternatives are available. However, 49% of the respondents indicated that it would be possible for them to commute by other means of transport (see Steg et al., 1999). Apparently, commuting by car is still more attractive than travelling with alternative modes of transport. This might be an important point to address in future research.

Car use is significantly correlated with all three categories of car use motives. The more positively respondents evaluated the instrumental, social and affective motives for car use, the more often they commuted by car. Interestingly, respondents used their car less often when they think car use is stressful (arousing in a negative sense). Only social and affective motives contributed significantly to the explanation of car use. So, differences in car use especially result from differences in the evaluation of the social and affective motives, and not from differences in the importance of the instrumental function of car use. These results suggest that policy makers should take these social and affective factors into account when developing and implementing car travel reduction policies. In this study, we focussed on commuting traffic. These trips might be considered as highly functional. Social and affective motives might even play a more significant role when making trips for other purposes, e.g., trips for recreational or social purposes.

Several group differences were found in the evaluation of the car-use motives. Respondents who always commuted by car evaluated specific instrumental, social and affective motives more positively than respondents who also used other modes of transport did. Furthermore, men evaluated social and affective motives more positively than women did. Especially men perceived the car as a symbol to express their personality and they appeared to have a stronger affective relationship with their car, while women thought car use is more stressful than men did. Hardly any differences were found in the evaluation of the various car-use motives between different age groups and income groups. However, younger respondents evaluated car use as more pleasurable than older respondents did, while the higher income groups more strongly thought their colleagues expect them to commute by car than the lower income groups did.

The results of this study suggest that the three classes of car-use motives are multi dimensional constructs. Within each class of motives different specific motives for car use may be distinguished, and each of these specific motives might contribute to the explanation of car use. For example, all three kinds of social motives, i.e., the behaviour of others (descriptive norms), the perception of expectations of family (injunctive norm), and the extent to which respondents compared their car use with others and thought car use suits them (social comparison and self presentation) appeared to contribute to the explanation of car use. Future research should examine the different motive categories in more detail. Especially the role of social and affective motives should be examined more extensively, for these have not often been studied in traffic psychology. This study did not incorporate all relevant instrumental, social and affective motives for car use. Future research might focus on factors such as power, positive arousal (kick of car use), personality, and territoriality (e.g., Fraine, Smith & Zinkiewicz, 2000). Furthermore, future research could examine instrumental, social and affective motives for other means of transport and examine whether car use is more (or less) attractive than other travel modes because of its instrumental, social and/or affective values. Moreover, future research can be directed at examining the role of instrumental, social and affective motive in explaining car use (and/or the use of alternatives modes of transport) for other trip purposes.

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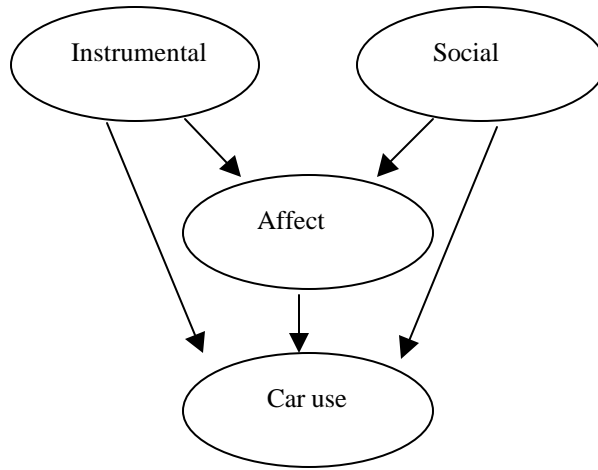
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Figuur 1. Motivational model to explain car use