



# My car, my friends, and me: a preliminary analysis of automobility and social activity participation

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## ARTICLE INFO

### Keywords:

Automobility  
Activity analysis  
Social activities  
Participation  
Duration  
Portland

## ABSTRACT

The role of social contact as a motivator for mobility has gained interest in recent years with conceptual and empirical work that provides evidence of the importance of social context on travel behavior. On the other hand, the impact of different modes of transportation on the frequency and duration of contact has not been explored. Using the 1994 Portland Household Activity and Travel Behavior Survey, this paper investigates the potential relationship between automobility and the expected participation in and duration of a variety of in-home and out-of-home social activities. The analysis makes use of descriptive and inferential statistics to illustrate a broad variation in the effect of car use on duration of activity, both in terms of polarity and magnitude. Furthermore, multivariate regression analysis reveals that reliance on the automobile acts by enabling longer durations in less mobile and more time-constrained segments of the population. Conversely it acts by decreasing durations in more mobile and less time-constrained subgroups. The paper ends by discussing directions for future research into the potential social implications of automobility.

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## 1. Introduction and brief literature review

The prevailing popular perception of the automobile is that it confers freedom to its users. Freedom to move about one's environment; to reach more and better economic opportunities; to utilize service opportunities; and if one is to believe the predominant representations of automobility in the print and electronic media, freedom as well to be adventurous, to travel the open road, to climb a mountain, and to make it back in time to pick the kids up from school. Without doubt, the automobile is a great enabler of mobility and thus serves to increase personal accessibility to the necessities of daily life. This is a theme that has been studied fairly extensively from the perspective of employment outcomes, including job concentration and access to places of employment (e.g. Blumenberg and Ong, 1998), and the welfare-to-work transition (e.g. Cervero et al., 2002; Ong, 2002; Shen and Sanchez, 2005). As reported by Gurley and Bruce (2005) the evidence consistently is of a positive relationship between car ownership or access, and employment outcomes. Indeed, this relationship between automobile use and employment achievement has spawned policies designed to increase the private mobility of the urban poor in some areas (q.v. Fol et al., 2007; Lucas and Nicholson, 2003).

As the research cited above illustrates, the economic benefits of increased mobility in the form of automobility have been well researched in the past. On the other hand, relatively little is known about the effect of automobility on activity participation for other classes of activities. For example, despite recent interest in the social sphere from the perspective of travel behaviour research, almost no research focuses on the relationship between automobile use and non-economic, primarily social activities. Due to this, it is unclear whether or not the freedom, or at least increased access to opportunities, that the automobile confers on drivers when it comes to participation in economic activities, holds in a similar way with respect to participation in a variety of activities of a more social, not necessarily economic nature.

From a travel perspective, the enhanced potential for mobility afforded by the private vehicle that allows auto users to reach more and better economic opportunities, should in principle also allow people to access geographically dispersed social contacts (relatives, friends, acquaintances, people with like interests, etc.) Moreover, the effect of mobility on social participation rates could be even stronger than the effect on economic activities when considering that individuals may have more control over the spatiality of the locales where they interact in social terms, as opposed to sites of employment and services. Accordingly, it could be posited that automobility, in addition to the economic and employment benefits previously identified, may also operate by increasing social activity participation, in many settings a highly desirable goal. Two counter-arguments can be formulated to oppose this view.

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First, from a time use perspective, given fixed time budgets, it is possible that the ability to reach better but more distant economic and employment opportunities may reduce the time available for other activities. In relation to this, a sociological argument is that automobility “subordinates other ‘public’ mobilities of walking, cycling, travelling by rail and so on; and it reorganizes how people negotiate the opportunities for, and constraints upon, work, family life, leisure and pleasure” (Sheller and Urry, 2000, p. 739). From this perspective, it is claimed that the car at first brings great personal freedom to drivers but results in coercing “almost everyone to juggle tiny fragments of time in order to put together complex, fragile and contingent patterns of social life” (Sheller and Urry, 2000, p. 744). A potential outcome of this process of private motorization could be geographically disparate social networks (Urry, 2002) that may be detrimental to social capital building (Putnam, 2000). These arguments are important and have generated a lively discussion about some of the societal costs of automobility. However, despite an abundance of theoretical work on this topic, there is scant empirical evidence to verify many claims about the social impacts of automobility. The objective of this article is to fill this gap and provide evidence, using as a case study the Portland Household Activity and Travel Survey, of the extent to which people who depend on their automobiles for all of their mobility needs are socially active (i.e. frequency of participation), and to quantify their level of social activity (i.e. duration of activities).

In order to achieve this objective, we adopt the tools of the activity-based approach (Axhausen and Garling, 1992; Scott, 2006), in particular the use of multivariate statistical models for activity participation and duration analysis. Parting from the recognition that transport-mode choices may feed into the activity generation process we investigate the possibility that the hypermobility generated by the automobile (which allows drivers to pursue highly individualized and spatially dispersed daily activity patterns) may reduce the likelihood of impromptu and planned social interactions.

It is important to be clear at the outset that the scope of this paper is to investigate the relationship between automobile use and social activity participation, which is but a small fragment of the relationship between the system of automobility and social well-being. At a different scale, the impact of automobility on society can be conceptualized using a general framework of social theory developed by Coleman (1990). Coleman's framework suggests that social change arises from direct systematic stimuli as well as through stimuli affecting individual actors within the system which when accumulated have an impact at the system-level. Relatively little is known about the effect of automobile dependence on the levels of social interaction at the individual level. However, if these individual effects are extant and measurable, they are of interest for their potential influence on aggregate outcomes, such as the level of social capital. Given the current state of research, the paper aims to provide evidence of the existence of some of these effects, and is therefore inductive in nature.

With this caveat in mind, the remainder of the paper is structured as follows. The next section contains a discussion of the dataset used in the analysis. The third section contains a description of the models and methods used to explore the relationship between automobile use and social interaction. The fourth section contains a discussion of the model results, and the fifth section contains conclusions and identifies several current discourses in transportation geography to which this and future research on this theme applies.

## 2. Data considerations

Activity analyses require as input large quantities of disaggregated travel and activity behaviour data. Over the years, many rich

surveys have been collected and made available to the research community. One such survey, the 1994 Household Activity and Travel Behavior Survey, was completed by 4,451 complete households containing 10,048 individuals in and around Portland, Oregon. Data pertaining to households, individuals, activities, travel, and vehicles were collected via a two-day diary instrument followed by a CATI enabled telephone interview (Cambridge Systematics, 1996). The data sampling was stratified by season (spring, summer, fall), day of the week, and residential location. The vast and detailed information in the Portland dataset lends itself to this type of analysis (with some limitations discussed below). However, it must be noted that Portland is distinguished by its urban growth boundary and forward-looking public transportation planning, which may not be completely representative of the broader North American urban context.

For the analysis in this paper, each personal record was split by day thereby creating 20,096 unique individual/day combinations. Further, in an effort to reduce the risk of results being unduly affected by the dependence of youths' activity patterns on adult household members, records pertaining to respondents younger than 19 years of age were filtered from the dataset leaving 15,396 person-days in the analysis.

Several activity classifications in the dataset have been highlighted as being social in nature, or having a social potential. They are: in-home visiting, in-home amusements and out-of-home amusements. The in-home visiting classification includes the in-home casual entertaining and in-home formal entertaining categories. “In-home” implies that the activity took place within the home of the respondent or someone else's home, whereas “out-of-home” implies that the activity location was not inside the respondent's or anyone else's home. The visiting activities by their nature imply some level of social interaction whereas the amusement activities may or may not have been performed in a social setting. The in-home amusements activity classification includes television watching, and may even be somewhat asocial in nature. Consequently, factors related to increased participation in this activity may be interpreted as having a negative impact on social contact. The out-of-home amusements category is very broad, encompassing activities such as going to the movies, a bar or cafe that may be performed in both social and asocial contexts. While these activity categories are quite specific, we prefer this to more general categories which may confound the results through activity aggregation. Given the absence of “with-whom” characteristics of trips and activities in the database (a common feature of all but a handful of existing datasets), we have selected those activities most likely associated with social behaviour even though some ambiguity with respect to the presence of others remains.

## 3. Methods

The production of the dataset was fairly straightforward and consisted of simple database queries and variable transformations performed in Microsoft Access and SPSS. First, respondents had to be classified in terms of their degree of reliance on a car for their mobility. Since traditional definitions of automobile dependence pertain to urban areas, and not the individuals within, an appropriate method of categorization was not obvious (Kenworthy and Laube, 1999). Interestingly, recent work by Zhang (2006) supports the idea that individuals themselves can become automobile dependent through his formulation of the captured driver, especially when they have no other feasible transportation choices. Keeping in mind that the objective of the analysis is not to investigate why people use different transport modes, auto-reliance can be thought of as a ‘revealed preference’. The reason for using the automobile – being captive, or plainly having a strong preference

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