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Modeling the liking for travel

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When is Getting There Half the Fun? Modeling the Liking for Travel

David T. Ory and Patricia L. Mokhtarian¹

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Abstract

This paper analyzes empirically measured values of Travel Liking – how much individuals like to travel, in various overall, mode-, and purpose-based categories. The study addresses two questions: what types of people enjoy travel, and under what circumstances is travel enjoyed? We first review and augment some previously hypothesized reasons why individuals may enjoy travel. Then, using data from 1,358 commuting residents of three San Francisco Bay Area neighborhoods, a total of 13 ordinary least-squares linear regression models are presented: eight models of short-distance Travel Liking and five models of long-distance Travel Liking. The results indicate that travelers' attitudes and personality (representing motivations) are more important determinants of Travel Liking than objective travel amounts. For example, while those who commute long distances do tend to dislike commute travel (as expected), the variables entering the models that hold the most importance relate to the personality and attitudes of the traveler. Most of the hypothesized reasons for liking travel are empirically supported here.

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1. Introduction

Conventional engineering and economic wisdom holds that the purpose of urban travel is to participate in spatially-separated activities. As such, models of travel demand treat time spent in a car or aboard a transit vehicle strictly as a cost to be minimized – an assumption that ignores the possibility that any portion of urban travel could provide positive utility. This paper investigates empirically measured values of Travel Liking – how much one likes to travel, in various categories. Understanding what types of individuals enjoy or don't enjoy travel could have substantial policy implications. Any policy aimed at reducing or eliminating a good or service that a significant segment of the population "likes" (especially if that liking were largely independent of travel amounts) would certainly be more difficult to enforce than one eliminating a uniformly burdensome good or service.

The concept of liking travel for its own sake is not entirely foreign to the profession. For example, there is a sizable literature relating to the so-called "love affair with the automobile" (e.g., Wachs and Crawford, 1992; Marsh and Collett, 1986; Sachs, 1992), which, although perhaps stereotypically associated with Americans, is by no means unique to them, as attested by studies in Denmark (Jensen, 1999), the Netherlands (Steg, *et al.*, 2001), Scotland (Hiscock, *et al.*, 2002), and elsewhere, as well as by rising rates of auto ownership and vehicle-miles traveled throughout the world. Recent psychological studies have examined the relationship between the opposing desires for personal car use and pro-environmental behavior, which is increasingly associated with conforming to social norms (for recent examples, see Tertoolen, *et al.*, 1998; Nordlund and Garvill, 2003; Tanner, 1999). Beyond the obvious utilitarian benefits of the automobile (its often unmatched convenience and comfort), these and other studies point out the psychological benefits of automobile use (e.g. it satisfies the need for self expression and helps demonstrate one's social position) and also state that driving a car is simply pleasurable (e.g. the sensation of movement and control) (Steg, *et al.*, 2001). The research presented here addresses automobile use as well, but more broadly investigates all types of travel, including purpose-specific travel, walking and the use of public transportation, and long-distance travel.

A number of transportation scholars have also commented in a general way on the intrinsic benefits of travel (see Mokhtarian, *et al.*, 2001 for citations). With those sources as background, Salomon and Mokhtarian (1998, pp. 136-137) suggest a number of reasons why travel (including, but not limited to automobile travel) might have a positive utility:

- *“adventure-seeking*: the quest for novel, exciting, or unusual experiences will in some cases involve travel as part or all of the experience itself, not just as a means to the end (‘getting there is half the fun’);
- *variety-seeking*: a more mundane version of the adventure seeking trait, the desire to vary from a monotonous routine may lead one, for example, to occasionally take a longer route to work or visit a more distant grocery store;
- *independence*: the ability to get around on one’s own is one common manifestation of this trait;
- *control*: this trait is likely to partially explain travel by car when reasonable transit service is available;
- *status*: traveling a lot, traveling to interesting destinations, and traveling ‘in style’ (e.g. in a luxury car) can be symbols of a desired socio-economic class or lifestyle;
- *buffer*: ... a certain amount of travel can provide a valued transition between activities such as home and work;
- *exposure to the environment*: ‘cabin fever’ is one manifestation of this desire, to leave an enclosed building and ‘go somewhere’, just to experience something of the outdoors;
- *scenery and other amenities*: may lead someone, for example, to take a longer route than necessary to a destination;
- *synergy*: the ability to conduct multiple activities at or on the way to a more distant destination, or the ability to be productive while traveling, may result in apparently excess travel.”

To this list, we would add:

- *escape*: It is common to use travel to, for example, temporarily escape obligations, routines, and/or tensions at home or work.
- *curiosity*: Certainly curiosity drives, to a certain extent, the adventure-seeking and variety-seeking mentioned above, but may not be limited to these two behaviors. Curiosity can be simply “‘superfluous’ activity having no immediate utilitarian goal” (Stagl, 1995, p. 2), as when an individual is “idly curious” about the other passengers on the bus, or may prompt information-gathering or problem-solving that proves useful at a later time, as when curiosity about a certain passenger leads to the development of a relationship. In any case, if “[c]uriosity and the exploratory activity are so intimately linked that they are considered almost identical” (Stagl, 1995, p. 2), then a strong curiosity is almost certain to generate physical exploration, requiring travel.²
- *conquest*: Pasternak (2003) notes the etymological and ontological connection between quest and conquest. Perhaps as a further elaboration of the independence and control motives identified by Salomon and Mokhtarian, we suggest that exploration and travel can be motivated not purely by curiosity, but also by a drive to conquer – whether other people, or oneself. This motivation is obviously present in extreme sports such as mountain-

² Stagl, citing the psychologist Berlyne, points to two types of curiosity: perceptive, requiring direct sensory contact, and epistemological, involving mental inquiry. It is presumably only the former type that would stimulate travel in its own right, although one might expect a strong correlation between the presence of both types in a given person.

climbing³, as well as in competitive forms of undirected travel such as racing. It may also have more mundane manifestations, however, such as a desire to master the skill of operating a vehicle, or the determination to undertake a lengthy commute by bicycle, or the triumph of navigating through unfamiliar surroundings. It is not difficult to imagine that for some people, daily urban travel, including commuting, constitutes the conquest of inertia, introversion, or fear.

- *physical exercise*: Although most naturally associated with non-motorized forms of travel such as walking, jogging, or bicycling, even the use of motorized modes requires a modicum of physical effort (walking to/from, getting into/out of the vehicle; see, e.g., Mackett, *et al.*, 2004). A desire for exercise may lead one to engage in “undirected” (recreational) trips by non-motorized means, to choose a slower non-motorized mode over a faster motorized one, to park a car (or alight from transit) farther from the destination than necessary, or to make a trip when it could be foregone (e.g. substituted by telecommunications technology, as in telecommuting versus commuting).

And, closely related to the physical exercise motive,

- *the therapeutic value of movement/travel*: This dimension contains a number of aspects, including some already touched upon. The sensation of movement can have a soothing or (e.g., at high speeds) stimulative quality. Fields such as yoga (Berger and Motl, 2001), dance therapy (Stanton-Jones, 1992), and sport psychology (Landers and Arent, 2001) attest to both the physical and psychological benefits of movement. Movement on a larger scale, i.e. travel, has been advised as mental therapy at least since Burton’s (1621) *Anatomy of Melancholy* (see Part II, Section II, Movement IV). The literature on well-being and quality of life for the elderly (and why should it apply only to them?) invariably mentions mobility and/or the ability to travel as important markers (see, e.g., Banister and Bowling, 2004; Farquhar, 1995; Siren and Hakamies-Blomqvist, 2004). The need to escape can also fall under this category when it represents a healthy response to stress, but we leave it separate since it can also constitute an unhealthy abdication of responsibility.

The exploration undertaken here attempts to identify which factors (if any at all) among those available to us most strongly explain the stated Travel Liking, as captured by our survey instrument. The paper concludes with a comparison between the above hypothesized factors and the model estimation results.

This paper is part of a larger research program investigating the relationships among attitudes, personality, and travel. Prior reports and papers produced by this study have investigated effects of an affinity for travel by including explicit measures of Travel Liking (among other variables) in models of Objective Mobility (the amounts people actually travel) (Mokhtarian, *et al.*, 2001), Subjective Mobility (peoples’ qualitative perception of the amount they travel) (Collantes and Mokhtarian, 2002), and Relative Desired Mobility (qualitative measures of how much people want to travel relative to their current amounts) (Choo, *et al.*, forthcoming). The liking for travel has been an important influence in most of those models. Given that importance,

³ Identification of this motivation arose in the context of reading Robertson’s (1997) description of explorations of the Sierra Nevada mountain range of the western US, together with a discussion of the heroic quest in mythology and other literature (Fussell, 2001).

it becomes critical to better understand this affinity for travel: what kinds of people have it, under what circumstances? This paper directly examines the causes of individuals' liking for travel by using ordinary least-squares regression and ordered probit to model the relationship between Travel Liking and other variables in our data set.

The organization of this paper is as follows. The following section describes in more detail the data used in the modeling. Section 3 discusses the dependent Travel Liking variables and the variation found in those measures. Section 4 describes the potential explanatory variables. Sections 5 and 6 present the results for the short-distance and long-distance models, respectively. The final section summarizes the findings, compares the results to the hypothesized bases for Travel Liking, and provides suggestions for further research.

2. Data

The data analyzed in this study are collected from a fourteen-page self-administered survey of approximately 2,000 individuals in the San Francisco Bay Area. A total of 8,000 surveys were mailed (leading to a response rate of about 25%) to randomly-selected households in three neighborhoods, namely North San Francisco (half of the surveys), Concord (one-quarter) and Pleasant Hill (one-quarter). North San Francisco is an urban neighborhood, located close to the regional central business district (CBD) and well-served by transit. Concord and Pleasant Hill, in contrast, are suburban cities located across the San Francisco Bay from the regional CBD – reasonably well-served by BART (the regional rail rapid transit system), but with low levels of bus service. Although they are contiguous, they differ in that Pleasant Hill has higher densities and a more fragmented street pattern. Thus, together they represent some diversity in types of suburban development.

This paper focuses on a subset of the 2,000 respondents – those who work either part-time or full-time and commute at least once a month. This subset contains 1,358 respondents with relatively complete data on most variables of interest; some key Socio-demographic characteristics of the sample are shown in Table 1. The decision to use only commuting workers was based on the assumption (supported by a few tests) that relationships among Attitudes, Personality, and Mobility variables could be rather different for commuters than for non-commuters.

~ Table 1 goes about here

Table 1 indicates that our sample is relatively balanced in terms of gender and neighborhood location. The youngest and oldest age categories have few observations, but as the sample comprises full- and part-time workers, this is not surprising. Higher incomes are over-represented compared to the Census (see Curry, 2000 for further discussion). However, as the focus of the work is to model the impact of income and other variables on Travel Liking measures, rather than purely to ascertain the population distribution of such measures, it is more important simply to have a reasonable spread of incomes than that they be exactly representative (Babbie, 1998). The same is true of the dependent variables of interest, the various measures of Travel Liking, as discussed further in the following section.

3. Sources of Travel Liking Variation

The Travel Liking dependent variables were drawn directly from the survey via the question: “How do you feel about *traveling* in each of the following categories? We are *not* asking how you feel about the activity at the destination, but about the travel required to get there. Even if you seldom or never travel in a certain category, you may still have a feeling about it.” Respondents then rated their liking for travel in various categories on a five-point ordinal scale anchored by “strongly dislike” and “strongly like”. In addition to distinguishing Travel Liking by trip purpose and mode, these measures were further disaggregated into short-distance and long-distance. In keeping with the definition formerly used by the American Travel Survey, long-distance travel includes trips with a one-way distance of 100 miles or more. A summary of the responses to the short-distance Travel Liking questions are presented in Table 2 and the long-distance responses are presented in Table 3. In interpreting the tables, it is important to keep in mind a likely self-selection bias in the responses: those who feel strongly about travel – in either direction, but perhaps especially in the positive direction – are probably more likely to respond to a questionnaire about travel. Thus, the raw distributions of Travel Liking probably overrepresent the positive end of the scale and underrepresent the middle. As mentioned in Section 2, however, this does not prevent the models shown in Sections 5 and 6 from properly capturing the influences of other variables on Travel Liking.

Turning first to the short-distance Travel Liking measures, the distributions in Table 2 certainly seem to support the contention that a subset of individuals has an affinity for travel. Even the stereotypically loathed daily commute is liked or strongly liked by more than a fifth of the sample (21.4 percent), with a similar proportion (18.6 percent) liking or strongly liking work/school-related travel. In fact, only three of the eight categories (those two plus bus) have a smaller

share of “likers” (those in the strongly like and like categories) than “dislikers” (those in the strongly dislike and dislike categories).

Looking more closely at the purpose-specific categories, by far the most liked category of travel is entertainment/recreation/social – viewed favorably by more than half (54.8 percent) of the respondents. Of course, individuals liking leisure travel is not surprising; in addition to being influenced by the anticipated enjoyment at the destination, this type of travel often occurs with family or friends and is probably done with fewer time constraints (and less stress) than mandatory travel.

With respect to the mode-specific measures, surprisingly, travel by personal vehicle has a higher share of “likers” (58.1 percent) than entertainment/recreation/social travel. In fact, among the short-distance categories, only travel by non-motorized modes (walking, jogging, and bicycling) is more beloved by survey respondents (66.7 percent). In line with stereotype, rail modes are thought of with much more fondness than bus modes. Rail likers and dislikers each comprise about 30 percent of the sample, whereas bus dislikers outnumber likers nearly 8 to 1 (63.4 percent to 8.3 percent).

~ Table 2 goes about here

The responses to the long-distance Travel Liking questions are summarized in Table 3. Here, entertainment/recreation/social travel is enjoyed by a substantial majority of the sample (68.7%), as are overall (62.7%) and airplane travel (66.4%). Exactly half of the sample reports liking long-distance personal vehicle travel, though nearly a third (30.9%) feels neutral about it. The sizable amount of neutrality (42.4%) with respect to work/school-related long-distance travel may reflect both a balancing of pros and cons for this category and (for some) a relative lack of engagement in it.

~ Table 3 goes about here

Since, for the most part, these responses vary in expected ways, a first reaction to the results may be that the respondents – even with the explicit survey instructions that emphasized consideration of the trip or travel rather than the activity at the end of the trip – confounded, to some degree, their liking for the activity with their liking for travel. As discussed in Mokhtarian and Salomon (2001), someone who reports a love for recreation travel may not be referring to the hours spent in the airport, on the airplane, and in a rental car. One may wonder how

accurately the survey measured a liking for the actual travel. In response to this justifiable concern, a number of considerations are relevant.

First, suppose that in the worst case the responses were *entirely* about the destination activity and not at all about the travel. They still have travel implications. Although the activities (work, entertainment, etc.) captured by these variables have in-home alternatives, it is well understood that those alternatives are often inferior to their out-of-home counterparts on a number of dimensions (see, e.g., Mokhtarian and Salomon, 2002). To the extent that that is the case, the simple descriptive data shown in Table 2 and Table 3 point to a substantial level of current and potential demand for out-of-home activities and, as follows, the travel required to engage in out-of-home activities.

However, the argument that people confound destination activities with the travel required to reach them is most compelling for the five categories that relate to travel purposes: short-distance commute, work/school-related and entertainment/recreation/ social; long-distance work/school-related and entertainment/recreation/social. It is less persuasive (although not entirely baseless, since mode and purpose could be confounded in some contexts, as Mokhtarian and Salomon (2001) discuss) to suggest that the six *mode-based* ratings of travel, or the two *overall* ratings of travel (each of the latter placed first in their respective sections so that the respondent was reacting initially to the “abstract concept” of travel rather than travel tied to a particular type of activity *or* mode), have the same problem. The fact that respondents could like “generic” travel is telling.⁴

Further, the variation in the purpose-specific Travel Liking responses may indicate interactions between travel and *purpose*, independent of destination. For example, an individual traveling from Chicago to Miami for business may enjoy the trip itself less than another individual traveling on the same flight to visit family. The businessman may have anxiety over his performance at the destination; may be burdened by traveling with (and needing to work using) his laptop and cellular phone; or may feel stress due to pre-trip preparations. Without such preoccupations, the vacationer may be able to enjoy the in-flight movie or do some pleasure reading. Thus, two individuals traveling on the same flight may experience the travel differently

⁴ Why might respondents legitimately like long-distance overall travel better than short-distance overall travel, as Tables 2 and 3 show? In addition to possible interactions with purpose and route/destination as described in the ensuing paragraphs, long-distance travel may also more effectively satisfy the adventure-seeking, variety-seeking, independence, status, exposure, escape, curiosity, and therapeutic needs identified in the Introduction. A similar argument can be made for the stronger liking of long-distance entertainment/recreation/social travel compared to its short-distance counterpart.

due to their differences in trip purpose. In these types of interactions, the survey appropriately captures purpose-specific variation in the Liking for travel.

Interactions also exist between travel and the *route or destination*, rather than the activity at the destination *per se*. One may dislike congested travel, and local commute trips are often congested, so one expresses a dislike for commute travel (Handy, *et al.*, 2004). Or, an individual traveling to work via a bus route that overlooks the San Francisco Bay may express a liking for commute travel, when the motivation for the liking is really the scenic beauty. In either case, individuals are again responding to differences in the travel itself, that happen to be associated with certain trip purposes more than others.

To summarize the preceding arguments, we see that the *quality of the travel experience itself* can legitimately vary with mode (Anable and Gatersleben, 2004), purpose (Handy, *et al.*, 2004), or route/destination – independently of the destination activity – and therefore that Travel Liking can legitimately vary with these factors as well. Only when there is complete mental “substitution” of the travel for the activity, and a reaction to the activity *instead of* the travel, are the responses to these questions entirely spurious. For most respondents, genuine and spurious aspects to their responses are likely to be mixed, to unknown degrees.

Of course, the conceptual considerations presented in the Introduction and at greater length in the references cited there provide a number of reasons why travel itself could have positive utility. Thus, the concept is not *prima facie* untenable; the question is not whether people can possibly like travel for its own sake, but only the degree to which they do. Overall then, we believe that, although imperfect, these responses are telling us something valid about the Liking for travel itself. Nevertheless, as we discuss further in the Summary and Discussion section, it is important to refine these measures in future work.

4. Potential Explanatory Variables

The potential explanatory variables used in the models can be placed into nine general categories, namely: Objective Mobility, Subjective Mobility, Relative Desired Mobility, Attitudes, Personality, Lifestyle, Excess Travel, Mobility Constraints, and Socio-demographics. Each category is described very generally in this section. Variables included in the models will be given more discussion in Sections 6 and 7.

The survey questions capturing Objective Mobility, Subjective Mobility, and Relative Desired Mobility had structures similar to those for Travel Liking. In each section, the measures were obtained for overall travel, travel segmented by purpose, and travel segmented by mode for

both short- and long-distance (greater than 100 miles one way) trips. The short-distance trip purposes selected for inclusion in the survey are as follows: commute, work/school-related, grocery shopping, to eat a meal, for entertainment/ recreation/social activities, and chauffeuring (taking others where they need to go). The short-distance travel modes are the following: personal vehicle, bus, commuter train/heavy rail/light rail, and walking/jogging/bicycling. The long-distance trip purposes are work/school-related and entertainment/recreation/social activities; the modes are personal vehicle and airplane.

Objective Mobility

These questions asked about distance and frequency of travel by mode and trip purpose, as well as travel time for the commute trip. For short-distance trips, respondents were asked how often they traveled for each purpose, with six categorical responses ranging from “never” to “5 or more times a week”. Respondents were also asked to specify how many miles they traveled each week, in total and by mode and purpose.

The long-distance Objective Mobility variables come from a section of the survey in which respondents were asked how often they traveled to various parts of the globe “last year”, by purpose (for entertainment and work/school-related activities) and mode (personal vehicle, airplane and other) combinations, with an “other” category to catch any remaining travel. These responses indicated number of trips directly and were also converted into approximate distances by measuring from a central position in the Bay Area to a central location within the destination region.

Subjective Mobility

Here we ask respondents for a subjective assessment of their travel. Again segmenting travel by mode, trip purpose, and trip length (short and long), respondents rated their amount of travel on a five-point semantic-differential scale anchored by “none” and “a lot”.

Relative Desired Mobility

These questions focused on how much travel individuals wish to undertake, compared to their current levels. Again, a five-point scale, here anchored by “much less” and “much more”, was used, and travel was segmented in a manner similar to Objective Mobility, Subjective Mobility, and Travel Liking.

Attitudes

Although the discussion in the Introduction focused on the positive aspects of travel, of course a Liking for travel could be negatively associated with some of the less desirable reactions it engenders. Thus, it is important to measure the cons as well as the pros of travel. Attitudes towards travel, land use, and the environment were captured using responses on a five-point Likert-type scale, to 32 statements. Through factor analysis (see Redmond, 2000 or Mokhtarian, *et al.*, 2001 for details of the factor analyses on these as well as the Personality and Lifestyle variables), the statements were distilled into six basic dimensions, namely: travel dislike, pro-environmental solutions, commute benefit, travel freedom, travel stress, and pro-high density. Each of these factors was significant in at least one of the Travel Liking models. Selected variables loading heavily on the Attitude, Personality, and Lifestyle factors are summarized in Table 4.

Personality

Respondents rated 17 attributes expected to relate to their travel attitudes and/or behavior on a five-point scale (anchored by “hardly at all” to “almost completely”), in terms of how well the attributes described them. Here, the factor analysis revealed four personality types: adventure-seeker, organizer, the calm personality, and loner. The first three of these types proved significant in the Travel Liking models.

Lifestyle

The survey contained 18 statements related to work, family, money, status, and the value of time. Respondents agreed or disagreed with the statements using a five-point Likert-type scale. Four lifestyle factors emerged: status seeker, workaholic, family/community related, and a frustrated factor. Each of these factors is significant in at least one of the Travel Liking models.

~ Table 4 goes about here

Excess Travel

To qualitatively measure excess travel, participants indicated how often (on a three-point scale: “never/seldom”, “sometimes”, “often”) they engaged in each of 13 activities involving seemingly

unnecessary travel. Questions included, “how often do you travel...”: “with no destination in mind?”, “just for the fun of it?”, and “mainly to be alone?”

Mobility Constraints

Constraints on one’s ability to travel are also expected to affect one’s liking for travel – potentially in either direction. The added difficulty and stress of traveling may make it more disliked. On the other hand, an inability to travel freely may make it all the more desired (Collantes and Mokhtarian, 2002). Here, participants selected, on a three-point scale (“No limitation”, “Limits how often or how long”, “Absolutely prevents”), the degree to which physical conditions or anxieties prevented them from engaging in a variety of travel forms, including: “driving on the freeway”, “driving at night”, and “flying in an airplane”. The percentage of time an automobile is available to the participant is also considered to be a Mobility Constraint (oriented in the reverse direction). Perhaps because of counteracting influences, Mobility Constraints were significant in only three of the 13 final models, with either negative signs for the corresponding mode, or positive signs for an alternative mode.

Socio-demographics

The survey captured an extensive amount of typical Socio-demographic data to allow for comparison of our sample with more general populations. The data included measures of age, income, household size, employment type, number of household workers, education level, gender, and make/model of the vehicle driven most often by the respondent. The latter variable was allocated to one of nine major vehicle categories: small, compact, mid-sized, large, luxury, sport utility vehicle, minivan/van, pick-up truck, and sports (for more details, see Curry, 2000 and Choo and Mokhtarian, 2004).

5. General Specification Issues

A total of 13 linear regression models are developed from the Travel Liking survey responses – eight models for short-distance travel (overall, work/school commute, work/school-related, entertainment/recreation/social, personal vehicle, bus, rail, and non-motorized – i.e. walk, jog, and bicycle); and five models for long-distance travel (overall, work/school-related, entertainment/recreation/social, personal vehicle, and airplane). The sample includes only working commuters (defined as those who work full- or part-time and commute at least once a month). The ordinal Travel Liking dependent variables are treated as continuous in this application; regression models were chosen primarily due to the availability of higher quality

commercial software packages (with automated stepwise specification capabilities). However, because of their theoretical superiority in this context, ordered probit models were also estimated, using the regression specifications. In keeping with the reputation of linear regression for being robust with respect to departures from its technical requirements, there were essentially no differences in interpretation between the two sets of models (only one variable, gender in the short distance personal vehicle model, was significant for regression but not for ordered probit). The regression results are presented here (an ordered probit version of the commute Travel Liking model appears in Ory, *et al.*, 2004, and ordered probit results for the remaining models are available from the authors).

Due to the variety of variables in the data set, certain *a priori* decisions as to which variables could reasonably be expected to influence a Liking for travel had to be made. The variables in the Relative Desired Mobility category were completely excluded from consideration: we assume that wanting to travel more than currently is an effect rather than a cause of Travel Liking. Further, it was assumed that travel itself could cause an individual to *dislike* travel, that is that Subjective or Objective Mobility could have a negative impact on Travel Liking, but we excluded such variables when they appeared with a positive coefficient. Although it is possible that greater Mobility in a certain category could lead to greater Travel Liking (riding the bus a lot could generate a fondness for the bus), we consider it more likely that a positive relationship is indicative of the opposite direction of causality – that is, that higher Travel Liking leads to higher mobility. Thus, we excluded Mobility variables that initially appeared in the Travel Liking models with positive signs, although in future research we plan to develop structural equation models that will help sort out the different directions of causality.

We hypothesize that Travel Liking will be most heavily influenced by the various Personality, Lifestyle and Attitude variables included in the data set. We believe Travel Liking to be an intrinsic human characteristic, which is shaped by one's experiences, and most readily revealed by the attitudes individuals hold toward travel-related issues. However, although the data used to estimate the Travel Liking models included myriad Attitude, Personality, and Lifestyle variables, these variables do not perfectly capture the relevant intrinsic characteristics of all individuals. For this reason, a handful of variables included in the models are intended to represent human characteristics not otherwise captured, as illustrated in Figure 1. For example, certain models include the Excess Travel variable "How often do you travel ... to explore new places." This question probably better captures a sense of curiosity than any of the other variables in the data set. As such, it serves as a marker for curiosity, and its inclusion in the models acts as a proxy for the influence of curiosity on Travel Liking – a very plausible relationship.

~ Figure 1 goes about here

It should be noted, however, that certain Excess Travel measures, specifically “How often do you travel ...just for the fun of it”, and “...to a more distant destination than necessary, partly for the fun of traveling there”, were not considered as potential explanatory variables. Due to the use of the word “fun”, it seems more likely that those who enjoy traveling will engage in this type of Excess Travel. Again referring to Figure 1, it seems the underlying human characteristic these variables are representing is, in fact, Travel Liking, and that including them in the models would therefore be conceptually tautological.

6. Short-Distance Models

A summary of all the short-distance models, including the signs of all coefficients having a statistical significance of 0.05 or better, is presented in Table 5. The adjusted R^2 values for these models range from 0.118 (for entertainment/recreation/social) to 0.346 (for commuting), which are typical-to-high for disaggregate models of travel behavior (the R^2_{MZ} ⁵ measures for the ordered probit models ranged from 0.149 to 0.398). As a means of economy, this section of the paper will discuss the Travel Liking models as a group, focusing on the variables that are included in multiple models with the same sign, and highlighting interesting results. For more detailed discussions of the individual models, and tables including the actual coefficients and t-statistics, the reader is referred to Ory and Mokhtarian (2004).

The first interesting result is the expected negative influence of amounts of travel on the Liking for travel. Those who commute long distances or durations tend to enjoy travel less than those with shorter commutes. As commute travel constitutes a large portion of total travel, the weekly commute distance variable, as expected, also influences overall Travel Liking. These results fit the conventional stereotype of travel as a cost and, for those with large travel amounts, these costs manifest themselves in stated negative feelings (via our survey) toward travel.

Next, we examine those variables that are common to the models of Liking for bus and rail (commuter rail, light rail, and BART – the Bay Area’s Rapid Transit regional rail system) travel. Both of these models contain the one-way commute distance measure, which indicates, in the San Francisco Bay Area, that those with longer commutes are more likely to enjoy transit modes than those with shorter commutes. It may be that those who spend a substantial amount of time on transit vehicles are less troubled by initially waiting for the arrival of the vehicle, or

⁵ Veall and Zimmermann’s (1992) modified McKelvey/Zavoina (1975) statistic.

may enjoy avoiding the potentially longer automobile commute, or may simply have more time on the vehicle to read and/or relax. Further, the Bay Area has many commuter buses, similar to intercity coach buses, which offer more comfort than typical city buses for longer trips. Those who have long commutes but are not able to take transit may be reflecting an expectation that their commute would be more enjoyable if only they didn't have to drive in congestion.

Other variables significant in the models of Liking for bus and rail travel are Mobility Limitations on taking public transit and riding bicycles. Those who are unable to use or are limited in taking public transit, not surprisingly, have a lower Liking for the modes in question than those with no physical or psychological limitations. Similarly, those who have difficulty riding or are unable to ride a bicycle have a higher tendency to enjoy transit (this can generally be extended to those who have difficulty with non-motorized modes, as there is a strong correlation – coefficient of 0.503 – between limitations on bicycle use and on walking). This may indicate not only a greater familiarity with transit on the part of those for whom bike is not an option, but perhaps also that the unattractiveness of non-motorized modes for these individuals produces a compensating affection for the alternative modes that are available. It may also represent a rationalization process, in which a choice an individual *must* make is mentally positioned as one she *likes* to make.

Another variable negatively associated with the Liking for bus and rail travel is the organizer Personality factor score. This is logical since (based on the variables in our survey that loaded heavily on this factor) organizers are those who like to be efficient, in charge and on time – traits not traditionally associated with riding transit in the United States.

One of the most significant variables in many of the models is the commute benefit Attitude factor score. This variable appears in all but two (entertainment/recreation/ social and walk) of the short-distance Travel Liking models and is often (based on the beta coefficient – not shown here) among the most powerful variables. This result suggests that those who view their commute time as productive and do not find it to be very stressful (whether because the commute is, in fact, objectively *not* stressful, or because their personality is on the calm side, or because they actively adopt coping mechanisms to improve their productivity and reduce the stress of the commute) have a higher Liking for different types of travel (by extension, it could be inferred that these individuals find not only the commute time, but also other kinds of travel time to be productive).

The travel freedom Attitude factor score entered into four of the models. Those who feel as though they have the ability to go wherever they choose, whenever they choose, tend to like

various types of travel more than those who have less travel freedom. This result is important in that it reinforces the joy individuals find in mobility and the potential for mobility. Viewed in the opposite direction, it may represent another example of the rationalization process described above: those who are unable to travel as freely as they would wish may convince themselves that they don't like traveling anyway, much as the fox who could not reach the grapes in Aesop's fable concluded that they were sour. Although the travel freedom factor is not mode-specific, the Attitude it represents is certainly one reason for the nearly-universal popular appeal of automobiles (as discussed in the Introduction).

Perhaps the most expected result is the common negative sign on the coefficient for the travel dislike Attitude factor score variable, which appears in four of the eight short-distance models. The dependent Travel Liking variables are single summary measures of affect for a given travel category, whereas the explanatory travel dislike factor score is a separately-derived composite of several specific indicators of some negative aspects of travel (as shown in Table 4). Thus, the presence of this variable in a model illuminates some of the sources or reasons for disliking travel (the same is true, in either the positive or negative sense, of the other Attitude factors as well). As such, it is surprising that the travel dislike variable does not enter more of the models, and is, in fact, often of less significance than other Attitude, Personality, and Lifestyle measures. For example, in the model of overall Travel Liking, the travel freedom and commute benefit factor scores also enter into the model (with the expected positive signs) and both have more explanatory power (based on the magnitudes of the respective beta coefficients) than the travel dislike factor score. This result indicates that a general distaste for travel is not as powerful a determinant of overall short-distance Travel Liking as finding the commute to be a productive time or, to a lesser extent, enjoying the freedom travel provides. As we will see in Section 7, this variable is substantially more influential with respect to long-distance travel.

Also entering four of the models is the status seeker Lifestyle factor score. Daily travel may be the best opportunity for these individuals to proudly display a key symbol of conspicuous consumption – a nice automobile. This result is consistent with other studies that have found that the desire to display one's status, or social standing, influences car use (see, e.g. Steg, *et al.*, 2001; Steg, 2004), as it does here, operating through the Travel Liking variable.

Entering both the rail and walk/jog/bicycle mode-specific models is the educational background variable. Both fit the stereotype of the affluent, well-educated commuter well-served by rail and favoring it over bus and using non-motorized travel as a means of exercise. Also fitting with stereotype (and the literature referenced in the Introduction) is the positive coefficient on the pro-environmental solutions and pro-high density Attitude variables entering the bus, rail, and

non-motorized Travel Liking models, along with the reverse sign on the same variables' coefficients in the personal vehicle model.

The calm Personality factor variable also enters multiple models – Liking for work/school-related, entertainment/recreation/social, and bus travel. Individuals with high scores on this trait may be more relaxed when they encounter the inevitable stresses of travel (perhaps more often found in modes used during work/school-related travel, as opposed to commute travel), and hence more inclined to enjoy it.

Finally, a variety of variables in the Excess Travel category enter into many models. Those who often travel “mainly to be alone”, and also those having children under 15 years old, tend to enjoy commuting and work-related travel. These results support the notion, as mentioned in the Introduction of this paper, that travel offers an opportunity to be alone – to temporarily escape the stresses of family or work obligations (Edmonson, 1998; Zitnik, 2004).

Those who engage in Excess Travel “to explore new places”, following intuition, like to travel for entertainment/recreation/social purposes and also enjoy non-motorized modes – both types of travel are typically associated with exploration. Interestingly, the Excess Travel variable “by a longer route to experience more of your surroundings” appears in both the walk/jog/bicycle model and the personal vehicle model. Although the experience may be more participatory and up-close for walking, and more observational and arms-length for the personal vehicle mode, the desire for more information about one's environment may be similar in both cases (see, e.g., Arentze and Timmermans, 2004).

~ Table 5 goes about here

7. Long-Distance Models

A summary of all the long-distance (trips of more than 100 miles, one-way) Travel Liking models are presented in Table 6 (again, showing the signs of coefficients significant at $p < 0.05$). Adjusted R^2 values for these models range from 0.106 for work/school-related travel, to 0.206 for overall long distance travel (the R^2_{MZ} measures for the ordered probit models ranged from 0.126 to 0.239). In this section, as in the previous section, the models are discussed together with a focus on variables that appear in multiple models. For further discussion of the individual models, see Ory and Mokhtarian (2004).

Compared to the short-distance models, the long-distance models have fewer variables, and are heavily influenced by the travel dislike and travel stress Attitude factor scores, which both enter each model with a negative coefficient. As mentioned earlier, these two measures represent a number of sources of distaste for and discomfort with travel, and it is not surprising that they are significant in each of the models. Based on the beta coefficients, the travel dislike Attitude is the strongest variable in all five models, and travel stress is the second strongest in the overall and the two purpose-specific models.

The other variables common to multiple models represent expected results. The family/community-related Lifestyle variable appears with a positive coefficient in two models (entertainment/recreation/social and airplane Liking). In view of the results seen in the short-distance models, the interpretation of this variable is ambiguous. Depending on whether the airplane travel is accompanied or unaccompanied, and for business or pleasure, its positive coefficient may represent a utility for temporarily escaping from family obligations and/or domestic tensions, or a utility for spending quality time with the family on a trip, or anticipating spending time with family at the destination end of the trip (the interpretation of the same coefficient on the entertainment/recreation/social model is most likely the two latter propositions). The status seeker Lifestyle score enters three models, also with a positive coefficient; status seekers may enjoy showing off a fancy car during a long trip, or enjoy the relative status of traveling for business. Finally, the Excess Travel variable of exploring new places also enters two models with a positive coefficient. As mentioned previously, this variable may best capture a sense of curiosity, which has been motivating long-distance travel throughout history (see, e.g., Pasternak, 2003).

Objective measures, representing actual travel, play a very small role in the explanation of long-distance Travel Liking. The overall long-distance model includes a negative coefficient for the number of work-related long-distance trips in the past year, indicating that a craving for long-distance travel is not insatiable, and those required to travel for work may grow weary as travel amounts increase (the same interpretation can be applied to the negative coefficient on the long-distance work/school-related Subjective Mobility variable, which enters the airplane Liking model).

~ Table 6 goes about here

8. Summary and Discussion

8.1 Summary and Implications

Previous stages of this on-going study have demonstrated that measures of Travel Liking are important factors in predicting how much travel is undertaken (Objective Mobility), how travel amounts are perceived (Subjective Mobility) and how much more or less travel is desired (Relative Desired Mobility). As a result, this paper undertook an independent investigation of Travel Liking in the form of single-equation ordinary least-squares regression models. Using data from 1,358 commuting residents of three San Francisco Bay Area neighborhoods, Travel Liking was modeled as a function of general and travel-related Attitudes, Socio-demographics, and travel amounts (both actual and perceived).

Separate models were developed for short-distance Travel Liking for the following categories of travel: overall, commute, work/school-related, entertainment/recreation/ social, personal vehicle, bus, rail, and non-motorized (walk, jog, and bicycle). Long-distance (trips greater than 100 miles, one-way) models were developed for: overall, work/school-related, entertainment/recreation/social, personal vehicle, and airplane. Summaries of all the models are presented in Tables 5 and 6, respectively. Examining the tables, it is clear that measures of Objective Mobility, Subjective Mobility, and even (somewhat counter to our expectations) Socio-demographics play a role in shaping individual Travel Liking. Nevertheless, the key variables (in terms of frequency of appearance across all the models and strength of relationship, as indicated by the magnitudes of the beta coefficients (not shown) on the standardized variables) are the factor score measures of Attitudes, Personality, and Lifestyle. All but one of those 14 factors was significant in at least one of the Travel Liking models.

For short-distance travel, the commute benefit Attitude factor score appears in six of the eight models; the travel freedom Attitude and status seeker Lifestyle measures appear in four of the eight models. These variables point to three distinct bases for enjoying short-distance travel: finding local travel to be a productive (notably including bus and rail as well as auto) and important transition period (commute benefit); seeing travel as a sign of freedom and mobility – to go wherever wanted, whenever wanted (travel freedom); and wanting to show off a vehicle to others (status seekers).

Distinctly different attitude patterns take shape when examining the long-distance travel models, in which the travel dislike and travel stress Attitude factor scores are prominent. Although the

strong negative influence of especially the travel dislike factor may at first glance appear to be tautological, we emphasize that the content of both these factors (see Table 4) points to specific reasons why travel could be disliked (e.g. if one gets bored, worried, nervous, sick, or lonely while traveling, or is intimidated by new places). As such, they provide useful insight into the sources or nature of a dislike for travel. The same is true for the other Attitude variables discussed above.

These results have significant implications. For example, it is important to realize that strong feelings toward an automobile providing freedom, control and mobility, or an automobile being a status symbol, play a key role in how much individuals like to travel, which, in turn, is critical to how much they actually do travel and how much more they want to travel. Similarly, those with a strong sense of curiosity or adventure-seeking, and those who need to escape or need to connect with their surroundings, will probably voluntarily engage in travel beyond the minimum required to conduct a set of activities. And those who view travel as a useful buffer between activities, and/or are able to use travel time productively (Lyons and Urry, 2004), will have a smaller disutility for travel than would be predicted by the conventional measures of travel time and cost alone, which at a minimum would reduce their incentive to reduce their travel, and at the extreme could prompt them to increase it.

Whereas previous research has shown that those who, for whatever reason, have a negative attitude toward public transit are not likely to take the bus, even if it provides service superior to an automobile, here we suggest that those who have a positive attitude toward travel in general may be less likely to engage in travel-reducing behavior, such as telecommuting or living in a mixed-use neighborhood. Both points are important to travel behavior modeling, which generally ignores the impacts of attitudes when estimating travel patterns.

8.2 Comparison of Hypothesized Bases for Travel Liking and Model Results

This paper directly addresses the positive utility of travel recently articulated by Salomon and Mokhtarian (1998) and Mokhtarian and Salomon (2001), among others. Salomon and Mokhtarian (1998) hypothesized that in “some people and in some contexts, travel for its own sake is valued due to one or more ... character traits or desires” (p. 136). They went on to list a number of traits/desires, which were introduced at the beginning of this paper. In Table 7 we compare these hypothesized traits/desires, along with two other traits (curiosity and escape/therapy) not included in the 1998 paper, with the results from the Travel Liking models presented in this paper. The table indicates generally strong support for all originally hypothesized traits (note that several variables in the models relate to more than one trait).

Although, after all, the survey was designed specifically to capture a number of these traits, it is noteworthy that such a variety of attitudes influence Travel Liking. As stated previously, the most important positively-oriented attitudinal factors appear to be status and independence, as well as a craving for transition time between work and home. The most important negative variables were travel dislike and travel stress. These factors represent reasons why travel is generally expected to be a disutility, but viewed in the opposite way, it can be said that Travel Liking is partly defined by a person's *refusal* to see travel as boring, stressful, unsafe, and so on.

~ Table 7 goes about here

8.3 Directions for Future Research

It would be valuable to continue to investigate the impact of attitudes on travel behavior, as well as to continue to search for methods of forecasting attitudes. Specific directions for future research include the need to capture attitudes more rigorously, through more and better defined questions/surveys. For example, a key personality trait that was not measured directly in our study is curiosity, which was represented by a proxy variable in several of the models. More questions in future work should be aimed at capturing curiosity in more detail. Similarly, the benefits of trip chaining (included in Salomon and Mokhtarian, 1998 under "synergy") are not well-captured here, present only through a single statement ("It is nice to be able to do errands on the way to and from work") which loads relatively lightly (0.269) on the travel freedom factor. In the Travel Liking context, an individual may enjoy travel because it provides the opportunity to engage in other activities, e.g. traveling to the dry cleaners may allow an individual to shop at the music store next door or at a garage sale encountered along the way.

Also, it would be interesting to track travel attitudes of the same sample through time. This would allow for insight into the stability of travel attitudes over time, which would lend itself to predicting errors on possible forecasts of attitudes.

Regarding the explicit measure of Travel Liking, future studies should continue to address the natural tendency of respondents to confound their feelings about travel with their feelings about the activities at the destination (as discussed in Section 3). Despite our explicit urging to concentrate on travel itself, it is likely that even respondents who read those instructions found it difficult to separate their feelings cleanly. Further research could address this concern through more focused attention to these particular variables than was possible in our broad survey, ideally through interactive probing and confirmation of responses. For example, the

“teleportation test”, suggested by Mokhtarian and Salomon (2001) (“If you could instantaneously be teleported to a desired location, would you prefer doing that more than traveling there in the conventional way?”) may be a useful way to get respondents to identify the relative strengths of the various reasons for traveling (see Handy, *et al.*, 2004 for an application of this test). Stated preference surveys, in which characteristics of the trip could be systematically varied while holding constant the destination activity, also offer a promising approach.

From a technical standpoint, future analysis of these data will use structural equations modeling (SEM) to further refine the inter-relationships present among our four key dependent variable categories (Objective Mobility, Subjective Mobility, Travel Liking, and Relative Desired Mobility). In the single-equation models presented here, certain causality assumptions had to be made (such as the relationship between Objective Mobility and Travel Liking discussed in Section 5). Both directions of causality are plausible, and SEM will help identify the extent to which each direction holds.

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List of Tables

Table 1: Key Socio-demographic Characteristics of Sample (N=1,358) 27

Table 2: Short-distance Travel Liking Dependent Variables (N=1,358) 28

Table 3: Long-distance Travel Liking Dependent Variables (N=1,358) 28

Table 4: Factor Loadings for Selected Attitude, Personality, and Lifestyle Variables 29

Table 5: Summary of Short-Distance Travel Liking Models 30

Table 6: Summary of Long-Distance Travel Liking Models 31

Table 7: Comparison of Hypotheses and Travel Liking Model Results 32

List of Figures

Figure 1: Hypothesized Relationships between Certain Explanatory Variables and
Dependent Variables 33

Table 1: Key Socio-demographic Characteristics of Sample (N=1,358)

Characteristic	Number (percent)
Concord	318 (23.4)
Pleasant Hill	369 (27.2)
North San Francisco	671 (49.4)
Female ^a	692 (51.1)
Have a driver's license ^b	1,338 (98.7)
Work full-time	1,141 (84.0)
Personal income ^c	
< \$15,000	31 (2.3)
\$15,000 – 34,999	141 (10.6)
\$35,000 – 54,999	269 (20.3)
\$55,000 – 74,999	250 (18.9)
\$75,000 – 94,999	220 (16.6)
> \$95,000	411 (31.1)
Age ^d	
18 – 23	44 (3.2)
24 – 40	584 (43.0)
41 – 64	686 (50.5)
> 65	43 (3.2)
Characteristic	Mean (std. dev.)
Total people in household (HH)	2.39 (1.22)
Total children under 18 in HH ^e	0.45 (0.84)
Total workers in HH (full/part-time) ^f	1.77 (0.80)
Number of personal vehicles in HH ^g	1.87 (1.08)
Total short distance travel (miles/week) ^d	219.46 (188.67)

^a N=1,352; ^b N=1,356; ^c N=1,322; ^d N=1,357; ^e N=1,351; ^f N=1,354; ^g N=1,353

Table 2: Short-distance Travel Liking Dependent Variables (N=1,358)

Travel Liking Variable		Strongly dislike	Dislike	Neutral	Like	Strongly like	
Overall	N	15	178	762	360	43	
	%	1.1	13.1	56.1	26.5	3.2	
Purpose	Commuter	N	123	424	520	254	37
		%	9.1	31.2	38.3	18.7	2.7
	Work/School-related	N	64	292	749	227	26
		%	4.7	21.5	55.2	16.7	1.9
	Entertain./Social/ Recreation	N	6	66	543	605	138
		%	0.4	4.9	40.0	44.6	10.2
Mode	Personal Vehicle	N	34	125	410	647	142
		%	2.5	9.2	30.2	47.6	10.5
	Bus	N	389	473	384	103	9
		%	28.6	34.8	28.3	7.6	0.7
	Rail	N	161	231	540	384	42
		%	11.9	17.0	39.8	28.3	3.1
	Walk/Jog/Bicycle	N	54	66	332	663	243
		%	4.0	4.9	24.4	48.8	17.9

Table 3: Long-distance Travel Liking Dependent Variables (N=1,358)

Travel Liking Variable		Strongly dislike	Dislike	Neutral	Like	Strongly like	
Overall	N	19	119	368	671	181	
	%	1.4	8.8	27.7	49.4	13.3	
Purpose	Work/School-related	N	153	331	576	267	31
		%	11.3	24.4	42.4	19.7	2.3
	Entertain./Social/ Recreation	N	23	83	320	597	335
		%	1.7	6.1	23.6	44.0	24.7
Mode	Personal Vehicle	N	48	211	420	563	116
		%	3.5	15.5	30.9	41.5	8.5
	Airplane	N	54	130	272	632	270
		%	4.0	9.6	20.0	46.5	19.9

Table 4: Factor Loadings for Selected Attitude, Personality, and Lifestyle Variables

Variable category	Factor name	Survey variable	Factor loading
Attitudes	Travel dislike	Traveling is boring.	0.621
		I like exploring new places.	-0.537
		The only good thing about traveling is arriving at your destination.	0.525
	Pro-environmental policy	To improve air quality, I am willing to pay a little more to use an electric or other clean-fuel vehicle.	0.641
		We should raise the price of gasoline to reduce congestion and air pollution.	0.617
		We need more public transportation, even if taxes have to pay for a lot of the costs.	0.612
	Commute benefit	My commute is a real hassle.	-0.695
		My commute trip is a useful transition between home and work.	0.583
		The traveling that I need to do interferes with doing other things I like.	-0.530
		I use my commute time productively.	0.467
	Travel freedom	In terms of local travel, I have the freedom to go anywhere I want to.	0.511
		In terms of long-distance travel, I have the freedom to go anywhere I want to.	0.422
	Pro-high density	Living in a multiple family unit wouldn't give me enough privacy.	-0.617
		I like living in a neighborhood where there is a lot going on.	0.486
Travel stress	I worry about my safety when I travel.	0.544	
	Traveling makes me nervous.	0.537	
	Traveling is generally tiring for me.	0.410	
	I tend to get sick when traveling.	0.318	
	I am uncomfortable being around people I don't know when I travel.	0.297	
Personality	Adventure seeking	Adventurous	0.776
		Variety seeking	0.695
		Spontaneous	0.574
		Risk taking	0.557
	Organizer	Efficient	0.624
		On time	0.371
	Loner	Like being alone	0.935
		Like being independent	0.314
Calm	Aggressive	-0.599	
	Patient	0.532	
Lifestyle	Frustrated	I often feel like I don't have much control over my life.	0.720
		I am generally satisfied with my life.	-0.618
	Family/community oriented	I'd like to spend more time with my family and friends.	0.585
		My family and friends are more important to me than my work.	0.472
	Status seeking	To me, the car is a status symbol.	0.698
		A lot of the fun of having something nice is showing it off.	0.518
Workaholic	I'm pretty much a workaholic.	0.652	
	I'd like to spend more time on work.	0.373	

Source: Redmond (2000).

Table 5: Summary of Short-Distance Travel Liking Models

Explanatory variables		Dependent variable (adjusted R-squared): Travel Liking for...							
Category	Variable	Overall (0.214) N=1321	Cmt. (0.346) N=1339	Work/ Sch-rel (0.143) N=1351	Ent/Rec (0.118) N=1327	Pers veh (0.182) N=1344	Bus (0.170) N=1319	Rail (0.182) N=1295	Walk, etc. (0.196) N=1299
Objective Mobility	Weekly commuting distance (miles) [0,800]	-	-						
	Weekly total SD travel (miles) [5,1500]					-			
	Commute mode dummy – bus or ferry [0,1]		-						
	Commute mode dummy – rail [0,1]				+				
	One-way commute time (minutes) [2,130]		-						
	One-way commute distance (miles) [0,....,108]						+	+	
	Weekly travel by other means (miles) [0,600]			-					
	Past year (log) total long distance miles [0,12.8] [*]					-			
Subj. Mob.	Overall short distance travel [1,....,5]		-						
Attitude	Travel dislike factor score [-1.8,3.7]	-			-	-			-
	Travel stress factor score [-1.9,2.9]				-				
	Commute benefit factor score [-2.9,2.6]	+	+	+		+	+	+	
	Travel freedom factor score [-3.0,2.3]	+	+	+		+			
	Pro-environ. solutions factor score [-2.3,2.4]					-	+	+	+
	Pro-high density factor score [-2.5,2.3]				-	-	+	+	
Lifestyle	Family/com-related factor score [-3.9,2.1]		-	-	+			+	+
	Status seeker factor score [-1.7,2.7]	+		+	+	+			
	Workaholic factor score [-2.1,2.7]					+			
	Frustrated factor score [-2.0,2.7]				-				
Personality	Organizer factor score [-2.9,2.6]						-	-	
	Calm factor score [-2.9,2.4]			+	+		+		
Excess Travel [1,2,3]	How often do you travel ... just to relax	+							
	... to clear your head								+
	... to explore new places				+				+
	... when you need time to think				+				
	... by a longer route to exp. more of your srndgs.					+			+
	... mainly to be alone		+	+					
Mobility Limit. [1,2,3]	Conditions which prevent or limit air travel							+	
	Conditions which prevent or limit public transit						-	-	
	Conditions which prevent or limit bicycle						+	+	
Socio- demo- graphic	Luxury vehicle type dummy [0,1]							-	
	Mini-van vehicle type dummy [0,1]								-
	Suburban dummy [0,1]	+							
	Concord dummy [0,1]								-
	Sales occupation dummy [0,1]							+	
	Professional occupation dummy [0,1]	-							
	Personal income category [1,....,6]	-			-		-		
	Number of persons age 6-15 in HH [0,....,3]			+					
	Number of persons age 24-40 in HH [0,....,7]		-						+
	Number of persons age 41-64 in HH [0,....,3]	+							
	Number of persons age 65-74 in HH [0,1,2]								-
	Number of persons in HH [1,....,8]		+				+		
	Single adult with children family status dmy [0,1]								+
Female [0,1]					+		-		
Educational background [1,....,6]							+	+	

Notes: [] represents variable range; HH = household; SD = short distance; * Logarithm (miles +1) to avoid taking the log of zero

Table 6: Summary of Long-Distance Travel Liking Models

Explanatory variables		Dependent variable [adjusted R-squared]: Travel Liking for...				
Category	Variable	Overall ⁱ [0.206]	Work related ^j [0.106]	Ent. / soc. / rec. ^k [0.183]	Personal vehicle [0.178]	Airplane ^m [0.149]
Obj. Mobility	Past year work-related long-distance trips [0,230]	-				
Subjective Mobility	Long-distance work/school-related travel [1,....,5]					-
	Long-distance airplane travel [1,....,5]				-	
Socio- demographic	Number of full-time workers in HH [0,....,6]				-	
	Management/administrator occupation dummy [0,1]		+			
	Production-construction-crafts occupation dummy [0,1]					-
	Personal income category [1,....,6]				-	
	Number of persons age 24-40 in HH [0,....,7]			+		
	Number of persons age 41-64 in HH [0,....,3]				+	
	Two or more adults with children family status dummy [0,1]		+			
	Single adult without children family status dummy [0,1]			+		
Educational background [1,....,6]		+				
Attitude	Travel dislike factor score [-1.8,3.7]	-	-	-	-	-
	Travel stress factor score [-1.9,2.9]	-	-	-	-	-
	Commute benefit factor score [-2.9,2.6]				+	
	Pro-high density factor score [-2.5,2.3]		+		-	
Lifestyle	Family/community-related factor score [-3.9,2.1]			+		+
	Status seeker factor score [-1.7,2.7]	+	+		+	
	Workaholic factor score [-2.1,2.7]		+			
Personality	Adventure seeker factor score [-2.6,2.7]					+
Excess Travel [1,2,3]	... to explore new places	+		+		
	... when you need time to think			+		
	... out of your way to see beautiful scenery				+	
Mobility Limit.	Conditions which prevent or limit air travel [1,2,3]					-

Notes: [] represents variable range; N = 1345ⁱ, 1356^j, 1351^k, 1318^l, 1354^m; HH = household

Table 7: Comparison of Hypotheses and Travel Liking Model Results

Hypothesized trait or desire	Evidence in TL Models?	Travel Liking Model(s)	Explanatory Variable Category	Explanatory Variable
Adventure- or variety-seeking	Yes	LD Airplane	Personality	Adventure-seeking factor score
Independence	Yes	SD Overall, SD Commute, SD Work/school-related, SD Personal vehicle	Attitude	Travel freedom factor score
Control	Somewhat	SD Bus, SD Rail	Personality	Organizer factor score (negative direction)
Status	Yes	SD Overall, SD Work/school-related, SD Entertainment, SD Personal vehicle, LD Overall, LD Work-related, LD Personal vehicle	Lifestyle	Status seeker factor score
		SD Rail	Socio-demographics	Luxury vehicle type (negative direction)
Buffer	Yes	SD Overall, SD Commute, SD Work/school-related, SD Personal vehicle, SD Bus, SD Rail, LD Personal vehicle	Attitude	Commute benefit factor score
Exposure to the environment	Yes	SD Personal vehicle, SD Walk	Excess Travel	How often do you travel by a longer route to experience more of your surroundings?
Scenery or other amenities	Yes	SD Personal vehicle, SD Walk	Excess Travel	... by a longer route to experience more of your surroundings?
		LD Personal vehicle	Excess Travel	... out of your way to see beautiful scenery?
Synergy (multiple activities)	Yes	SD Overall, SD Commute, SD Work/school-related, SD Personal vehicle, SD Bus, SD Rail, LD Personal vehicle	Attitude	Commute benefit factor score
Curiosity	Yes	SD Entertainment, SD Walk, LD Overall, LD Entertainment	Excess Travel	How often do you travel to explore new places?
		SD Personal vehicle, SD Walk	Excess Travel	... by a longer route to experience more of your surroundings?
Escape/Therapy	Yes	SD Entertainment, LD Entertainment	Excess Travel	... when you need time to think?
		SD Commute, SD Work/school-related	Excess Travel	... mainly to be alone?
		SD Overall	Excess Travel	... just to relax?
		SD Walk	Excess Travel	... to clear your head?
		SD Work/school-related	Socio-demographic	Number of persons age 6-15 in household
		LD Work-related	Socio-demographic	Two or more adults with children family status

Notes: SD = Short-distance, LD = Long-distance, TL = Travel Liking, Walk = walk/jog/bicycle, Entertainment = entertainment/recreation/social

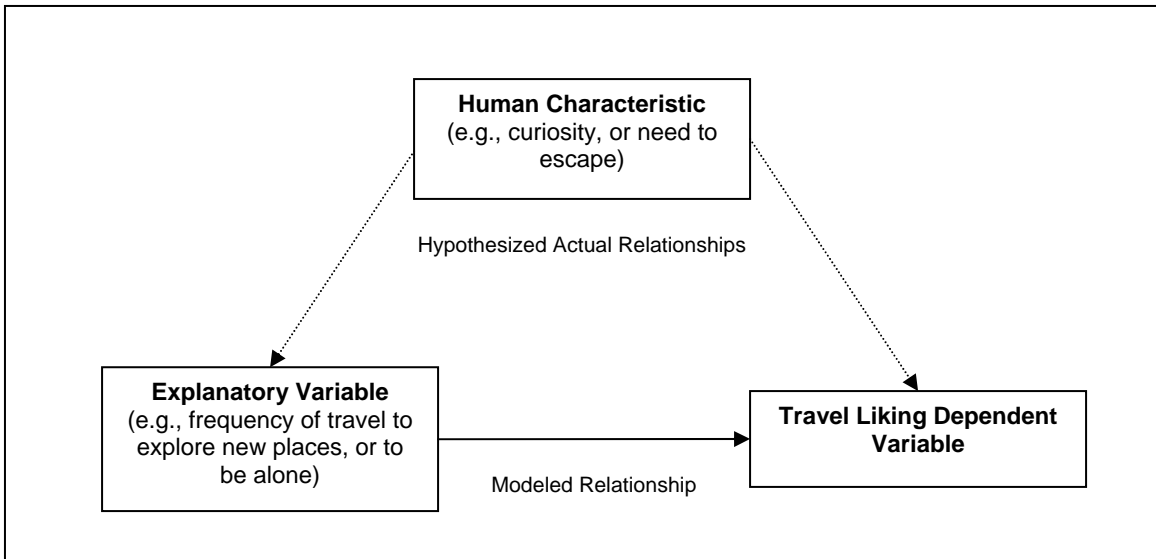


Figure 1: Hypothesized Relationships between Certain Explanatory Variables and Dependent Variables