Attitudes and habits in highly effective travel models

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Walter White was never going to stop cooking methamphetamine. Although this choice regularly and repeatedly turned out badly, the anti-hero protagonist of AMC's *Breaking Bad* continued his work. Sometimes he perceived the alternatives to be unsafe; other times he just continued out of habit, or because he developed a skewed attitude towards risk and reward. Of course, as a fictional character, he needed to make that choice to advance the plot of the show. Yet this kind of decision making can be observed writ large across many human endeavors, in fiction and otherwise, and not least in our decisions about travel. Fortunately, these quirks of human decision making processes need not be detrimental. Knowing them, it is possible to turn them to good purpose, as Hamlet proclaims: "That monster, custom, who all sense doth eat, / Of habits devil, is angel yet in this: / That to the use of actions fair and good / He likewise gives a frock or livery / That aptly is put on" (Act 3, Scene 4). By encouraging desirable habits and shifting attitudes, it might be possible to see changes in travel behaviors with or without changes in the actual quality of transportation services.

In this special issue of *Transportation*, we present for your consideration a collection of work on perceptions, attitudes, and habits, how these factors impact travel behaviors, and how they can be incorporated effectively into travel demand forecasting models. These papers were originally presented in sessions sponsored by the Committee on Travel Behavior and Values (ADB10) and the Committee on Travel Demand Forecasting (ADB40) at the 2014 Annual Meeting of the Transportation Research Board.

In our first article, **Cherchi and Cirillo** offer a study of the intrinsic variability in the preferences of individuals for particular modes of travel, using a six week travel diary survey to examine travel behaviors over time. This long period survey format allows for the study of persistent and habitual choices in modes. Using a mixed logit formulation, they find a great deal of heterogeneity in relative preferences for time and cost between

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people, but substantial stability in preferences over time for the same individual, as well as significant evidence of habituation in mode choices, especially when the same tour is repeated numerous times.

The second work, by **Maldonado-Hinarejos, Sivakumar and Polak**, presents a hybrid choice model in the context of bicycle usage in London. Beyond the expected findings that attitudes towards cycling affect ridership, they also use their model to ask what level of ridership change might be observed from various policy changes. Although causality and endogeneity issues prohibit drawing firm conclusions, they use their model to ask what impacts might be observed from “hard” policies that impact the actual quality of service, as well as “soft” policies, such as a promotional campaign, that target attitudes alone.

Changing attitudes is an ambitious task that policy makers may not want to undertake. Nevertheless, incorporating attitudes into travel demand models can be important, as changing attitudes can indirectly reshape transportation systems. For instance, it has been hypothesized that the decline in vehicle miles travelled seen in numerous countries over the past decade is being driven by changing attitudes towards car ownership, especially among young people. **Belgiawan, Schmöcker, Abou-Zeid, Walker, Lee, Ettema and Fujii** study attitudes toward future car ownership among students in seven different countries. Although their study is cross-sectional and focuses on differences in attitudes and intentions across geographical regions, their analyses provide a valuable first step towards understanding changes across time. Of particular interest is their finding that attitudes and intentions are seen to vary substantially between developed and developing countries. The result ends up much like the old joke: in the developed world, you drive to change attitudes; in the developing world, attitudes drive you!

The development and sharing of attitudes can happen at large scale across society, or on a small scale, within a family. **Kamargianni, Ben-Akiva and Polydoropoulou** offer up a model that looks at such attitude transfers at the family level, incorporating attitudinal factors for both parents and their children into a hybrid choice model using latent variables. Using survey data from Cypriot teenagers, they build and estimate a model that predicts teenager’s attitudes towards walking as a function of their parent’s attitudes, and simultaneously predicts the mode choices of those teenagers for the journey to school. Their results indicate not only a link between attitudes about walking and the decision to walk, but also a strong link between the attitudes of parents and their children.

Perhaps even more than habits and attitudes, travelers’ perceptions play a critical role in the choices they make. For example, in 1846, a group of American pioneers traveling to California chose a route to the south of the Great Salt Lake that they perceived (wrongly) to be more direct. The delay meant the group, led by George Donner, was still in the Sierra Nevada mountains when the winter arrived, with profoundly unfortunate consequences. In all the years since, travelers have continued to ‘misunderestimate’ travel times. As shown by **Vreeswijk, Thomas, van Berkum and van Arem**, who compare perceived and actual travel times for selected trips in the Dutch town of Enschede, travelers often do not choose the fastest route. Instead, like the Donners, they very often choose what they perceive to be the fastest route. Unfortunately (for the travelers, at least), they also found that travelers were on the whole quite poor at estimating the travel times for the various routes they studied.

California continues to have some popular destinations, not the least of which is the area around Santa Barbara. But within that region, travelers’ attitudes and perceptions about the quality of activities at particular destinations varies, according to **Burgner, Ravualaparthi and Goulias**. They examine perceptions of various attributes of destinations within the Santa Barbara region, and the (stated) importance of these attributes. Besides a focus on

usual suspects such as travel time and cost related attributes, their study takes into account more subjective or ‘soft’ attributes such as attractiveness, danger, and familiarity of neighborhoods. They find that the subjective factors can influence traveler behavior as much or more than the objective factors.

As will become clear when reading the six papers of this special issue, incorporating less tangible aspects of (travel) behavior—such as perceptions, attitudes and habits—into our models has the potential to increase their explanatory power and behavioral realism. Nevertheless, these papers also show us that important steps still need to be taken before we can safely say that including these factors in our models actually results in a deeper understanding of travel behavior, better forecasts, and more informed policy-making. Currently, non-trivial issues related to endogeneity and causality often prohibit drawing powerful conclusions regarding the actual role of attitudes, perceptions and habits in determining travel behavior. We hope and expect that future TRB meetings will feature papers that aim to shed further light on these issues, by building on recent progress in econometric estimation techniques, latent variable theories recently put forward in the field of social psychology, or other novel approaches.

The compilation of the fine work we present to you in the pages (or, more likely, the electrons) that follow would not have been possible without help. As has become the habit of countless TRB committee members and attendees before us (and with good reason), we want to extend our heartfelt thanks to TRB Associate Director Kim Fisher. The positive attitudes of TRB committee chairs Eric Miller (ADB10) and Joan Walker (ADB40) also contributed to this work, along with the keen perception of *Transportation* editor-in-chief Kay Axhausen.

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