

Research on Intercity Travel Mode Choice Behavior Considering Traveler's Heterogeneity and Psychological Latent Variables

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Abstract : The new urbanization pattern has led to a rapid growth in demand for short-distance intercity travel, and the emergence of new travel modes has also increased the variety of intercity travel options. In previous studies on intercity travel mode choice behavior, the impact of functional amenities of travel mode and travelers' long-term personality characteristics has rarely been considered, and empirical results have typically been calibrated using revealed preference (RP) or stated preference (SP) data. This study designed a questionnaire that combines the RP and SP experiment from the perspective of a trip chain combining inner-city and intercity mobility, with consideration for the actual condition of the Huainan-Hefei traffic corridor. On the basis of RP/SP fusion data, a hybrid choice model considering both random taste heterogeneity and psychological characteristics was established to investigate travelers' mode choice behavior for traditional train, high-speed rail, intercity bus, private car, and intercity online car-hailing. The findings show that intercity time and cost exert the greatest influence on mode choice, with significant heterogeneity across the population. Although inner-city cost does not demonstrate a significant influence, inner-city time plays an important role. Service attributes of travel mode, such as catering and hygiene services, as well as free wireless network supply, only play a minor role in mode selection. Finally, our study demonstrates that safety-seeking tendency, hedonism, and introversion all have differential and significant effects on intercity travel mode choice.

Keywords : intercity travel mode choice, stated preference survey, hybrid choice model, RP/SP fusion data, psychological latent variable, heterogeneity

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