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Motor Vehicle Drivers' Knowledge of Safely Traversing Highway- Rail Grade Crossings

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ABSTRACT

This study investigates motor vehicle drivers' socioeconomic, personality, and attitudinal factors associated with their knowledge of safely traversing highway-rail grade crossings (HRGCs). A survey of randomly selected Nebraska households solicited responses from licensed drivers (N= 980, response rate = 39 percent). Of the total thirty-one questions on the questionnaire, nine pertained to respondents' knowledge of safely navigating HRGCs (e.g., what does a crossbuck sign require a driver to do when approaching a rail crossing?). Correct answers to the questions provided a measure of respondents' knowledge of safely traversing HRGCs and led to their classification in five ordered categories. A random parameter probit model then assessed associations among respondents' socioeconomic, personality, and attitudinal characteristics and the five ordered categories of their HRGC negotiation knowledge. The estimated model revealed that drivers with lower education levels, unemployed drivers, those 11 that disliked waiting at HRGCs, and those who did not receive information on HRGC safety had lower 12 levels of knowledge of safely negotiating HRGCs. Attentive drivers at HRGCs and those who routinely 13 stopped in response to active train warning devices (even if they had a chance to get across before train 14 arrival) were associated with higher levels of knowledge. Drivers who had negative or indifferent 15 attitudes toward HRGCs or engaged in risky driving behaviors were less knowledgeable about safe 16 HRGC navigation. The research findings are useful for targeted driver education and traffic safety 17 programs, safety professionals, and policymakers engaged in HRGC safety.