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TITLE: A Statistical Model of Individual Accident Risk Prediction Using Driver Record, Territory and Other
 Biographical Factors

DATE: June 1982

AUTHOR(S): Raymond C. Peck & Jensen Kuan

REPORT NUMBER: 84

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PROJECT OBJECTIVE:
 To determine (1) the relative importance of territory, prior driving record, and other variables in predicting future accident involvement; and (2) whether a driver's area of residence is a fair and actuarially sound rating factor.

SUMMARY:
 This report is a revised version of a chapter of a report prepared in 1979 as part of the California Department of Insurance Study pursuant to Assembly Concurrent Resolution 100. Starting with two separate random samples totaling more than 90,000 drivers, various prediction models were developed using multiple regression techniques to predict subsequent three-year accident involvement frequency. Although both territory and prior driving record proved to have some validity in predicting a driver's accident risk, the accuracy of prediction was low, with multiple correlations ranging from .08 to .25. Prior driving record, particularly a driver's number of previous traffic convictions, was a much better predictor than territory.

 Although absence of accident-cost (insurance-loss) information precluded precise validation of insurance rate-setting practices, it was concluded that both territory and prior driving record appear justifiable as rate-setting factors. However, it was noted that the relatively small unique predictive contribution of territory suggests that territory may be less important than previously believed.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
 A number of recommendations based on the findings obtained by the prior version of the study were presented in the ACR 100 Final Report. It was concluded that territory and prior driving record should be retained as rate-setting factors, although not necessarily in the manner and with the weights used by most insurance companies.

SUPPLEMENTARY INFORMATION:
 A summary of this paper was presented at the 1982 Annual Meeting of the Transportation Research Board, Washington, DC (Peck, R. c., *California Driving Performance Risk Assessment Study,* Conference Session 115, January 19, 1982.)

 Peck, R. C. & Kuan, J. (1983). A statistical model of individual accident risk prediction using driver record, territory and other biographical factors. *Accident Analysis and Prevention,* 15(5), 371-393.

 A summary of the study is also contained in *Proceedings on the Symposium on Traffic Safety Effectiveness (Impact) Evaluation Projects,* Third Annual Symposium, NHTSA and NSC, Chicago, Illinois, May 16-18, 1983.