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Department of Motor Vehicles  
Research and Development Branch  
2570 24th Street, MS H-126  
Sacramento, CA 95818-2606  
(916) 657-5805

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TITLE: The 1964 California Driver Record Study (Report No. 20, Parts 1-9)

PART 9: The Prediction of Accident Involvement from Driver Record and Biographical Data

DATE: March 1967

AUTHOR(S): Ronald S. Coppin, Robin S. McBride & Raymond C. Peck

REPORT NUMBER: 20.9

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PROJECT OBJECTIVE:

The basic purpose of the overall study was threefold: (1) to provide data for operational and budgetary planning, (2) to provide basic descriptive and baseline data on drivers and driving record variables, and (3) to further understanding and knowledge about the nature and causes of traffic accidents.

SUMMARY:

Between September 1963 and March 1964, a random sample of 225,000 drivers was selected from Division of Drivers License files for the purpose of data collection and analysis. Nine reports were produced (listed under the heading Supplementary Information), but the major findings are contained in Reports 8 and 9:

Part 9 - The Prediction of Accident Involvement from Driver Record and Biographical Data

Part 9 describes the joint relationship between various driver characteristics and accidents. In contrast to Part 8, this study included biographical data in the prediction equations and also generated equations from non-concurrent events (predicting 1963 accidents from 1961 and 1962 driver record data).

The total number of one-point convictions on a driver's record proved to be the best overall predictor of accident involvement for both concurrent and non-concurrent data, and the addition of violation types contributed little beyond that achieved by one-point convictions alone. Biographical information (age, sex, etc.) slightly increased predictability beyond that achieved by driver record variables alone; additional biographical information obtained through questionnaires (occupation, mileage, etc.) from a small sub-sample resulted in a two-fold increase in predictive accuracy. A number of differences were noticeable in comparing the male and female equations. The overall magnitude of the relationships was consistently higher for males than for females on both concurrent and non-concurrent events. The relative importance of the various violation and biographical variables in predicting accidents also differed by sex. The relationship between accidents and the predictor variables was higher for concurrent data than for non-concurrent data. A theoretical analysis of the data indicated that additional data about drivers (personality measurement, etc.) might result in a considerable increase in predictive efficiency. The resultant equations were also interpreted as providing evidence that some drivers are more accident-labile than others, but that their contributions to the overall accident problem are relatively small.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

This study has been used by the department in planning and policy formulation. The study findings have also been cited by some insurance companies in support of merit underwriting plans that charge lower premiums for drivers with good records.

SUPPLEMENTARY INFORMATION:

Part 5 published in *Highway Research Record*, 163, 54-69, 1967, (Marsh W. C.). Summary of entire report by Peck and Coppin was published as Chapter 14 in *Accident Proneness*, Shaw, L. and Sichel, H., Pergamon Press, 1971, pp. 237-263. Also published in *Traffic Safety Research Review*, 2(2), 34-

41, 1967 as "The Prediction of Accident Involvement Using Concurrent Driving Record Data" (Peck, R. c., & Coppin R. S.) and in *Accident Analysis and Prevention*, 2(4), 243-299 1971, as "The Distribution and Prediction of Driver Accident Frequencies" (Peck, R. c., McBride, R. S., & Coppin, R. S.).