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

PART 8: The Prediction of Accident Involvement Using Concurrent Driver Record Data

DATE: January 1967

AUTHOR(S): Ronald S. Coppin Raymond C. Peck

REPORT NUMBER: 20.8

NTIS NUMBER: None

FUNDING SOURCE: Departmental Budget

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:

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.

Part 8 - The Prediction of Accident Involvement Using Concurrent Driver Record Data

Part 8 was concerned with the prediction of accident involvement using empirically generated formula based on concurrent conviction types and conviction counts. The major purpose of the study was to develop an optimum point-system definition of "negligent operator" by differentially weighting specific violation types in accordance with their association with accidents. An optimum system was defined as that which is most highly correlated with accident involvement (Le., that which will select for negligent-operator status those subjects most likely to be involved in accidents).

Although several specific violation types made slight (but statistically significant) contributions to predicting accidents, the overall number of courtable convictions was by far the most powerful accident predictor. The most accurate predictions of accident involvement were generated by using all possible driver record count variables, even though some violation types were more closely related to accidents than others. There was a gain in predictive efficiency if weights were empirically assigned for males and females separately. As a selection device, the optimum prediction system was only slightly superior to California's then-current point-system definition of negligent operator. The addition of extra weights for "major" convictions and the exclusion of non-moving violations from California's negligent operator point system did not appear justified as a selection technique.

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.).