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REVIEW OF TELEPHONE SURVEY OF MICHIGAN RESIDENTS
ON SEAT BELT USAGE AND ATTITUDES
FALL 1982

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| 16. Abstract <p>A telephone survey of Michigan residents was conducted during the fall of 1982 to determine self-reported belt usage and attitudes about seat belts. A sample of 800 licensed drivers resulted from the statewide survey, and separate samples of 200 drivers each were drawn for Midland and Grand Traverse Counties.</p> <p>In this report the original data have been adjusted to better match the actual driver population of Michigan, and a number of analyses have been conducted. Major findings discussed in the report include: a strong correlation between increased belt usage and higher levels of education, a reported concern of residents about the possibility of entrapment (as a reason for not wearing belts), and a higher-than-50-percent support of Michigan drivers for a mandatory seat belt law. There is, however, a contingent of about 35 percent of the population which is strongly against such a law.</p> <p>Belt usage in both Midland and Grand Traverse Counties was better than the state average. While Midland County had a somewhat higher wear-rate, the rate was not significantly greater than that of Grand Traverse, given the limited sample size.</p> <p>The report also addresses some implications of the findings relative to future efforts to promote belt usage in Michigan.</p> | | | | | |
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SUMMARY

This report concerns interpretations of the data resulting from a telephone survey of 1,200 Michigan residents conducted during the fall of 1982. The purpose of the survey was to determine self-reported automotive belt-wearing habits, and to determine attitudes about matters related to seat-belt usage. The data come from a statewide sample of 800 drivers over 18 years of age and from special samples of 200 each in Midland and Grand Traverse Counties.

Some adjustments have been made to the original statewide data set to better match the population characteristics of the state. The adjusted data set was used for most of the analyses. The major findings are given below.

People seem to overestimate the frequency with which they really use seat belts. Nevertheless, the reported frequencies seem only slightly high, and differences in wear-rates among segments of the population should be informative. The strongest determinant of belt-wearing is education, with 46.4 percent of those with a college degree reporting that they wear belts all of the time on long trips. This finding is similar (in direction at least) to a number of previous studies which have found a strong correlation between belt-usage and increasing educational level. Female respondents showed a slightly higher belt usage rate than males, and a significantly greater willingness to wear belts if asked by a driver.

Michiganders seem to worry a lot about entrapment in a crashed car, and the possibility that wearing a belt will lead to dire consequences in such an event. About one-third of the respondents agreed with the statement, "I really worry about being trapped if I wear my belt," and nearly seven out of eight people believe that the possibility of entrapment was really an important reason for not wearing belts. (See Figures 1 and 2.) The evidence in favor of belts preventing ejection, as well as preventing injury which would prevent occupants from escaping from a crashed car, is quite solid. But evidently the Michigan population is not convinced or has not been exposed to the evidence.

A slight majority of Michiganders say that they are in favor of a mandatory belt law (about 52 percent statewide, including 61 percent of the females and only 46 percent of the males). Yet about 35 percent of all respondents report that they are

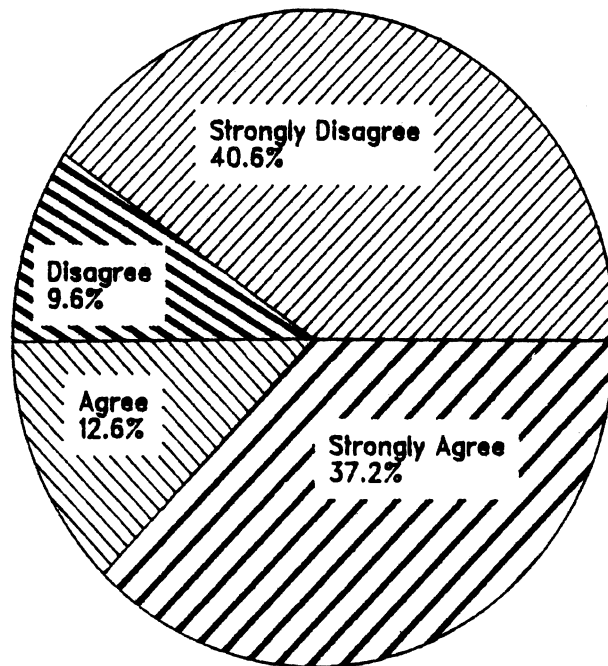


FIGURE 1

Self-reported Seat Belt Wearing in Michigan
 Number That Agree With the Statement:
 "I Really Worry About Being Trapped If I Wear My Belt."

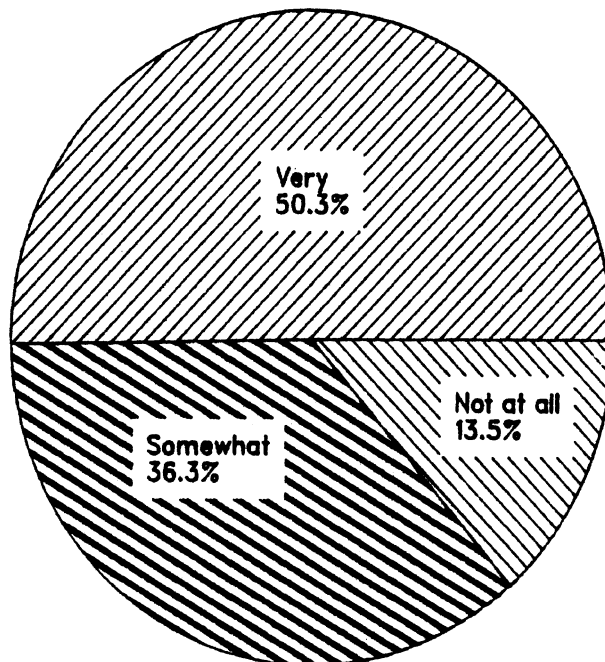


FIGURE 2

Self-reported Seat Belt Wearing in Michigan
 Responses to the Question:
 "How Important is Fear of Entrapment as an Explanation
 of Why Others Do Not Wear Their Belts?"

strongly against such a law. Thus there are relatively few people who do not have strong opinions about this matter. This suggests that the problem of gaining full support for mandatory belt legislation is one of convincing a group of persons with strong negative feelings rather than swaying a group with relatively neutral feelings.

As measured by the survey, there was relatively little difference in belt wearing habits or in attitudes between the two counties studied in detail. Midland County showed a slightly higher usage rate in all categories, but, given the sample size of 200 in each county, the differences were not statistically significant. The two counties did have some marked differences in their population characteristics, with Midland County having a higher median family income and a larger number of college graduates. The correlation of belt-usage and education at least partly explains the higher reported wear rates for Midland County, so that there is no strong evidence that Midland's reported wear rates are due to local publicity campaigns. On the other hand, wear rates in both Midland and Grand Traverse Counties are substantially higher than in the state as a whole.

1. INTRODUCTION

This report summarizes the major findings of a seat belt opinion and usage survey conducted by McGinley Marketing Associates for the Michigan Office of Highway Safety Planning. The survey was conducted during the fall of 1982. It was patterned after a similar survey which had been conducted for the National Highway Traffic Safety Administration (NHTSA) nationally.

Briefly, the survey inquired of respondents regarding their own belt-wearing habits and their reasons for wearing or not wearing restraints while traveling under various conditions. This latter information is expected to be helpful in developing tactics and strategy for inducing favorable change in belt-wearing in the State of Michigan.

The major survey sampled the entire state with a total of 800 respondents. Two secondary surveys of 200 respondents each were conducted in two counties--Midland and Grand Traverse. Midland's belt usage was expected to be high because of strong promotion by Dow Chemical in that area, and Grand Traverse was chosen as a comparison county with a similar population. Wayne County also yielded a survey sample of 200 in the statewide survey, so that it too may serve for comparison with the two special counties. In addition, Oakland County, with a sample size of 90, yields some rates which may be interpreted at the county level.

Within the statewide survey of 800, respondents were divided into eight groups of 100 each. For each of these groups a different introduction was made to questions about the likelihood of the respondents (1) encouraging others to wear belts and (2) wearing belts him/herself over the coming months. This split was intended to determine which of the introductions was the most effective in inducing a positive response about future belt usage. While the same eight-part split was used in the Grand Traverse/Midland surveys, the resulting sample sizes were too small to permit the same kinds of comparisons there.

IMPLEMENTATION

The survey was implemented by developing a random list of telephone numbers which were well distributed throughout the state, calling these numbers, and interviewing the first available person in the household who met the qualifications of being at least 18 years of age and holding a driver's license. Substitute telephone numbers were used when no contact could be made (or no qualified respondent was available). Strictly speaking, the sample represents telephones in the state (rather than drivers), but the correlation between these two is quite high. Small differences might be expected because of households with more than one telephone, regions with a higher number of drivers per household, etc., but the results indicate a reasonable representation of the state. In the analysis presented here corrections are made to better match the survey population to some known characteristics of the state's driver population. In particular, the sampling method has substantially overrepresented females, and the major adjustment has been made for this factor.

ORGANIZATION OF THIS REPORT

Section Two of this report describes the characteristics of the state population and the survey population, and discusses the implications of the differences to the analysis. The general analytic methods are described, particularly those related to population adjustments. In Section Three the analytic results are presented. A brief presentation of the results is also given in a summary at the beginning of this report. An Appendix provides information on the weighting factors used in the analysis.

2.0 CHARACTERISTICS OF THE SURVEY POPULATION AND COMPARISON WITH THE STATE POPULATION

By the process of choosing phone numbers randomly from Michigan telephone directories, the survey resulted in a good geographic spread of respondents. Wayne County provided 200 respondents, Oakland 90, and Macomb 59. Of Michigan's 83 counties, 56 were directly represented.

By employment category, the sample included 32.6 percent white collar workers and 28.8 percent blue collar workers. An additional 11.3 percent were self-employed, and 13.6 percent "not in the labor force"-- i.e., neither working nor looking for work. This latter group includes many of the at-home females. Only five percent of the respondents reported that they were unemployed, a substantially lower fraction than the Michigan unemployment statistic for the fall of 1982 (about 15 percent) would give. It is apparent that the unemployed were underrepresented in the sample.

The interview was conducted with the first person at the called number who met the age and license qualifications. This evidently created a bias toward female respondents, who constitute 61.6 percent of the responding population. Respondent age was categorized in groups of (mostly) 10 years--18-24, 25-34, 35-44, 45-54, 55-64, and 65 and over. Only three respondents declined to place themselves in an age category.

With regard to educational level, 22 percent of the respondents said they had graduated from college, another 26.8 percent had some college training, and 38.4 percent had graduated from high school. Only 12.6 percent were listed as not having graduated from high school. Median reported income was in the \$20,000 to \$25,000 group, about the same as the \$23,167 reported as median family income for the Detroit SMSA.

THE MICHIGAN DRIVER POPULATION

The interviewed population represents first qualified persons in households with telephones (who answered the call). For the development

of public information programs it is desirable to adjust the proportions of responses to the Michigan driver population, because this population has different characteristics than were observed in the survey.

The Michigan Driver-Incident File, a 1% sample of the 1982 licensed driver records, has been developed for the Michigan Department of State. While it can be used to study distributions of violations and accidents across various personal characteristics, it is useful to the present study mainly in defining the extant Michigan driver population. Driver age, sex, and county of residence are all available in this exposure file, and these may be compared with the same factors in the telephone survey population.

The driver population file does not represent the actual on-road driving population in Michigan, since it estimates the number of people holding licenses rather than their mileage. For example, if persons over age 65 travel an average of 5,000 miles per year and persons in a younger age group travel 10,000 miles per year, estimates of total seat belt usage observed on the road (if the rates for different age groups vary) should be made by a weighted averaging process. On the other hand, if one is interested mainly in how the driver population thinks and feels about seat-belt wearing matters, it is more appropriate to make estimates to the total driver population rather than the on-road population. This procedure is followed here.

As noted above, a major difference between the surveyed population and the driver population arose from the predominance of females who answered the telephone. In the Grand Traverse and Midland samples, as well as in the statewide sample, approximately 62 percent of the respondents were female; this may be compared with approximately 50 percent females among all licensed drivers. Smaller differences are present in the comparison of driver age distributions. There are also moderate differences in the population estimates by region of the state between the survey and the license sample. Although there are not enough data to adjust to the county level, an adjustment may be made for large counties or groups of counties. For this purpose the state has been divided into four areas--Wayne County, Macomb and Oakland Counties

taken together, counties with large or medium size cities (except for Wayne), and all others (primarily rural).

ADJUSTMENTS TO THE DATA

The correction factors were developed as follows: Within both the survey sample and the Michigan Driver sample, the proportion of persons in each age, sex, and geographical region was defined. The ratio of these two proportions determined a weighting factor for each of the 48 sub-groups. The total data set was subsequently weighted by these factors to provide a new working data set with essentially the same total number of cases, but adjusted for the known population characteristics to better represent the licensed driver population.

This adjustment procedure tends to count male respondents more heavily and females less so. For example, the weighting factor for 18-24-year-old males in Macomb/Oakland Counties is 1.71, but the weight for 35-44-year-old females in Wayne County is only 0.51. The effect of this is to count the former group as if they represented 1.71 times as many respondents, but the latter group as if they represented only about half the number in the survey. A set of 48 weight factors (four regions by two sexes by six age groups) was developed and applied to the statewide sample. For the Grand Traverse and Midland samples, only the age and sex corrections were made (so that there are but twelve different adjustment values for each county).

Two computer files have been developed. The first is essentially a duplicate of the data provided by the survey company. It is in the form of a MIDAS file, and it was used for initial scans of the data and to develop the weighting factors. The second file is in the OSIRIS IV form, and it contains the new weighting variable. OSIRIS provides for convenient application of the weighting variable so that tabular outputs are appropriately corrected. The Appendix to this report provides a tabulation of the weighting factors used to adjust the survey frequencies to better match the known driver population.

3. ANALYSES AND RESULTS

Five topics are discussed here. First to be presented are descriptive statistics of self-reported wear rates in the statewide survey, with some detail as to variations in these rates by segment of the population. Attitudes toward a mandatory belt-usage law are also discussed second. Third is a discussion of the reasons given for not wearing belts and the rationale needed to change wearing habits. Fourth is a discussion of the effects of a variety of introductory statements used before asking the respondent about future belt use. Last is a discussion of differences and similarities between Midland and Grand Traverse counties.

WEAR RATES AND ATTITUDES

Several questions were asked regarding the respondent's present belt usage under different circumstances, about the willingness of non-wearers to change, and about expected usage in the future. In general the responses having to do with present wear rates seem to reflect the usage that the respondent either wishes he/she had or perhaps really believes. However, as in other seat belt usage interviews, the proportion of self-admitted users seems to be somewhat higher than is observed on the road. Whether the discrepancy between reported and actual wear rates varies with the population factors measured in this study (e.g., age, sex, occupation, education, region of state, etc.) cannot be readily determined, but it seems clear that many respondents liberally estimate their present usage.

Respondents reported their present usage as always, almost always, sometimes, or never, under each of three conditions--wet/snowy/icy weather, long trips, and short trips. A back-of-the-envelope computation, assuming that 2/3 of all trips are short, and that "most of the time" means 50 percent of the time, yields an average belt usage for Michigan drivers of 28 percent, about double the NHTSA-reported national average. Recent Michigan accident report statistics have indicated a

modest increase in belt usage among accident victims, particularly since about April of 1982, and it is generally recognized that belt usage in the traveling population is higher than that in the accident population. So while the self-reported usage rates in this survey seem somewhat higher than the (estimates of) real rates, they are not outlandish. Analyses are conducted assuming that the responses are at least approximations of the truth, and that the various interactions of rates with population factors may provide useful inferences.

Table 1 displays seven population characteristics as the column headings, and seven belt usage questions as the rows. Significant relationships are noted, and discussed below.

In response to the question, "How often do you wear seat belts in wet/snowy/icy weather?" 26.5 percent of the respondents said "always," and an additional 14.9 percent said "most of the time," 34.7 percent said "never," and the remaining 23.9 percent said "some of the time" (See Figure 3). While there was little variation in this distribution by age of the respondent, there was a marked variation with educational level, with only 19 percent of those with less than a high school education, 23 percent of high school graduates and those with some college, and 41 percent of those with a college degree responding that they always wore belts under inclement weather conditions. By employment category, the lowest wear rate was held by farmers and self-employed individuals at 17.5 percent. With respect to geography, the suburbs, and particularly Oakland County, had the highest rates; the upper peninsula and the northern part of the lower peninsula had the lowest. Female respondents were slightly but significantly more frequent wearers under this (wet weather) condition.

For long trips the overall percentage reporting that they always wore belts was 31.6 percent, with an additional 14.6 percent reporting that they used them most of the time (see Figure 4). Still there was a large segment (34.4 percent) reporting that they never used them even on long trips, and 19.4 percent reported using belts only some of the time. The reported usage by education level was similar to that of wet weather wearers, but generally higher--ranging from 25 percent to 46 percent. By the identified governmental units, Oakland County had the lead with

TABLE 1
Belt-Wearing Measures Among Michigan Drivers

| Measure | Population Characteristic | | | | | | | |
|---|---------------------------|----------------------------|-------------------------------|------------------------------|---------------------------|--------------------------|------------------------------|--|
| | Driver Age | Education Level | Employment Category | Family Income | Residence | Sex | Region of State | |
| Always Wear in Wet Weather | Not Sig. | Col Grad. 41% <H.S. 19% | Wht. Col. 36% BlueCol. 24% | \$25000+ 32% <\$25000 20% | Suburb 33% Country 21% | Males 25% Females 28% | Oakland 38% UpperPen. 12% | |
| Always Wear on Long Trips | Not Sig. | Col Grad. 46% <H.S. 25% | Wht. Col. 41% BlueCol. 29% | 35000+ 43% 15-25k 26% | Suburb 39% Country 28% | Males 28% Females 35% | Oakland 38% UpperPen. 21% | |
| Always Wear on Short Trips | See text | Col Grad. 29% <H.S. 15% | Wht. Col. 24% BlueCol. 20% | \$25000+ 22% <\$25000 18% | Suburb 24% Country 18% | Males 16% Females 22% | Wayne 24% UpperPen. 7% | |
| Nothing Could Make Me Wear All the Time | Not Sig. | Not Sig. | Not Sig. | Not Sig. | Not Sig. | Not Sig. | Not Sig. | |
| Very Likely Would Wear If Asked | 55-64 79% 25-34 68% | Not Sig. | Not Sig. | Not Sig. | Not Sig. | Males 66% Female 79% | Not Sig. | |
| Strongly Favor Michigan Belt Law | Not Sig. | Not Sig. | Wht. Col. 62% BlueCol. 45% | Not Sig. | Suburb 61% Country 47% | Males 46% Females 61% | Wayne 59% Macomb 45% | |
| Very Likely Will Wear Next Trip | See Text | Col Grad 58% <H.S. 36% | Wht. Col. 53% BlueCol. 42% | Not Sig. | Suburb 54% Country 37% | Males 40% Females 49% | Wayne 50% South 34% | |

Wet, Snowy, or Icy Weather

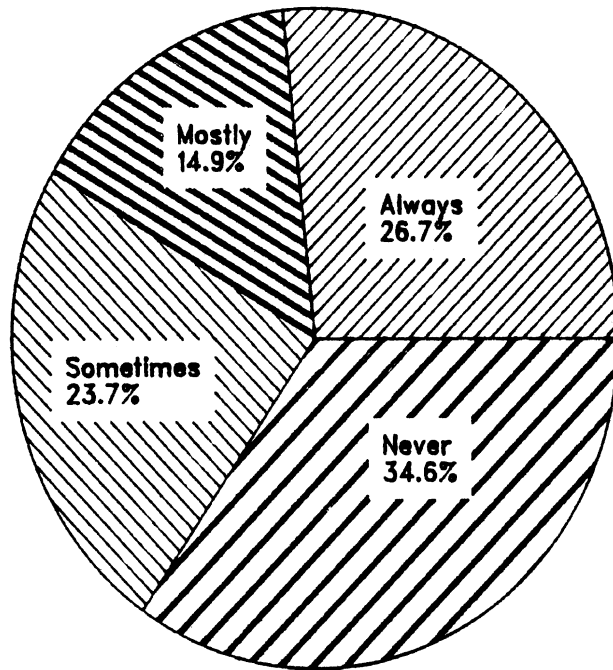


FIGURE 3
Self-Reported Seat Belt Wearing in Michigan,
Wet, Snowy, or Icy Weather

almost 38 percent, while Macomb County, the upper peninsula, and the rural southern part of the lower peninsula each averaged only about 22 percent. The male/female difference in wear rates was greater for long trips (males 28 percent to 35 percent for females) than in the wet weather case.

For short trips the 18-24-year-old group had the lowest wear rate (see Figure 5). Adding together the "always" and "most-of-the-time" groups, the 25-34-year-olds had the highest rate. By education level the same pattern as above is apparent, but those with less than a high school diploma scored only 14.6 percent "always," while college graduates scored only 28.6 percent. Significant with respect to education level that 57 percent of the less-than-high-school group say that they never wear belts for short trips, as do 61 percent of the high school graduates, and 54 percent of those with some college study. Of upper peninsula respondents, 66 percent report that they never wear belts on short trips, compared to 58 percent of all males (versus 48

percent of the females) and only 40 percent of the Oakland County respondents.

For those who answered anything other than "always" for the short-trip question, two further questions were asked. The first of these was to agree or disagree with the statement, "There's nothing anyone could do which would make me wear belts all of the time." The second question was to estimate how likely they would be to don their belts if asked by a driver. To the first question there was no significant variation in the responses by any of the population variables, but 26.8 percent of all respondents strongly agreed--that there was nothing anyone could do to get them to wear belts at all times. On the other hand, about 90 percent of the respondents said that they would be either likely or very likely to put on their belts if asked by the driver, suggesting that even those who have made up their minds not to wear could be swayed. Those most willing to respond to a driver's request were the older group (aged 55-64) and the females (79 percent very likely, compared to 66 percent for males). Only six percent of the females reported that it was very unlikely that they would not wear belts if asked.

SUPPORT FOR A SEAT BELT LAW

Respondents were asked whether they favored a Michigan law which would require all front-seat occupants to wear seat belts. Overall 53.0 percent of the respondents agreed strongly, i.e., they were strongly in favor of such a law, but 33.7 percent were strongly negative. Of the 13.3 percent who did not feel strongly, 8.9 percent agreed with the idea, and 4.4 percent disagreed. While there is a modest majority who are likely to be strong supporters, there will likely be strong opposition from more than one-third of the drivers. This opposition is strongest among males and among residents of rural areas throughout the state. While the employment group with the most negative opinion is the blue collar group (42.3 percent strongly against), nearly 32 percent of respondents with family incomes over \$35,000 were strongly opposed. An Automatic Interaction Detector (AID) analysis was performed using agreement/disagreement with a belt law as the dependent variable. This type of analysis permits a better identification of the characteristics

Long Trips

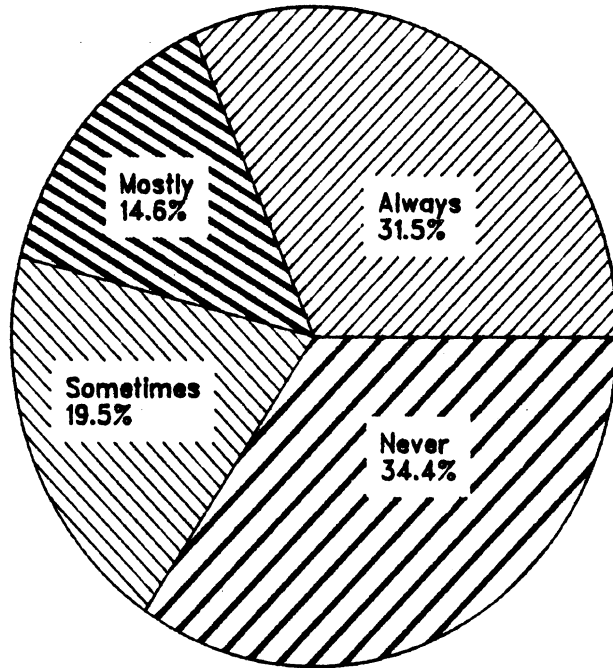


FIGURE 4

Self-Reported Seat Belt Wearing in Michigan, Long Trips

Short Trips

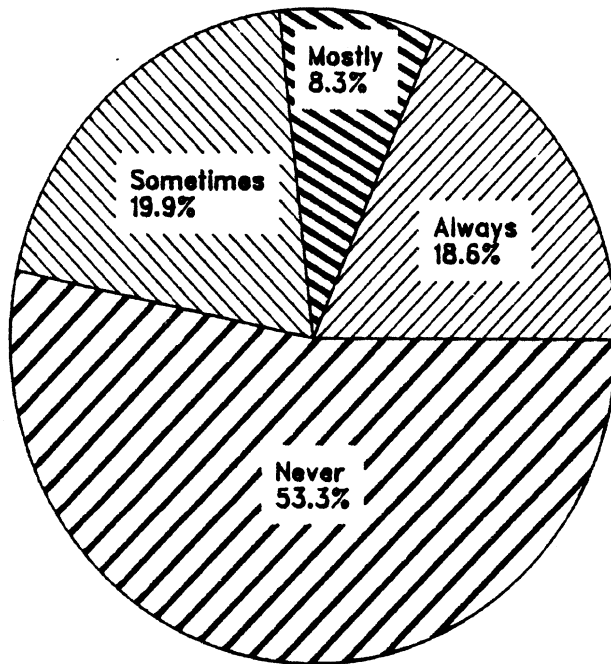


FIGURE 5

Self-Reported Seat Belt Wearing in Michigan, Short Trips

of people most in favor of or most against such a law. The combination of population characteristics for the group most in favor of a mandatory belt usage law includes white collar working females and females in the non-working (at-home) population. They will be far more supportive than white collar males, but white collar males will be far more supportive than blue collar workers. Among the latter (blue collar) group the strongest opponents of a law are in the 35-44 year age group, male, and live somewhere other than the suburbs.

Respondents were next asked whether it was likely that they would wear belts on their next trip. Overall 44.7 percent said that it was very likely that they would, and an additional 25 percent said that it was somewhat likely. But 30.3 percent said that it was unlikely. Among 18-24-year-olds only 19.2 percent said it was unlikely that they would wear belts on their next trip, but 43.2 percent of those with less-than-high-school education so reported. While the survey itself seems to have improved the expected wear rate, there is still a large group remaining to be convinced.

REASONS PEOPLE GIVE FOR NOT USING BELTS

A sequence of survey questions was introduced by noting that people might give various reasons for not wearing seat belts. The respondent was asked to give his/her opinion as to the real importance of the given reason to others. Responses to these questions have been tested against the various population variables, and significant differences will be discussed. Where there are no significant differences (across population variables) the basic distribution will be presented.

People think they won't be in an accident close to home: Nearly half (47.6 percent in the adjusted data) of the respondents thought that this was not at all important, and the remaining 52.4 percent were split just about equally between "somewhat important" and "very important." There were no significant relationships of this distribution with age, education level, employment category, income level, place of residence, sex, or region of the state.

People think they won't be in an accident because they are safe drivers in control of their car: For this question 45 percent of the respondents thought that it was not an important reason at all, but somewhat more than half of the remainder (31 percent

to 24 percent) felt it was a very important reason. Again there were no significant differences in this distribution by any of the population variables.

People are scared of being trapped in their car if it catches on fire or goes into the water after a wreck: On the average 50 percent of the respondents believed this to be a very important reason for (others) not to wear belts. Another 36 percent believed this to be somewhat important, and only 14 percent thought it was not important at all. There was significant variation in these distributions by most of the population factors, although no group showed more than 20 percent believing it was no problem at all. There was considerably more difference between the "somewhat" and "very" important categories, perhaps indicating that some groups might be more amenable to persuasion than others. An AID analysis of the entrapment problem reveals blue-collar females as the most concerned and white collar males as the least concerned.

Persons aged 18 through 34 were split almost evenly between the "somewhat" and "very" important categories (44 percent versus 43 percent) whereas persons 35 and older were split 29 percent "somewhat" and 57 percent "very" important. This finding is statistically quite significant, and the inference might be drawn that older persons will require more persuasion in this area than the young. It seems that nearly everyone needs some education in this area.

Regarding education level, persons who have not completed high school feel that this is a very important reason (64 percent of them), and this statistic descends with increasing educational level to 36 percent for college graduates. Nevertheless, an additional 43 percent of the college graduates consider this to be a "somewhat important" reason for not wearing belts.

Regarding employment category, blue collar workers show a significantly higher frequency for "very important" than white collar workers, but this is inverted at the "somewhat important" level. The two groups are not much different in the proportion believing that this is not important.

A major difference in this "fear of entrapment" response is between males and females, with 57 percent of the females responding "very important" versus 43 percent of the males.

There were no significant variations of this entrapment distribution with region of the state, place of residence, or with income in the categories used in this study.

Another question concerning entrapment was used in the survey. Respondents were asked whether they themselves really worried about being trapped, and (unable to extricate themselves) because of using

belts. Nearly half of the respondents agreed with this statement. An AID analysis of this identifies the most fearful group as those with no college training, particularly those living in a big city. Those who seem to fear this entrapment the least are white collar college graduates in the higher income groups.

People aren't in the habit of fastening their seat belts and don't think about it when they get in a car: Overall 46 percent of the respondents felt that this was very important, 31 percent somewhat important, and only 23 percent not important. There was no significant variation of this distribution with any of the population variables.

They [seat belts] take too much time to fasten and unfasten: Most respondents (60.9 percent) viewed this as an unimportant reason. Another 25 percent believed it to be "somewhat important," and only 14 percent of the respondents believed this to be "very important." There was significant variation with age, with only nine percent of the 18-24 group believing this to be very important, compared with 25 percent of those 65 and over. This proportion increased almost linearly with age. It seem unlikely that the older persons are in more of a hurry than the young, so perhaps they find the belt-fastening operation more difficult.

With regard to education, only 8.7 percent of the college graduates found this reason to be very important, versus about 15 percent of those with some college or high school graduates. Of those who had not finished high school nearly 25 percent found this to be very important. White collar workers and self-employed persons had the smallest proportions who thought this was very important (about 10 percent), but 24 percent of the "not in the work force" group (many being non-working females) found this to be very important. This difference does not show up as statistically significant across the three coded sex categories (male, non-working females, working females), although the non-working females exhibit the highest "very important" percentage of the three. There were no significant variations of the "too much time" distribution by region of the state or by income category.

They [seat belts] are uncomfortable: Overall 29 percent of the respondents found this to be very important, 40 percent somewhat important, and 31 percent not important at all as a reason for not wearing one's seat belt. There was little variation with the population variables, although the group with less than a high school education believed this to be significantly more important (when compared against all other educational levels together). Of that (less than high school) group, 38 percent responded "very important" and only 23 percent "not at all important." By income group, those reporting a family income greater than \$35,000 per year thought this was somewhat or very important significantly more often than the other income groups

taken together. There was essentially no variation by sex, region of the state, or other factors.

People think that seat belts don't work: Overall only 17 percent of the respondents thought that was a very important reason, 31 percent somewhat important, and 52 percent not at all important. There was little variation with age, but by education level the less-than-high-school group believed this to be significantly more important than did all others, with 33 percent of that group so reporting. With regard to sex, the at-home females believed this to be more important than others, and males generally felt this to be unimportant (57 percent versus 47 percent for all females taken together). There was no significant variation with the other population factors for this item.

EIGHT DIFFERENT PREFACES

Questions 19 and 20 of the original survey were asked after one of eight different prefaces. Question 19 was, "How likely is it that you will actively try to get other people in the same car as you to wear their seat belts in the weeks and months ahead?" Question 20 was, "How likely is it that you personally will use seat belts regularly in the weeks and months ahead?"

The eight different introductions to this question are:

- A. Statistics show that you are always much safer wearing seat belts if you're in a car wreck, even if your car catches on fire or falls into the water. And that your chances of being killed in a car wreck are almost 25 times greater if you're thrown from the car than if you're restrained by seat belts. (Short title: EJECTION)
- B. Statistics show that you are most likely to be in an accident when driving or riding at slow speeds and close to home. Researchers have found that more than 80 percent of all accidents occur at speeds of less than 40 miles an hour, and that three out of four accidents causing death occur within 25 miles of home. (Short title: CLOSE TO HOME)
- C. Statistics show that most people who get used to wearing seat belts feel more comfortable with them on than they do with them off. Many people feel that the few seconds it takes to fasten their seat belts makes sense, since those few seconds could save their life. (Short title: COMFORT)
- D. Statistics show that each year thousands of family members die or are seriously hurt in car accidents because they weren't wearing their seat belts. These deaths deprive families of

their fathers, mothers, and children -- and all it would take to prevent many of these deaths would be to buckle up. (Short title: FAMILIES)

- E. Statistics show that each year thousands of people spend needless days and weeks in a hospital because they weren't wearing their seat belts when they were in an auto accident. Their injuries are often extremely painful and usually result in large hospital bills and loss of wages. Most of these injuries could have been prevented if the person had been wearing a seat belt. (Short title: PAIN/COST)
- F. Statistics show that your chances of being in a car wreck in the next 12 months are 1 in 5. The good news is: you can double your chances of escaping a wreck without serious injury if you're wearing your seat belts. (Short title: DOUBLE CHANCE)
- G. Statistics show that in an auto accident most deaths and serious injuries are the result of being slammed into the dashboard, windshield, or steering wheel, and that seat belts stop this from happening. (Short title: HIT WINDSHIELD)
- H. No introductory statement.

For the statewide survey the 800 respondents were divided into eight groups of 100 each. Responses are tabulated below (Tables 2 and 3) with the short titles for the prefaces shown.

Although there are a few missing data points, the number of responses in each row is close to 100. Thus the frequencies may be read as percents for each row.

Both of the tables were tested in a variety of ways for statistical significance. The major result is that almost any prefatory remark prior to asking the "Will you get others to use" question is better than nothing. Of those respondents in the last group (no preface) only 18.7 percent reported that they were very likely to get others to wear belts in the future--significantly poorer compared against any one of the seven prefaces. There is relatively little difference among the seven different introductions, although the one concerned with pain and cost was better than the one concerned with families at about the 0.06 level of significance.

The question regarding the respondent's likelihood of using belts in the future was affected less by the prefaces, although all of the introductions taken together performed significantly better than none

TABLE 2

Responses to Eight Different Prefaces
for Likelihood of Getting Others to Wear Seat Belts

| Preface | Very Likely | Somewhat Likely | Somewhat Unlikely | Very Unlikely |
|----------------|-------------|-----------------|-------------------|---------------|
| Ejection | 33.11 | 30.30 | 10.13 | 22.05 |
| Close to Home | 28.63 | 33.08 | 15.18 | 17.86 |
| Comfort | 31.21 | 34.72 | 9.34 | 25.85 |
| Families | 23.22 | 37.92 | 19.23 | 14.21 |
| Pain/Cost | 40.79 | 26.25 | 16.06 | 16.01 |
| Double Chance | 27.63 | 26.95 | 18.79 | 26.84 |
| Hit Windshield | 30.50 | 35.12 | 15.60 | 18.23 |
| None | 18.70 | 25.50 | 17.75 | 36.76 |

(significant at about the 0.02 level). On the other hand, about 39 percent of all respondents said that it was very likely that they would wear belts in the future, compared with only 30 percent who will be very likely to encourage others to wear.

A general conclusion to this is that people respond more positively to both of these questions if they are prepared for the question with some statement about the magnitude or seriousness of the highway safety problem. There is little distinction among the various introductions, but a slight preference may be present for item "E" which suggests that the victims of automobile accidents may lose much work time, spend much time in a hospital, and incur substantial expenses. Perhaps people worry more about their pocketbooks than other consequences of accidents.

TABLE 3

Responses to Eight Different Prefaces
for Likelihood of Your Wearing Belts in the Future

| Preface | Very Likely | Somewhat Likely | Somewhat Unlikely | Very Unlikely |
|----------------|-------------|-----------------|-------------------|---------------|
| Ejection | 41.51 | 23.70 | 10.30 | 20.70 |
| Close to Home | 40.50 | 29.50 | 7.30 | 17.00 |
| Comfort | 37.90 | 32.50 | 1.90 | 28.90 |
| Families | 31.80 | 25.80 | 17.20 | 22.80 |
| Pain/Cost | 43.50 | 31.00 | 11.00 | 15.60 |
| Double Chance | 34.20 | 26.30 | 9.80 | 33.10 |
| Hit Windshield | 44.10 | 23.90 | 7.00 | 24.40 |
| None | 37.70 | 21.30 | 7.30 | 33.40 |

COMPARISONS OF GRAND TRAVERSE AND MIDLAND OBSERVATIONS

The telephone survey was conducted with a sample of 200 respondents in each of three Michigan counties. Wayne County provided a sample of 200 quite by chance (one-quarter of the total statewide sample), but Midland and Grand Traverse counties were specifically sampled, Midland because of its higher-than-average seat belt publicity activity, and Grand Traverse as a county of approximately the same size but without the attendant publicity. In this section of the report some comparisons will be made among the data from these jurisdictions.

Essentially all of the response distributions in the survey were tested across the two counties, and very few differences were found. While reported belt usage (in wet weather, on long trips, and on short trips) was slightly higher in Midland (e.g., 29.2 percent of respondents in Midland reporting using belts "always" on short trips versus 26.9

percent in Grand Traverse), the difference is not statistically significant.

Respondents were asked how important they thought certain factors were as reasons why people don't wear belts. In both Midland and Grand Traverse Counties more than 80 percent of the respondents believe that fear of entrapment was either a very important or a somewhat important reason. In Wayne county this same statistic is 88 percent, and in Oakland County 87 percent, significantly higher than the test counties. But the the fact that 80 percent of the people in the test counties find fear of entrapment to be an important reason for not wearing belts suggests that even these counties need some education in this area.

The few statistically different distributions include:

Respondents were asked to choose from a list of four items the most important and second most important things to make driving safer. The four items were (1) stricter drunk driving penalties, (2) more seat belt wearing (3) Stricter traffic law enforcement, and (4) Safer cars. The first choice was dominated by drunk driving penalties, about 55 percent of the respondents in both counties reporting this. Answers to the second part of this question were statistically different between the counties, with more than twice as many Midland residents calling for increased law enforcement as compared with Grand Traverse.

One reason cited for not wearing seat belts was simply that "People aren't in the habit...and don't think about it when they get in a car." A higher proportion of people in Midland believed this to be a very important reason (although a smaller proportion believed it to be somewhat important). A statistically significant difference was observed only because of the certainty of the response. When "somewhat" and "very" important categories are combined (and tested against "not important") the significance disappears.

The only other significant differences between the two counties are in their population characteristics. Midland has a somewhat higher proportion of college graduates among its respondents (difference significant at about the 10 percent level), and a somewhat higher proportion of white collar workers (also significant at about 10 percent). There is a substantial difference in the income distribution (significant at better than one percent), with Midland having 30 percent of its respondents in the \$25,000-\$35,000 category compared with only 17 percent of the Grand Traverse respondents. The other population characteristic which showed a significant difference was the proportion of cars equipped with seat belts--94.2 percent in Grand Traverse versus 98.6 percent in Midland.

Perhaps the most remarkable thing about the comparison of distributions from the two counties is that they are so much alike in spite of their population differences. In both counties just about 50 percent of the respondents say they will wear belts on their next trip, and a little more than half (55.5 percent in Midland, 52.2 percent in Grand Traverse) of the respondents strongly agree with the prospects of a Michigan mandatory belt law. Nevertheless, 25 percent of those in Midland and 33.5 percent of those in Grand Traverse County strongly disagree with the idea of a mandatory belt law.

APPENDIX A

Derivation of Weighting Factors for Application
to
Seat-Belt Survey Data

Derivation of Weighting Factors for Application
to
Seat-Belt Survey Data

Preliminary examination of the seat-belt survey data was undertaken to determine if the sample adequately represented the population of Michigan drivers. The sample data were compared to a 1% sample of Michigan drivers¹ with respect to sex, age, and county-of-residence. This examination suggested that a weight variable should be developed and applied to the survey sample data so that the state's drivers were more accurately represented in the subsequent analysis.

Accordingly the sample cases were stratified into 48 subsets defined by all possible combinations of the following variables:

Sex - Two levels.

Age - Six levels.

County "Regions" - Four levels.

The 56 counties actually represented in the survey were grouped into four levels, loosely defined here as "regions." Counties containing medium-size cities--Ann Arbor, Battle Creek, Flint, Grand Rapids, Lansing, and the like--were combined and identified as "Med. Cities" in Table A1. The following 10 counties comprise this category: Bay, Calhoun, Genesee, Ingham, Jackson, Kalamazoo, Kent, Muskegon, Saginaw, and Washtenaw. Macomb and Oakland Counties were similarly combined into a single "region," and Wayne County by itself also comprised one of the four levels. All other counties appearing in the sample data were then combined to form the fourth level of the "region" variable, essentially rural Michigan.

The frequencies for the 48 strata were obtained and summed, as shown in the table. The proportion that each stratum contained of all of the survey cases was calculated, also shown in the table. Thus the first stratum--containing male drivers aged 18-24 years in counties having medium-sized cities--has 15 cases. These 15 cases comprise 1.89%

¹ C.R. Ford and J.A. Green, Michigan Driver Incident File - 1982 1% Sample, U-M Transportation Research Institute, June 1982.

of the 795 respondents for whom there were no missing data on the sex, age, and county variables.

The 1% sample of Michigan drivers was similarly stratified. The table shows that the first stratum contains 2.65% of all Michigan drivers, thus revealing that this stratum was under-sampled in the survey.

The weight factor for each stratum is simply the ratio of the two proportions in question. Again for the first stratum, the weight factor is the quotient $.0265/.0189=1.402$. This weighting factor was applied to each of the 15 cases within this particular stratum in the analytical work that required weighted data. The other weighting factors were applied to each of the sample cases within the applicable stratum.

A similar procedure was executed for the special survey of Grand Traverse and Midland Counties. In this case, however, it was considered unnecessary to stratify by county per se. Thus only twelve strata were required, those defined by the two sex levels crossed with each of the six age levels. The data are given in Table A2.

Table A1

Strata, Frequencies, and Proportions
for
Development of Weighting Factors
(Complete State)

| STRATA | | | SURVEY SAMPLE | | DRIVERS (1%) | | WEIGHT FACTOR |
|--------|-------|-------------|---------------|-------|--------------|-------|---------------|
| Sex | Age | Counties | Freq. | Prop. | Freq. | Prop. | |
| Male | 18-24 | Med. Cities | 15 | .0189 | 1759 | .0265 | 1.4020 |
| Female | 18-24 | Med. Cities | 14 | .0176 | 1638 | .0246 | 1.3988 |
| Male | 25-34 | Med. Cities | 27 | .0340 | 2723 | .0410 | 1.2058 |
| Female | 25-34 | Med. Cities | 24 | .0302 | 2516 | .0378 | 1.2534 |
| Male | 35-44 | Med. Cities | 20 | .0252 | 1578 | .0237 | .9433 |
| Female | 35-44 | Med. Cities | 20 | .0252 | 1554 | .0234 | .9290 |
| Male | 45-54 | Med. Cities | 11 | .0138 | 1141 | .0172 | 1.2402 |
| Female | 45-54 | Med. Cities | 32 | .0403 | 1116 | .0168 | .4170 |
| Male | 55-64 | Med. Cities | 9 | .0113 | 1002 | .0151 | 1.3311 |
| Female | 55-64 | Med. Cities | 18 | .0226 | 1046 | .0157 | .6948 |
| Male | 65 - | Med. Cities | 8 | .0101 | 876 | .0132 | 1.3092 |
| Female | 65 - | Med. Cities | 11 | .0138 | 853 | .0128 | .9271 |
| Male | 18-24 | Mac. + Oak. | 9 | .0113 | 1287 | .0194 | 1.7097 |
| Female | 18-24 | Mac. + Oak. | 12 | .0151 | 1233 | .0185 | 1.2285 |
| Male | 25-34 | Mac. + Oak. | 14 | .0176 | 1842 | .0277 | 1.5731 |
| Female | 25-34 | Mac. + Oak. | 23 | .0289 | 1670 | .0251 | .8681 |
| Male | 35-44 | Mac. + Oak. | 14 | .0176 | 1221 | .0184 | 1.0427 |
| Female | 35-44 | Mac. + Oak. | 18 | .0226 | 1193 | .0179 | .7924 |
| Male | 45-54 | Mac. + Oak. | 8 | .0101 | 915 | .0138 | 1.3675 |
| Female | 45-54 | Mac. + Oak. | 15 | .0189 | 923 | .0139 | .7357 |
| Male | 55-64 | Mac. + Oak. | 10 | .0126 | 890 | .0134 | 1.0641 |
| Female | 55-64 | Mac. + Oak. | 11 | .0138 | 835 | .0126 | .9076 |
| Male | 65 - | Mac. + Oak. | 6 | .0075 | 640 | .0096 | 1.2753 |
| Female | 65 - | Mac. + Oak. | 8 | .0101 | 545 | .0082 | .8145 |
| Male | 18-24 | Wayne | 17 | .0214 | 1422 | .0214 | 1.0001 |
| Female | 18-24 | Wayne | 14 | .0176 | 1212 | .0182 | 1.0350 |
| Male | 25-34 | Wayne | 25 | .0314 | 2290 | .0344 | 1.0952 |
| Female | 25-34 | Wayne | 36 | .0453 | 1941 | .0292 | .6446 |
| Male | 35-44 | Wayne | 9 | .0113 | 1429 | .0215 | 1.8983 |
| Female | 35-44 | Wayne | 29 | .0365 | 1244 | .0187 | .5129 |
| Male | 45-54 | Wayne | 7 | .0088 | 1029 | .0155 | 1.7575 |
| Female | 45-54 | Wayne | 12 | .0151 | 1045 | .0157 | 1.0412 |
| Male | 55-64 | Wayne | 6 | .0075 | 1126 | .0169 | 2.2437 |
| Female | 55-64 | Wayne | 23 | .0289 | 948 | .0143 | .4928 |
| Male | 65 - | Wayne | 9 | .0113 | 1004 | .0151 | 1.3338 |
| Female | 65 - | Wayne | 13 | .0164 | 659 | .0099 | .6061 |

Table A1 (Continued) - Weighting Factors (Complete State)

| STRATA | | | SURVEY SAMPLE | | DRIVERS (1%) | | WEIGHT FACTOR |
|--------|-------|----------|---------------|--------|--------------|--------|---------------|
| Sex | Age | Counties | Freq. | Prop. | Freq. | Prop. | |
| Male | 18-24 | Others | 14 | .0176 | 2004 | .0301 | 1.7114 |
| Female | 18-24 | Others | 21 | .0264 | 1828 | .0275 | 1.0407 |
| Male | 25-34 | Others | 16 | .0201 | 2494 | .0375 | 1.8636 |
| Female | 25-34 | Others | 32 | .0403 | 2438 | .0367 | .9109 |
| Male | 35-44 | Others | 20 | .0252 | 1814 | .0273 | 1.0844 |
| Female | 35-44 | Others | 34 | .0428 | 1713 | .0258 | .6024 |
| Male | 45-54 | Others | 16 | .0201 | 1302 | .0196 | .9729 |
| Female | 45-54 | Others | 26 | .0327 | 1252 | .0188 | .5757 |
| Male | 55-64 | Others | 10 | .0126 | 1340 | .0202 | 1.6021 |
| Female | 55-64 | Others | 24 | .0302 | 1251 | .0188 | .6232 |
| Male | 65 - | Others | 7 | .0088 | 1457 | .0219 | 2.4885 |
| Female | 65 - | Others | 18 | .0226 | 1256 | .0189 | .8343 |
| BOTH | ALL | ALL | 795 | 1.0000 | 66494 | 1.0000 | 1.0000 |

Table A2
Strata, Frequencies, and Proportions
for
Development of Weighting Factors
(Grand Traverse and Midland Counties)

| STRATA | | SURVEY SAMPLE | | DRIVERS (1%) | | WEIGHT FACTOR |
|--------|-------|---------------|--------|--------------|--------|---------------|
| Sex | Age | Freq. | Prop. | Freq. | Prop. | |
| Male | 18-24 | 23 | .0579 | 94 | .0881 | 1.5206 |
| Female | 18-24 | 32 | .0806 | 107 | .1003 | 1.2441 |
| Male | 25-34 | 52 | .1310 | 156 | .1462 | 1.1162 |
| Female | 25-34 | 76 | .1914 | 151 | .1415 | .7392 |
| Male | 35-44 | 34 | .0856 | 117 | .1097 | 1.2804 |
| Female | 35-44 | 49 | .1234 | 88 | .0825 | .6682 |
| Male | 45-54 | 18 | .0453 | 75 | .0703 | 1.5503 |
| Female | 45-54 | 41 | .1033 | 57 | .0534 | .5173 |
| Male | 55-64 | 17 | .0428 | 57 | .0534 | 1.2475 |
| Female | 55-64 | 25 | .0630 | 56 | .0525 | .8334 |
| Male | 65 - | 10 | .0252 | 53 | .0497 | 1.9720 |
| Female | 65 - | 20 | .0504 | 56 | .0525 | 1.0418 |
| BOTH | ALL | 397 | 1.0000 | 1067 | 1.0000 | 1.0000 |

APPENDIX B

Derivation of NHTSA's
"Index of Self-Report Usage of Seat Belts"
and
Distribution of Survey Respondents
by this variable for
Grand Traverse and Midland Counties and Entire State

APPENDIX B

NHTSA's "Index of Self-Report Usage of Seat Belts"

The questions used by McGinley Marketing Research Co., Inc. in the Michigan Seat Belt Study have also been used in several similar surveys sponsored by the National Highway Traffic Safety Administration (NHTSA). A composite index of respondents' belt use and attitudes about use, based on four of the survey questions, was developed by NHTSA and has been derived for the Michigan respondents.

Three questions (3-5) inquired how often respondents wear belts under varying conditions:

How often do you wear seat belts when roads are wet, or snow and ice covered?

How often do you wear seat belts on long trips?

How often do you wear seat belts around town?

The respondent was read a list of four possible responses to each of these questions and asked to pick one. The responses, and their numerical code values, are:

| | |
|--------------------|---|
| Always - | 1 |
| Most of the time - | 2 |
| Sometimes - | 3 |
| Never - | 4 |

The sum of the code values for the three questions was then obtained, and the respondent was identified as a confirmed belt user if the sum totalled from 1 to 6. Totals from 7 to 12 were assigned on the basis of responses to the question below that was asked if responses to the prior questions included "Most of the time," "Sometimes," or "Never."

Do you agree or disagree with the following statement - "There's nothing anyone can do that would make me use seat belts all of the time."

The four available responses to this question are "Agree strongly," "Agree," "Disagree," and "Disagree strongly."

The 5-level index was then assigned as follows:

| THREE- QUESTION SUM | ATTITUDE QUESTION RESPONSE | BELT-USE INDEX | |
|---------------------------|--|----------------|-------------------------------|
| | | Value | Label |
| 1-6 | Not used. | 1 | Confirmed user. |
| 7-10 | Disagree, disagree strongly, missing data. | 2 | Sometime user, positive. |
| 7-10 | Agree strongly, agree. | 3 | Sometime user, negative. |
| 11-12 | Disagree, disagree strongly, missing data. | 4 | Infrequent user, positive. |
| 11-12 | Agree strongly, agree. | 5 | Infrequent user, negative. |

Distributions on this derived variable for respondents in Grand Traverse County, Midland County, and the entire state are given in the following tables.

Table B1
 Distribution of Survey Respondents
 for
 NHTSA's "Index of Self-Report Usage of Seat Belts"
Weighted Data for Grand Traverse and Midland Counties and Entire State

| BELT USE STATUS | Grand Traverse | | Midland County | | Entire State | |
|----------------------|----------------|-----------|----------------|-----------|--------------|-----------|
| | Freq. | (Percent) | Freq. | (Percent) | Freq. | (Percent) |
| Confirmed | 86.65 | (43.5) | 98.04 | (48.9) | 255.89 | (32.0) |
| Sometime, positive | 39.76 | (19.9) | 44.79 | (22.3) | 201.50 | (25.2) |
| Sometime, negative | 19.39 | (9.7) | 12.90 | (6.4) | 64.15 | (8.0) |
| Infrequent, positive | 31.77 | (15.9) | 24.70 | (12.3) | 158.79 | (19.8) |
| Infrequent, negative | 21.77 | (10.9) | 20.23 | (10.1) | 119.67 | (15.0) |
| TOTAL | 199.34 | (100.0) | 200.66 | (100.0) | 800.00 | (100.0) |

Table B2
 Distribution of Survey Respondents
 for
 NHTSA's "Index of Self-Report Usage of Seat Belts"
Unweighted Data for Grand Traverse and Midland Counties and Entire State

| BELT USE STATUS | Grand Traverse | | Midland County | | Entire State | |
|----------------------|----------------|-----------|----------------|-----------|--------------|-----------|
| | Freq. | (Percent) | Freq. | (Percent) | Freq. | (Percent) |
| Confirmed | 91 | (45.5) | 98 | (49.0) | 271 | (33.9) |
| Sometime, positive | 38 | (19.0) | 46 | (23.0) | 190 | (23.8) |
| Sometime, negative | 18 | (9.0) | 11 | (5.5) | 64 | (8.0) |
| Infrequent, positive | 31 | (15.5) | 25 | (12.5) | 159 | (19.9) |
| Infrequent, negative | 22 | (11.0) | 20 | (10.0) | 116 | (14.5) |
| TOTAL | 200 | (100.0) | 200 | (100.0) | 800 | (100.0) |