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DIRECT OBSERVATION OF SEAT BELT USE IN MICHIGAN: SPRING 1988

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16. Abstract

Results of a direct observation study of safety belt use in Michigan conducted in May 1988 were compared with results of ten previous surveys (December 1984; April, July, and December 1985; April, July, and December 1986; and April, July, and November 1987). In the current survey, 17,711 occupants in 12,125 cars and light trucks were observed between April 21 and May 12, 1988. Use of safety belts changed little between November 1987 and May 1988. Front-seat restraint use among all motorists observed was 45.1% in May 1988 compared to 48.1% in November 1987. The decrease is not statistically significant since the estimates have a margin of error of ±3%. All age groups exhibited marginal decreases from the previous survey wave. Use rates were as follows in May 1988 (all seat positions): 65.9% among occupants age 0-3; 36.4% among occupants age 4-15; 35.1% among occupants age 16-29; 45.9% among occupants age 30-59; and 54.5% among occupants age 60 and older. Females continued to exhibit higher restraint use than males, 48.4% versus 39.4% in the current survey. As in previous surveys, restraint use varied by region of the state. Safety belt use has remained stable since December 1985 when use among front-seat occupants was 44.5%. Finally, front-seat belt use among those age 16 and over remains significantly higher than it was before Michigan's mandatory use law took effect (45.1% in May 1988, versus 18.3% in December 1984). An additional follow-up survey is scheduled for spring 1989.

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July 1988

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1 INTRODUCTION

The Michigan mandatory safety belt law, implemented in July of 1985, is one of 31 similar laws in the United States intended to reduce motor vehicle crash-related deaths and injuries (Grimm, 1988). The success of these laws in preventing injury and death, however, has not been uniform, perhaps due to varying levels of compliance attained in these states. A recently completed multiple time-series evaluation of effects in the first eight states with safety belt laws identified significant fatality reductions ranging from 7.1% to 24.5% (Wagenaar, Maybee, and Sullivan, in press).

Compliance with mandatory belt laws also varies **within** states over time. Belt use typically increases sharply following implementation of such laws and then exhibits a partial decline over the subsequent six to twelve months. Belt use in each of the first four states to implement mandatory use laws in the U.S. (New York, New Jersey, Illinois, and Michigan) conformed to this pattern (Wagenaar, Maybee, and Sullivan, in press). Reported compliance with compulsory use in one state differed from this pattern. In Austin, Texas a sharp increase in belt use observed immediately after enforcement of the law began was still evident six months later (Bunch, Hatfield, Hinshaw, and Womack, 1986). Driver belt use in North Carolina increased from 26% before to 46% after the belt law took effect; however, police only gave warnings to unbelted motorists during the first year with the law. Results of an observation survey conducted during the first month that police began issuing citations for violation of the law (January 1987) indicated that belt use among front-seat occupants increased to 78%. Consistent with the typical pattern, subsequent surveys revealed a steady downward trend in belt use (71% in March, 67% in April, and 64% in June; Campbell, 1988). Such variations in belt use must be considered when examining expected reductions in motor vehicle crash-related deaths and injuries associated with mandatory use laws.

To measure compliance with Michigan's safety belt law, The University of Michigan Transportation Research Institute is conducting a series of direct-observation surveys of safety belt use among motor vehicle occupants throughout the state. Two survey waves were conducted prior to implementation of the law (December 1984 and April 1985) and provide a base against which effects of the law are assessed. The third wave was conducted in July 1985 immediately following implementation of the law. The fourth through tenth waves were conducted at roughly four-month intervals from 1986 to 1988 (December 1985, April, July, and December 1986, and April, July, and November 1987). The eleventh survey wave reported here was conducted from April 21 to May 12, 1988,

thirty-four months after the Michigan law first took effect. Each of the surveys examined restraint use by age, sex, seating position, time of day, day of week, type of roadway, weather conditions, vehicle type and size, and region of the state. Readers are referred to earlier reports for complete results of the previous surveys (see Section 4 for full citations). In the current report, restraint use in May 1988 is compared with the results of previous survey waves.[1] An additional follow-up survey wave is scheduled for 1989.

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1. For convenience, the current survey wave is referred to as the May 1988 wave throughout this report even though data collection began at the end of April.

2 METHODS

To ensure comparability across all survey waves in this series, the same methods were used in each wave. A few minor differences in the current wave are noted in this section. For a detailed discussion of the sample design, data collection procedures, and analytic procedures used throughout the series of surveys, see the first report of this series (Wagenaar and Wiviott, 1985a).

As in previous survey waves, motor vehicle occupants at a carefully selected probability sample of 240 intersections throughout the State of Michigan were observed by trained field observers. Observers recorded restraint use, seat position, estimated age, and sex for occupants in **all** seating positions in each sampled vehicle. The size and type of vehicle were also recorded.

Detailed information on the seating positions of all occupants was recorded, including those in nonstandard seating positions. Specifically, observers noted whether passengers were sitting, standing, kneeling, or lying on the seat, floor, or cargo area of the vehicle. Passengers riding in the lap of another occupant were also recorded. The objective was to collect data on the full complement of restraint use and related information for all occupants of vehicles included in the sample.

Beginning in July 1985, observers were instructed to record incorrect use of safety belts. Examples of incorrect belt use include: positioning the shoulder harness under the outboard arm, behind the back, or over the inside shoulder; and restraining two occupants with one safety belt. The category of incorrect belt use did not include occupants (typically in the 4-15 age group) who were too short to wear a shoulder belt in the correct position across the chest. Often such occupants placed the belt behind the back. These occupants were coded as correctly belted.[2] Occupants incorrectly using safety belts were coded as "belted" and, therefore, appear in the tables and figures below as restrained.

Observers limited the number of vehicles recorded during any given traffic signal cycle to three. This procedure was adopted during the July 1985 wave. After the mandatory use law took effect, occupants in long traffic queues buckled up after noticing the observer

---

2. Some of these cases were close calls, in the sense that many occupant protection researchers argue that school-age children should be restrained by a shoulder belt along with the lap belt.

examine vehicles ahead of them in the queue. Recording data on only the first three vehicles prevented inclusion of these occupants in the survey.

The sample of 240 sites was identical to previous survey waves except that three alternative sites were selected (from the pool of sites selected in the original sample design) to replace sites at which construction was occurring or at which a yellow flashing rather than cycling traffic signal was in operation. Within each sampling area, the first site observed for each day and city was selected using a random number table, with the remaining sites observed in an order determined by proximity, to minimize amount of travel required between sites. All field personnel were spot checked in the field by the field supervisor. Field personnel attended extensive training sessions in which data collection policies and procedures were reviewed and practice field observations were conducted (the training program was described in greater detail in the first report of this series; Wagenaar and Wiviott, 1985a).

Descriptive statistics for the 240 observation sites are shown in Table 2.1. The distribution of site observations by day of week and time of day was similar to previous survey waves conducted during the same season of the year. Actual numbers of cases observed across categories of the major variables are shown in Table 2.2. Restraint use estimates based on small numbers of cases, such as those for occupants in extra seats and cargo areas, need to be interpreted with care.

In addition to showing the actual number of cases by subcategory, Table 2.2 indicates the extent of missing data for each variable. The key restraint item was missing for less than 0.1% of all occupants observed. These were cases in which the observer could not accurately identify whether the occupant was restrained. There was 1 case of missing data on restraint use for the 12,125 drivers and 3,840 front-right occupants observed. Front-center occupants had no cases of missing data and rear-seat occupants had low levels of missing data on restraint use (0.0% to 0.4%; see Table 2.2).

TABLE 2.1
Descriptive Statistics for the 240 Observation Sites

Day of Week		Start Time		Site Choice		Weather		Observer	
Monday	14.2%	7–9 AM	13.2%	Primary	98.8%	Sunny	60.4%	(A)	27.1%
Tuesday	13.8%	9–11 AM	18.8%	Alternate	1.3%	Cloudy	31.3%	(B)	35.8%
Wednesday	13.8%	11–1 PM	18.5%			Rain	7.1%	(C)	37.1%
Thursday	15.4%	1–3 PM	19.2%			Snow	1.3%		
Friday	16.7%	3–5 PM	16.7%						
Saturday	13.8%	5–7 PM	13.8%						
Sunday	12.5%								
TOTAL	100%		100%		100%		100%		100%

TABLE 2.2
Sample Distributions for Major Variables by Seat Position, Unweighted Ns and Percent Missing Data

	Seat Position									
	Driver	Front Center	Front Right	Rear Left	Rear Center	Rear Right	Extra Seats	Cargo Area	Held in Lap	All[1]
Restraint Use										
None	6,559	152	2,247	323	203	487	24	25	52	10,086
Belted	5,566	19	1,558	116	35	140	14	0	1	7,449
CRD Correct	—	2	32	37	25	32	1	0	0	129
CRD Wrong	—	7	2	13	11	10	0	0	0	43
Missing	0	0	1	2	0	1	0	0	0	4
% Missing	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0
Sex										
Male	7,451	74	1,346	226	131	290	18	12	24	9,579
Female	4,674	106	2,494	262	142	378	21	13	29	8,126
Missing	0	0	0	3	1	2	0	0	0	6
% Missing	0.0	0.0	0.0	0.6	0.4	0.3	0.0	0.0	0.0	0.0
Age										
0–3	0	24	48	61	49	52	2	0	41	280
4–15	6	76	502	265	165	288	27	21	12	1,373
16–29	3,212	44	1,068	63	39	139	6	4	0	4,575
30–59	7,919	33	1,767	81	20	157	4	0	0	9,981
60+	987	2	455	21	0	34	0	0	0	1,499
Missing	1	1	0	0	1	0	0	0	0	3
% Missing	0.0	0.6	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Vehicle Type										
Small Car	2,468	4	697	101	58	121	0	2	14	3,468
Midsize Car	4,109	36	1,379	195	97	274	5	3	14	6,116
Large Car	2,748	49	939	144	96	199	3	7	14	4,206
Pickup	1,571	83	433	4	1	4	0	8	8	2,112
Van	812	4	270	32	14	43	31	3	2	1,211
Other	414	4	119	13	7	27	0	2	1	587
Missing	3	0	3	2	1	2	0	0	0	11
% Missing	0.0	0.0	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.1
Site Type										
Intersection	9,597	149	3,045	372	217	500	26	23	42	13,983
Freeway Exit	2,528	31	795	119	57	170	13	2	11	3,728
Day of Week										
Monday	1,719	14	426	47	27	67	0	0	6	2,308
Tuesday	1,683	17	423	37	18	41	5	5	3	2,232
Wednesday	1,641	25	475	51	34	71	3	0	2	2,303
Thursday	1,855	31	479	43	22	65	6	0	10	2,512
Friday	2,063	28	594	92	43	109	2	2	10	2,950
Saturday	1,687	26	717	105	61	147	17	9	8	2,780
Sunday	1,477	39	726	116	69	170	6	9	14	2,626

TABLE 2.2 Continued

	Seat Position									
	Driver	Front Center	Front Right	Rear Left	Rear Center	Rear Right	Extra Seats	Cargo Area	Held in Lap	All[1]
Time of Day										
7–8 AM	618	6	96	14	6	22	0	0	3	765
8–9 AM	872	7	156	17	10	31	2	0	0	1,096
9–10 AM	1,034	7	228	21	10	27	4	0	3	1,334
10–11 AM	1,201	16	312	25	21	39	1	1	2	1,619
11–12 AM	1,090	20	348	32	23	50	4	0	7	1,575
12–1 PM	1,142	23	398	53	30	62	4	3	8	1,725
1–2 PM	1,286	11	456	67	34	73	5	4	5	1,945
2–3 PM	1,019	12	343	43	14	59	2	4	2	1,499
3–4 PM	1,172	25	425	66	39	99	4	2	6	1,840
4–5 PM	857	15	321	53	27	70	7	5	5	1,360
5–6 PM	926	16	345	43	29	58	2	2	6	1,428
6–7 PM	908	22	412	57	31	80	4	4	6	1,525
Weather										
Sunny	7,343	113	2,226	296	158	389	22	12	23	10,593
Cloudy	3,775	56	1,304	162	105	230	13	13	29	5,690
Rain	854	9	246	30	10	40	4	0	1	1,194
Snow	153	2	64	3	1	11	0	0	0	234
MDOT Region										
Western U.P.	612	20	266	27	8	40	3	2	4	982
Eastern U.P.	408	7	119	10	1	16	0	0	1	562
Northwest	612	7	182	15	9	22	2	0	1	850
Northeast	408	8	120	9	10	12	2	0	1	570
West Central	1,388	29	419	51	44	60	1	2	4	2,001
East Central	1,401	18	479	92	43	98	1	0	14	2,147
Southwest	1,418	27	449	45	31	68	3	6	3	2,051
Southeast	1,194	13	390	53	19	79	9	2	4	1,764
Metro Detroit	4,684	51	1,416	189	109	275	18	13	21	6,784
TOTAL N	12,125	180	3,840	491	274	670	39	25	53	17,711

[1] Includes 14 occupants standing.

3 RESULTS

Safety belts or child restraint devices were used by 43.5% of all motor vehicle occupants observed during May 1988, in contrast to 46.9% in November 1987 (Figure 3.1).[3] However, the decrease in use is not statistically significant (Z= 1.65; two-tailed test, p>.05).[4]

The latest survey supports earlier findings that restraint use has stabilized during the past twenty-nine months. In December 1985, five months after the mandatory safety belt law took effect, overall restraint use had declined to 43.0% from 58.4% in July 1985, immediately after the law took effect. Since that time, however, restraint use has remained constant. While restraint use in May 1988 was lower than the 58.4% peak rate observed in July 1985, it is still higher than it was before the law took effect. The May 1988 use rate of 43.5% represents a 120% increase from the December 1984 rate of 19.8%.

Table 3.1 provides summary information on restraint use by seat location (front and rear) for each major variable, including sex, age, type of vehicle, site type, day of week, time of day, weather, and region. As in previous surveys, restraint use was higher among front-seat occupants than rear-seat occupants (45.1% versus 29.0%).

Young children have particularly high rates of restraint use as a result of mandatory child restraint legislation implemented in 1982 (Wagenaar, 1984; Wagenaar and Webster, 1986), and exert an upward influence on overall use rates. Consequently, effects of the adult mandatory safety belt law on restraint use can be seen most clearly by including only motor vehicle occupants 16 years and older in the analyses. In December 1984, restraint use for adults (16 and over) was 18.3% among front-seat occupants and 7.2% among rear-seat occupants (see Figure 3.2). A noticeable increase in belt use was seen in April 1985, after the law was enacted but before implementation. In July 1985, immediately after implementation, restraint use among front-seat occupants more than doubled, increasing to 60.5%. In December 1985, after five months of compulsory belt use, restraint use declined to 44.0% among front-seat occupants and 6.9% among rear-seat occupants. Since that time, restraint use among adult front-seat and rear-seat occupants has changed little. In the current survey wave, restraint use for adults was 45.1% among front-seat occupants and 7.5% among rear-seat occupants (Figure 3.2); changes from the November 1987 survey wave are not

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3. These numbers include both correct and incorrect use of safety belts and child restraint devices.

4. Calculation of Z-statistics takes into account the design effect resulting from the multi-stage sampling procedure used. The design effect of the May 1988 wave was 13.8.

Figure 3.1: Overall Restraint Use

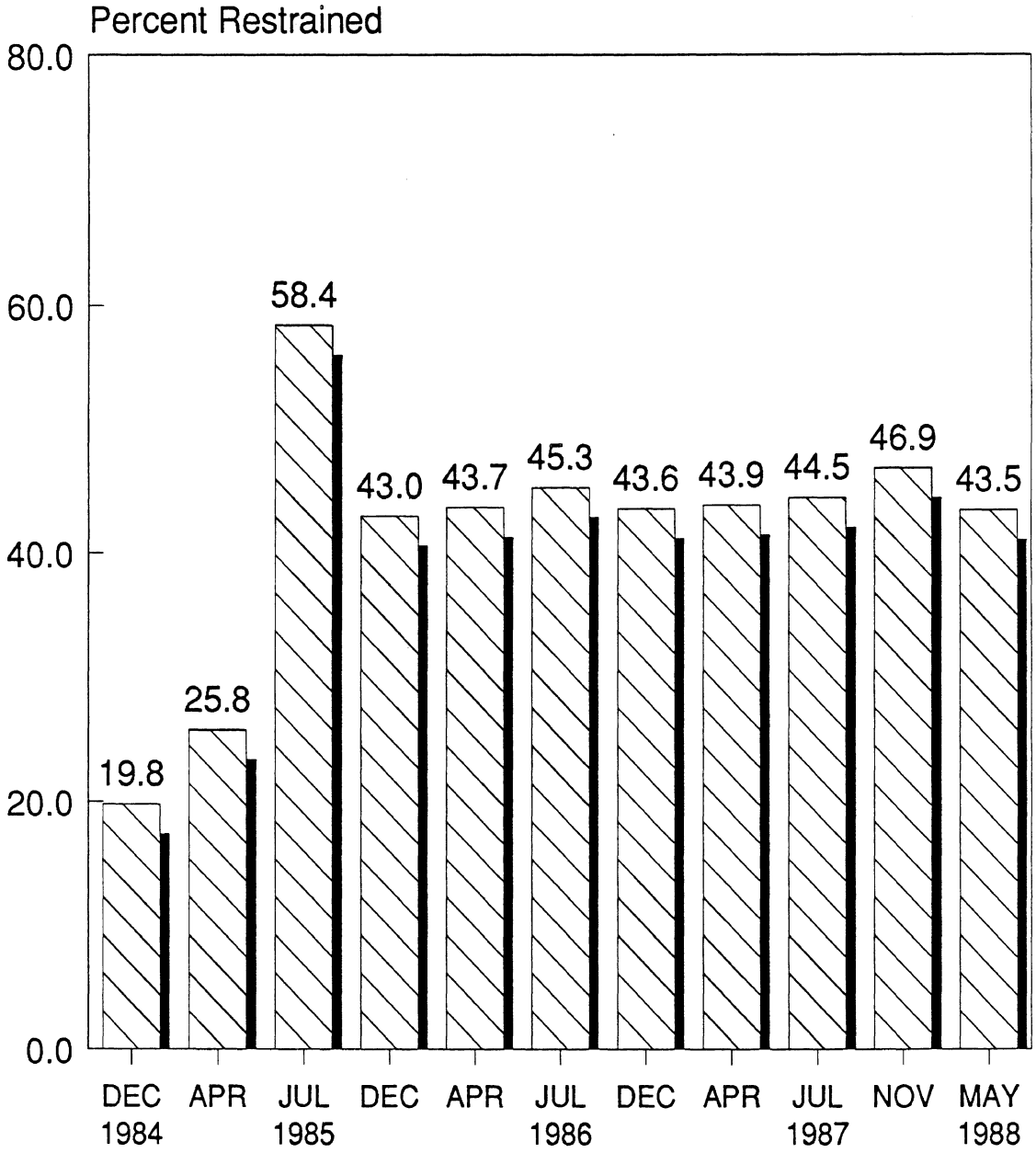


TABLE 3.1
Percent Restrained by Major Variables and Seat Location[1]

	Seat Location		
	Front Seat	Rear Seat	All[2]
Sex			
Male	40.2	30.8	39.4
Female	51.1	27.5	48.4
Age			
0–3	73.5	81.5	65.9
4–15	42.1	34.1	36.4
16–29	36.9	5.7	35.1
30–59	47.0	7.1	45.9
60+	56.0	17.4	54.5
Type of Vehicle			
Small Car	49.3	36.2	47.9
Mid-Sized Car	50.1	28.5	47.9
Large Car	43.1	21.1	40.4
Pickup Truck	30.6	24.0	30.3
Van	41.5	48.8	42.0
Other	43.1	26.5	41.4
Site Type			
Intersection	42.6	27.5	41.1
Freeway Exit	53.8	33.7	51.7
Day of Week			
Monday	45.0	31.9	44.0
Tuesday	45.1	28.8	44.1
Wednesday	45.6	32.6	44.7
Thursday	40.6	24.6	39.6
Friday	44.5	25.9	42.6
Saturday	49.7	32.9	47.5
Sunday	45.2	27.2	42.3

[1]All percents are based on analyses weighted according to the sample design to accurately represent the entire state. Restraint use includes correct and incorrect use of child restraint devices and seat belts.

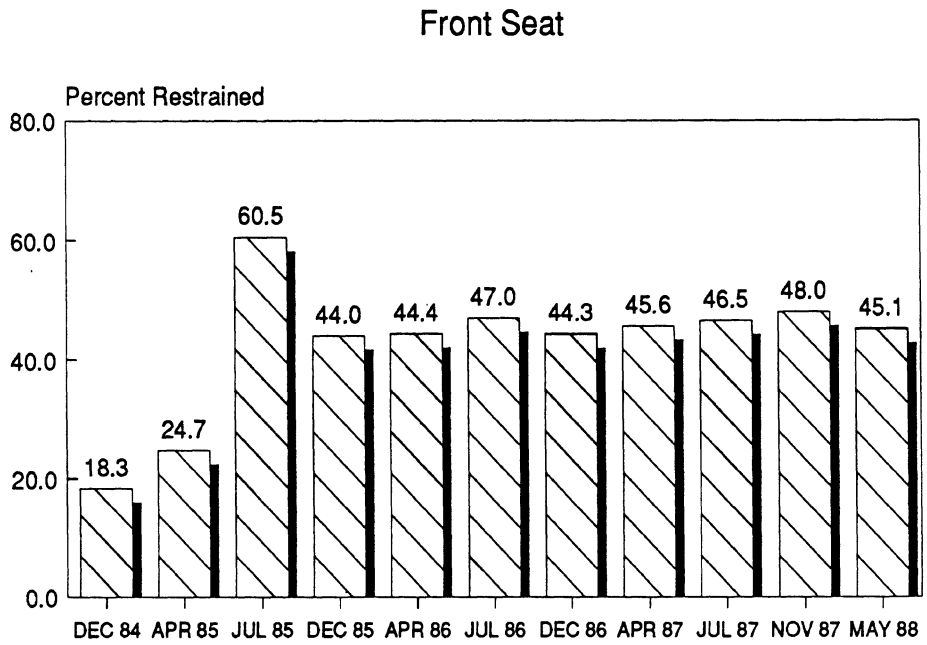
[2]Includes occupants riding in third and fourth seats of station wagons and vans and in nonstandard seat positions (i.e., on laps, in cargo area, on floor).

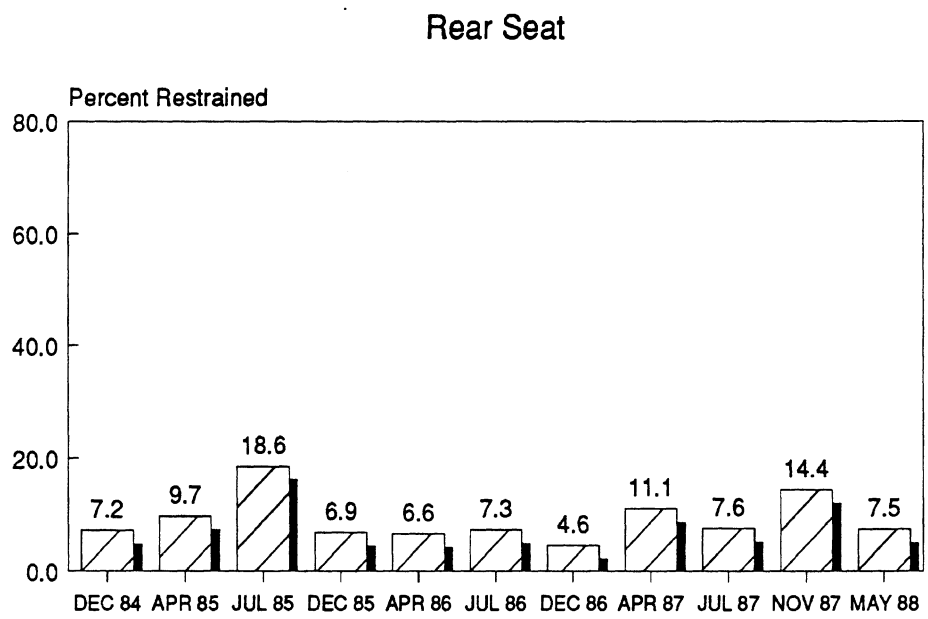
TABLE 3.1 Continued

	Seat Location		
	Front Seat	Rear Seat	All[2]
Time of Day			
7–8 AM	47.0	23.0	45.2
8–9 AM	45.4	20.6	43.8
9–10 AM	45.1	33.4	44.6
10–11 AM	43.5	23.6	42.2
11–12 AM	47.1	43.0	46.6
12–1 PM	45.8	27.8	43.8
1–2 PM	44.1	30.7	42.5
2–3 PM	47.4	29.6	45.7
3–4 PM	42.3	24.0	39.9
4–5 PM	43.4	30.6	41.6
5–6 PM	51.7	35.5	49.9
6–7 PM	40.8	25.2	38.8
Weather			
Sunny	46.6	30.9	45.1
Cloudy	42.0	25.0	40.1
Rain	47.5	36.4	46.8
Snow	34.2	13.3	32.9
MDOT Region			
Western U.P.	39.8	28.0	38.5
Eastern U.P.	31.1	25.9	30.8
Northwest	37.5	23.9	36.6
Northeast	48.3	29.0	47.4
West Central	43.5	43.2	43.2
East Central	45.3	27.1	43.0
Southwest	43.9	30.4	42.8
Southeast	53.9	34.5	51.9
Metro Detroit	44.7	24.9	42.7
TOTAL	45.1	29.0	43.5

[1]All percents are based on analyses weighted according to the sample design to accurately represent the entire state. Restraint use includes correct and incorrect use of child restraint devices and seat belts.
[2]Includes occupants riding in third and fourth seats of station wagons and vans and in nonstandard seat positions (i.e., on laps, in cargo area, on floor).

Figure 3.2: Restraint Use by Seat Location: Occupants Age 16 and Over





statistically significant (Z=1.31 for front-seat adult occupants and Z=0.89 for rear-seat adult occupants).

An examination of restraint use by vehicle seating position indicates that restraint use was higher among drivers than occupants of other seating positions in all age groups (Table 3.2). Furthermore, as in previous post-law survey waves, only drivers and front-right passengers had use rates which were substantially higher than those observed in December 1984, prior to enactment of the safety belt law. Occupants in all other seating positions had use rates comparable to pre-law levels (Figure 3.3). No long-term change in rear-seat use might be expected, given that the law applies only to front-seat occupants. Front-center occupants are covered by the law, yet only 17% were restrained in the latest survey.

Restraint use remained highest among occupants age 0-3, who have been required to be restrained when traveling in motor vehicles in Michigan since 1982. A total of 65.9% of occupants age 0-3 years were restrained, compared to 36.4% of occupants age 4-15 years, 35.1% of occupants age 16-29 years, 45.9% of occupants age 30-59 years, and 54.5% of occupants age 60 years and older (Table 3.2). All age groups exhibited marginal decreases in restraint use from November 1987; none of these decreases are statistically significant (Figure 3.4).[5]

Incorrect use of safety seats among children age 0-3 continues to be a problem. A total of 22.6% of child restraint devices were observed to be incorrectly used in the current wave, compared to 28.5% in November 1987, 35.2% in July 1987, 27.5% in April 1987, 24.4% in December 1986, 28.1% in July 1986, 27.3% in April 1986, and approximately 20% in each prior wave. Because incorrect use was limited only to cases **obvious** to the observer (noting the data collection process used), data presented here should be considered a conservative estimate. A more detailed study of restraint use among Michigan children under the age of four found that 62.9% of child restraint devices were incorrectly used (Margolis, Wagenaar, and Molnar, 1988).

As in previous survey waves, occupants age 60 years and older had a restraint use rate higher than any other age group except occupants age 0-3. Prior to enactment of the mandatory safety belt law, the 60 and older age group had the lowest rate of use. Since December 1984, however, the increase in restraint use among those age 60 years and older (273%) has been greater than all other age groups (0-3 increased 8%; 4-15 increased 52%;

---

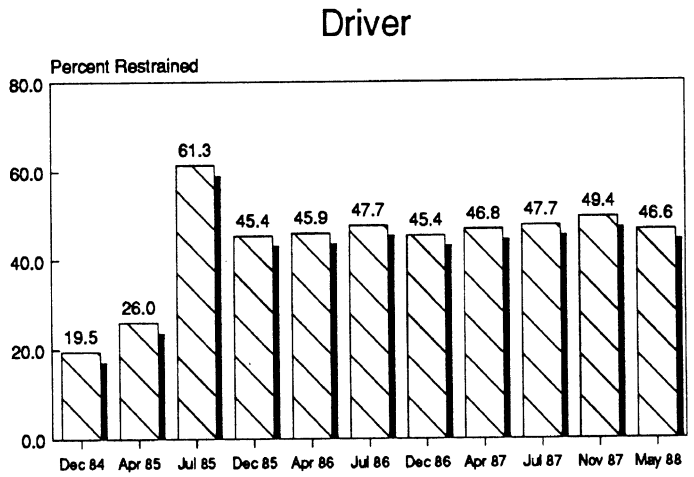
5. The Z-statistics are as follows: age 0-3 years, 0.13; age 4-15 years, 0.39; age 16-29 years, 0.95; age 30-59 years, 1.07; and age 60 and over, 0.53.

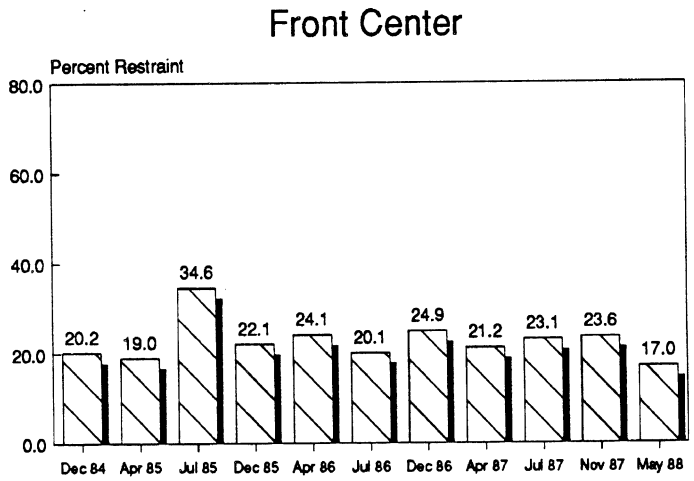
TABLE 3.2
Restraint Use by Age and Seat Position[1]

Age Group	Seat Position									
	Driver	Front Center	Front Right	Rear Left	Rear Center	Rear Right	Extra Seats	Cargo Area	Held in Lap	All[2]
Age 0–3										
% Belted	–	7.0	19.8	8.5	6.6	14.9	0.0	–	0.0	9.7
% Correct CRD	–	9.7	62.0	58.0	48.6	58.1	52.2	–	0.0	43.6
% Incorrect CRD	–	29.6	4.6	18.4	15.7	14.6	0.0	–	0.0	12.7
% Restrained[3]	–	46.3	86.5	84.9	70.9	87.7	52.2	–	0.0	65.9
Unweighted N	–	24	48	61	49	52	2	0	41	280
Age 4–15										
% Restrained	34.4	19.8	45.4	39.6	20.9	36.7	32.2	0.0	10.1	36.4
Unweighted N	6	76	502	265	165	288	27	21	12	1,373
Age 16–29										
% Restrained	39.7	9.8	29.8	1.7	0.0	9.3	33.3	0.0	–	35.1
Unweighted N	3,212	44	1,068	63	39	139	6	4	0	4,575
Age 30–59										
% Restrained	47.8	0.0	43.9	6.1	5.3	7.9	100.0	–	–	45.9
Unweighted N	7,919	33	1,767	81	20	157	4	0	0	9,981
Age 60+										
% Restrained	57.9	0.0	52.0	9.1	–	22.6	–	–	–	54.5
Unweighted N	987	2	455	21	0	34	0	0	0	1,499
All Ages										
% Restrained	46.6	17.0	41.8	33.6	25.3	27.3	39.6	0.0	2.1	43.5
Unweighted N	12,125	180	3,840	491	274	670	39	25	53	17,711

[1]All percents are based on analyses weighted according to the sample design to accurately represent the entire state. Unweighted Ns indicate the actual number of occupants observed in a given group.
[2]Restraint use for all positions includes cargo areas, passengers held in laps, and passengers standing.
[3]Percent restrained includes correct and incorrect CRD use.

Figure 3.3: Restraint Use by Seat Position





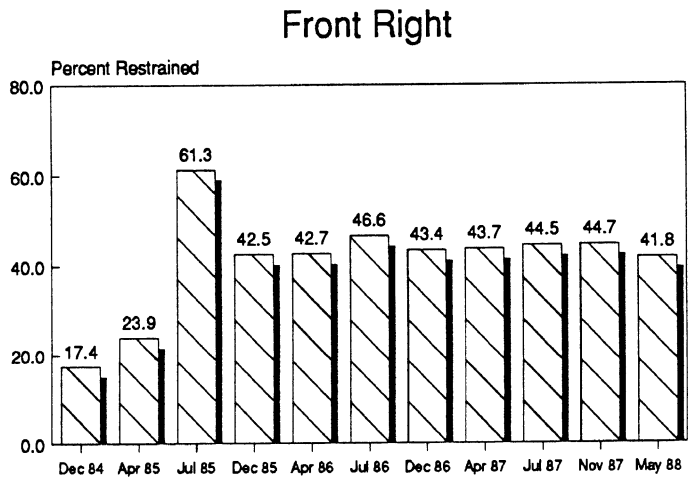


Figure 3.3 (Continued): Restraint Use by Seat Position

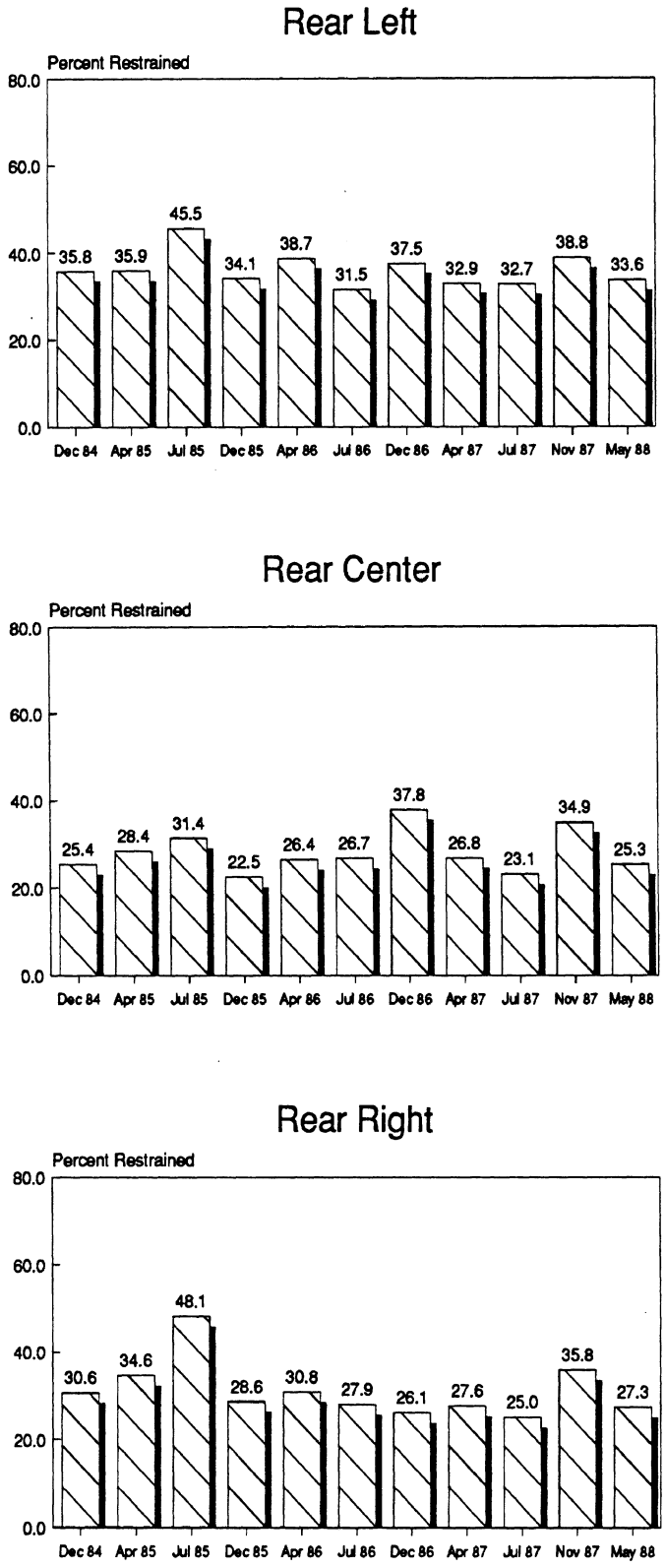
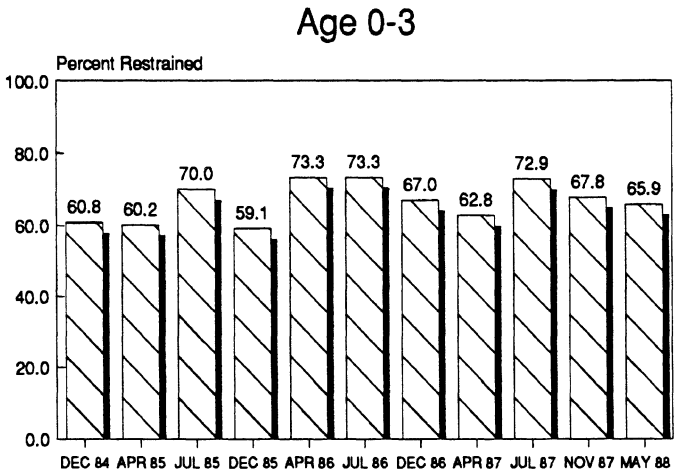
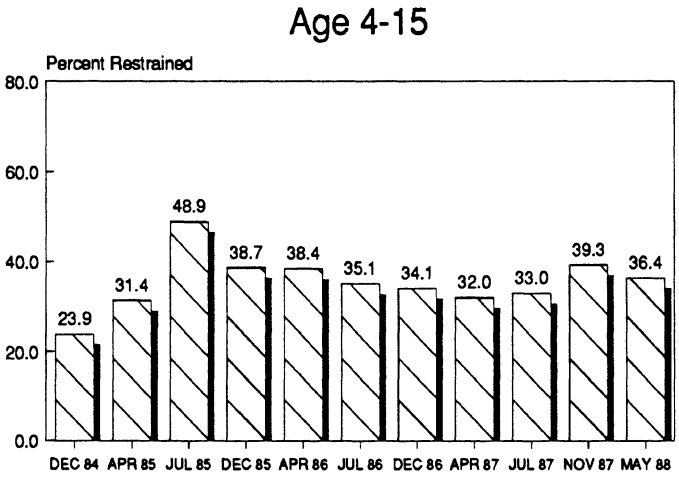


Figure 3.4: Restraint Use by Age





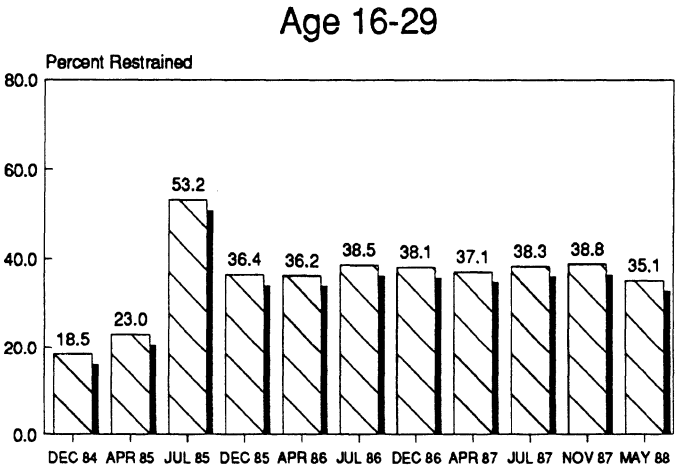
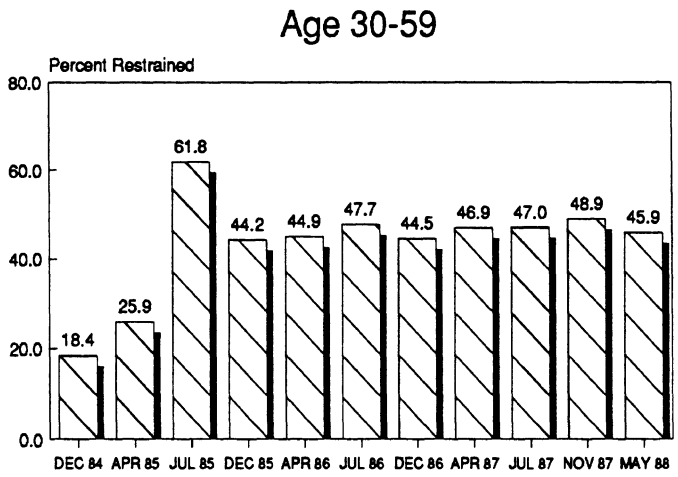
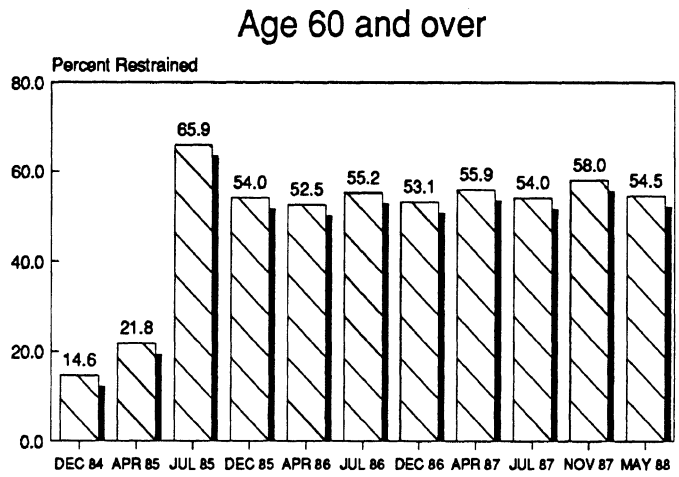


Figure 3.4 (Continued): Restraint Use by Age





16-29 increased 90%; and 30-59 increased 149%). The pattern of driver restraint use by age was similar to that of total occupants by age (Figure 3.5).

Restraint use varies by sex, with a greater proportion of females than males using restraints (48.4% versus 39.4%; Table 3.3). The rate of increase in belt use among both females and males, however, has been similar since December 1984.

The pattern of restraint use by type of vehicle has been similar throughout the series of surveys (Figure 3.6). Occupants of small and mid-sized cars had the highest rates of restraint use in the current wave (47.9%; Table 3.3). Use rates for occupants of other types of vehicles were lower: vans, 42.0%; large cars, 40.4%; pickup trucks, 30.3%; and other vehicles, 41.4%.

Consistent with previous survey waves, occupants in vehicles observed at freeway exits had a higher rate of restraint use than those observed at local intersections (51.7% versus 41.1%; Table 3.3). While the decrease in restraint use since November 1987 was larger at local intersections than at freeway exits, neither decrease is statistically significant.[6]

In the current survey, restraint use was slightly lower under sunny conditions than under other weather conditions (Table 3.3). Comparisons with previous waves continue to indicate no consistent pattern of restraint use by weather conditions. Similarly, there was no consistent pattern of restraint use across time of day and day of week (Table 3.4).

Restraint use varied by region of the state (Table 3.5 and Figure 3.7). Use rates were highest in the Southeast region (51.9%) and lowest in the Eastern upper peninsula (30.8%). The Southeast region had the highest use rates in most previous survey waves (except July 1987, July 1986, and December 1985). The Eastern upper peninsula region has had the lowest rate of restraint use in every wave except April 1986. Seven regions experienced decreases in restraint use between November 1987 and May 1988, and two regions experienced increases.

There was also variability in restraint use by sampling area (Table 3.6). Low rates of restraint use were seen in Wayne County, City of Melvindale (24.8%), Delta County (27.9%), the City of Detroit (29.6%), and Chippewa County (33.0%). Sampling areas with high restraint use rates included Wayne County, City of Canton (62.9%), Washtenaw County, City of Ann Arbor (62.9%), Ingham County, City of East Lansing (59.6%), and Wayne County, City of Livonia (59.6%). The pattern of change in restraint use from

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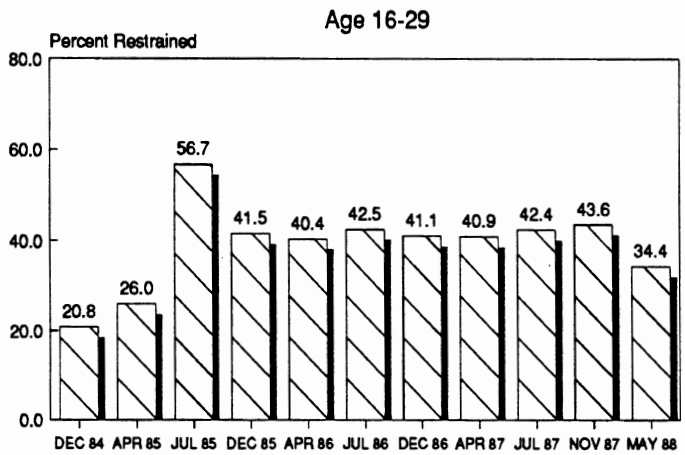
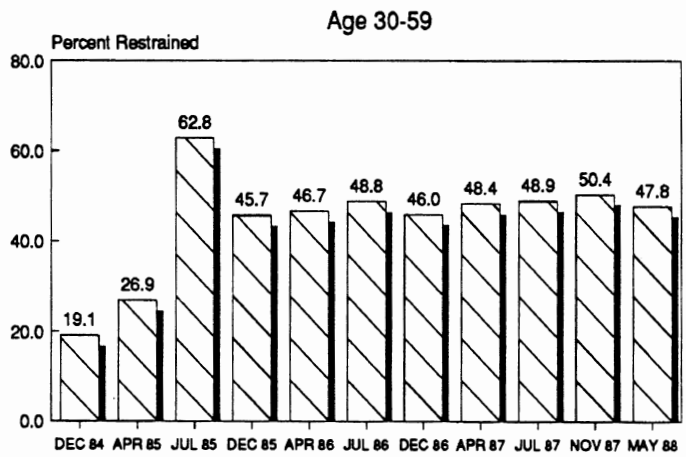
6. Local intersections, z=1.77; freeway exits, z=0.24.

Figure 3.5: Driver Restraint Use by Age





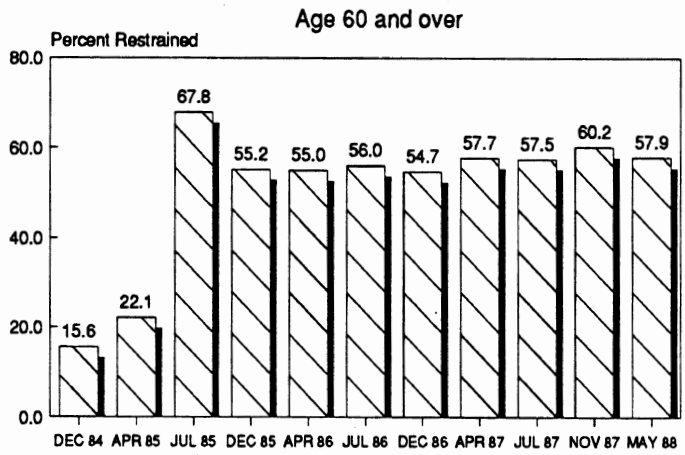


TABLE 3.3
Percent Restraint Use by Sex, Type of Vehicle, Observation Site, and Weather Conditions[1]

	Seat Position							
	Driver	Front Center	Front Right	Rear Left	Rear Center	Rear Right	Extra Seats[2]	All[3]
Sex								
Male	41.8	19.5	32.5	32.8	29.8	29.7	46.6	39.4
Female	54.2	15.4	46.8	34.0	21.3	25.2	33.3	48.4
Type of Vehicle								
Small Car	51.5	0.0	41.5	40.5	19.7	40.7	–	47.9
Mid-Sized Car	51.6	17.5	46.5	34.2	22.0	26.9	0.0	47.9
Large Car	44.3	24.6	40.2	22.7	27.2	17.0	33.3	40.4
Pickup Truck[4]	32.3	11.4	28.2	27.3	100.0	0.0	–	30.3
Van	40.8	27.5	43.7	51.8	62.3	42.6	44.5	42.0
Other	43.5	38.6	41.8	42.9	14.2	22.1	–	41.4
Observation Site								
Intersection	44.1	15.0	39.2	33.5	23.4	24.7	36.8	41.1
Freeway Exit	55.1	25.3	50.8	34.0	32.1	34.1	44.4	51.7
Weather Conditions								
Mostly Sunny	47.7	18.5	44.1	34.6	28.7	29.0	43.6	45.1
Mostly Cloudy	43.9	10.7	37.4	30.6	20.7	23.1	31.8	40.1
Raining	48.5	35.7	44.6	42.8	22.2	34.9	40.5	46.8
Snowing	37.9	0.0	26.6	0.0	0.0	18.2	–	32.9
TOTAL	46.6	17.0	41.8	33.6	25.3	27.3	39.6	43.5

[1]All percents are based on analyses weighted according to the sample design to accurately represent the entire state. Restraint use includes correct and incorrect use of child restraint devices.
[2]Based on only 14 observed occupants.
[3]Restraint use for all positions includes cargo areas, passengers held in laps, and passengers standing.
[4]Data on rear seat passengers includes 9 occupants, riding in crew cab.

Figure 3.6: Restraint Use by Vehicle Type

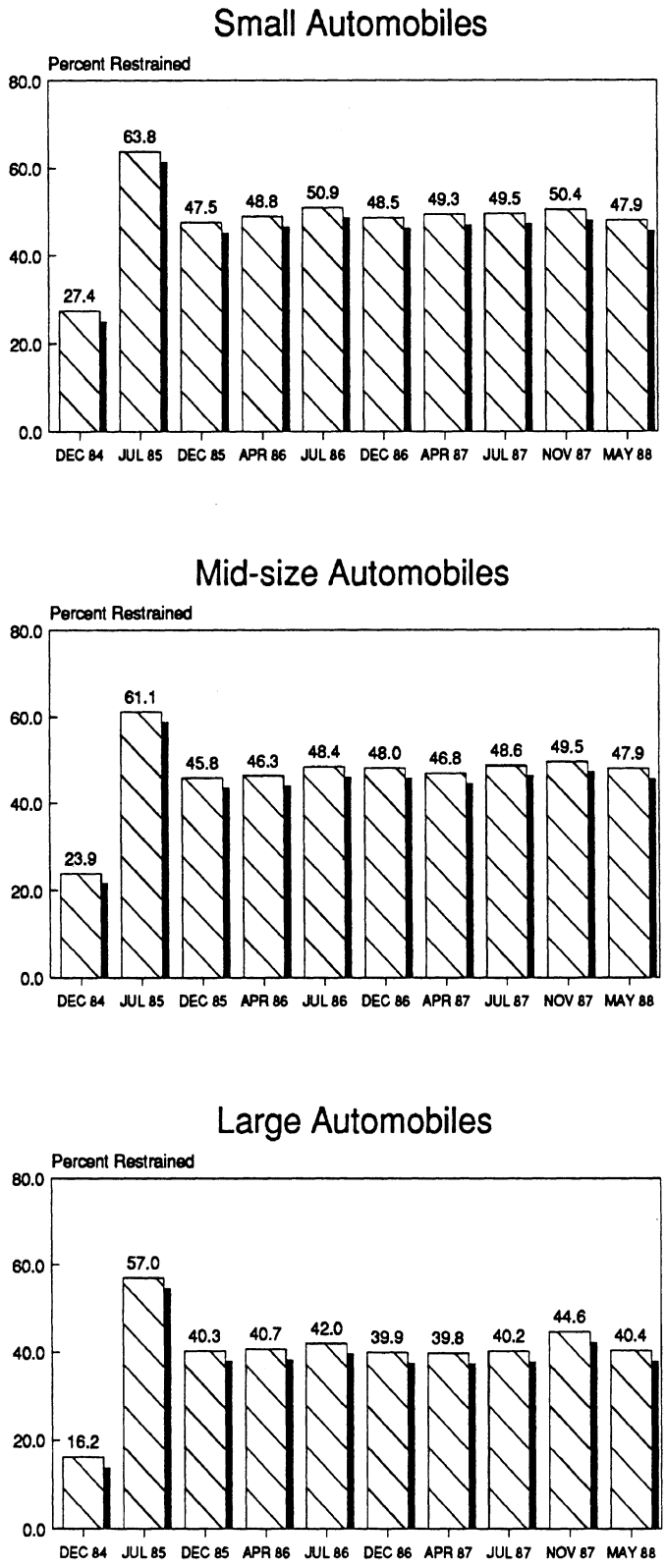
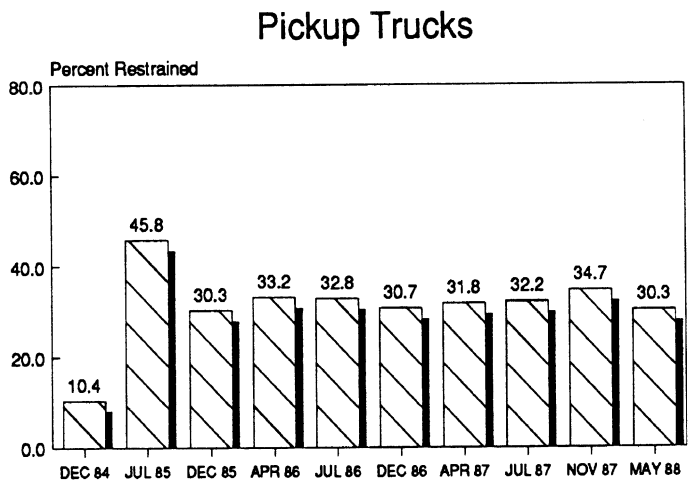
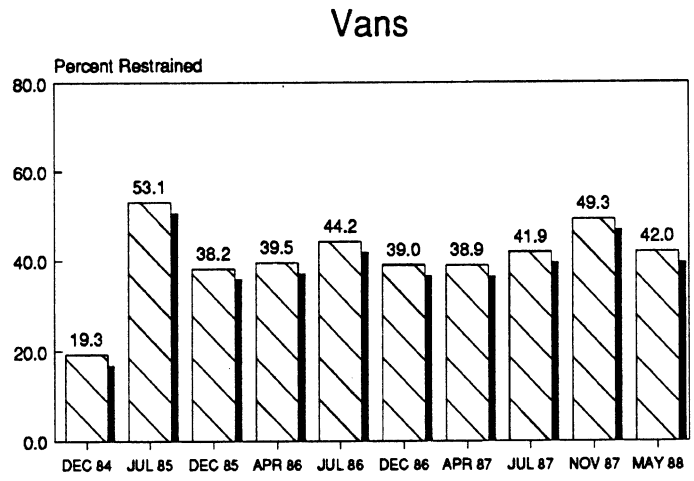


Figure 3.6 (Continued): Restraint Use by Vehicle Type





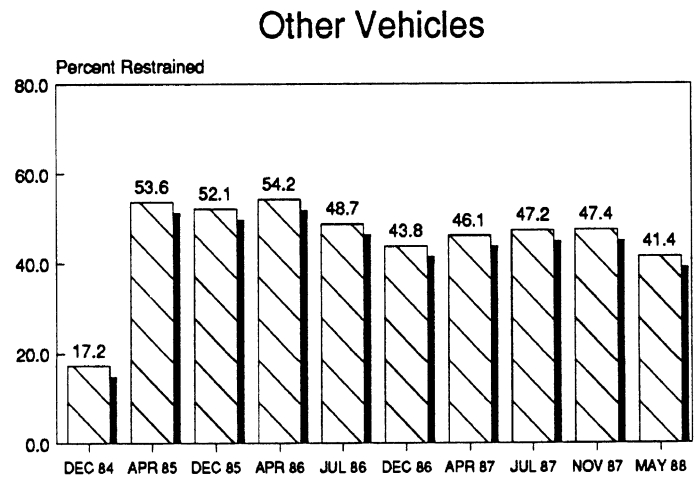


TABLE 3.4
Percent Restraint Use by Time of Day and Day of Week[1]

	Seat Position							
	Driver	Front Center	Front Right	Rear Left	Rear Center	Rear Right	Extra Seats[2]	All[3]
Time of Day								
7–8 AM	48.6	21.0	37.7	7.1	40.4	27.6	–	45.2
8–9 AM	47.1	0.0	36.9	16.0	45.1	16.1	0.0	43.8
9–10 AM	45.6	28.4	43.4	42.6	17.0	32.2	77.6	44.6
10–11 AM	44.9	6.4	39.6	34.2	29.4	14.0	0.0	42.2
11–12 AM	48.2	25.4	45.0	60.5	34.9	35.4	50.0	46.6
12–1 PM	46.7	25.0	44.2	30.5	23.0	27.9	67.9	43.8
1–2 PM	45.1	26.6	41.5	41.0	26.7	23.0	19.1	42.5
2–3 PM	47.9	15.9	46.9	32.4	12.1	32.1	51.4	45.7
3–4 PM	45.1	15.0	36.2	29.2	18.0	22.8	0.0	39.9
4–5 PM	44.8	13.6	40.9	33.5	25.0	30.7	44.7	41.6
5–6 PM	54.0	8.2	47.4	32.2	31.9	39.8	0.0	49.9
6–7 PM	42.6	12.0	38.2	27.8	19.4	25.4	73.7	38.8
Day of Week								
Monday	46.3	9.3	40.3	35.5	40.9	25.2	–	44.0
Tuesday	46.1	19.3	41.8	37.9	19.6	24.8	0.0	44.1
Wednesday	47.2	26.8	41.4	33.9	24.4	35.1	0.0	44.7
Thursday	42.0	14.3	36.7	34.0	12.6	22.0	60.4	39.6
Friday	46.3	9.5	39.2	29.7	15.3	27.1	100.0	42.6
Saturday	51.4	17.5	46.8	35.7	29.3	32.4	52.0	47.5
Sunday	46.9	17.7	43.2	32.6	27.2	23.7	16.7	42.3
TOTAL	46.6	17.0	41.8	33.6	25.3	27.3	39.6	43.5

[1]All percents are based on analyses weighted according to the sample design to accurately represent the entire state. Restraint use includes correct and incorrect use of child restraint devices.
[2]Based on only 14 observed occupants.
[3]Restraint use for all positions includes cargo areas, passengers held in laps, and passengers standing.

TABLE 3.5
Percent Restraint Use by Michigan Department of Transportation Regions[1]

MDOT Region	Seat Position							
	Driver	Front Center	Front Right	Rear Left	Rear Center	Rear Right	Extra Seats[2]	All[3]
1. Western U.P.	41.5	0.0	38.7	37.0	12.5	25.0	0.0	38.5
2. Eastern U.P.	31.4	0.0	31.9	30.0	0.0	25.0	–	30.8
3. Northwest	37.3	14.3	39.0	20.0	33.3	22.7	0.0	36.6
4. Northeast	49.8	12.5	45.8	33.3	40.0	16.7	100.0	47.4
5. West Central	45.1	6.8	40.6	48.6	31.9	46.8	0.0	43.2
6. East Central	47.7	5.9	39.7	30.7	24.0	25.0	100.0	43.0
7. Southwest	44.5	36.7	42.5	35.1	26.0	29.2	100.0	42.8
8. Southeast	56.1	15.5	48.4	40.3	34.1	30.8	33.8	51.9
Metro Detroit	46.0	20.8	41.2	29.4	20.9	23.4	33.2	42.7
TOTAL	46.6	17.0	41.8	33.6	25.3	27.3	39.6	43.5

[1]All percents are based on analyses weighted according to the sample design to accurately represent the entire state. Restraint use includes correct and incorrect use of child restraint devices.
[2]Based on only 14 observed occupants.
[3]Restraint use for all positions includes cargo areas, passengers held in laps and passengers standing.

Figure 3.7: Restraint Use by Region

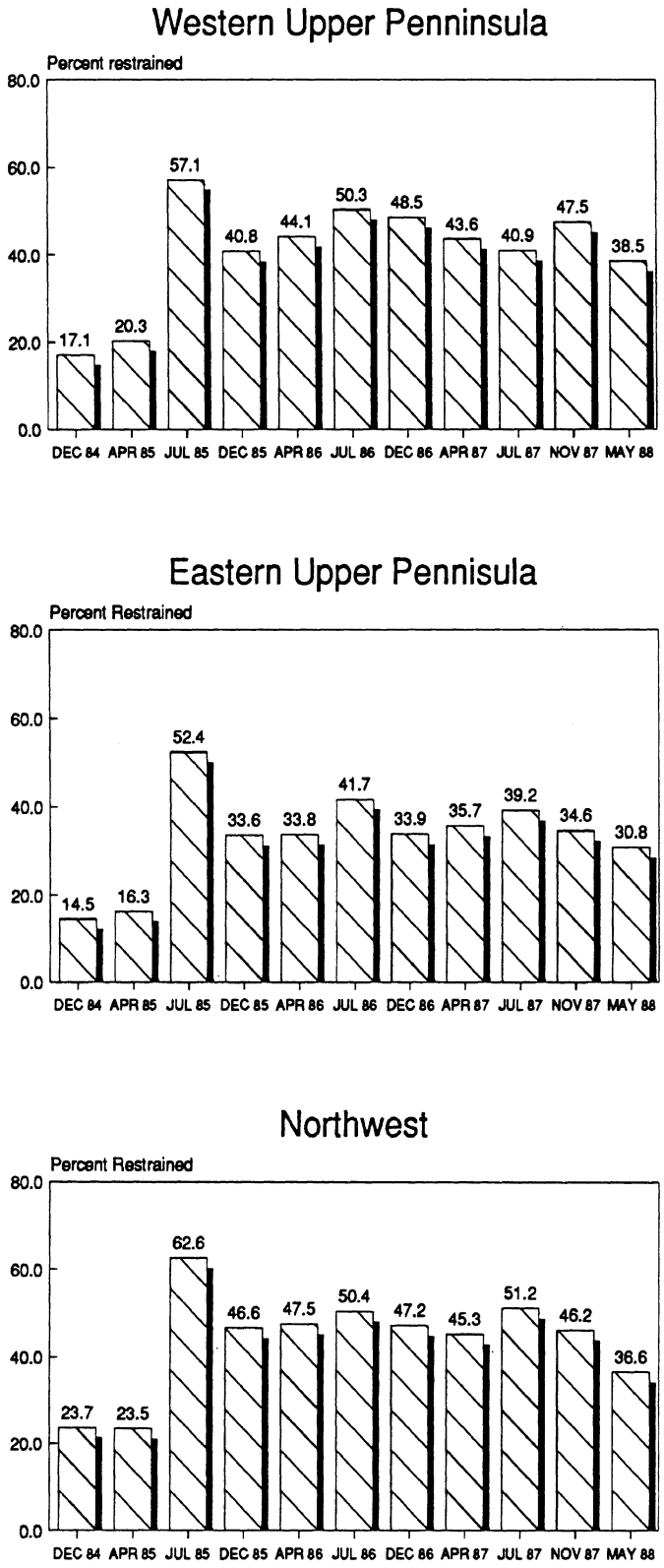
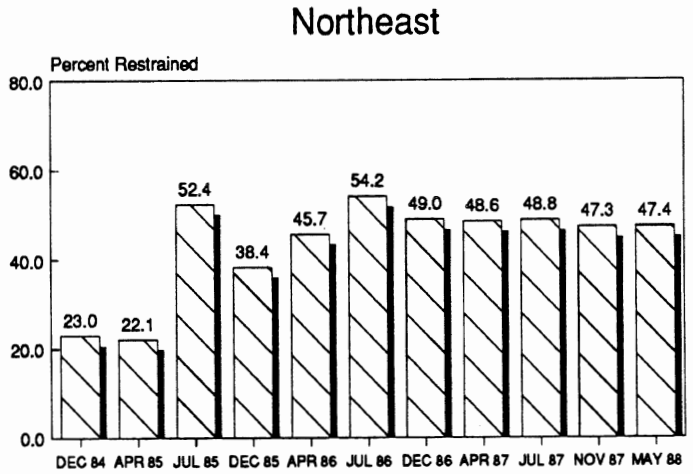
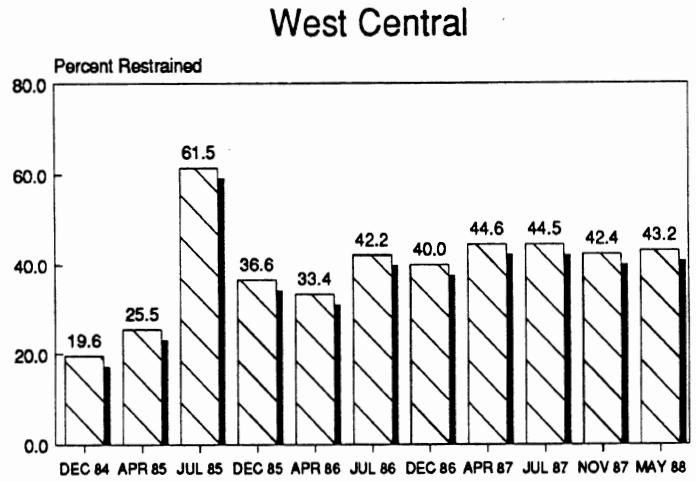


Figure 3.7 (Continued): Restraint Use by Region





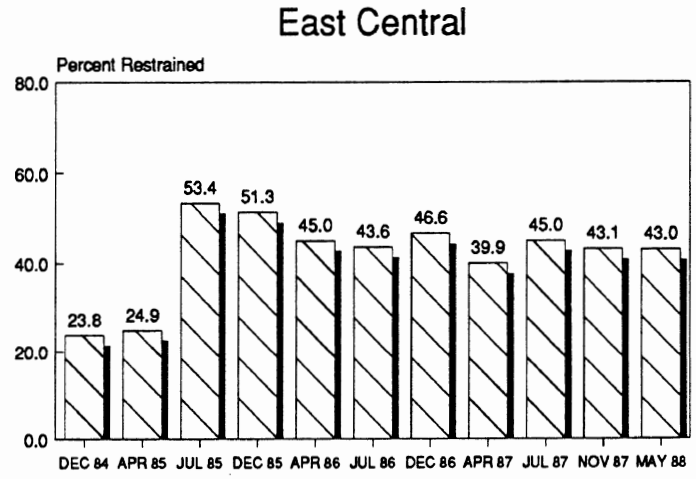
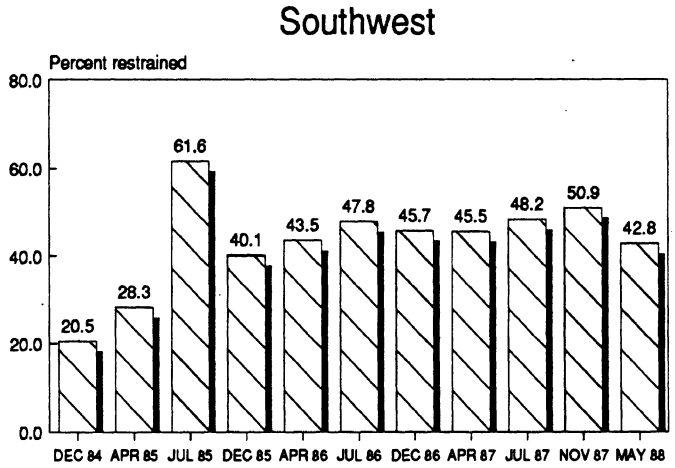
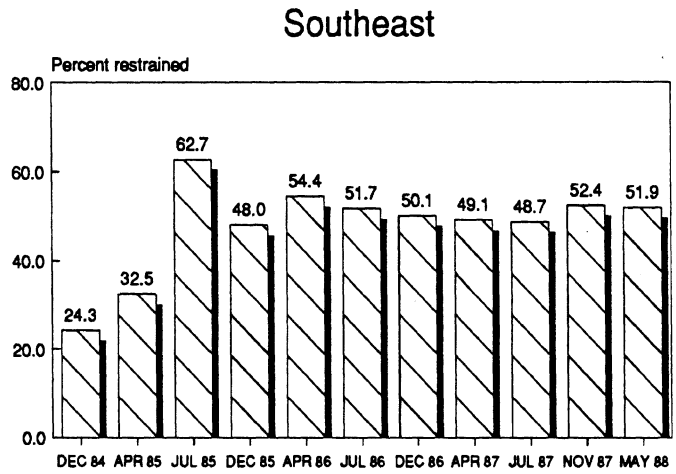


Figure 3.7 (Continued): Restraint Use by Region





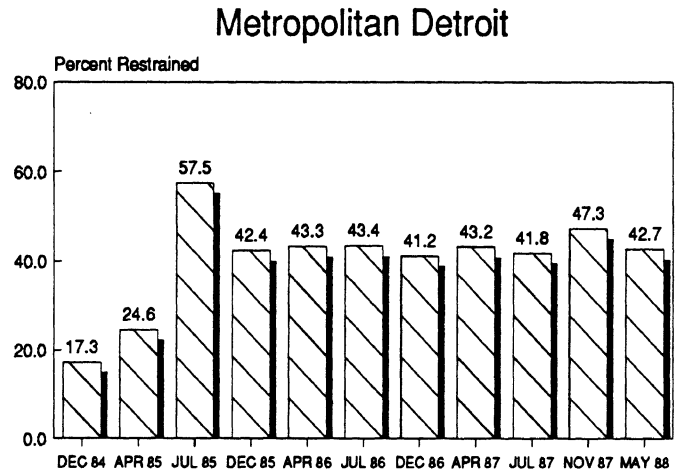


TABLE 3.6
Restraint Use, Number of Vehicles Observed, and Number of Occupants Observed for Each Sampling Area[1]

Sampling Area	Number of Vehicles Observed	Number of Occupants Observed	Percent Drivers Restrained	Percent Front Seat Passengers Restrained[2]	Percent All Occupants Restrained[2]
Barry[3]	196	385	50.8	45.1	47.4
Bay	204	273	56.9	54.9	54.9
Berrien County	204	262	35.8	31.9	34.0
Berrien, Niles	204	277	39.2	41.4	38.3
Charlevoix	204	282	32.8	41.8	35.1
Chippewa	204	315	34.3	30.4	33.0
Crawford-Roscommon	204	301	43.1	39.2	40.5
Delta	204	247	28.4	29.4	27.9
Dickinson	204	286	41.2	41.4	41.3
Eaton	202	272	54.2	53.8	54.2
Genesee	612	1,001	48.4	38.8	42.8
Grand Traverse	204	293	43.1	33.3	37.9
Ingham County	204	305	58.3	51.5	55.4
Ingham, East Lansing	204	260	62.7	47.6	59.6
Iosco-Alcona	204	269	56.4	50.0	55.0
Jackson	204	260	48.5	43.2	46.5
Kalamazoo County	204	261	50.0	40.5	47.9
Kalamazoo City	204	277	42.2	44.8	41.5
Kent County	204	272	58.3	47.9	57.0
Kent, Grand Rapids	204	288	48.5	38.2	46.3
Kent, Wyoming	189	324	45.7	39.1	43.5
Lapeer	177	233	41.6	39.4	38.5
Lenawee[3]	174	312	48.7	44.3	43.9
Macomb	610	805	47.2	50.0	46.7
Marquette	408	696	41.7	34.3	37.4
Mason	204	275	35.8	38.7	36.7
Mecosta-Newaygo	204	285	35.8	40.3	35.1
Monroe[3]	204	299	48.0	38.7	44.1
Montcalm[3]	204	300	42.2	35.6	40.0
Muskegon	180	248	39.3	30.6	37.9
Oakland County	1,020	1,527	59.5	52.0	54.7
Oakland, Royal Oak	204	263	51.5	47.1	51.3
Ottawa	203	284	45.8	39.2	43.3
Saginaw	408	640	45.1	32.0	40.2
St. Clair	193	266	42.7	33.5	40.0
VanBuren	204	317	39.2	35.2	35.3
Washtenaw, Ann Arbor	204	328	69.1	59.5	62.2
Wayne, Detroit	1,475	2,257	34.1	26.6	29.6
Wayne, Canton	204	286	65.2	67.9	62.9
Wayne, Garden City	204	301	50.5	44.9	49.8
Wayne, Livonia	203	320	61.0	68.4	59.6
Wayne, Melvindale etc.	204	287	27.0	22.8	24.8
Wayne, Trenton etc.	163	198	43.1	19.3	39.6
Wayne, Wyandotte	204	274	37.7	34.6	35.4
TOTAL	12,125	17,711	46.6	40.7	43.5

[1]All percentages are based on weighted analyses.
[2]Includes correct and incorrect use of child restraint devices.
[3]For these sampling areas no signalized freeway exits existed. Therefore, freeway exits required by the sample design were selected from an adjacent county.

previous survey waves was not consistent across sampling areas. Thirty sampling areas exhibited decreases in restraint use and fourteen exhibited increases. Most of these changes are due to sampling error and are not of interest.

Although restraint use in all sampling areas has increased since December 1984 (before enactment of mandatory safety belt legislation), the magnitude of the increases has varied. The largest percentage increases were experienced in St. Clair County (218%), Wayne County, City of Wyandotte, (205%), Wayne County, City of Detroit (202%), and Dickenson County (202%). One reason for these large percentage increases is the low prelegislation rates of belt use in these areas.

Occupants riding in nonstandard positions were tallied separately (Table 3.7). Nonstandard positions included: lying, standing, sitting, or kneeling on the floor, seat, or cargo area; sharing safety belts; or riding on the lap of another occupant. Occupants in nonstandard seating positions were typically under 16 years of age, as might be expected. A total of 20.5% of occupants age 0-3 years and 7.5% of occupants age 4-15 years were observed in nonstandard seating positions. Within the 0-3 age group, the most common nonstandard seating position was sitting on the lap of another occupant. Within the 4-15 age group, the most common positions were sitting in the cargo area or on the edge of the rear seat.

The proportion of belted occupants observed using their safety belts incorrectly in the current survey wave was higher than in previous waves subsequent to December 1985 (Figure 3.8; incorrect use of child restraint devices is **not** included here). Given the relatively small number of cases, the increase from November 1987 did not achieve statistical significance (Z=1.79).

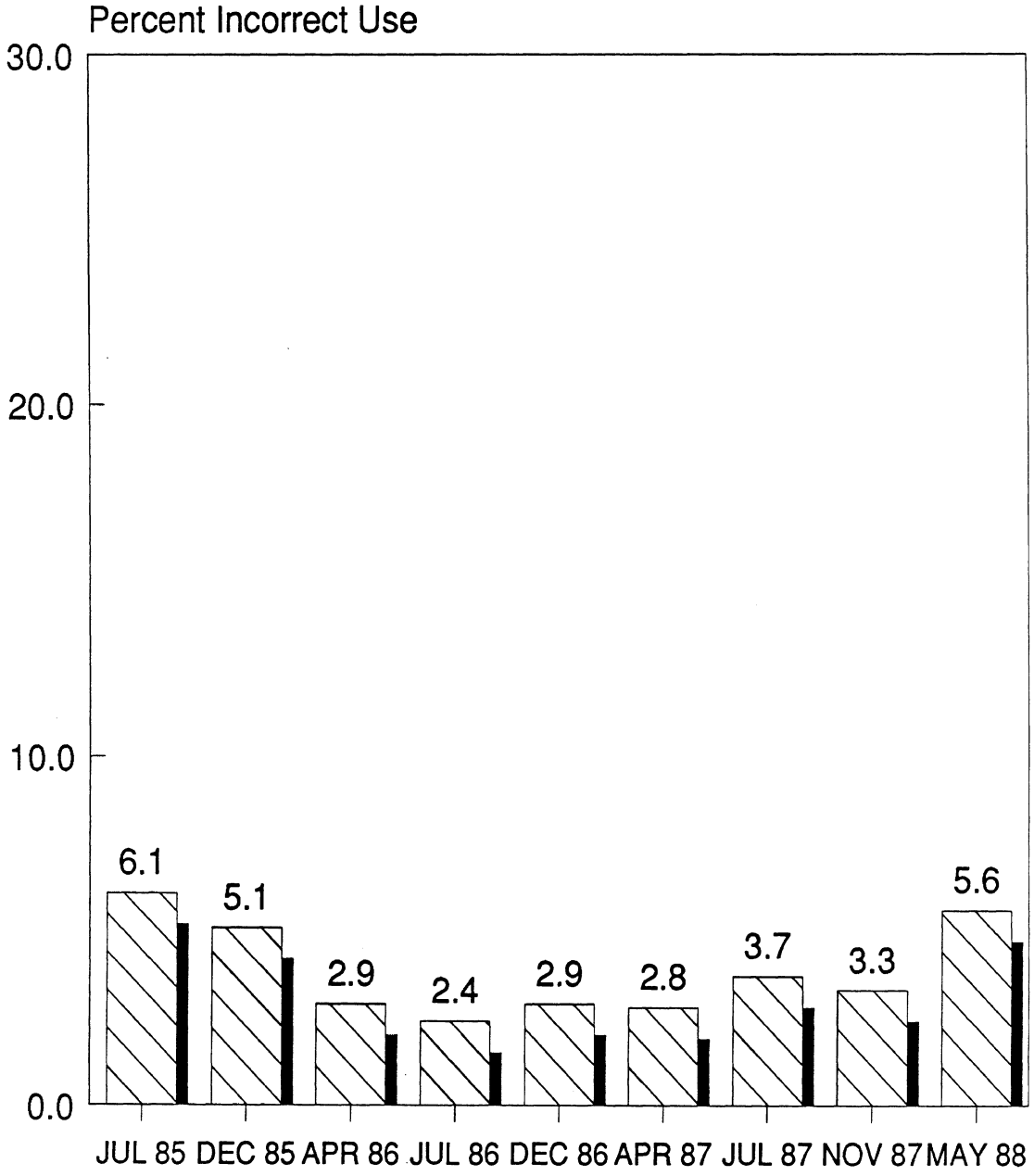
A study of twenty-seven states with belt laws (as of January 1987) found that states with primary enforcement laws had higher compliance than states with secondary enforcement laws (Campbell, 1987). Furthermore, in both primary and secondary enforcement states, belt use was higher when levels of enforcement were higher. For example, in Texas, a state with high levels of safety belt use one year after implementation of safety belt legislation, 513 tickets per 100,000 population are issued annually by state police to motorists who fail to obey the law. By comparison, 254 tickets per 100,000 population are issued annually by Michigan State Police (Campbell, 1987). It should be noted that the Texas law permits primary enforcement, in contrast to the Michigan law, which is limited to secondary enforcement.

TABLE 3.7
Number of Occupants in Nonstandard Seat Positions by Age[1]

	Age of Occupant		
Position	0–3	4–15	16+
Lying			
Rear seat	5	10	1
Front seat	2	1	0
Standing			
Front seat	0	3	0
Rear seat	1	6	0
On floor	3	11	0
Kneeling			
Front seat	1	5	0
Rear seat	3	5	0
Sitting			
On edge of front seat	1	5	0
On edge of rear seat	4	21	1
Between bucket seats	0	6	0
On lap	41	12	0
Cargo area	0	21	4
Shared seat belt	0	2	0
Total occupants in nonstandard positions	61	108	6
Total occupants in all positions	297	1,437	16,057

[1] Data are not weighted.

Figure 3.8: Percent of Belted Occupants with Incorrect Use



Adherence to Michigan's safety belt law would be facilitated if the law permitted primary enforcement. Even without such new legislation, however, stricter enforcement of the current law is needed, coupled with major publicity campaigns, in order to strengthen public perception about enforcement of the law and to enhance the law's contribution to reduced injury and death.

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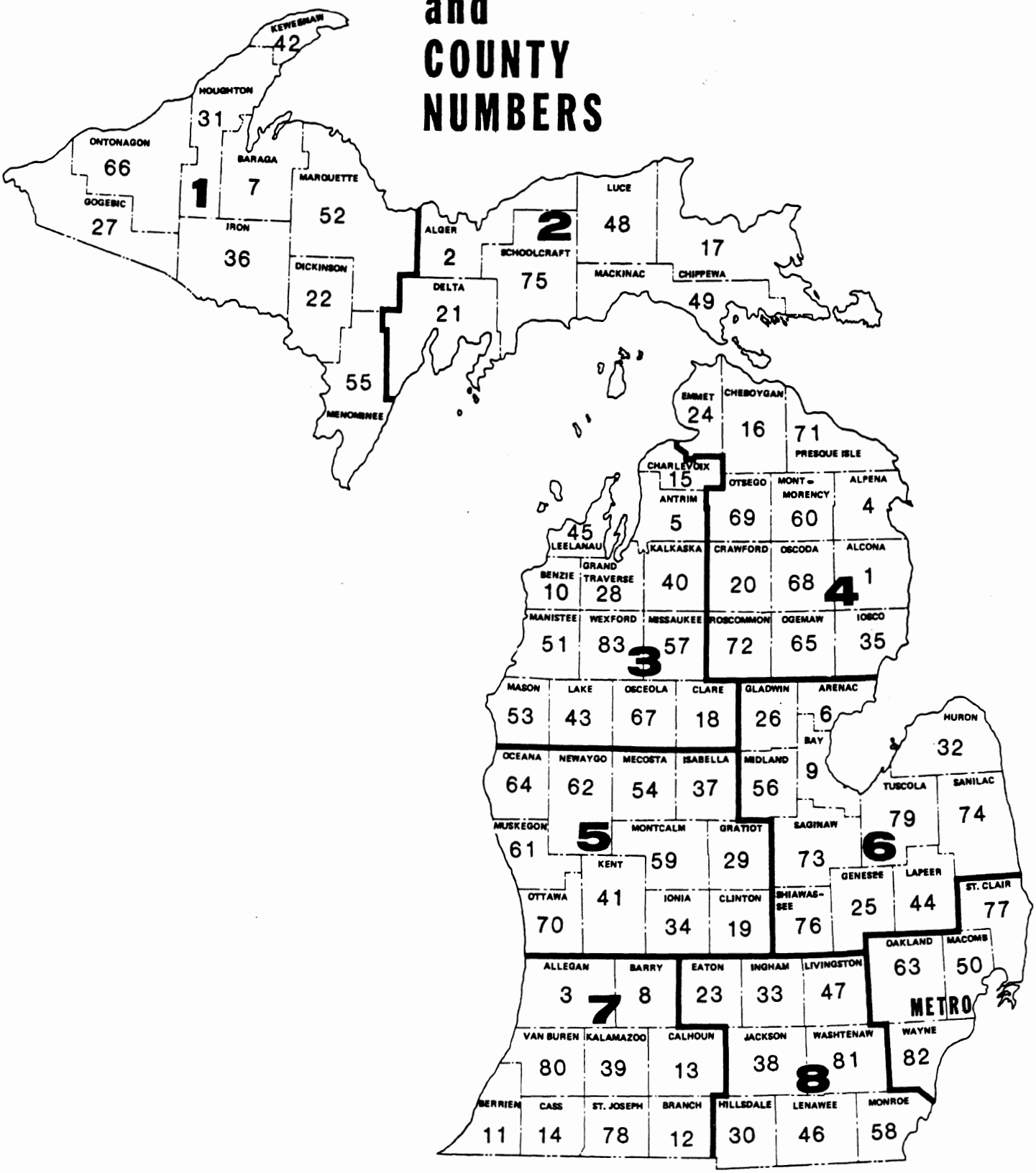
Appendix A

MICHIGAN DEPARTMENT OF TRANSPORTATION REGION MAP

DISTRICT and COUNTY NUMBERS



Appendix B

SEAT BELT SURVEY CODEBOOK

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable Number	Variable Name	Field Width	Character Type	Mult Resp	Page Number
1	SITE NUMBER	3	Numeric		46
2	SITE TYPE	1	Numeric		46
3	SITE CHOICE	1	Numeric		46
4	MONTH	2	Numeric		46
5	DAY OF MONTH	2	Numeric		46
6	START HOUR	2	Numeric		47
7	START MINUTE	2	Numeric		47
8	DAY OF WEEK	1	Numeric		47
9	WEATHER	1	Numeric		47
10	BREAK TIME (MINUTES)	2	Numeric		48
11	END HOUR	2	Numeric		48
12	END MINUTE	2	Numeric		48
13	SAMPLE REGION	1	Numeric		48
14	PSU ID	2	Numeric		49
15	MDOT REGION	1	Numeric		50
16	REGION WEIGHT	5	Numeric		50
17	ELAPSED TIME	2	Numeric		50
18	SITE OBSERVER	1	Numeric		50
19	SAMPLE ERROR COMP UNIT #	2	Numeric		50

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable Number	Variable Name	Field Width	Character Type	Mult Resp	Page Number
20	VEHICLE OBSERVER	1	Numeric		51
21	VEHICLE TYPE	1	Numeric		51
22	SEQUENCE NUMBER	2	Numeric		51
23	SITE # COUNT	2	Numeric		51
24	OBSERVER COUNT	2	Numeric		52
25	SITE/OBSERVER SEQ #	2	Numeric		52
26	HOUR OF OBSERVATION	2	Numeric		52
27	MINUTE OF OBSERVATION	2	Numeric		52
28	SITE WEIGHT	6	Numeric		52
29	TOTAL WEIGHT	6	Numeric		52
30	WAVE	2	Numeric		53
31	DRIVER BELTED (Y/N)	1	Numeric		53
32	DRIVER RESTRAINT USE	1	Numeric		53
33	DRIVER SEX	1	Numeric		53
34	DRIVER AGE	1	Numeric		53

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable Number	Variable Name	Field Width	Character Type	Mult Resp	Page Number
35	POSITION	2	Numeric		54
36	BELTED (Y/N)	1	Numeric		54
37	RESTRAINT USE	1	Numeric		54
38	SEX	1	Numeric		55
39	AGE	1	Numeric		55
40	SPECIAL TAG	2	Numeric		55
41	OCCUPANT # IN POSITION	1	Numeric		55

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Site Variables

Variables 1 through 19 describe site level information. The frequencies for the site variables contain one record for each of the 240 sites.

Variable 1 **SITE NUMBER** MD1: None MD2: None Field Width: 3 Type: Numeric

Variable 2 **SITE TYPE** MD1: None MD2: None Field Width: 1 Type: Numeric

FREQ	Prcnt	SITE TYPE
190	79.2	1. Intersection
50	20.8	2. Freeway Exit

Variable 3 **SITE CHOICE** MD1: None MD2: None Field Width: 1 Type: Numeric

FREQ	Prcnt	SITE CHOICE
237	98.7	1. Primary
3	1.2	2. Secondary

Variable 4 **MONTH** MD1: None MD2: None Field Width: 2 Type: Numeric

FREQ	Prcnt	MONTH
109	45.4	04. April
131	54.6	05. May

Variable 5 **DAY OF MONTH** MD1: None MD2: None Field Width: 2 Type: Numeric

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 6 **START HOUR** MD1: None Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	START HOUR
16	6.7	07.
18	7.5	08.
21	8.7	09.
24	10.0	10.
19	7.9	11.
23	9.6	12.
27	11.2	13.
19	7.9	14.
23	9.6	15.
17	7.1	16.
16	6.7	17.
17	7.1	18.

Variable 7 **START MINUTE** MD1: None Field Width: 2
MD2: None Type: Numeric

Variable 8 **DAY OF WEEK** MD1: None Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	DAY OF WEEK
34	14.2	1. Monday
33	13.7	2. Tuesday
33	13.7	3. Wednesday
37	15.4	4. Thursday
40	16.7	5. Friday
33	13.7	6. Saturday
30	12.5	7. Sunday

Variable 9 **WEATHER** MD1: None Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	WEATHER
145	60.4	1. Mostly Sunny
75	31.2	2. Mostly Cloudy
17	7.1	3. Rain
3	1.2	4. Snow

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 10 **BREAK TIME (MINUTES)** MD1: None Field Width: 2
MD2: None Type: Numeric

Variable 11 **END HOUR** MD1: None Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	END HOUR
9	3.7	07.
14	5.8	08.
21	8.7	09.
23	9.6	10.
24	10.0	11.
22	9.2	12.
25	10.4	13.
24	10.0	14.
20	8.3	15.
19	7.9	16.
20	8.3	17.
18	7.5	18.
1	0.4	19.

Variable 12 **END MINUTE** MD1: None Field Width: 2
MD2: None Type: Numeric

Variable 13 **SAMPLE REGION** MD1: None Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	SAMPLE REGION
20	8.3	1. Upper
20	8.3	2. Northern
20	8.3	3. Western
20	8.3	4. Central
20	8.3	5. South Central
20	8.3	6. Eastern
120	50.0	7. South Eastern

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 14 **PSU ID** MD1: None Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	PSU ID
4	1.7	08. BARRY
4	1.7	09. BAY
4	1.7	11. BERRIEN COUNTY
4	1.7	12. BERRIEN, NILES
4	1.7	15. CHARLEVOIX
4	1.7	17. CHIPPEWA
4	1.7	20. CRAWFORD-ROSCOMMON
4	1.7	21. DELTA
4	1.7	22. DICKINSON
4	1.7	23. EATON
12	5.0	25. GENESEE
4	1.7	28. GRAND TRAVERSE
4	1.7	33. INGHAM COUNTY
4	1.7	34. INGHAM, EAST LANSING
4	1.7	35. IOSOC-ALCONA
4	1.7	38. JACKSON
4	1.7	39. KALAMAZOO COUNTY
4	1.7	40. KALAMAZOO, CITY OF
4	1.7	41. KENT COUNTY
4	1.7	42. KENT, GRAND RAPIDS
4	1.7	43. KENT, WYOMING
4	1.7	44. LAPEER
4	1.7	46. LENAWEE
12	5.0	50. MACOMB
8	3.3	52. MARQUETTE
4	1.7	53. MASON
4	1.7	54. MECSOTA-NEWAYGO
4	1.7	58. MONROE
4	1.7	59. MONTCALM
4	1.7	61. MUSKEGON
20	8.3	63. OAKLAND COUNTY
4	1.7	64. OAKLAND, ROYAL OAK
4	1.7	70. OTTAWA
8	3.3	73. SAGINAW
4	1.7	74. ST. CLAIR
4	1.7	80. VANBUREN
4	1.7	81. WASHTENAW, ANN ARBOR
28	11.7	82. WAYNE, DETROIT
4	1.7	83. WAYNE, CANTON
4	1.7	84. WAYNE, GARDEN CITY
4	1.7	85. WAYNE, LIVONIA
4	1.7	86. WAYNE, MELVINDALE ETC.
4	1.7	87. WAYNE, TRENTON ETC.
4	1.7	88. WAYNE, WYANDOTTE

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 15 **MDOT REGION** MD1: None Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	MDOT REGION
12	5.0	1. Western U.P.
8	3.3	2. Eastern U.P.
12	5.0	3. Northwest
8	3.3	4. Northeast
28	11.7	5. West Central
28	11.7	6. East Central
28	11.7	7. Southwest
24	10.0	8. Southeast
92	38.3	9. Metro Detroit

Variable 16 **REGION WEIGHT** MD1: None Field Width: 5
MD2: None Type: Numeric
Implied Dec Places: 4

Variable 17 **ELAPSED TIME** MD1: None Field Width: 2
MD2: None Type: Numeric

Variable 18 **SITE OBSERVER** MD1: None Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	PRIMARY OBSERVER FOR THIS SITE
65	27.1	1. Observer #1
86	35.8	2. Observer #2
89	37.1	3. Observer #3

Variable 19 **SAMPLE ERROR COMP UNIT #** MD1: None Field Width: 2
MD2: None Type: Numeric

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Vehicle variables

Variables 20 through 34 describe the vehicle and driver. The frequencies for the vehicle variables reflect one record for each vehicle observed.

Variable 20 **VEHICLE OBSERVER** MD1: None MD2: None Field Width: 1 Type: Numeric

FREQ	Prcnt	ACTUAL OBSERVER FOR THIS VEHICLE
3355	27.7	1. Observer #1
4371	36.0	2. Observer #2
4399	36.3	3. Observer #3

Variable 21 **VEHICLE TYPE** MD1: 8 MD2: None Field Width: 1 Type: Numeric

FREQ	Prcnt	VEHICLE TYPE
2468	20.4	1. Small Car
4109	33.9	2. Midsize Car
2748	22.7	3. Large Car
1571	13.0	4. Pickup
812	6.7	5. Van
414	3.4	6. Other
3	0.0	8. Missing Data

Variable 22 **SEQUENCE NUMBER** MD1: None MD2: None Field Width: 2 Type: Numeric

Variable 23 **SITE # COUNT** MD1: None MD2: None Field Width: 2 Type: Numeric

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 24 **OBSERVER COUNT** MD1: None Field Width: 2
MD2: None Type: Numeric

Variable 25 **SITE/OBSERVER SEQ #** MD1: None Field Width: 2
MD2: None Type: Numeric

Variable 26 **HOUR OF OBSERVATION** MD1: 88 Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	HOUR OF THE DAY THIS VEHICLE WAS OBSERVED
618	5.1	07.
872	7.2	08.
1034	8.5	09.
1201	9.9	10.
1090	9.0	11.
1142	9.4	12.
1286	10.6	13.
1019	8.4	14.
1172	9.7	15.
857	7.1	16.
926	7.6	17.
908	7.5	18.

Variable 27 **MINUTE OF OBSERVATION** MD1: 88 Field Width: 2
MD2: None Type: Numeric

Variable 28 **SITE WEIGHT** MD1: None Field Width: 6
MD2: None Type: Numeric
Implied Dec Places: 4

Variable 29 **TOTAL WEIGHT** MD1: None Field Width: 6
MD2: None Type: Numeric
Implied Dec Places: 4

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 30 **WAVE** MD1: None Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	WAVE
12125	100.0	11. Wave 11

Variable 31 **DRIVER BELTED (Y/N)** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	DRIVER BELTED (Y/N)
6559	54.1	1. Not Belted
5566	45.9	2. Belted
0	0.0	8. Missing data

Variable 32 **DRIVER RESTRAINT USE** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	DRIVER RESTRAINT USE
6559	54.1	1. Not Belted
5566	45.9	2. Belted
0	0.0	8. Missing Data

Variable 33 **DRIVER SEX** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	DRIVER SEX
7451	61.5	1. Male
4674	38.5	2. Female
0	0.0	8. Missing Data

Variable 34 **DRIVER AGE** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	DRIVER AGE
6	0.0	2. 4-15
3212	26.5	3. 16-29
7919	65.3	4. 30-59
987	8.1	5. 60+
1	0.0	8. Missing Data

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variables 35 through 37 describe the occupants. The frequencies for the occupant variables contain one record for each occupied occupant position.

Variable 35 **POSITION** MD1: 88 Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	POSITION
12125	68.5	01. Front Left
180	1.0	02. Front Center
3840	21.7	03. Front Right
491	2.8	04. Rear Left
274	1.5	05. Rear Center
670	3.8	06. Rear Right
53	0.3	07. In Lap
25	0.1	08. Cargo Area
39	0.2	09. Extra Seat
14	0.1	10. Standing
0	0.0	88. Missing Data

Variable 36 **BELTED (Y/N)** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	BELTED (Y/N)
10086	56.9	1. Not Belted
7621	43.0	2. Belted (any type)
4	0.0	8. Missing Data

Variable 37 **RESTRAINT USE** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	RESTRAINT USE
10086	56.9	1. Not Belted
7449	42.1	2. Belted
129	0.7	3. CRD OK
43	0.2	4. CRD Wrong
4	0.0	8. Missing Data

MICHIGAN SEAT BELT SURVEY
Wave 11, May 1988

Variable 38 **SEX** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	SEX
9579	54.1	1. Male
8126	45.9	2. Female
6	0.0	8. Missing Data

Variable 39 **AGE** MD1: 8 Field Width: 1
MD2: None Type: Numeric

FREQ	Prcnt	AGE
280	1.6	1. 0-3
1373	7.8	2. 4-15
4575	25.8	3. 16-29
9981	56.4	4. 30-59
1499	8.5	5. 60+
3	0.0	8. Missing Data

Variable 40 **SPECIAL TAG** MD1: None Field Width: 2
MD2: None Type: Numeric

FREQ	Prcnt	SPECIAL TAG
17314	97.8	00. None
396	2.2	01. Shoulder Belt Misused
1	0.0	02. Lap Belt Misused

Variable 41 **OCCUPANT # IN POSITION** MD1: 8 Field Width: 1
MD2: None Type: Numeric

Sequence number for occupants in same seat position.
(Includes cargo areas and extra seats)

FREQ	Prcnt	OCCUPANT # IN POSITION
17673	99.8	1. First Occupant
37	0.2	2. Second Occupant