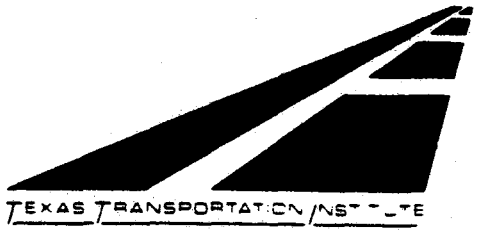

1988 SURVEY OF FRONT SEAT OCCUPANT RESTRAINT USE IN EIGHTEEN TEXAS CITIES

by

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1988 SURVEY OF FRONT SEAT OCCUPANT RESTRAINT USE IN EIGHTEEN TEXAS CITIES

Background

In 1984 the Texas Transportation Institute (TTI) conducted an observational survey of occupant restraint use in a sample of Texas cities for the Texas State Department of Highways and Public Transportation. At that time occupant restraint legislation was not under consideration in Texas. It was agreed, however, that collecting baseline data on occupant restraint use would prove beneficial for information purposes in response to legislative initiative. The background, methodology and results of the baseline study, as well as a review of other relevant studies, were presented in a 1985 report (Hatfield, et al., 1985).

A mandatory belt use law was passed in the 1985 general session of the Texas Legislature and went into effect without sanctions September 1, 1985; enforcement with the imposition of fines began on December 1, 1985. The Texas law requires drivers and front seat passengers to use safety belts. Drivers are responsible for passengers under 15 years of age. Safety belt usage applies to passenger cars and light pick-up trucks weighing up to 3/4 tons. It exempts persons for medical reasons (requiring a written statement from a licensed physician) and exempts postal employees in box-to-box delivery of mail. Use or non-use of safety belts is not admissible evidence in a civil trial.

In order to assess changes in occupant restraint use after passage of the law, TTI collected follow-up data between January and June of 1986 in selected cities (Bunch, et al., 1986) and again in January and June of 1987 (Womack, et al., 1987). The winter and summer survey waves were repeated in 1988. This report presents the results of the 1988 surveys, and

compares these findings with the results of previous surveys.

Study Methodology

In the 1985 pre-law observational survey, 12 Texas cities were selected to cover the major population centers in the East, Central, and Gulf Coast regions of the State, as well as the less populated areas of West Texas, the Panhandle, and the Rio Grande Valley. At the request of SDHPT, two additional cities were included in the 1986 post-law survey and four additional cities were included in the 1988 post-law survey. As shown in Figure 1, this sample of cities covers the major population centers in the east, central, and Gulf Coast regions of the State, as well as the less populated areas of West Texas, the Panhandle, and the Rio Grande Valley. The dates on which the observational data were collected are provided below:

Observation Cities	Dates Surveyed in 1988
Abilene**	Jan. 11-13, May 31, June 1-3,7,13,14
Amarillo	Jan. 13-15, June 8-10
Austin	Jan. 13-15, May 31, June 1-3
Beaumont*	Jan. 5-7, May 31, June 1,2
Brownsville	Jan. 5-7, May 31, June 1-3
Bryan/College Station	Jan. 4-6, May 31, June 1-3
Corpus Christi	Jan. 5-7, May 31, June 1-3
Dallas	Jan. 5,6,11, June 1-3
El Paso	Jan. 5-7, May 31, June 1-3
Ft. Worth*	Jan. 5,11,12, May 31, June 1,7,16,17
Houston	Jan. 5-7, June 2,3,6,7
Laredo**	Jan. 5-7, May 31, June 1-3
Lubbock	Jan. 11-13, June 6-8
Midland**	Jan. 11-13, June 1-3
San Antonio	Jan. 4-6, May 31, June 1-3
Tyler	Jan. 4-6,11, June 1-3
Waco	Jan. 5-7, June 7-10
Wichita Falls**	Jan. 7,8,11-13, June 1-3

* Added in 1986
** Added in 1988

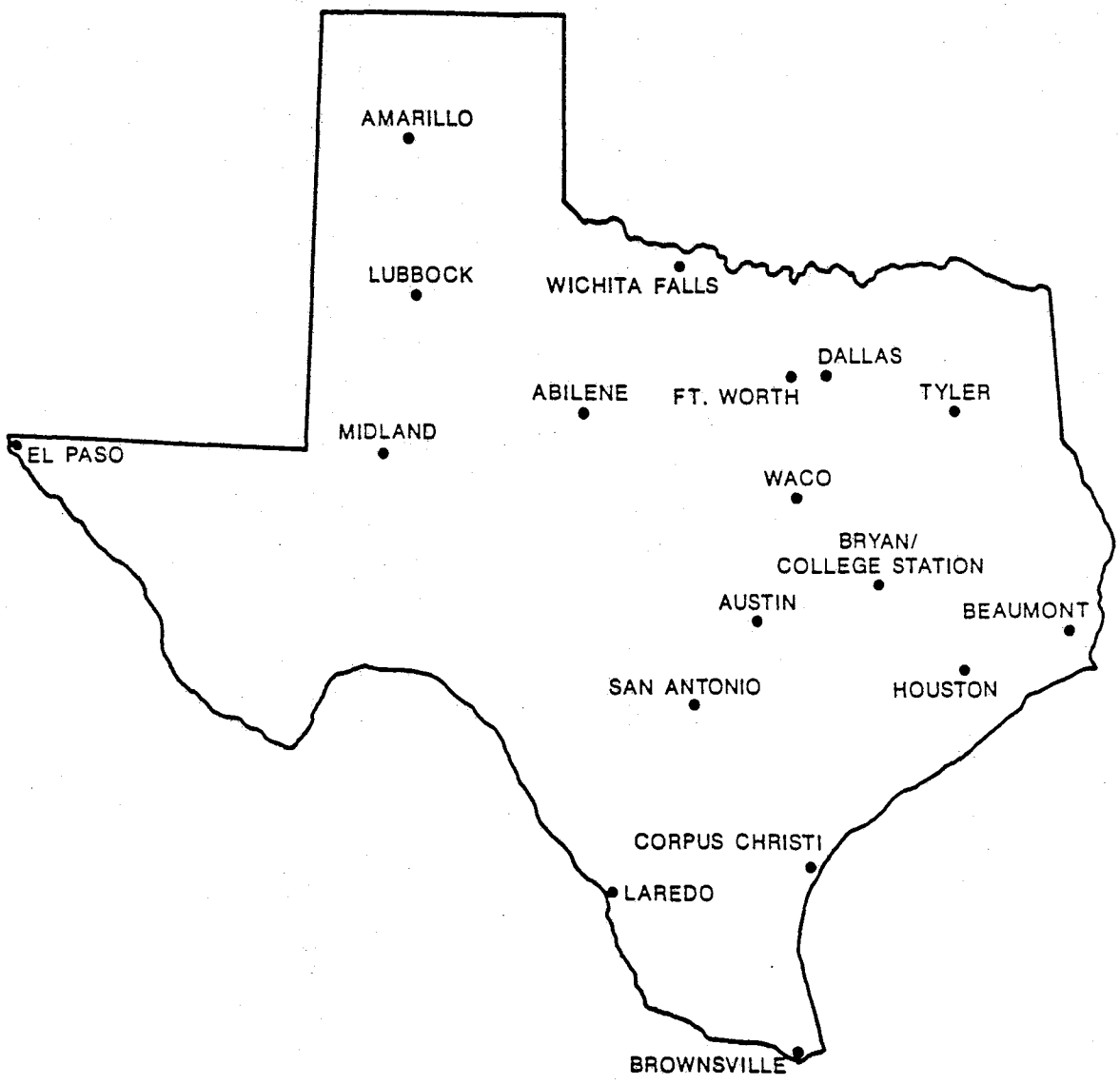


Figure 1. Study Cities in the Safety Belt Observational Survey

In each study city, occupant restraint use was observed in a geographic cross-section of 12 sites. Because the survey was intended to assess changes in safety belt use over time, an attempt was made to control for as many external variables as possible. Specifically, all observation sites were located in urban areas, at street intersections controlled by either stop signs or stop lights, and on roadways with traffic volume sufficient to allow for adequate sample sizes. In addition, all observations were recorded during daylight hours and on weekdays, and a comparable number of observations was made during rush hour and non-rush hour periods.

Observations were limited to drivers and right front seat (outboard) passengers, with restraint use determined by the use of a shoulder harness. Eligible vehicles included privately owned passenger cars and pick-up trucks registered in the State of Texas. At each observation site, data on approximately 250 vehicles were recorded.

The following information was collected for each eligible vehicle:

- Driver restraint use (yes or no)
- Driver sex (male or female)
- Estimated driver age (15-19, 20-60, 61+)
- Front outboard passenger restraint use (yes or no)
- Front outboard passenger sex (male or female)
- Estimated front outboard passenger age (0-4, 5-14, 15-19, 20-60, 61+)*
- Pick-up truck (yes or no)

* No information on passengers under 15 was recorded in the 1985 baseline study.

The surveys utilized Texas A&M University students as observers. Each observer was provided individual instruction and training by the TTI study staff prior to the survey. During the survey period observers were monitored and a quality check to assure accurate observation was made.

Results of the 1988 Survey

In the combined 18-city sample, data were collected for a total of 54,368 drivers in January and 54,416 drivers in June. Approximately 54 percent of the drivers in the January survey and 59 percent of the drivers in the June survey were observed to be restrained. Data for 23,915 passengers were also collected. Passengers were restrained approximately 42 and 47 percent of the time in the January and June surveys, respectively. Among both drivers and front seat passengers, females evidenced higher wearing rates than did their male counterparts during the two survey periods, as shown in Table 1.

TABLE 1. 1988 OCCUPANT RESTRAINT USE BY SEX

	DRIVERS		PASSENGERS	
	Male	Female	Male	Female
% Restrained (January)	50.6	58.8	38.2	44.9
(June)	54.9	64.7	42.2	50.0
% Unrestrained (January)	49.4	41.2	61.8	55.1
(June)	45.1	35.3	57.8	50.0
Total Occupants (N): Jan.	(30,662)	(23,706)	(4,265)	(7,323)
June	(30,562)	(23,854)	(4,782)	(7,483)

When the data were examined by age of the driver, older drivers (over 60 years of age) were found to buckle up proportionately more often than younger drivers, particularly those drivers under 20 years of age (Table 2). For passengers, the relationship between age and restraint use was quite similar. Again, those in the oldest age group had the highest safety belt wearing rates, while those in the 15 to 20 and 20 to 60 year age groups were found to be restrained less often (Table 3). Restraint use for passengers under age 15 averaged 49.7 percent.

TABLE 2. 1988 DRIVER RESTRAINT USE BY AGE

	DRIVER AGE		
	15 - 19	20 - 60	Over 60
% Restrained (January)	45.7	54.0	60.1
(June)	41.4	59.2	66.5
% Unrestrained (January)	54.3	46.0	39.9
(June)	58.6	40.8	33.5
Total Drivers (N): Jan.	(1503)	(49,309)	(3,556)
June	(1305)	(49,824)	(3,287)

TABLE 3. 1988 PASSENGER RESTRAINT USE BY AGE

		PASSENGER AGE				
		0 - 4*	5 - 14	15 - 19	20 - 60	61+
% Restrained	(January)	47.3	46.6	37.9	39.7	53.3
	(June)	55.4	49.6	39.4	45.7	57.1
% Unrestrained	(January)	52.7	53.4	62.1	60.3	46.7
	(June)	44.5	50.4	60.6	54.3	42.9
Total Passengers (N):	Jan.	(393)	(1,373)	(1,274)	(7,504)	(1,136)
	June	(211)	(1,626)	(1,202)	(8,185)	(1,103)

*Restraint use was considered either safety belt or child safety seat.

Cross-classification of the data by age and sex (Table 4) revealed that female drivers over 60 years of age had the highest belt usage rates (64.4 percent in January and 72.6 percent in June), while male drivers under 20 years of age had the lowest usage rates (42.5 percent in January and 38.9 percent in June).

TABLE 4. 1988 PERCENTAGE OF RESTRAINED DRIVERS BY AGE AND SEX

		DRIVER SEX	
Driver Age		Male	Female
15 - 19	January	42.5	50.6
	June	38.9	46.8
20 - 60	January	50.3	54.7
	June	54.8	59.7
Over 60	January	57.7	64.4
	June	62.9	72.6

Passenger restraint use was also analyzed by the passenger's sex and age. The highest restraint use was evidenced by females in the over 60 age group, and the lowest use was evidenced by teens and males in the 20 to 60 age group.

TABLE 5. 1988 PERCENTAGE OF RESTRAINED PASSENGERS BY AGE AND SEX

		PASSENGER SEX	
Passenger Age		Male	Female
0-4	January	44.2	50.8
	June	56.4	54.5
5-14	January	43.7	49.5
	June	48.1	51.5
15-19	January	34.9	40.1
	June	38.9	40.0
20-60	January	33.9	42.9
	June	39.2	49.3
Over 60	January	45.6	55.8
	June	50.5	59.6

For both drivers and passengers, restraint use was found to be higher for occupants of passenger cars than for pick-up trucks (Table 6). This finding is consistent with behavior observed in the 1987 survey and behavior observed in the pre-law survey where car occupants were restrained more often than pick-up occupants.

TABLE 6. 1988 OCCUPANT RESTRAINT USE BY VEHICLE TYPE

		DRIVER		PASSENGER	
		Car	Pick-up	Car	Pick-up
% Restrained	(January)	55.6	47.8	49.8	40.3
	(June)	60.9	52.1	56.0	46.2
% Unrestrained	(January)	44.4	52.2	50.2	59.7
	(June)	39.1	47.9	44.0	53.8
Total Occupants (N):	Jan.	(44,478)	(9,890)	(10,012)	(1,668)
	June	(44,110)	(10,306)	(10,478)	(1,849)

As was true in previous surveys, there was a very strong association between driver and passenger restraint use -- often referred to as the audience effect. In both survey waves, at least 21 percent of all vehicles observed had a passenger in the front outboard seating position. In this sample of 23,915 vehicles, if the driver was unrestrained, it was unlikely that the passenger was restrained. In only 9 percent of the vehicles included in this sample was a restrained passenger observed riding with an unrestrained driver (Table 7). However, if the driver was restrained, the passenger was also restrained approximately 77 percent of the time. These data indicate that front seat occupants are very likely to behave in the same manner in terms of restraint use.

TABLE 7. ASSOCIATION BETWEEN DRIVER AND PASSENGER RESTRAINT USE

	Passenger Restraint:		
Driver Restraint:	Unrestrained	Restrained	Total
Unrestrained (January)	5,299 (90.6%)	552 (9.4)	5,851
(June)	4,960 (90.4)	529 (9.6)	5,489
Restrained (January)	1,316 (23.7)	4,247 (76.3)	5,563
(June)	1,468 (22.1)	5,177 (77.9)	6,645

The data were analyzed separately for each of the 18 cities included in the study for each survey wave. Driver restraint use ranged from lows of 32 percent in Laredo in January and 36 percent in Brownsville in June to highs of 78 and 83 percent in Corpus Christi in January and June (Table 8). As mentioned previously, front seat passenger restraint was consistent with driver rates. The highest wearing rates were observed in Corpus Christi in the January survey wave (68 percent) and in the June survey wave (73 percent). Also consistent with driver restraint use, the lowest rates observed for passengers were in Laredo (20.4 percent) and Brownsville (24.1 percent) in January and June, respectively. In all cities, the percentage of drivers restrained was greater than the observed percentage of passengers restrained, with an average difference of 10.5 percent.

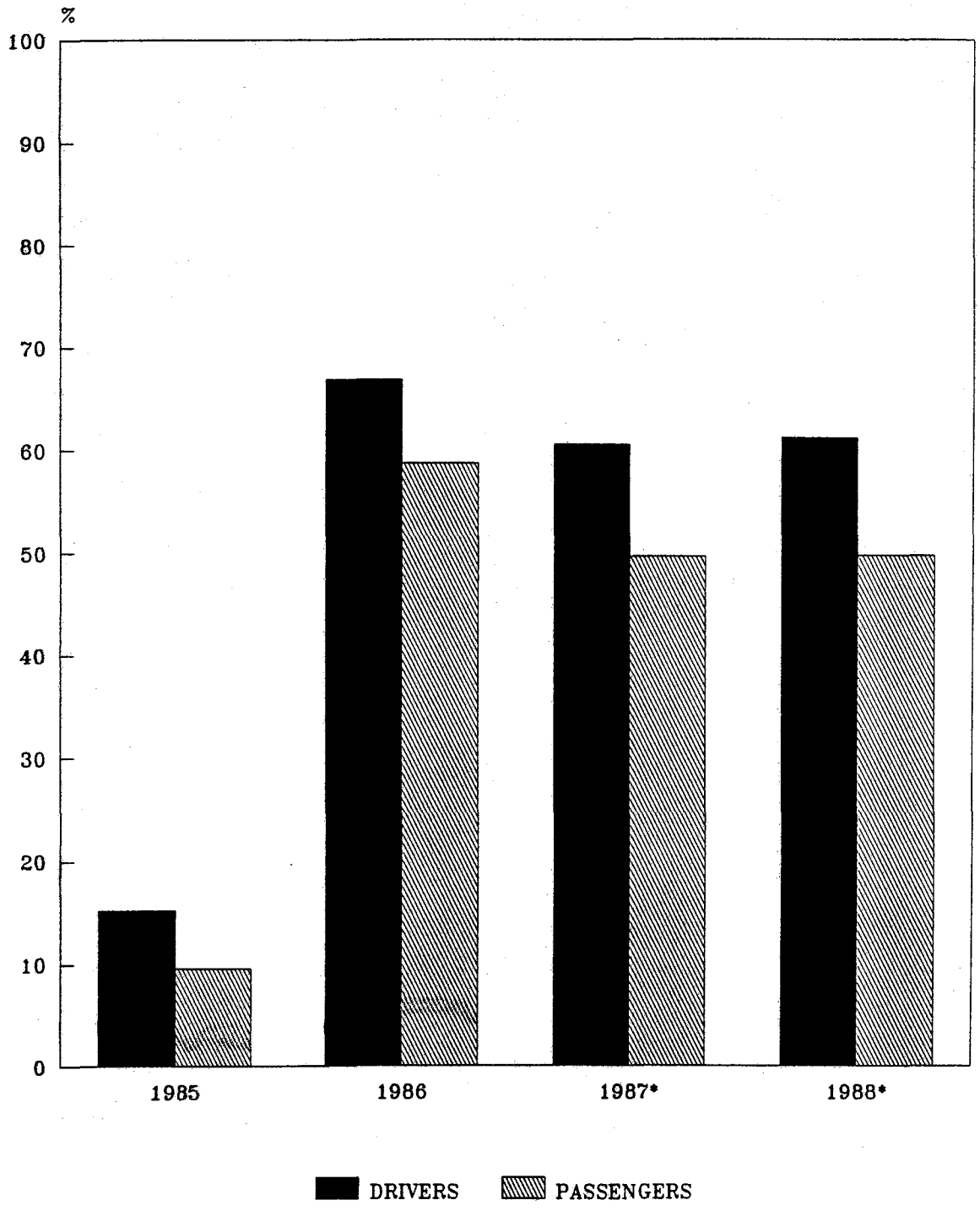
Within each of the study cities, driver and passenger restraint use was analyzed by sex and age to determine if significant differences were evident. Because the patterns within cities generally followed those observed in the combined sample, a detailed description of the results of the city-specific analyses are not included in this report. However, the results may be obtained from the author upon request.

TABLE 8. 1988 PERCENTAGE OCCUPANT RESTRAINT USE IN THE 18 STUDY CITIES

	DRIVER		PASSENGER	
	Jan.	June	Jan.	June
Abilene	52.9	52.8	38.7	39.2
Amarillo	58.1	60.4	40.3	49.0
Austin	64.8	72.7	51.1	67.7
Beaumont	46.6	59.3	38.7	53.5
Brownsville	39.3	35.9	25.2	24.1
Bryan/College Station	58.5	61.5	57.4	58.7
Corpus Christi	77.9	83.3	68.4	73.4
Dallas	58.1	67.6	55.3	55.3
El Paso	55.2	72.0	53.4	57.9
Ft. Worth	55.3	55.0	48.0	47.5
Houston	46.8	53.3	37.8	42.7
Laredo	32.4	50.1	20.4	35.5
Lubbock	62.5	61.0	40.0	40.2
Midland	53.1	55.2	40.6	43.7
San Antonio	50.8	47.4	33.5	32.5
Tyler	58.2	72.4	46.1	64.5
Waco	48.0	45.9	38.6	35.7
Wichita Falls	56.7	59.9	49.5	46.2
18-City Average	54.2	59.2	43.5	48.2

Trend Analysis

This section of the analysis compares restraint use over time for the cities in which comparison data are available. Figure 2 illustrates the changes over time for the 12 cities in which data are available for both



* June Survey

Figure 2. Driver and Passenger Use By Year

periods, before and after the MUL. Driver restraint use in the 12 cities increased significantly from 15.2 percent in 1985 (the "before" period) to 66.8 percent in 1986 (the first "after" period). A significant drop in use was observed from 1986 to 1987 (from 66.8 percent in 1987 to approximately 60 percent in both survey waves of 1987, $p<.01$). Although not shown in Figure 2, restraint use continued to decrease in the January, 1988 survey wave. However, the trend reversed in June of 1988 with the increase to a level slightly higher (61.1 percent) than that of June 1987 (60.5 percent).

Passenger data in Figure 2 are limited to those individuals at least 15 years of age in order to insure comparability between waves of the survey. Restraint use among front seat passengers followed the same trend as use among drivers. "Before" usage was 9.6 percent. Immediately following MUL enactment usage rose to 58.7 percent, a year later declined to 49.9 percent (a significant decrease of 9 percent, $p<.05$), and six months later was at 49.6 percent. Passenger restraint use in June of 1988 was a non-significant .1 percent higher than the previous June, although January passenger restraint rates exhibited the same dip as driver usage rates.

Table 9 gives changes over time in driver restraint use by males and females. These data indicate that over the three year period since enactment of the MUL, male driver restraint use has declined. Note that female driver restraint use evidenced a smaller decline than male restraint use from 1986 to 1987, and a very slight increase was observed in 1988. Table 10 shows a similar trend for passengers. Again, male passengers were less likely to be belted prior to safety belt legislation (7.5 percent male passengers restrained and 10.8 percent female passengers restrained in 1985). Male passenger usage dropped to a greater degree after the first year of the enactment period (from 55.1 percent in 1986 to 44.7 percent in

1987, compared to 58.0 and 53.4 percent for female passengers). However, the decrease in passenger restraint use from June of 1987 to June of 1988 were significantly smaller for both males and females.

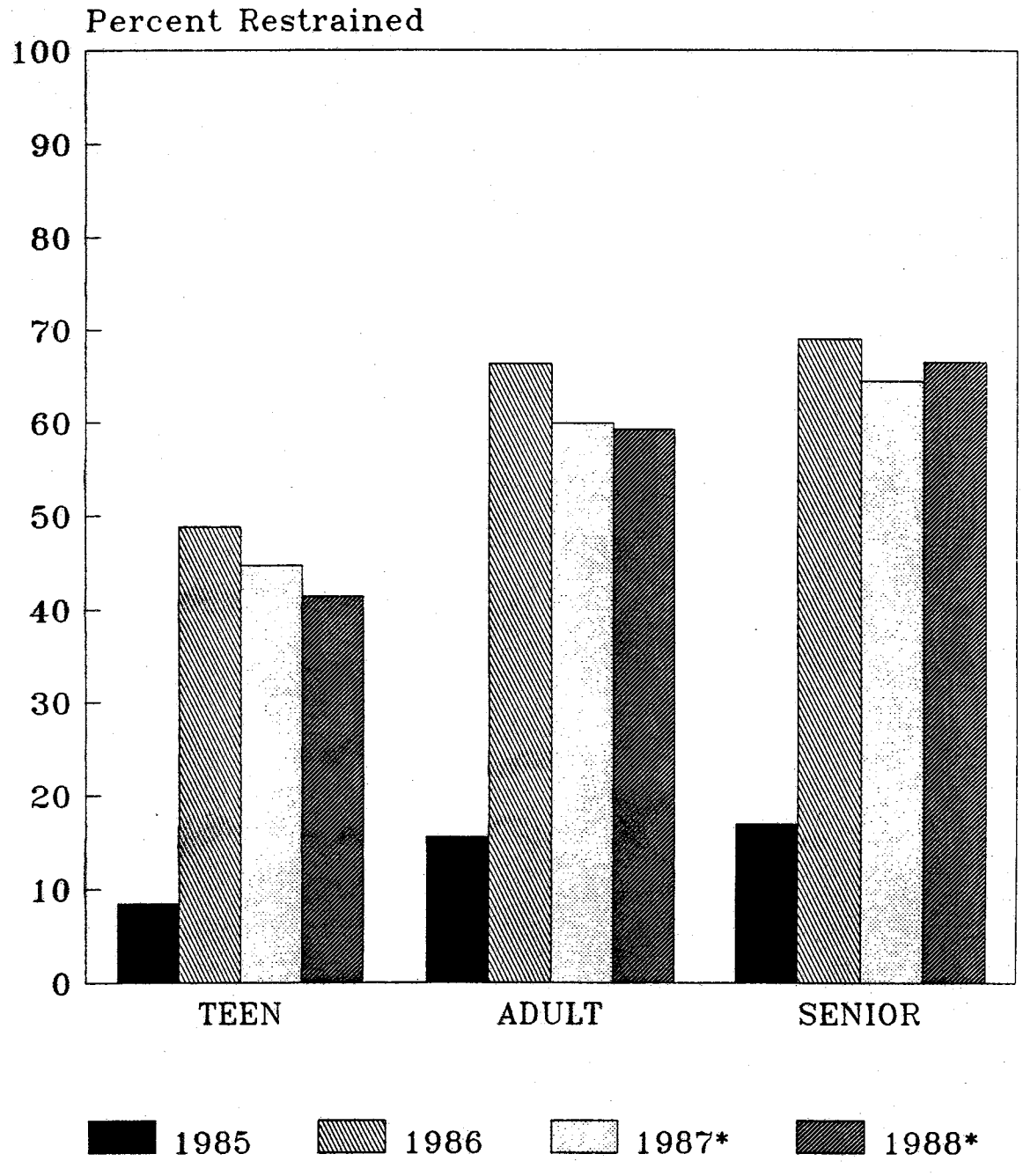
TABLE 9. DRIVER RESTRAINT USE BY SEX AND YEAR

	PERCENT RESTRAINED	
	MALE	FEMALE
1985	13.8	16.9
1986	64.8	67.8
1987 (June)	57.0	63.8
1988 (June)	54.9	64.7

TABLE 10. PASSENGER RESTRAINT USE BY SEX AND YEAR

	PERCENT RESTRAINED	
	MALE	FEMALE
1985	7.5	10.8
1986	55.1	58.0
1987 (June)	44.7	53.4
1988 (June)	42.2	50.0

Changes in restraint use over time by the three age groups were also analyzed. The results revealed that the oldest group of drivers (over 60 years) showed the highest increase in belt use for the first year after the law went into effect (52 percent) and the lowest decrease in belt use during the second year (4 percent) compared to the other two age groups (Figure 3). Teen restraint use has decreased steadily since 1986. The significant decrease in belt use from 1986 to 1987 for adults was not repeated in 1988. And, it was the older driving population that influenced



* June Survey

Figure 3. Driver Restraint Use By Age and Year

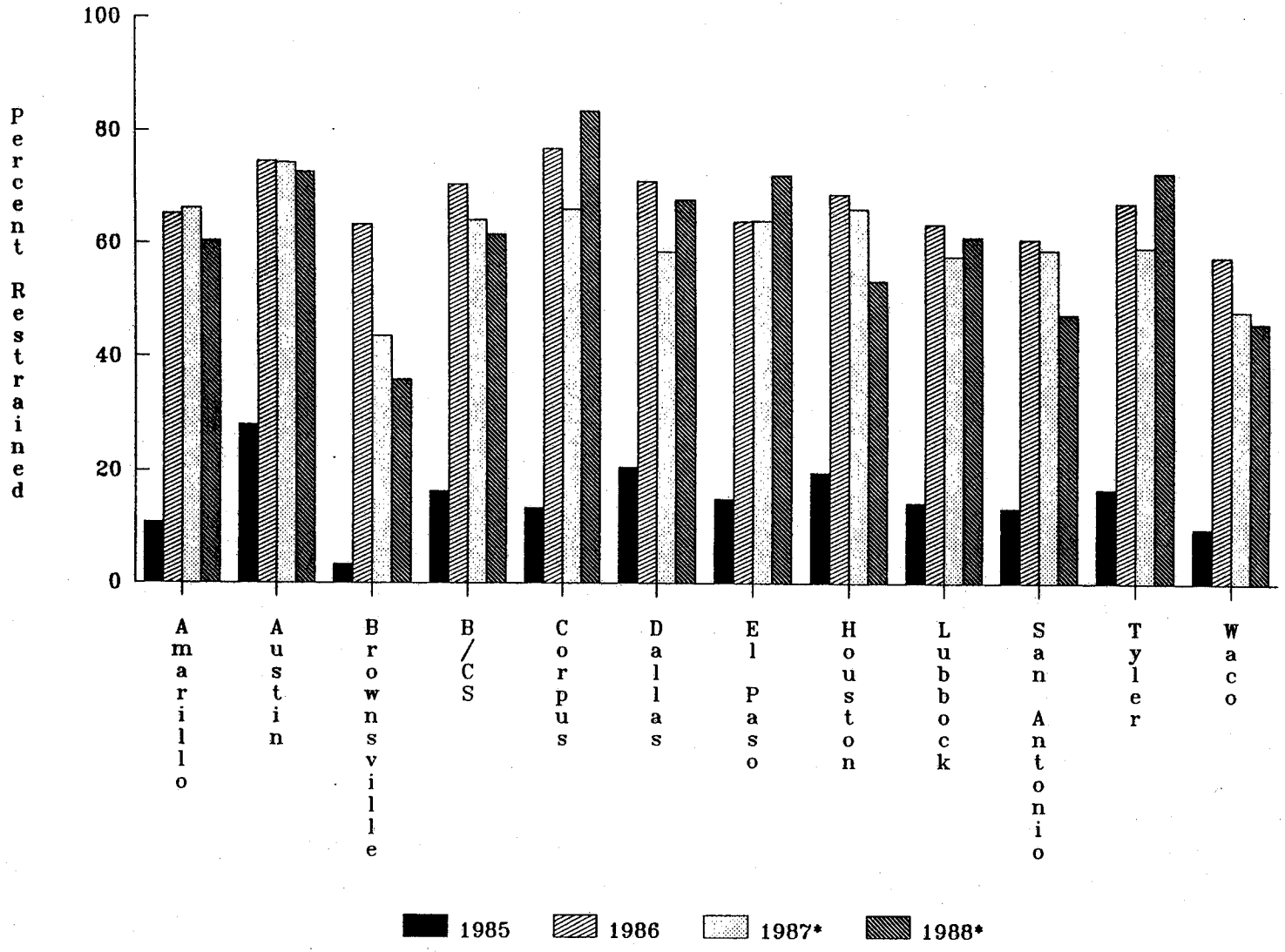
the slight upward change in belt use observed from the 1987 to the June, 1988 surveys.

When sex and age were analyzed together (Table 11) the most notable finding was that older females increased their level of restraint use from the previous year to an all time high of 72.6 percent in the June survey wave. Additionally, the gap between older female and male restraint usage widened from previous years. The percentage of belted males in the teen-age category decreased more than any other age group from the previous year. Further, teen female usage rates were up from the previous year.

TABLE 11. DRIVER RESTRAINT USE OVER TIME BY AGE AND SEX

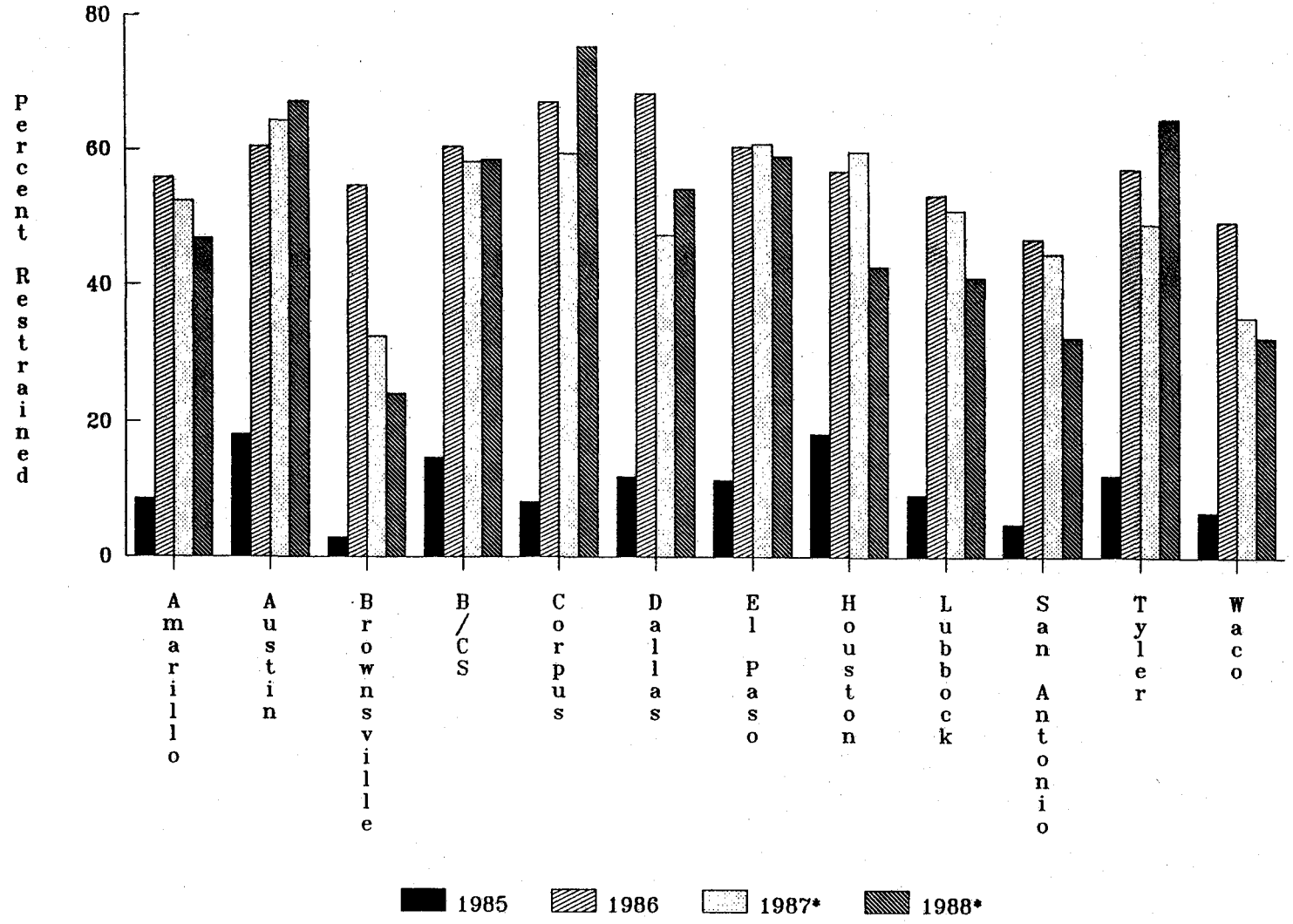
		PERCENT RESTRAINED		
		DRIVER AGE		
		15-19	20-60	Over 60
1985	Male	6.5	13.8	15.9
	Female	12.0	16.9	18.3
1986	Male	46.9	64.9	68.8
	Female	51.9	68.0	69.3
1987 (June)	Male	45.1	56.9	61.8
	Female	44.0	63.7	69.3
1988 (June)	Male	38.9	54.8	63.0
	Female	46.9	59.7	72.6

Figures 4 and 5 illustrate the changes over the three-year period for each city for drivers and passengers. These graphs highlight the fact that, although changes in the composite average for all cities may be gradual at times, there is a much greater degree of fluctuation in most of the individual cities. In 11 of the 12 cities, driver restraint use changed by a significant amount ($p<.05$) from 1987 to 1988. In Amarillo,



* June Survey

Figure 4. Driver Restraint Use By City and Year



* June Survey

Figure 5. Passenger Restraint Use By City and Year

Brownsville, Bryan/College Station, Fort Worth, Houston, and San Antonio, driver usage rates decreased significantly. Beaumont, Corpus Christi, Dallas, Lubbock and Tyler showed significant increases from 1987 to 1988. Waco was the only city that showed no change from 1987 to 1988. The June survey wave revealed significant changes in usage rates for Brownsville, Corpus Christi, Dallas, Fort Worth, and Tyler that were not observed in the January survey (Table 12).

Passenger restraint use did not change in the same manner as driver restraint use from January of 1987 to January of 1988. Four cities showed significant decreases in passenger restraint use during this survey wave: Amarillo, Austin, Beaumont and San Antonio. A significant increase in passenger restraint use was observed in Waco in January of 1988. Increases in passenger restraint use from 1987 to 1988 were observed in Beaumont, Corpus Christi, Dallas, and Tyler during the June survey. Significant decreases were observed in June in Brownsville, Fort Worth, Houston, Lubbock, and San Antonio (Table 13).

Monthly Observations in Austin, Texas

In the statewide survey of safety belt use, data were collected twice a year in each of the study cities. While these measurements provide a general indication of usage rates for two points in time, they do not offer a longitudinal analysis of safety belt wearing rates. The variation that has occurred in the January and June survey waves suggests some seasonality. Therefore, an attempt was made to identify trends and/or random fluctuations in safety belt use by collecting monthly data in the city of Austin. These monthly observations were made at the same study sites as those used in the 18-city survey to insure comparability. While

TABLE 12. PERCENT OF DRIVERS RESTRAINED BY CITY OVER TIME

CITY	(Pre-Law) 1985	1986	Jan. 1987	June 1987	Jan. 1988	June 1988
Amarillo	10.8	65.2	63.2	66.2	58.1	60.4
Austin	28.1	74.6	74.2	74.3	64.8	72.7
Beaumont	NA	60.0	53.3	52.0	46.6	59.3
Brownsville	3.4	63.3	40.8	43.6	39.3	35.9
Bryan/College Station	16.4	70.4	61.1	64.1	58.5	61.5
Corpus Christi	13.4	76.8	75.6	65.9	77.9	83.3
Dallas	20.6	70.9	57.9	58.4	58.1	67.6
El Paso	15.0	63.8	60.9	63.9	55.2	72.0
Fort Worth	NA	63.3	53.3	61.2	55.3	55.0
Houston	19.7	68.6	54.9	66.0	46.8	53.3
Lubbock	14.3	63.3	56.3	57.6	62.5	61.0
San Antonio	13.3	60.6	65.0	58.7	50.8	47.4
Tyler	16.7	67.0	57.8	59.2	58.2	72.4
Waco	9.7	57.5	46.5	48.0	48.0	45.9
14-City Average	15.2	66.8	59.5	60.5	55.7	60.6

TABLE 13. PERCENT OF PASSENGERS RESTRAINED BY CITY OVER TIME

CITY	(Pre-Law) 1985	1986	Jan. 1987	June 1987	Jan. 1988	June 1988
Amarillo	8.7	55.8	53.4	52.4	40.1	46.8
Austin	18.1	60.5	61.6	64.4	53.3	67.3
Beaumont	NA	47.2	50.6	45.5	39.2	50.9
Brownsville	2.9	54.6	28.7	32.5	24.8	24.1
Bryan/College Station	14.7	60.4	55.9	58.1	57.7	58.3
Corpus Christi	8.2	67.0	67.0	59.3	68.3	75.2
Dallas	11.9	68.3	57.0	47.2	55.9	54.0
El Paso	11.4	60.3	57.4	60.7	53.7	58.8
Fort Worth	NA	54.0	45.0	53.2	44.9	45.9
Houston	18.2	56.6	42.0	59.6	36.9	42.6
Lubbock	9.3	53.0	38.7	50.8	41.2	40.9
San Antonio	4.9	46.6	51.6	44.4	29.8	32.2
Tyler	12.1	56.9	46.4	48.8	44.8	64.3
Waco	6.7	49.2	32.1	35.3	35.4	32.3
14-City Average	9.6	58.7	49.3	51.1	44.7	49.5

the pattern observed in Austin may not typify what was happening in other Texas cities, these data do provide a more detailed description of safety belt use over an extended period of time.

As shown in Table 14 and Figure 6, the baseline wearing rates for drivers and front seat passengers were 28 percent and 18 percent, respectively. These rates were recorded in January of 1985 as part of TTI's pre-law safety belt survey. Despite increased attention on the seat belt issue due to pending legislation, driver restraint use had only increased to 34 percent by August of 1985, while passenger restraint use increased to 22 percent.

When the mandatory belt use law first went into effect without sanctions (September 1, 1985), seat belt wearing rates for both drivers and passengers increased dramatically, as expected. Over the three-month warning period when no fines could be imposed on violators (September 1 - November 30, 1985), driver safety belt use dropped only slightly from the peak coincident with the implementation of the law. Passenger restraint use dropped somewhat more than drivers, but the rate was still higher than that recorded in the baseline period.

With the imposition of $25 - $50 fines which began on December 1, 1985, another sharp rise in usage rates was noted. This rate for the succeeding 32 months of observation has been maintained fairly consistently, and has in fact increased somewhat from the December 1985 enactment date. The 12-month average restraint rate for drivers for 1986 was 70.5 percent. In 1987, driver compliance averaged 72.9 percent. And, during the first eight months of 1988, driver restraint usage averaged 72.3 percent. Although the average driver restraint use during the 32-month post-enactment period has been approximately 72 percent, some notable fluctuations have occurred.

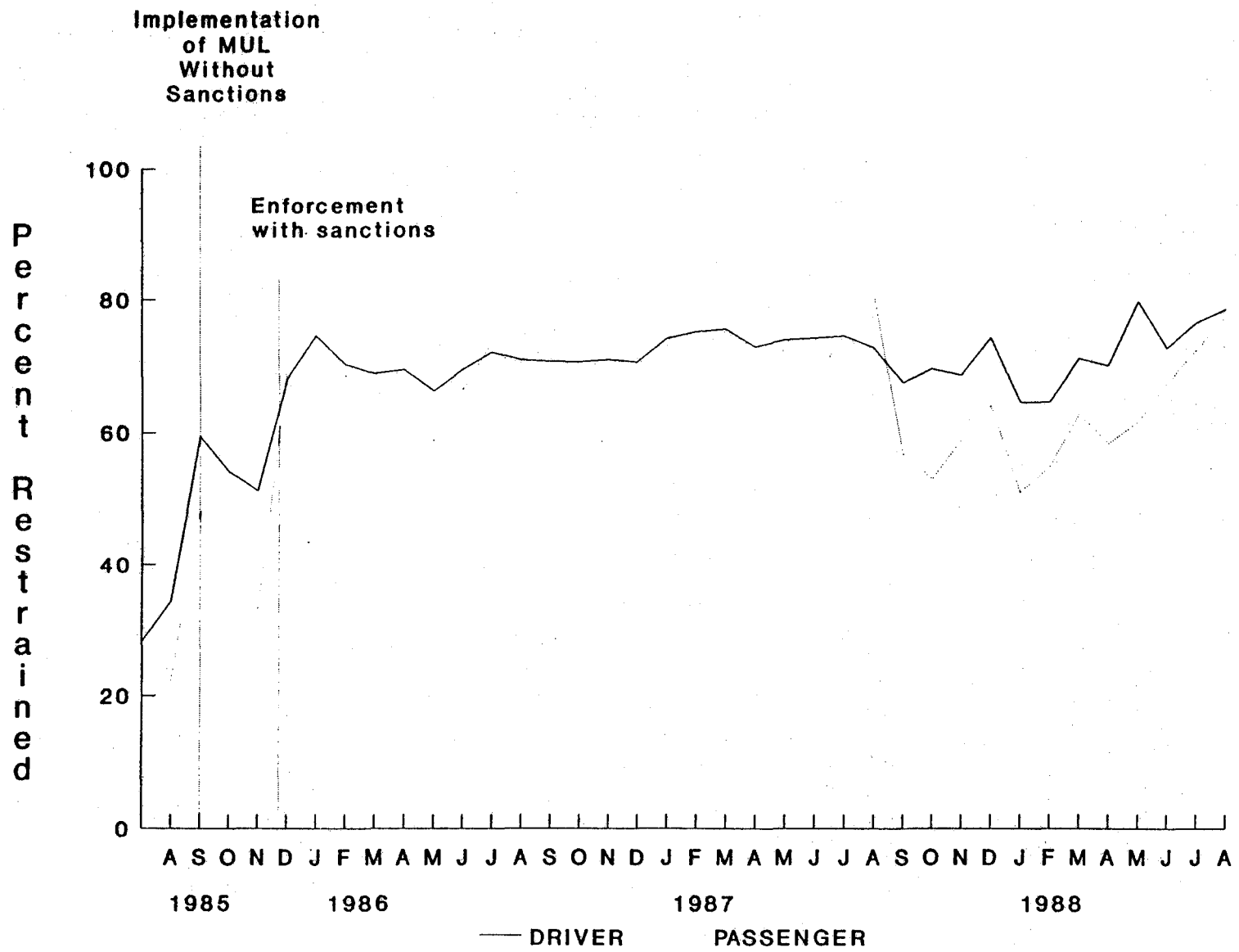


Figure 6. Observed Monthly Occupant Restraint Use in Austin, Texas

Percentages in the high 60's were observed in the Spring of 1986 and in the Fall of 1987. The highest and lowest rates following MUL sanctions were observed in 1988. Driver usage at 64.8 percent in January was recorded as a contribution to the 18-city survey. Whereas, at identical sites in Austin in May, driver usage was almost 80 percent.

As expected, passenger restraint use was generally lower than that observed for drivers (by approximately 7 percent). However, the trend of use has fluctuated more for passengers than for drivers over the duration of the observation period.

TABLE 14. MONTHLY SEAT BELT USE IN AUSTIN, TEXAS

Month	Driver	Passenger
Baseline: January 1985	28.1	18.1
1985		
August	34.4	22.4
September	59.5	48.1
October	54.2	42.5
November	51.3	33.2
December	68.1	69.2
1986		
January	74.6	60.5
February	70.4	68.7
March	69.0	64.3
April	69.6	66.4
May	66.4	58.8
June	69.6	66.6
July	72.2	73.5
August	71.0	68.7
September	70.8	65.0
October	70.7	58.2
November	71.0	58.9
December	70.7	57.2
1987		
January	74.2	62.0
February	75.2	68.2
March	75.6	72.6
April	73.0	64.9
May	74.0	67.6
June	74.3	66.9

TABLE 14. CONTINUED

July	74.6	75.9
August	72.9	80.7
September	67.7	56.9
October	69.7	53.1
November	68.8	59.0
December	74.4	64.2
1988		
January	64.8	51.2
February	64.8	54.9
March	71.3	63.0
April	70.2	58.5
May	79.7	61.8
June	72.8	67.6
July	76.6	72.5
August	78.6	77.5

Summary and Conclusions

The initial survey of 1985 showed driver restraint use in 12 Texas cities ranging from three percent to 28 percent and averaging 15.2 percent across all 12. Passenger restraint use was approximately 10 percent for the 12 cities. Not surprisingly, a dramatic increase in belt use was observed during the first year of the post-law period. Driver restraint use rates ranged from a low of 57 percent to a high of 77 percent in the 1986 survey, and passenger restraint use was 59 percent overall. At that time, compliance was considerably higher than reported usage rates in other MUL States.

In the second year of the post-law period (1987), observed usage rates for drivers decreased by approximately six percent to a 60 percent usage rate for all cities combined. Front seat passenger restraint use also decreased in the second year period from 57 percent to 50 percent overall. During this second year of MUL experience, decreases in use were attributed to those segments of the population that were least likely to be restrained

prior to seat belt legislation. Specifically, males, teens, and pick-up occupants, showed the largest decreases in use.

The January survey of 1988 seemed to support further evidence of the post-law decline. The average belt use rate of 54.1 percent for 18 cities surveyed in January of 1988 was six percentage points lower than June of 1987. One factor contributing to the decrease was the inclusion of the four additional cities for this survey wave. Without the new cities the 14-city average was 55.7 percent. Another contributing factor is natural fluctuation in the data at the city level. Using monthly data from Austin as an example, it is apparent that Austin usage rates are generally consistent and comparatively high. However, occasional variations as much as 15 percent have been observed.

Observed usage rates for drivers rose to an average of 59.2 percent for the eighteen cities surveyed in June of 1988. 48.2 percent of front seat passengers were riding restrained in the June, 1988 survey. As with the downward shift from June of 1987 to June of 1988, this upward change may be due in part to natural fluctuation in the data. Although studies have shown that no single factor can be credited entirely for increased occupant restraint use, research has provided some indication of an association between enforcement and higher usage rates (Hatfield, et al., 1988). It is noteworthy that the largest increases in belt use were observed in Laredo (17.7 percent), El Paso (17.0 percent), and Tyler (14.2 percent). Subsequent to the January survey, Laredo and Tyler were recipients of Selective Traffic Enforcement Program (STEP) grants, and El Paso changed its policy on enforcement of the seat belt law from secondary to primary enforcement (Texas Safety Association, 1988).

Analysis of safety belt use for males and females and for the three age groups revealed comparable patterns in the 1988 survey to previous observed usage patterns. Females evidenced higher usage rates than males, and individuals in the oldest age group (i.e., those over 60 years of age used safety belts more often than those in the younger age categories. Teenage males were still least likely to buckle up. The significant decrease in belt use from 1986 to 1987 for adults (20-60 years) was not repeated in 1988.

As in earlier years the audience effect was found to be quite strong. In other words, two front seat occupants were shown to behave in a very similar manner in terms of restraint use--either both individuals used the available restraint system, or both rode unrestrained. The gap between driver restraint use and passenger restraint use remained consistent with earlier years at approximately 10 percent.

In summary, 1988 observation of occupant restraint use revealed decreases from 1987 observations of about five percent for drivers and about six percent for passengers when all cities were combined. However, the combined average usage rate in the June survey increased to a level comparable to the rate observed in June of 1987. Additionally, ten of the 18 cities experienced significant increases in belt use from January to June of 1988. Further, the combined average usage rate for the 18 cities surveyed continues to be among the highest in the nation, as shown by surveys conducted in this and other states (National Highway Traffic Safety Administration, 1988).

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