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16. Abstract

Examines the extent to which persons suspected of DWI refuse to take a chemical test as required by law. Describes implied consent laws in 50 states, analyzes the relation of law features to refusal rate, and analyzes the characteristics of test refusers in four states. Concludes that there is a potential test-refusal problem in the U.S. to the extent that 2% to 71% of drivers arrested for DWI in 1987 refused to take a chemical test. Recommends strong traffic law system action against refusers to include criminal sanctions for some "hard core" refusers. Other potential actions include treatment and public information and education initiatives.

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EXECUTIVE SUMMARY

This document reports the results of a study of the extent to which persons arrested for drunk driving (called DWI in this report) refuse to take a chemical test in order to avoid the more severe consequences of a DWI conviction. The principle of *implied consent* states that when a person drives, that person implicitly consents to submit to a lawfully-requested test to determine the alcohol content of their blood, breath, urine, or other bodily substance. Implied consent is designed to improve the process that leads to the conviction and sanctioning of arrested drunk drivers by providing information on their blood alcohol concentration (BAC). Refusal to submit to a test is illegal in all 50 states and can result in administrative and / or criminal sanctions.

STUDY DESIGN

This project involved a series of substudies of the features and performance of implied consent laws. First, we performed a descriptive study of implied consent laws and test refusal rates in all 50 states, and then related specific features of the laws to chemical test refusal rate in a year during which the laws were in effect (1987). Next, we conducted driver records studies in four states to determine the characteristics of drivers who refuse a chemical test, and how those characteristics may be influenced by the implied consent laws and other factors. Information on actual sanctions imposed in the four states was also collected. These quantitative studies were augmented by qualitative studies in two of these four states using discussion groups to gain insights about drivers's motivations for refusing chemical tests. All of this information was then synthesized into a description of the test-refusal problem and its implications, and possible approaches to removing the identified disincentives for taking a chemical test were suggested.

In the *descriptive study* we conducted law library research to determine the features of each state's implied consent laws. We also contacted staff of state departments of motor vehicles (DMV) to discuss their state's implied consent laws, and to obtain the perceptions of the DMV staff about the effectiveness of the law in their state. Attempts were also made to resolve any ambiguities or lack of clarity in the laws. Two categories of staff were contacted: (1) those with a legal background (for example, an attorney from the state attorney general's office assigned to the DMV), and (2) those with knowledge of statistics on DWI arrests, implied consent refusals, and implied consent hearings (for example, a data analyst). Follow-up calls were made in many instances, particularly in relation to the quantitative data.

The *driver records* study involved data from four states, two with low refusal rates, and two with high refusal rates. The high-refusal states were Illinois and Missouri, and the low-refusal states were Virginia and California. Two cohorts of drivers were drawn for each state:

- Refusers - Drivers who refused to take a chemical test in 1987, and
- Non-Refusers - Drivers who took a chemical test in 1987.

For Missouri and California, each cohort contained approximately 4,000 drivers. For Virginia, there were only 629 refusers (due to the small number of drivers who were convicted of refusing the test) and 875 non-refusers. For Missouri, there were 2,069 refusers and 5,427 non-refusers.

The driver records analysis was in three parts. The first part was an analysis of the characteristics distinguishing "refusers" (belonged to the refuser cohort) from "non-refusers" (belonged to the non-refuser cohort). The second part compared the number of subsequent alcohol-related offenses of refusers and non-refusers. The third part was an analysis of the recidivism following the index event of the two cohorts. The index event was the event that brought the drivers into the two cohorts, the first refusal in 1987 or the first non-refusal in 1987. In addition, analyses of prior and subsequent accidents was conducted in California.

We also examined actual sanctions imposed for DWI and test refusal in Illinois, Virginia, and California. Our purpose in doing this was to see if there were differences between the sanctions set forth in laws and the sanctions actually imposed by administrative agencies and courts. Such differences might affect a driver's perception of the consequences of a refusal and thus influence the driver's decision to refuse or take a chemical test. Because of the difficulty in obtaining data on actual sanctions, only a rough idea of actual sanctions could be obtained in this study. Only Illinois and California were able to provide data on the percentage of arrested drivers receiving a drivers license suspension or revocation for DWI. Limited data on other sanctions for DWI were obtained from Illinois, Virginia, and California. The Illinois data were obtained through a manual examination of 181 recent DWI convictions in Cook County, Illinois (serving the Chicago area). The Virginia data were obtained from 200 records of 1988 convictions provided by Fairfax County which serves a portion of northern Virginia near Washington, DC. The California data were complied from the computerized file used in the above analyses.

The *discussion groups* sought first-hand information on factors, perceived or actual, that motivate drivers to accept or refuse chemical tests. Because of the small number of subjects involved, and constraints in recruiting participants, the results of the discussion groups could not be analyzed statistically, but were useful in gaining insights about test refusers and non-refusers. The discussion groups were held in two locations, Arlington, Virginia, and St. Louis Missouri. Missouri and Virginia were chosen for comparative purposes. Virginia had a low refusal rate, and Missouri had a high refusal rate. Arlington and St. Louis were chosen because of the availability of lists of refusers and non-refusers and because of logistical considerations that would permit the recruitment of a suitable number of participants who could travel to the discussion group facility using public transportation. Three discussion group sessions

were held in each location, one with persons who had refused an alcohol breath test (refusers), one with persons who had consented to take a test (consenters), and another with persons who had never been arrested for DWI (non-offenders). Each discussion group involved several participants and a Mid-America moderator. Participants were recruited at random from lists provided by the local jurisdictions. An attendance incentive of $50 was paid to each participant.

RESULTS AND CONCLUSIONS

Our study of implied consent laws found that all 50 states explicitly permitted a breath test, nearly all (45) permitted a blood test, and 32 permitted a urine test. A few states permitted tests of saliva and other bodily substances. The officer usually selected the test, typically after the arrest for DWI. Warnings about the consequences of a test or a refusal were nearly always given. A preliminary breath test was permitted in about half the states.

All 50 states explicitly stated in their statutes whether a refusal is a crime or an infraction. Thirty-seven designated refusal as an infraction, 12 a crime, and one either a crime or infraction depending on the circumstances (that is, whether it is a first or a second refusal).

Adjudication of the refusal charge was generally an administrative proceeding when the offense is an infraction, and a judicial proceeding when the offense is a crime. The refusal was admissible as evidence in DWI cases in 41 states, but a refusal was recorded as a prior DWI offense in only five states.

The license sanction was about evenly split between a suspension and a revocation. The minimum length of the suspension or revocation for a first refusal varied widely across states, ranging from 60 days in Maryland to 375 days in North Carolina. Most states stipulated either a six-month or a 12-month period. The average period across all states was 241 days.

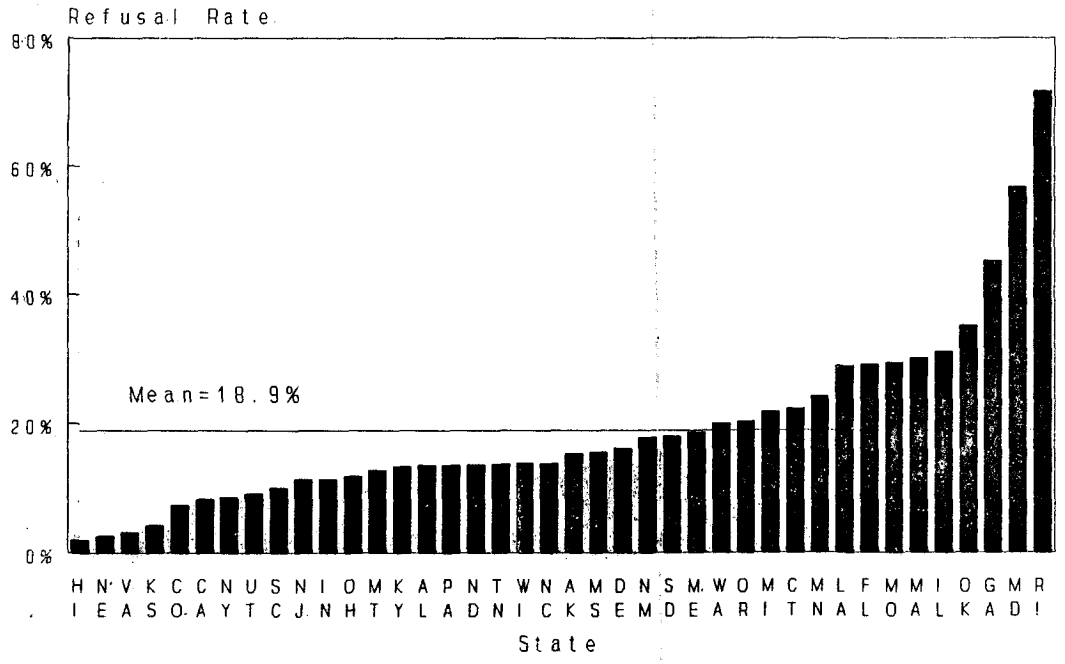
Kentucky had a provision allowing its revocation for a first refusal to be waived if the refuser agrees to enter a DWI school. The license action was mandatory in 48 of the 50 states. Paradoxically, New York, the first state with an implied consent law, was one of two states with a discretionary license action. The suspension was specified as "hard" (no restricted license given) in 25 states, "soft" (a restricted license given under some circumstances) in 17 states, and hard or soft (depending on whether it was a first or a second refusal) in four states.

For most states, sanctions for second or multiple refusals were much harsher than those for a first refusal. License suspensions were often several years. West Virginia suspended the license of third-offense refusers for life. Many states levied increased fines, and one state (Alaska) imposed a mandatory jail term of at least 20 days for a second refusal.

Not all state statutes had explicit provisions for an administrative hearing to appeal a license action for refusal. Those that did usually required a request in writing within 10 to 30 days of the administrative action. There were similar requirements for a judicial appeal.

Our research indicates that a *potential* test-refusal problem exists to the extent that some 2% to 71% of drivers arrested for DWI in a given state refuse to take a chemical test when requested to do so (Figure 1). The mean refusal rate for all states was 19%. Data from our analysis of driver records in four states indicate that, in general, drivers with prior alcohol-related offenses, male drivers, and drivers in the 26 to 55 year age group tend to have higher refusal rates. Having a prior alcohol-related offense was associated with a higher refusal rate than were any of the variables examined in the four states. For example, in Illinois, the refusal rate for drivers with priors was 41% compared to 27% for drivers with no priors.

Figure 1: Refusal Rate by State



A significant number of drivers, even those with prior alcohol offenses, avoid the severe penalties associated with DWI by refusing the chemical test. For example, in Illinois 18% of drivers arrested for DWI avoided a conviction for DWI and the possibility of a jail term by refusing a chemical test.

We found that three factors showed a statistically significant relationship with refusal rate. These factors were (1) whether the license suspension or revocation for refusal was hard (no restricted license given) or soft (a restricted license given under

some circumstances); (2) the length of the suspension or revocation for a first refusal; and (3) the DWI arrest rate per licensed driver. The hard suspension was associated with a lower refusal rate, and the refusal rate decreased with increasing DWI arrest rate. In states with a soft suspension, a suspension or revocation period of 90 or fewer days was associated with a higher refusal rate. The available data did not permit a clear separation of the effects of arrest rates and length of suspension revocation.

Our analyses suggest that drivers who refuse the chemical test mandated by implied consent laws comprise a high-risk group perhaps having an even higher DWI rate than DWIs in general. Data from all four case study states indicate that refusers have higher DWI and refusal recidivism than non-refusers and are more likely to have more of a variety of traffic violations, including DWI. For example, in Illinois and California, the percentage of refusers having another alcohol-related traffic offense one year after their index offense was some 50% higher than the percentage for non-refusers. We also found that males tend to refuse more often than do females and that younger drivers and older driver refuse less often than do drivers in the mid-age range.

Among refusers, we found that those with various kinds of prior traffic offenses were more likely to have future alcohol-related traffic offenses than were those without priors. As indicated above, older drivers and very young drivers were under-represented among refusers. Many refusers in our discussion groups appeared to have severe drinking problems and perhaps other personality problems that have been associated with high-risk behavior. Other factors may be involved as well. Our driver records analyses also suggested the existence of a very high-recidivism group and a lower-recidivism group among refusers.

These findings have serious implications for states seeking ways of improving their implied consent laws. It may well be that the high-risk refusers (and perhaps some other refuser subgroups as well) are not an appropriate group for deterring with the administrative sanctions which suspend or revoke licenses that in many cases may already have been suspended or revoked. Indeed, many of the multiple offenders in our discussion groups indicated that they had their license suspended or revoked on more than one occasion. These individuals said they had refused the test because they believed that the test result would enhance conviction for a multiple DWI and its more severe penalties, (which were also more severe than the refusal penalties). We note that this view about license sanctions for high-risk refusers was voiced by several DMV staff whom we queried about ways of increasing implied consent compliance in their state.

On the other hand, first-offenders and other lower-risk refusers may be suitable targets for enhanced driver-license sanctions. The discussion group refusers in Missouri said that they most likely would not have refused the test *had they been better informed about the penalties for refusal and the penalties for DWI.*

Our discussion group participants identified many misconceptions about implied consent laws. Both the consenters and refusers in our discussion groups said that the actual consequences turned out to be worse than they had anticipated, and said that they probably would not have engaged in DWI had they known the actual consequences. There was also a general belief that the breath test is inaccurate (can give a too-high reading), that the BAC limit is set too low, that the test result would enhance conviction for DWI and the accompanying stigma of a test-proven conviction, and that they could avoid conviction by refusing the test.

RECOMMENDATIONS

This study indicates a need for strong traffic law system action against chemical test refusers and potential refusers. This means maintaining a high DWI arrest rate and dealing with stopped drivers firmly, including describing clearly the implications of refusal. Driver license suspensions or revocations should be "hard" without a provision for a restricted license except under the most extenuating of circumstances. The duration of such suspensions or revocations should be substantially greater than the duration of a suspension or revocation for DWI. Refusers should be prosecuted for DWI as well as refusal in cases where evidence merits prosecution.

There is evidence that license suspension alone will not prevent refusal for many "hard core" refusers with a past history of DWI, test refusal, and other serious traffic offenses. Strong criminal sanctions (including jail terms) for refusal may help deter these individuals. However, we doubt that such sanctions alone will prevent many of this group of high-risk refusers from future refusals, and suspect that a large percentage will require treatment for other dysfunctional behaviors (including alcoholism) that are no doubt related to DWI and implied consent violations.

There is also evidence of a lack of accurate information about implied consent and the consequences of test refusal among persons who engage in drinking-driving. Public information and education programs are needed to correct misconceptions about implied consent laws and to convince drivers that refusing a chemical test does not pay, either in reducing the chance of a conviction for DWI or in receiving less severe sanctions. Other strategies for increasing drinking-driver awareness of implied consent should also be studied, for example, including material on implied consent in the curricula of driver education classes and DWI schools. In addition, the general driving public should be made aware that refusing a test is illegal and socially unacceptable. This might help create the perception that an administrative action for refusing a test carries a stigma of the same magnitude as DWI. Treating refusal as a prior DWI in the driver record could reinforce this perception.

CHAPTER 1 - INTRODUCTION

This report was prepared under a National Highway Traffic Safety Administration (NHTSA) contract (DTNH2-89-C-07008). The overall objective of this project was to determine whether chemical test refusal constitutes a problem and if so, to recommend polices for dealing with that problem.

This project explored *implied consent*, a concept that has long been an inseparable component of the legal approach to managing alcohol-crash risk. The principle of implied consent was introduced in New York in 1953 to induce persons suspected of drunk driving to take a chemical test. In essence, the laws state that when a person drives, that person implicitly consents to submit to a lawfully-requested test to determine the alcohol content of their blood, breath, urine, or other bodily substance.. Implied consent supports the adjudicative function of the Traffic Law System by providing information for (1) use in determining whether to charge an arrested driver with a drunk driving violation, and (2) use as evidence of a drunk-driving violation. The ultimate goal of implied consent laws is to enhance adjudication and sanctioning of drivers accused of DWI by providing scientific evidence of a legally proscribed blood alcohol concentration. For drivers who take the test, this goal is accomplished to the extent that the test is administered properly in accordance with required procedures. This goal is not accomplished when guilty refusers are not convicted of DWI because of a lack of evidence of DWI that a chemical test provides *and* when the sanctions they may receive as a consequence of refusal are less severe than those they may have received for a conviction for DWI.

This project involved a series of substudies of the features and performance of implied consent laws. First, we performed a descriptive study of implied consent laws and test refusal rates in all 50 states, and then related specific features of the laws (for example, the length of a suspension or revocation for a refusal) to chemical test refusal rates in a year during which the laws were in effect (1987). The main purpose of this substudy was to estimate the general extent of any test-refusal problem that might exist in the various states.

Next, we conducted case studies in four states to determine the characteristics of drivers who refuse a chemical test, and how those characteristics may be influenced by the implied consent laws and other factors. The objective of this substudy was to identify the factors that best characterize the types of drivers who refuse and do not refuse a chemical test for DWI. It was hoped that these factors would be useful in targeting any recommended actions to reduce the refusal rate. These quantitative studies were augmented by qualitative studies using discussion groups to gain insights about drivers' motivations for refusing chemical tests. All of this information was then synthesized into a description of the test-refusal problem and its implications, and possible approaches to removing the identified disincentives for taking a chemical test were suggested.

This report contains four chapters. Chapter 2 contains the results of the descriptive study and the study of the relationship between law features and test refusal rate. Chapter 3 contains the results of the case studies conducted in Illinois, Missouri, Virginia, and California. The conclusions and recommendations of the study are presented in Chapter 4.

CHAPTER 2 - TEST REFUSAL RATES IN THE 50 STATES

This chapter contains the results of a descriptive study of implied consent laws and test refusal rates in all 50 states. Also presented is a quantitative analysis of the relationship between specific features of the laws and chemical test refusal rate in a year (1987) during which the laws were in effect. The objectives of the effort described in this chapter were:

- To characterize state laws that authorize chemical tests for drivers suspected of DWI and that establish penalties for refusing a chemical test;
- To define the extent of the chemical-test refusal problem in the U.S. as measured by test refusal rate; and
- To determine which, if any, features of the laws are related to refusal rate.

FEATURES OF IMPLIED CONSENT LAWS

Law library research was conducted to determine the most important features of each state's implied consent laws. Areas examined were:

- Type(s) of bodily substances permitted to be used in chemical tests, that is, breath, blood, urine, saliva, or other;
- Whether arrest for DWI is required prior to the request for a test;
- Whether police officer or the suspected driver selects the test;
- Whether warnings as to the penalties for test refusal are required;
- Whether refusal is a crime punishable by jail or is an infraction not punishable by jail;
- Whether license action is a revocation requiring re-application for license or is a suspension not requiring re-application;
- The length of the revocation or suspension;
- Whether the revocation or suspension is "hard" without the possibility of the driver obtaining a restricted license or "soft" with the possibility of a restricted license;

- Whether adjudication is conducted by an administrative or judicial agency;
- Whether the sanction is mandatory or discretionary;
- The penalty for a second or multiple refusal;
- Provisions for an administrative hearing;
- Provisions for a judicial appeal;
- Whether refusal is admissible as evidence of DWI; and
- Whether refusal is recorded as a prior DWI offense.

Telephone contacts with staff of state departments of motor vehicles (DMV) were then made. These contacts involved informal discussions of their state's implied consent laws, including the perceptions of the DMV staff about the effectiveness of the law in their state. Attempts were made to resolve any ambiguities or lack of clarity in the laws. Two categories of staff were contacted: (1) those with a legal background (for example, an attorney from the state attorney general's office assigned to the DMV), and (2) those with knowledge of statistics on DWI arrests, implied consent refusals, and implied consent hearings (for example, a data analyst). Follow-up calls were made in many instances, particularly in relation to the quantitative data.

We also asked the DMV staff to provide a copy of any forms used in processing chemical tests and test refusals involving implied consent, and asked them about the form in which implied consent data and DWI arrest data are kept.

Data were obtained from all 50 states. They are summarized in this report under two headings:

- Implied Consent Laws; and
- Attitudes of DMV Contacts on Implied Consent.

Implied Consent Laws

Table 2-1 through Table 2-3 present a state-by-state analysis of the provisions of implied consent laws. Blank entries in the tables indicate missing data due to a variable not being explicitly addressed in a state's statutes.

All 50 states explicitly permitted a breath test, nearly all (45) permitted a blood test, and 32 permitted a urine test. Four states permitted tests of saliva and other bodily substances (for example, perspiration). The officer usually selected the test, typically after the arrest for DWI. Warnings about the consequences of a test or a

refusal were required in 40 states. A preliminary breath test was permitted in about half the states.

All 50 states explicitly stated in their statutes whether a refusal was a crime or an infraction. Thirty-seven designated refusal as an infraction, 12 a crime, and one either a crime or infraction depending on the circumstances (that is, whether it was a first or a second refusal).

Adjudication of the refusal charge was generally an administrative proceeding when the offense was an infraction, and a judicial proceeding when the offense was a crime. The refusal was admissible as evidence in DWI cases in 41 states, but a refusal was recorded as a prior DWI offense in only five states.

The license sanction was about evenly split between a suspension and a revocation. The minimum length of the suspension or revocation for a first refusal varies widely across states, ranging from 60 days in Maryland to 375 days in North Carolina. Most states stipulated either a six-month or a 12-month period. The average period across all states was 241 days.

Kentucky had a provision allowing its revocation for a first refusal to be waived if the refuser agrees to enter a DWI school. The license action was mandatory in 48 of the 50 states. Paradoxically, New York, the first state with an implied consent law, was one of two states with a discretionary license action. The suspension was specified as "hard" in 25 states, "soft" in 17 states, and hard or soft (depending on whether it was a first or a second refusal) in four states.

Sanctions for second or multiple refusals were much harsher than those for a first refusal. License suspensions were often several years. West Virginia suspended the license of third offenders for life. Many states levied increased fines, and one state (Alaska) imposed a mandatory jail term of at least 20 days for a second refusal. Thirteen states did not increase refusal penalties for a second or third offense.

Not all state statutes had explicit provisions for an administrative hearing to appeal a license action for refusal. Those that did usually required a request in writing within 10 to 30 days of the administrative action. There were similar requirements for a judicial appeal.

Table 2-4 compares the length of driver license suspensions or revocation for test refusal with the length of driver license suspension or revocation for DWI.[1] Also shown are the number of days of mandatory jail for second-offense DWI and the number of days of community service in lieu of jail for second-offense DWI. With the exception of Alaska, none of the states had a jail penalty for refusal. All of the

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[1] The data on DWI sanctions are from: National Highway Traffic safety Administration. 1988. *Digest of state highway-safety related legislation. Seventh edition.* Washington, DC: U.S. Department of Transportation, National Highway Traffic safety Administration.

states allowed a jail penalty for first-offense DWI, but only three, Alaska, Tennessee, and West Virginia, had a truly mandatory jail penalty for first-offense DWI.

DMV Attitudes on Implied Consent

Discussions with DMV staff shed some light on their attitudes on implied consent laws (Table 2-5). There was a strong belief that police are reporting refusals, that sanctions for refusal are being imposed, and that their implied consent law was effective in reducing refusals. There was a less strong belief that the public knows about the laws and the sanctions pertaining to implied consent.

Some individuals gave their ideas on how their state's implied consent law could be improved. There was a hint of problem in some states with arrest procedures (one person recommended training for police officers and referees) and with consistent application of the law by the courts. Several respondents indicated that there should be more severe sanctions for multiple refusals.

Table 2-1: Provisions of Implied Consent Statutes, Part 1

State	Breath Test?	Blood Test?	Urine Test?	Saliva Test?	Other Tests?	Arrest Req'd?	Officer Select?	Warning Req'd?	Crime or Infraction?
AL	y	y	y		y	y	y	y	i
AK	y	n	n	n	n	y	n	y	c
AZ	y	y	y			y	y	y	i
AR	y	y	y			y	y		i
CA	y	y	y			y	n	y	b
CO	y	y				y	n	y	i
CT	y	y	y			y	y	y	i
DE	y	y	y			y	y	y	i
FL	y	y	y			y	n	y	c
GA	y	y	y		y	y	y	y	i
HI	y	y				y	n	y	c
ID	y	y	y			n	y	y	c
IL	y	y	y			y	y	y	c
IN	y	y	y		y	n	y	y	i
IA	y	y	y			n	y	y	i
KS	y	y	y		y	y	y	y	i
KY	y	y	y	y		y	y	y	i
LA	y	y	y		y	y	y	y	i
ME	y	y				n	n	y	i
MD	y	y				y	n	y	i
MA	y	y				y	y	y	i
MI	y	y	y		y	y	y	y	i
MN	y	y	y			n	y	y	c
MS	y					n	n	y	i
MO	y	y	y	y		y	y	y	c
MT	y	y	y		y	y	y	y	c
NE	y	y	y			y	y	y	c
NV	y	y	y		y	n	y	y	i
NH	y	y	y			y		y	i
NJ	y					y		y	c
NM	y	y				y	y	y	i
NY	y	y	y	y		y	y	y	i
NC	y					y	y	y	i
ND	y	y	y	y		y	y	y	i
OH	y	y	y			y	y	y	c
OK	y	y				y	y	y	i
OR	y					y		y	i
PA	y	y	y			y	y	y	i
RI	y	y	y			y		y	i
SC	y	y				y	n	y	i
SD	y	y			y	y	y	y	i
TN	y	y	y			y	y	y	i
TX	y	y				y	n	y	c
UT	y	y	y			n	y	y	i
VT	y	y				n	n	y	i
VA	y	y				y	n	y	c
WA	y	y				y	n	y	i
WV	y	y	y			y	y	y	i
WI	y	y	y			y	y	y	i
WY	y	y	y			y	y	y	i

Key: y=yes, n=no; i=infraction, c=crime, b=both

Table 2-2: Provisions of Implied Consent Statutes, Part 2

State	Revoke or Suspend?	Length of 1st IC Susp. or Revoc.	Type Suspension	Adjudicating Agency	Mandatory or Discretionary?	Preliminary Breath Test?
AL	s	90	h	a	m	
AK	r	90	s	j	m	y
AZ	s	365	s	a	m	n
AR	b	180		j	m	n
CA	b	180	h	a	m	n
CO	r	365	h	a	m	y
CT	s	180	h	a	m	n
DE	r	365	s	a	m	y
FL	s	365	b	j	m	y
GA	s	180	h	a	m	n
HI	r	365	h	j	m	n
ID	s	180	h	j	m	n
IL	s	180	s	a	m	y
IN	s	365	s	a	d	n
IA	r	240	s	a	m	y
KS	s	180	h	a	m	y
KY	r	0	h	a	m	y
LA	s	180	b	a	m	n
ME	s	180	s	a	m	n
MD	s	60	s	a	m	y
MA	s	120	h	a	m	n
MI	s	180	b	a	m	y
MN	r	365	b	b	m	y
MS	s	90	h	a	m	y
MO	r	365	s	a	m	n
MT	s	90	h	j	m	n
NE	r	365	h	j	m	y
NV	r	365	h	a	m	y
NH	r	90	h	a	m	y
NJ	r	180	h	j	m	n
NM	r	365	h	a	m	n
NY	r	180	h	a	d	y
NC	r	375	s	a	m	y
ND	r	365	h	a	m	y
OH	s	365	s	j	m	n
OK	r	90	s	a	m	n
OR	s	365	s	a	m	n
PA	s	365	h	j	m	y
RI	s	90		a	m	y
SC	s	90	h	a	m	n
SD	r	365	s	a	m	y
TN	s	180	s	b	m	n
TX	s	90		j	m	n
UT	r	365		a	m	n
VT	s	180	s	a	m	y
VA	s	180	h	j	m	y
WA	r	365	h	a	m	n
WV	r	365	h	a	m	y
WI	r	365	s	j	m	y
WY	s	180	h	a	m	n

Key: y=yes, n=no, a=administrative, j=judicial, m=mandatory, r=revoke, s=suspend (column 2), =soft (column 4), h=hard

Table 2-3: Provisions of Implied Consent Statutes, Part 3

State	Penalties for Second and Multiple Offense	Provisions for Administrative Hearing	Provisions for Judicial Appeal	Refusal Admissible?	Refusal Prior?
AL	One year if within a five-year period.	Upon person's request.	May file petition in appropriate court.	y	
AK	Second refusal, jail of not less than 20 days + fine. Subsequent refusals, 30 days + fine. One-year license revocation.	None.	Automatic.	y	
AZ	One year.	Person must request in writing within 15 days.	Person may petition superior court within 30 days of suspension order.	y	n
AR	Within three year period, second refusal suspension of not < one year or > 16 months. Third refusal not < two years or > 30 months. Fourth, revoke for three years.	None.		y	n
CA	Two year license revocation for second offense, three years revocation for subsequent offenses.	Must be requested in writing by accused within ten days.	Completely separate process.	y	n
CO	One year revocation for subsequent refusals.	Within sixty days after request is filed.		y	y
CT	Second refusal, one year suspension. Subsequent refusals, 3 year suspension.	Automatic hearing before commissioner.	Appeal in writing to court.	y	y
DE	Second refusal 18 month revocation, third is two year revocation.	Request within 15 days.	Can appeal to Superior Court.	y	y
FL	Eighteen month suspension for subsequent offenses.	Only under specific conditions can an administrative hearing be ordered. For example, mistaken identity.	Order sent to driver by court.	y	
GA	Six month suspension for subsequent refusals.	Request must be made within 10 days.	After administrative hearing, may file for judicial review.	y	n
HI	Multiple refusals not < two years or > five years.	None.	Appearance in court set within 20 days.	n	n

Table 2-3: Provisions of Implied Consent Statutes, Part 3 (Continued)

State	Penalties for Second and Multiple Offense	Provisions for Administrative Hearing	Provisions for Judicial Appeal	Refusal Admissible?	Refusal Prior?
ID	Multiple refusals still 180 day suspension.	None.	Handled the same as a criminal offense. Has right to hearing before court if written request is made within seven days.	y	n
IL	Second refusal, one year suspension. Subsequent refusals, two years.	None.	Handled by circuit court; no time limit.	n	n
IN	One year suspension for subsequent refusals.	None.	Automatic judicial review.	y	n
IA	Second and subsequent refusals within six years = 540 days with 360 days mandatory.	Can request within 20 days.	Can request judicial review.	y	n
KS	Second and multiple refusals result in one year suspension of license.	Must be requested in writing within ten days.	Have ten days to appeal in district court.	y	n
KY	Same as for first offense.	Have right to automatic admin. hearing within ten days.	May appeal to circuit court after the administrative hearing.	y	n
LA	545 days for subsequent refusals.	May request hearing.	May petition appropriate court.	y	
ME	Subsequent refusals one year or two year suspension depending upon if currently operating on conditional license, etc.	Notified in writing by Sec. of state's office.	If admin. hearing officer upholds, person can appeal to Superior Court instead of district court.	y	
MD	Second or subsequent refusals result in suspension of not < 120 days or > one year.	Automatic hearing within 30 days.		y	n
MA	Same as first refusal, 120 day suspension.	None.		n	n
MI	One year suspension for subsequent refusals.	Have fourteen days to appeal.	Can appeal to circuit court.	n	n
MN	One year for subsequent refusals.	Any time within revocation period, a hearing may be requested.	Within 30 days of order of revocation.	y	y

Table 2-3: Provisions of Implied Consent Statutes, Part 3 (Continued)

State	Penalties for Second and Multiple Offense	Provisions for Administrative Hearing	Provisions for Judicial Appeal	Refusal Admissible?	Refusal Prior?
MS	One year suspension for subsequent refusals.	Request within 30 days (per state contact, but do not have statute to back this up).	May appeal in circuit court within ten days.	y	n
MO	Same, one year revocation for subsequent refusals.	None.	Accused may request judicial hearing.	y	n
MT	One year revocation for subsequent refusals.	None.	File petition within 30 days.	y	n
NE	Second refusal- one year revocation, third refusal- 15 years with exceptions.	Hearing automatically set.	District court within 30 days.	y	n
NV	Subsequent refusals - three year revocation.	May request hearing in writing.	May petition court if not satisfied with administrative hearing.	y	
NH	One year revocation for subsequent refusals.	Ten days to request hearing.	May appeal to court system.	y	n
NJ	Two years revocation plus fine for subsequent refusals.	None.	May appeal in municipal court.	y	n
NM	Same - revocation for one year for multiple refusals.	May request hearing within 10 days.	Within 30 days after administrative hearing.	n	n
NY	Discretionary, at least one year plus $250 fine but if under age 21, one year or until age 21, whichever is greater.	Request within 15 days.	May petition court.	n	n
NC	Same, 375 days revocation.	Person may request hearing.	Right to Superior Court hearing following admin. hearing.	y	
ND	Second refusal - two years. Three or more refusals - three years.	May request hearing within 10 days.	May appeal in court if within 7 days.	y	n
OH	One year suspension of license.	Notified on suspension form sent by mail.	May file petition in court within 20 days of notice.	y	n
OK		Written request within 15 days.	May make judicial appeal.	y	
OR	Three years.	Written request within 10 days.	Thirty days for circuit court review.	y	n

Table 2-3: Provisions of Implied Consent Statutes, Part 3 (Continued)

State	Penalties for Second and Multiple Offense	Provisions for Administrative Hearing	Provisions for Judicial Appeal	Refusal Admissible?	Refusal Prior?
PA	Same - 12 month suspension for multiple refusals.	None.	Same right of appeal as provided for in cases of suspension for other reasons.	y	n
RI	Second refusal, 1-2 year suspension + $300-500 fine + $250. Third and subsequent refusals, 2-3 years suspension + $400-500 fine + $250.	Must request hearing in writing.		n	
SC	Suspension of 90 days for subsequent refusals.	Hearing may be "requested as provided".	Yes according to state contact.	n	n
SD		May demand hearing decided by Director of the division of commercial inspection and regulation.	May petition court within 30 days.	y	n
TN	Varies - up to the commissioner.	May request hearing within 20 days.		y	n
TX		None.	Must submit written demand within 20 days to department which will ask for court date.	y	
UT	One year revocation for subsequent refusals.	Must request in writing within ten days.	May ask for trial following admin. hearing.	y	
VT	Eighteen month suspension for second refusal, three years for third and six years for fourth refusal.			y	n
VA	One year for subsequent refusals.	None.	When court receives declaration of refusal, court date shall be set. Upon request, the defendant shall be granted a trial by jury on appeal to the circuit court.	n	n
WA	Two years revocation for subsequent refusals.	Request in writing within 10 days.	After admin. hearing, may petition in court.	y	n

Table 2-3: Provisions of Implied Consent Statutes, Part 3 (Continued)

State	Penalties for Second and Multiple Offense	Provisions for Administrative Hearing	Provisions for Judicial Appeal	Refusal Admissible?	Refusal Prior?
WV	Second - 10 years (can be reissued in 5). Third - life (can be reissued in 10.)	Must be filed within 10 days by writing.	May be appealed in court.	y	y
WI	Second - two years. Third - three years or more.	None.	May request in writing within 10 days.	y	
WY	Eighteen months for subsequent refusals.	Person given notice of right to hearing if request within 20 days of date of issuance of temp. license.	District court within 30 days.	y	n

Table 2-4: Comparison of Statutory Sanctions for Refusal with Sanctions for DWI (Penalties in Days)

State	IC 1st, License Susp. or Revoc.	IC 2nd, License Susp. or Revoc.	DWI 1st, License Susp. or Revoc.	DWI 2nd, License Susp. or Revoc.	DWI 2nd, Mandatory Jail	DWI 2nd, Community Service for Jail
AL	90	365	90	365	2	20
AK	90	365	30	365	20	
AZ	365	365	90	365	60	
AR	180	365	90	365		
CA	180	720	180	730	2	10
CO	365	365	365	365	7	7
CT	180	365	365	730	10	
DE	365	540	90	180	60	
FL	365	540	180	365	10	
GA	180	180	120	120	2	10
HI	365	730	30	365	2	10
ID	180	180	180	730	10	
IL	180	365	365	1095	2	10
IN	365	365	30	365	5	10
IA	240	360	180	365	7	
KS	180	365	30	365	5	
KY			30	365	7	
LA	180	540	60	365	15	30
ME	180	365	60	365	7	
MD	60	120	180	540	2	10
MA	120	120	45	365	14	
MI	180	365	180	365		
MN	365	365	30	90	30	
MS	90	365	45	365		
MO	365	365	30	365	2	10
MT	90	365	180	90	3	
NE	365	365	60	180	2	
NV	365	1095	45	365	10	
NH	90	365	90	1095	10	
NJ	180	730	180	730	2	30
NM	365	365	365	365	2	
NY	180	365	60	365		
NC	375	375	365	730	7	
ND	365	730	30	364	4	10
OH	365	365	60	120	10	
OK	90		30	365		
OR	365	1095	365	1825	2	10
PA	365	365	30	365	30	
RI	90	365	90	365	10	
SC	90	90	180	365	2	10
SD	365		30	365		
TN	180		365	730	45	
TX	90		90	180	3	
UT	365	365	90	365	10	10
VT	180	540	90	540	2	10
VA	180	365	180	730	2	
WA	365	730	30	365	7	
WV	365	1825	180	1825	180	
WI	365	720	15	60		
WY	180	540	90	365	7	

Table 2-5: Attitudes on Implied Consent

State	Police Reporting Refusals?	Sanctions Imposed?	Law Effective?	Could I.C. Laws be Improved?	Public Educated?
AL	y	y	y		
AK					
AZ	y	y	y		y
AR	n	n	y	Conduct tests honestly so there are no questions of validity.	y
CA	y	y	y	Need better training of officers and referees; cases lost on technicalities.	y
CO	y	y			b
CT	y	y	y	Time limit for hearing should be extended to 35 days from the time the test results are received.	n
DE	y	y	n	The law is fine but it is not followed by the system. Attorneys, especially on 2nd or subseq. offenses advise clients to refuse. Often police officers have trouble proving DWI without test results.	y
FL	y	y	y		y
GA	y	y	y		n
HI	y	n	y	Proof of refusal should be admissible in court. Drugs should be included in testing. Pull license on the spot. No unanimity among counties in regard to sanctions.	b
ID	y	y	y	Longer suspension time needed.	y
IL	y	y	y		y
IN	y	y	n	Law is hard to understand. Just abolish it and make people take the test.	n
IA					
KS	y	y	y		y
KY	y	y	n		
LA					
ME	y	y	n		y
MD	y	y		Admin. per se law going into effect which will be very helpful.	y
MA	y	y	n	Stiffer suspension period.	y
MI	y	y	y		n
MN	y	y	y		n
MS	n	n	y		
MO	y	y		Judges need to take harder line on refusers	n
MT	y	y	y	First offense should be very lenient because it could happen to anyone once. Second offense should be very severe, perhaps $1,000 fine plus jail. Third offense should be treated as a felony.	y

Table 2-5: Attitudes on Implied Consent (Continued)

State	Police Reporting Refusals?	Sanctions Imposed?	Law Effective?	Could I.C. Laws be Improved?	Public Educated?
NE	y	y		No new ideas as refusal penalty already more severe than guilty plea.	b
NV	y	y	y	Close loophole; people still drive after license revoked.	n
NH	y	y			b
NJ	y	y	y	There is confusion over Miranda rights with respect to Implied Consent which needs clarification.	y
NM	y	n	b	Make it a misdemeanor to refuse test. Increase penalty for multiple offenders.	n
NY	y	y	y		y
NC					
ND	y	y		Consider refusal as a refusal regardless of the procedure.	n
OH	y	y	y	Would like to see people who have been convicted of DWI after refusal get the one year license suspension (currently waived).	y
OK	y	y	y	Mandatory assessment with fines or education.	y
OR	y	y	y	Laws are fine, but arrest procedures need reviewed.	y
PA	y	y	y	Always a need to educate the testifying officers.	y
RI					
SC	y	y	y		y
SD	y	y	y	working on extrapolation clause that states that if a police officer gets blood test within 3 hours, then that is the BAC and no expert witnesses can be called to testify.	y
TN	y	n		Should go back to the administrative automatic suspension for refusals like it used to be instead of the current judicial process which allows for "soft" licenses.	n
TX	y	n		Public awareness of implied consent and consequences needs work. Perhaps should be taught in driver's ed classes.	n
UT					
VT	y	n	y	Need a stricter control of plea bargaining.	n

Table 2-5: Attitudes on Implied Consent (Continued)

State	Police Reporting Refusals?	Sanctions Imposed?	Law Effective?	Could I.C. Laws be Improved?	Public Educated?
VA	y	n	n	Make sure refusal sanction is kept at least as severe as DUI.	n
WA	y	y	y		y
WV	y	y	y	The law is effectively written.	y
WI					
WY	y	y	y		n

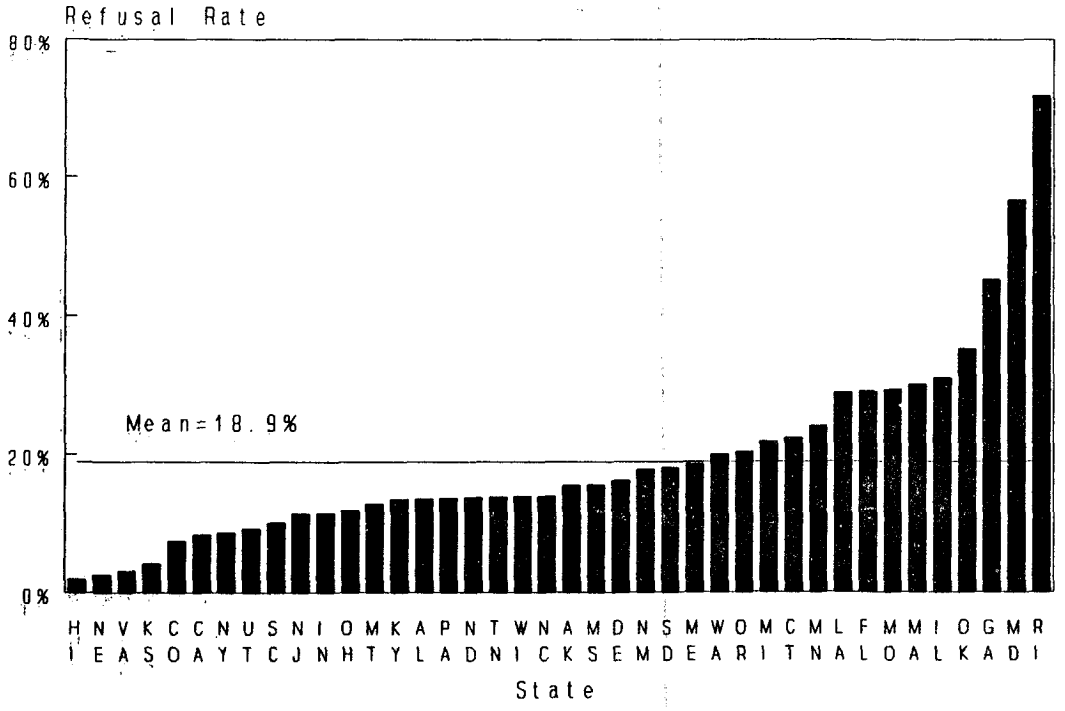
RELATIONS BETWEEN REFUSAL RATE AND LAW FEATURES

Refusal rates (number of refusals / number of DWI arrests) were obtained through telephone contacts with staff of departments of motor vehicles (DMV) of the states. Not all of the states were able to provide refusal rate data for the entire state. In some of these instances, we could obtain arrest and refusal data from stops made by the state highway patrol or the police department of a large city.

Data were obtained for 40 states. Data from six of these states (Indiana, Kansas, Massachusetts, New Jersey, New York, and North Dakota) were from the state highway patrol, and those from one state (Oklahoma) was from a large city. Although the refusal rates were slightly lower for jurisdictions not providing data from all police agencies, this difference was not statistically significant.

The refusal rates ranged from a high of 71% (Rhode Island) to a low of 2% (Hawaii), with a mean of about 19% (Figure 2-1).

Figure 2-1: Refusal Rate by State



Rhode Island was removed from the statistical analysis as an outlier because of a unique feature in its law thought to be primarily responsible for its high refusal rate. Rhode Island has a financial responsibility law that requires a driver convicted of DWI to post a very high bond (about $1,000 to $2,500, depending on the driver's record). If this requires obtaining insurance, the rates can be extremely high, in some instances, as high as $5,400 per year. In addition, Rhode Island has a bad driver point system that further penalizes DWIs at the rate of several hundred dollars per year. By contrast, its penalties for refusal are relatively light, including a 90-day suspension, a fine of no more than $700, and 10 to 60 hours of community service.

It was not possible to disaggregate the refusal rates for all of the states in Figure 2-1 by driver characteristics and prior traffic offenses. However, data from our analysis of driver records (Chapter 3) yielded ratios for multiplying the aggregate rates and obtaining a breakdown by driver record (prior alcohol-related traffic offense or no prior alcohol-related traffic offense), sex, and age for the four case-study states, Illinois, Missouri, Virginia, and California. The results are shown in Table 2-6. They indicate that, in general, drivers with prior alcohol-related offenses, male drivers, and drivers in the 26 to 55 year age groups tend to have higher refusal rates. Missouri violates this rule in that females have a higher refusal rate than males. Having a prior offense increases the refusal rate the most in all four states.

Table 2-6: Refusal Rates by Driver Record, Sex, and Age - Illinois, Missouri, Virginia, and California

Driver Group	Illinois	Missouri	Virginia	California
Priors				
Yes	41.0	31.2	3.8	10.0
No	26.5	28.0	2.7	6.1
Sex				
Male	31.9	31.7	3.1	8.1
Female	24.8	29.0	2.4	7.2
Age Group				
<21	16.8	22.6	2.8	4.8
21-25	24.9	26.7	2.7	6.8
26-55	34.7	30.6	3.1	8.6
>55	30.3	25.6	3.2	7.6
All	31.0	29.2	3.0	8.0

The following variables were considered in our analysis of aggregated refusal rates:

- Opinions of DMV staff

  Police reporting refusals?
  Sanctions being imposed?
  Law effective in reducing refusals?
  Does public know about law and sanctions?

- General Socio-Economic and Drinking-Driving

  Per capita consumption of ethanol
  Percentage abstainers
  Crime rate
  Proportion of population over 25 who are high school graduates
  Per capita income
  Percentage population in metropolitan areas
  DWI arrests per licensed driver

- Chemical Testing

  State has preliminary breath test?
  Arrest required before test?
  Warnings required?
  Officer select test?
  Blood test explicitly permitted?
  Breath test explicitly permitted?
  Other test explicitly permitted?
  Saliva test explicitly permitted?
  Urine test explicitly permitted?

- Adjudication and Sanctioning

  Crime or infraction?
  Revocation or suspension?
  Hard or soft suspension?
  Administrative or judicial adjudication?
  Refusal sanction mandatory or discretionary?
  Refusal admissible?
  Refusal a prior DWI offense?
  Administrative or judicial adjudication?
  DWI sanction mandatory or discretionary?
  Length of suspension/revocation, IC 1st
  Length of suspension/revocation, IC 2nd
  Length of suspension/revocation, DWI 1st
  Length of suspension/revocation, DWI 2nd
  Length IC suspension / length DWI suspension

Length of mandatory jail, DWI 2nd
Length of mandatory community service in lieu of jail, DWI 2nd

An analysis of the refusal rates suggested that there were three groups of states (excluding Rhode Island as discussed above) that could be classified according to their refusal rates, *viz.*:

High	.45 and Higher	GA, MD
Medium	.29 to .35	FL, IL, LA, MA, MO, OK
Low	.25 and Less	The remaining states

Many exploratory statistical analyses were performed to determine whether certain factors could explain the three clusters, or whether such factors could explain the variation of the refusals rates, without grouping them into different clusters. Information on many of these factors was missing for a varying number of states. Indeed, there was no state for which data on all factors were available. Therefore, only selected groups of factors could be analyzed jointly. Even then, analyses including several factors could often use only data from few states. Often, such analyses based on a few states showed certain factors to be significant. However, if the number of states was increased by excluding non-significant factors, patterns changed. Sometimes, a factor was replaced by another one which was related to the first, sometimes completely unrelated factors appeared or disappeared. As a consequence of performing a large number of analyses, and selecting those factors which showed the strongest, or the most consistent relations, standard significance tests for these variables would be very misleading: they would give very much exaggerated significance levels. Therefore, we use the term "significance" only in a limited, qualitative sense. When we give quantitative values, it is done only for illustrative purposes; one must realize that the probability that the relations may be due to chance could be much higher.

The only non-opinion factors that were consistently related "significantly" or nearly so with the refusal rate were:

- whether the license suspension or revocation for first refusal was hard or soft;
- the length of the suspension or revocation for first refusal; and
- the DWI arrest rate per licensed driver.

However, even the effects of these factors did not appear clear-cut: often they depended critically on a very few states. The hardness variable showed the most consistent relationship with refusal rate, either alone or combined with one of the other two variables.

When refusal rate was modeled as a function of DWI arrest rate and hard / soft suspension (a 0/1 variable), the coefficients of both variables were statistically significant ($p=.010$ for arrest rate, and $p=.005$ for hard / soft suspension). Figure 2-2 and Figure 2-3 show the refusal rate versus the DWI arrest rate. Because there was a strong and consistent difference between states that had a soft suspension, and those that had a hard suspension, separate regressions were run for the two groups of states; these regression lines and the 95% confidence bands for the individual points are shown. However, whereas for states with a soft suspension the points fall, with one exception, close to the regression line, the situation is more ambiguous for the states with hard suspension. A nonlinear relation would represent the points as well, if not better: a steep decline of the refusal rate with the arrest rate below an arrest rate of 0.009 per licensed driver, and essentially no change for arrest rates above 0.010. Testing for this alternative would be highly speculative.

Refusal rate was also modeled as function of the length of the suspension / revocation for the first refusal and hard / soft suspension. The coefficients of both of these variables were also statistically significant ($p=.026$ for the length of the suspension / revocation, and $p=.005$ for hard / soft suspension). Figure 2-4 and Figure 2-5 show how the refusal rate varies with length of suspension / revocation for the first conviction of refusal. Also shown are regression lines, and the 95% confidence bands for the individual values. The slope of the line may appear too steep in Figure 2-4, and too flat in Figure 2-5. Also, in both figures, the states fall naturally into three groups: those with 60-120 days suspension or revocation (usually 90 days), those with 180 days, and those with 330-360 days (all states but one having 360 days). Therefore, a continuous regression line might not be the most appropriate description of the data.

Figure 2-6 and Figure 2-7 show averages for the six groups of states, together with the $\pm$ one standard error range. For the states with hard suspension / revocation, the refusal rates do not vary with the length of the suspension / revocation. For states with soft suspension / revocation, the data suggest an effect of its length: the longer the suspension, the lower the refusal rate. The analysis shows that the differences of the average refusal rates between the three groups are not significant; however, a regression analysis using the individual states' values gives a significant ($p=.025$) coefficient for the length of the suspension.

One must also consider that the arrest rate explains the refusal rate nearly as well as the duration of the revocation / suspension ($p=.04$). We were suspicious that this correlation might be spurious, created by the number of arrests which appears in the denominator of the refusal rate, and in the numerator of the arrest rate. Various exploratory analyses suggested that this is not so.

Figure 2-2: Refusal Rate vs. DWI Arrest Rate for States With Hard Suspension

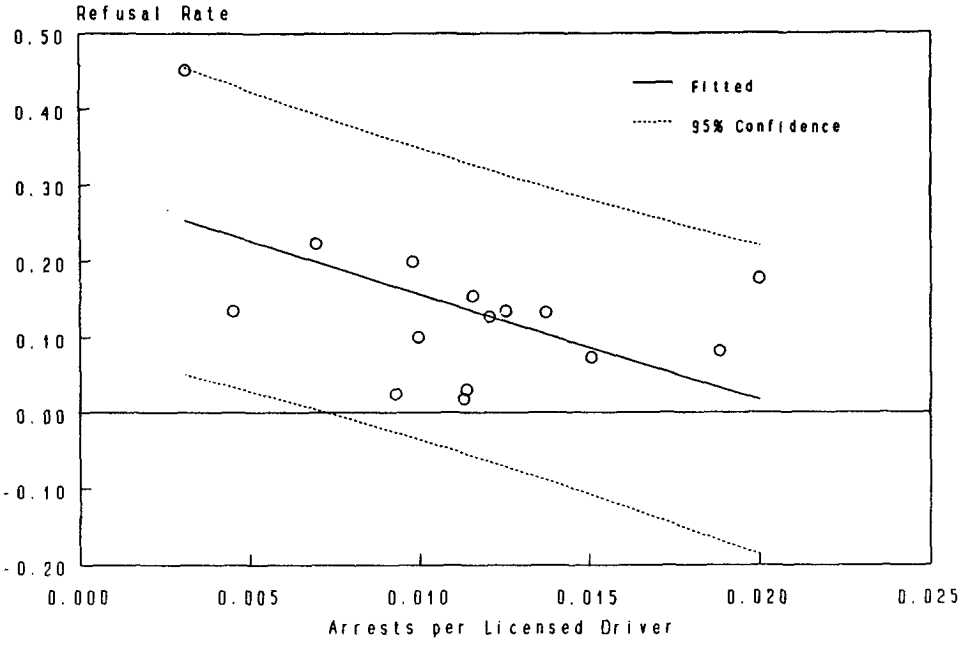


Figure 2-3: Refusal Rate vs. DWI Arrest Rate for States with Soft Suspension

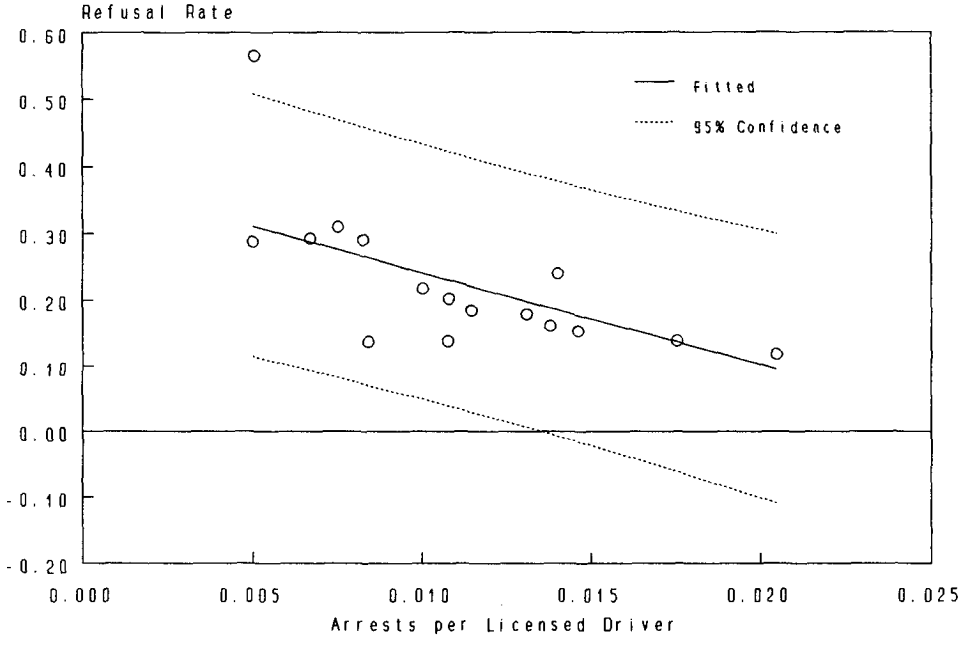


Figure 2-4: Refusal Rate vs. Length of First Suspension for States With Hard Suspension or Revocation

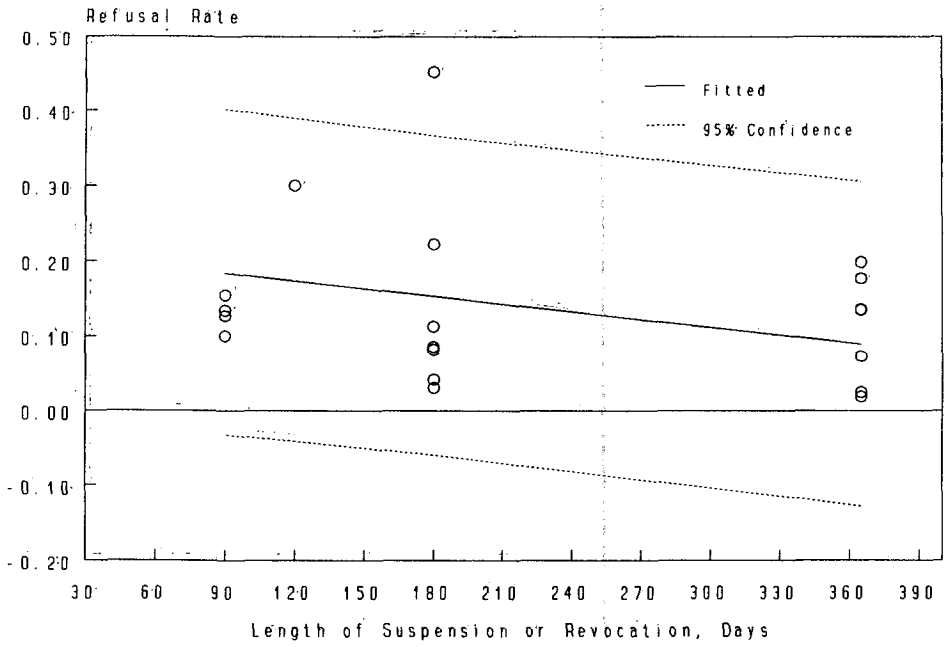


Figure 2-5: Refusal Rate vs. Length of First Suspension for State With Soft Suspension or Revocation

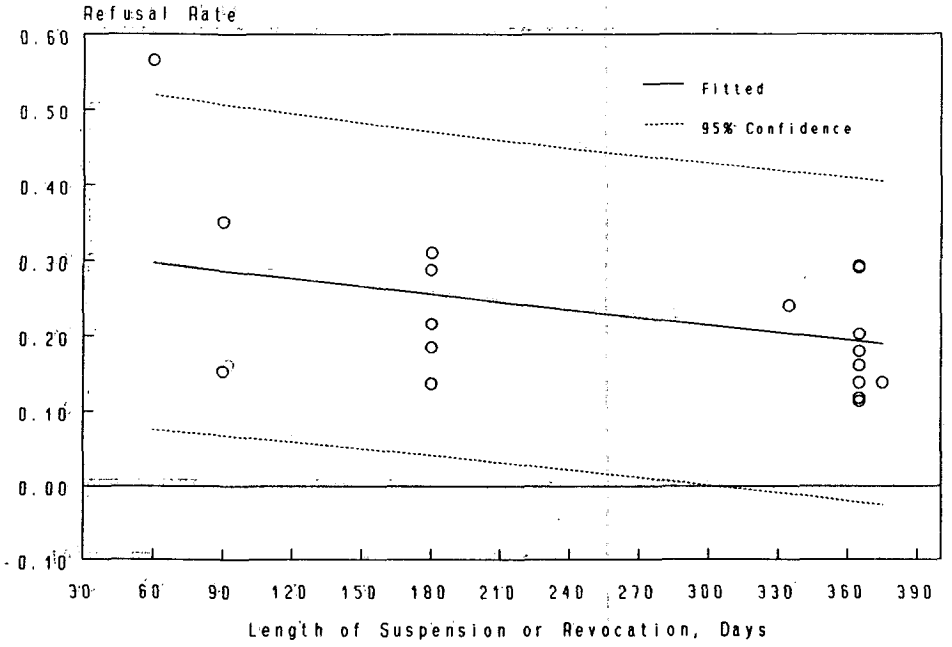


Figure 2-6: Refusal Rate vs. Length of First Suspension for Three Groups of States with Hard Suspensions

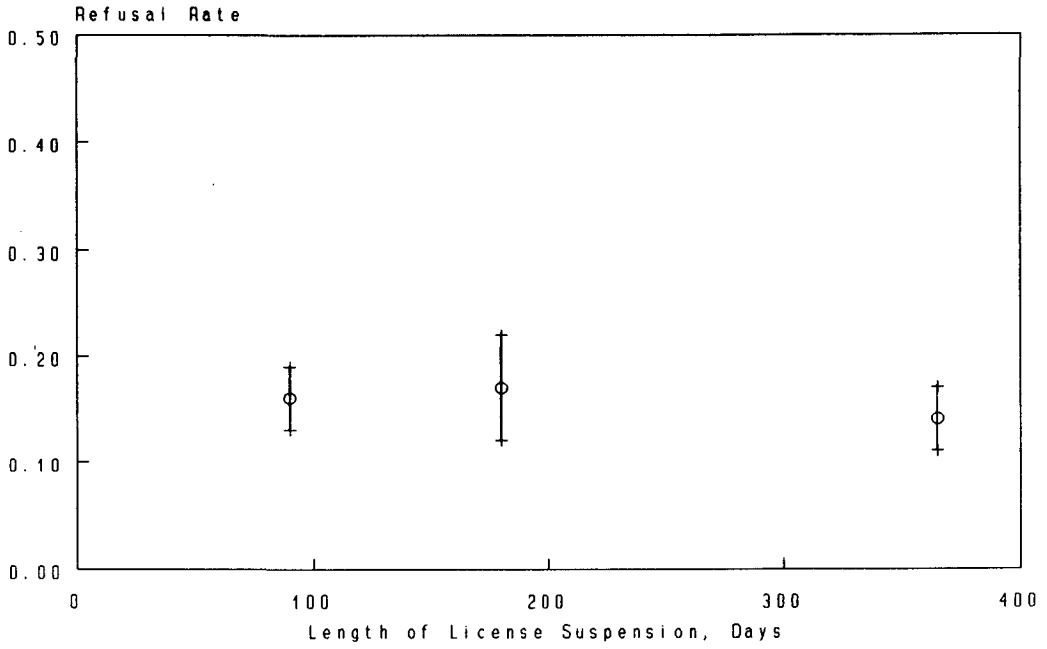
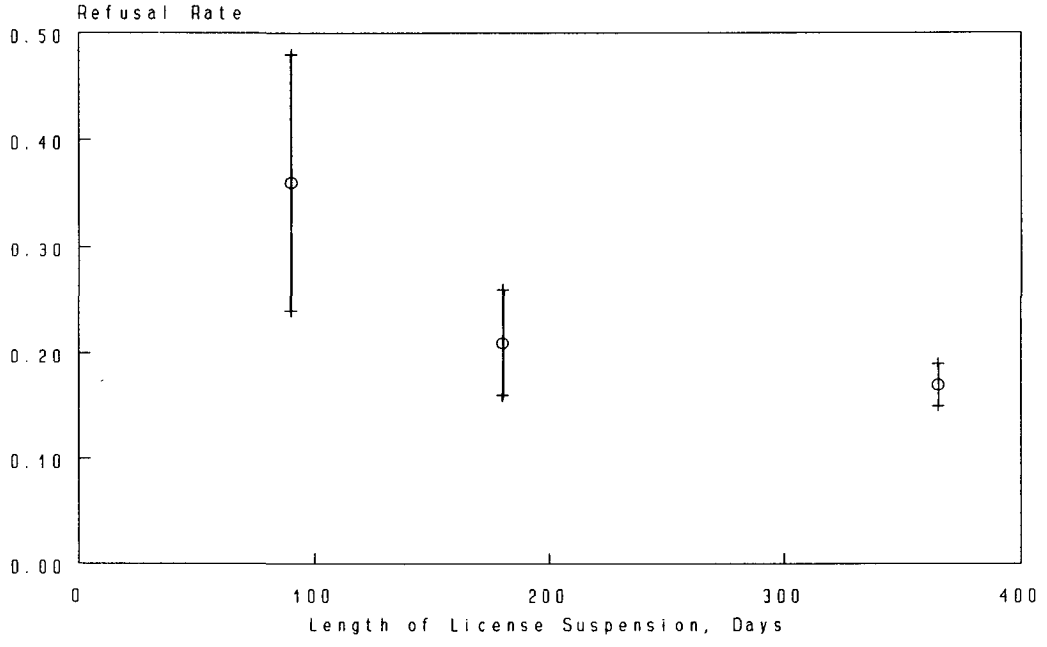


Figure 2-7: Refusal Rate vs. Length of First Suspension for Three Groups of States with Soft Suspensions



If the arrest rate is included together with the duration of the suspension / revocation, it is not a significant variable, but it shows a consistent pattern: in each of the three groups of similar suspension periods, the refusal rate declines with increasing arrest rate. A speculative explanation of decrease in the refusal rate with an increasing arrest rate is that where arrest rates are high, relatively more drivers with a low BAC are arrested, and that these drivers are less likely to refuse. Another possible explanation is that DWI arrest rate is an indicator of the "toughness" of the traffic law system in a state in dealing with potential refusers, with the tougher states having a higher DWI arrest rate. However, when all three independent variables (arrest rate, length of suspension / revocation, hard / soft suspension revocation) are included in the same regression model, length of suspension / revocation is only marginally significant ($p=0.09$). Thus, it appears that the available data for 40 states are not sufficient to separate the potential effects of two or more factors.

Another factor which showed some relation is whether people are believed by DMV staff to be aware of the sanctions. This variable is not associated with the refusal rate for the states with a soft suspension / revocation, but in states with hard suspension / revocation, the refusal rate is 12% in states where people are aware of the sanctions and 21% in states where people are not believed to be aware of the sanctions. This is a substantial difference. However, with a standard error of 0.05, it is only marginally significant ($p=.09$).

THE TEST REFUSAL PROBLEM

A major objective of this project was to determine whether chemical test refusal is a problem in the United States. Our research indicates that a *potential* test-refusal problem exists to the extent that some 2% to 71% of drivers arrested for DWI in a given state refuse to take a chemical test when request to do so. The mean refusal rate for all states was 19%. Data from our analysis of driver records in four states indicate that, in general, drivers with prior alcohol-related offenses, male drivers, and drivers in the 26 to 55 year age groups tend to have even higher refusal rates. Having a prior offense increases the refusal rate the most in all four states. For example, in Illinois, the refusal rate for drivers with priors was 41% compared to 27% for drivers with no priors.

To determine whether this potential problem is a real problem requires:

1. An estimate of the percentage of drivers arrested for DWI who were not also convicted of DWI after refusing a chemical test (DWI avoidance rate); and

2. An estimate of the percentage of refusers who were not convicted of DWI *and* whose sanction for refusal was less severe than the sanction for DWI.

Data from three of our case study states (the case studies are described in Chapter 3) allow us to estimate the DWI avoidance rate (Table 2-7). Illinois had the highest refusal rate of the three states, but its percentage of refusers not also convicted of DWI was 58.5%. As a result, only about 18% of DWI arrestees in

Illinois avoided a DWI conviction by refusing a test. By contrast, in Virginia, which had the lowest refusal rate, nearly all of the refusers were not also convicted of DWI, resulting in a DWI avoidance rate about equal to the refusal rate. The avoidance rate in California was less than half of the refusal rate (3.3% vs. 8.2%) as a consequence of only 40% of its refusers not also being convicted for DWI.

Table 2-7: Percent Drivers Arrested for DWI Avoiding DWI by Refusing a Chemical Test

State	Refusal Rate (Percent)	Refusers Not Convicted of DWI as a Percent of All Refusers	Percent of Arrestees Avoiding DWI by Refusing a Test
Illinois	31.1	58.5	18.2
California	8.2	40.0	3.3
Virginia	3.1	91.5	2.8

It is conceivable that different groups of drivers would experience different DWI avoidance rates. As indicated above, driver records data indicated that having or not having a prior alcohol-related traffic conviction had the largest effect on refusal rate in the four case study states. We calculated the DWI avoidance rates in Illinois and Virginia for drivers with and without such prior convictions. Data for making these calculations were not available for Missouri and California. The results are shown in Table 2-8 and indicate very little difference in DWI avoidance rate between refusers with priors and refusers with no priors.

Estimating the percentage of refusers who were not convicted of DWI *and* whose sanction for refusal was less severe than the sanction for DWI is not possible from the data collected in this study, but it is of interest to consider some of the factors that may influence this percentage. Our review of implied consent laws found that all 50 states explicitly authorized drivers license sanctions for a first refusal, but only three states, Alaska and Nebraska, authorized a jail sentence. The same is true for a second refusal, except that Alaska's jail penalty became mandatory, and Ohio authorized (but did not mandate) a jail penalty. This means that nearly all test refusers not convicted of DWI did not face the possibility of a jail sentence for refusing a test. By contrast, all 50 states explicitly authorized a jail penalty for a DWI conviction, and 39 states *mandated* a jail penalty for a second DWI conviction. Community service could be imposed for second-offense DWI in lieu of jail in 15 states, but not for a test refusal. The picture was different with respect to drivers license sanctions for refusal and for DWI. For a first refusal, 49 states specified a license suspension or revocation, and in 30 of these states (61%), the length of the suspension or revocation for a refusal was greater than it was for DWI. A similar relationship existed for a second refusal and a second DWI, but only 42% of the states specified a suspension or revocation.

Table 2-8: Percent of Drivers Arrested for DWI Avoiding DWI by Refusing a Chemical Test, With and Without Prior Alcohol-Related Convictions, Illinois and Virginia

State	Refusal Rate (Percent)		Refusers Not Convicted of DWI as a Percent of All Refusers		Percent of Arrestees Avoiding DWI by Refusing a Test	
	Priors	No Priors	Priors	No Priors	Priors	No Priors
Illinois	41.0	26.5	47.1	68.1	19.4	18.0
Virginia	3.8	2.7	89.1	93.1	3.3	2.5

Thus, informed DWIs wishing to avoid jail or community service might well opt to refuse a chemical test. Informed DWIs more fearful of driver license sanctions might choose to take a chemical test in most states and accept the shorter driver license suspension or revocation. Refusal would be a "problem" for the former group in states with a relatively high DWI avoidance rate and not a "problem" for the latter group of drivers. Obviously, decisions based on the length of a license suspension or revocation would be affected by factors relating to the certainty of such a sanction, for example, whether the suspension or revocation was hard or soft.

Thus, it is clear that there was a test refusal problem in many states. The magnitude of this problem overall is probably less than would be indicated by the aggregate refusal rate because some refusers are convicted of DWI anyway. Further, some refusers who are not convicted of DWI will receive a longer driver license suspension or revocation than they would have received had they been convicted of DWI. However, refusers not convicted of DWI do not face the threat of a jail penalty which is mandatory for a second offense DWI in 39 states, and this would tend to exacerbate any existing test refusal problem.

SUMMARY AND CONCLUSIONS

Implied consent laws in the United States exhibit a wide range of features. Most states treat a test refusal as a traffic infraction with a penalty imposed by an administrative agency. In such states, criminal sanctions are not permitted, and sanctions involve actions that restrict, suspend or revoke the drivers license. A few states treat refusal as a criminal offense (misdemeanor) and have judicially-imposed sanctions that could, if authorized by statute, include a jail sentence.

Test refusal rates also varied over a wide range, from a reported low of 2% in Hawaii to a high of 71% in Rhode Island, with an average of about 19%. However, not all of the drivers who refuse a chemical test could avoid the penalties prescribed by implied consent laws. Refusers who were also convicted of DWI clearly did not avoid such penalties. Accounting for such drivers reduces the magnitude of the test-refusal problem indicated by the aggregate refusal rate, but does not eliminate the problem. Further, in many states, refusers could have received longer driver license suspensions or revocations than they might have received for DWI. On the other hand, jail and community service were not explicitly authorized in implied consent statutes 47 of the 50 states, so DWI arrestees could avoid these penalties by refusing a chemical test.

The analysis of refusal rates in the 50 states indicated that three factors showed a statistical relationship with refusal rate, whether the license suspension or revocation for refusal was hard or soft; the length of the suspension or revocation for a first refusal; and the DWI arrest rate per licensed driver. The hard suspension was associated with a lower refusal rate, and the refusal rate decreased with increasing DWI arrest rate. In states with a soft suspension, a suspension or revocation period of 90 or fewer days was associated with a higher refusal rate. The available data did not permit a clear separation of the effects of arrest rates and length of suspension revocation.

We also found that hard-suspension states in which DMV staff believed the public was aware of refusal penalties had lower refusal rates than did hard-suspension states in which DMV staff believed the public was unaware of refusal penalties. From our data, there was no way of knowing whether these beliefs by DMV staff reflected actual awareness of the driving public.

CHAPTER 3 - TEST REFUSERS AND NON-REFUSERS

This chapter presents the results of a comparison of the characteristics of drivers who refused a chemical test during a given time period with the characteristics of drivers who did not refuse a chemical test in that time period. The objective of this substudy was to identify the factors that best characterize the types of drivers who refuse and do not refuse a chemical test for DWI. It was hoped that these factors would be useful in targeting actions to reduce the refusal rate.

This analysis used both quantitative and qualitative methods, the former involving an examination of the driver records of test refusers and non-refusers in four states, and the latter involving a series of discussion groups held in two urban locations. Information on actual sanctions imposed in the four states was also collected.

DRIVER RECORDS ANALYSIS

General Approach

Driver records were obtained from four states, two with low refusal rates, and two with high refusal rates. States were chosen on the basis of their ability and willingness to provide computerized records. The high-refusal states were Illinois and Missouri, and the low-refusal states were Virginia and California. Two cohorts of drivers were drawn for each state:

- Refusers - Drivers who refused to take a chemical test in 1987, and
- Non-Refusers - Drivers who took a chemical test in 1987.

In Missouri and California, each cohort contained approximately 4,000 drivers. Roughly one-half of the sample in each state were refusers, and one-half were non-refusers. For Illinois, records of 2,069 refusers and of 5,427 non-refusers were obtained. In Virginia, there were only 629 refusers (due to the small number of drivers who refused the test) and 875 non-refusers.

The driver records for the Illinois, Missouri, and Virginia subjects were provided in the form of a data base containing a record for each conviction. In general, there were variables identifying the cohort (refuser or non-refuser), the type of offense (traffic offenses only), driver date of birth, driver sex, date of arrest, and date of conviction. The records for Missouri contained conviction dates but not arrest dates. Prior records went back more than five years for DWI and other major violations, but only two or three years for minor violations. These data bases were converted to a second data base (for each state) containing one record per driver, with each record containing variables describing that driver's prior and subsequent violation history.

The data base for California was supplied in the form of the second data base described above, that is, a single record for each driver. The California data base also contained variables describing prior and subsequent accidents of various types, for example, nighttime injury and had-been-drinking (police reported) accidents.

Finally, the reader should note that, in our data bases, the overall probability that a driver is a "refuser" is about 50% for California and Missouri, 42% for Virginia, and 28% for Illinois. This probability is clearly not the probability that a driver who is stopped by the police and asked to take a test refuses to take it. The purpose of studying the probability of refusal in our samples is to determine how refusers and non-refusers differ in some of their characteristics, such as age, sex, and prior record. These probabilities have to be interpreted against the background of an overall probability of 50%, 42%, and 28%, respectively, for the entire sample.

Analysis Approach

The analysis consisted of three parts. The first part searched for characteristics distinguishing "refusers" (belonged to the refuser cohort) and "non-refusers" (belonged to the non-refuser cohort) in the data files. The second part compared the numbers of subsequent alcohol-related offenses of refusers and non-refusers, taking into consideration the different characteristics of refusers and non-refusers, including prior offenses. The terms "prior" and "subsequent" are used herein in relation to the index event that brought a driver into the cohort. In Illinois and Virginia, this was an arrest leading to a refusal or DWI charge. In Missouri, the index event was a conviction for refusal or DWI. Each refusal and DWI was treated as a separate offense in these three states. In California, only the records of convicted DWIs were available, and the index event was the DWI conviction. All of the members of the refuser group in California were also convicted of DWI on their index incident. In addition, analyses of prior and subsequent accidents was conducted in California.

The third part of the analysis dealt also with the alcohol-related offenses subsequent to the index event. However, it did not compare the numbers of such offenses between refusers and non-refusers, but the times to the first recidivism. Though this type of analysis is more complex than the second, it can be more sensitive if the number of subsequent offenses is small. In this analysis, subsequent events were analyzed as a function of the *time* from the index event to the subsequent event.

The analyses of the *characteristics and subsequent offenses of refusers and non-refusers* had two objectives: 1) to determine how drivers refusing an alcohol test differ from drivers who submitted to a test, and 2) to determine whether the number of future alcohol-related traffic arrests or convictions differed between refusers and non-refusers. Variables in which the refusers and non-refusers can differ are personal characteristics, and the past driving record. Of personal characteristics, only age and sex were known. The traffic record was available in greater detail: by the type, number, and even time of arrests / convictions.

At first glance, analyses of the first question seem to be straightforward. A second look, however, shows that there are alternative approaches, none of which is clearly preferable. Non-refusal / refusal is naturally treated as a 0/1 dependent variable. Sex may be treated as a two-level class variable, or a 0/1 continuous variable. Age is more complicated. Since relations between age, motor vehicle use, and accidents tend to be very non-linear, one can treat age as a continuous variable only in complex non-linear models, or as a categorical variable. The number of categories and the breakpoints between them are arbitrary. If many categories are used, complex age effects can be represented better, but the degrees of freedom of the model and the variability of the cell counts will increase, which can make it impossible to recognize a real relation. Using fewer categories can avoid these problem, but can easily "average out" an age effect. The choice of breakpoints can also influence the results.

With the past record, one has some conceptual and statistical problems. The conceptual question is: which type of offenses shall be included in the past record? First, one has to distinguish between an arrest / conviction, and the event leading to it. Out of one episode of drinking driving and one arrest, several charges and convictions for several different offenses may result. The number and types of charges depend to large extent on the discretion of the arresting officer and the prosecuting attorney, and they may be so selected as to increase the probability of a conviction of at least one charge, even if the accused can obtain acquittal on other charges. To count all of these charges would not give a realistic description of the past driving behavior. To account for this, we counted all arrests / convictions on the same day as one event, assigning to it the most serious charge (it is possible that a person is arrested on one day on two different occasions for two independent offenses, but we believe that possibility is negligible compared with the error committed by counting all arrests on a day). Some questions still remain: are only previous alcohol-related violations related to refusal / non-refusal, or are other types also related? For instance, for various reasons, a DWI charge may be reduced to a reckless driving charge. Therefore, should one combine the previous record of alcohol-related offenses with the previous record of reckless driving offenses? Similar questions arise with respect to other offenses, including the various alcohol-related offenses. Experience has shown that one needs to explore various alternatives in order not to miss important relations. This, however, also increases the probability that one finds a relation which is due to chance, and significance levels calculated in the standard manner become uninterpretable.

Another conceptual problem is that the time horizon of the record is unknown. A given individual may have driven many years in the study jurisdiction and have one conviction on his record. Another individual may just have moved into the jurisdiction and have no arrest on his records, though he may have been arrested many times in another jurisdiction. The purging of records creates similar problems. Usually records are purged a certain time after the last entry; sometime this time depends on the nature of the last entry. Such purging exaggerates the records of people with frequent entries appear exaggerated, compared with those with fewer offenses. Concerning recidivism, a person may not show recidivism because he moved

out of the jurisdiction, even if he may have had subsequent offenses elsewhere. There is no practical way to avoid these problems. One can only hope that they will affect drivers who did not refuse the test, and those who did refuse it, in a similar fashion, so that such effects will not affect comparisons of the two groups.

The statistical question is how to treat the past record. It may appear natural to treat the number of convictions as a continuous variable. Relations with the number of convictions, however, can be highly nonlinear, making a continuous analysis complicated or reducing its sensitivity. To avoid such problems, one can treat the number of past convictions as a categorical variable. However, the numbers of cases in many "cells" of the resulting contingency table can be very small, and some may contain no case at all. This invalidates statistical tests. Even if this is not the case, there are situations where a closer inspection shows that significant effects - typically interactions of three or more factors - depend critically on very few, or sometimes even a single case, for example, one person with an extreme record. Then it becomes questionable how "real" such an effect is. To some extent this can be avoided by aggregating the categories with few cases, for example, into "4 or more," etc. However, the choice of such a cutoff is arbitrary, and a different choice can give different results.

Often the numbers of certain types of violations are closely correlated, which can make it practically impossible to separate the potential contributions of these variables or to identify the one which is "causal." The number of analyses which one would have to perform would become very large, even if one tried only the most plausible combinations, and so would the probability of selecting a relation which appears due to chance much better than it really is.

Because of these concerns, and after performing initial analyses, we decided not to perform pre-selected statistical analyses and to present test results with F- or t-statistics and significance levels. Rather, we used statistical techniques in the spirit of data analyses. We approached the same data base with different techniques, treated variables in different ways, where it was possible, and selected a wide range of plausible variables. Those which were most "robust" we selected for further analyses. By that we mean that they appeared in many, if not most analyses as "significant" at the 90% level or a slightly lower level. If a plausible combination of variables improved the "significance," it was used. Even if a such a combination did not improve "significance" it was selected if the distinction between the offenses appeared to be more legal than practical.

Our aim was to finally present the date in tabular form which could be easily read and interpreted, even if the analyses on the basis of which the variables were selected were continuous. To do that we tried to limit the number of variables defining the table. There is the "dependent" variable, in one case refuser / non-refuser, in the other, the number of subsequent DWI offenses. There are also independent variables, namely age, sex, and the variable selected as "best" for describing the past record. If age or sex did not have a "significant" effect, data were aggregated over age or sex, including aggregation over only certain age classes.

The *recidivism analysis* was concerned with both rearrests and reconvictions. The primary objective was to determine how the time from the index arrest or conviction to a subsequent arrest or conviction differed for refusers and non-refusers. For the refusal group, the index event was the first chemical test refusal in 1987. For the non-refusal group, the index event was the first DWI arrest (or conviction) in 1987. Two types of subsequent events were considered, (1) an arrest (or conviction) for either a first refusal or for a first DWI, and (2) an arrest (or conviction) for a first refusal. Recidivism was modeled as a function of refusal / non-refusal group, prior DWI-related arrests or convictions (two levels, priors and no priors), sex, and age. The SAS LIFEREG survival analysis procedure was used in the statistical analysis.

The "survival" time of a driver from the index event to the first "failure" - an alcohol offense - is described by a survival curve, which shows which fraction of the initial population survives at any time (up to the time horizon of the study) in the future. (Failure curves that show the fraction of the initial population that does not survive may also be used.) To compare such survival curves, and perform statistical tests, survival functions have to be assumed.

Three closely-related functions describe survival. The first is the survival function, giving the proportion of survivors at any future time t; necessarily, it is a non-increasing function. The failure function gives the probability, for the initial population, of a failure at any given time in the future; this function can have complex shapes, e.g., the failure probability may be high at the beginning, very low over a long time period, and finally increase rapidly (as is the case for human survival). The last is the hazard function, which gives the probability that a failure will occur at some future time for those who have survived that long.

The SAS LIFEREG procedure permitted a choice of four probability distributions for the failure function, the exponential, the Weibull, lognormal, and log-logistic distributions (plus three more that were inappropriate). The simplest of these is the *exponential* survival function. It assumes a constant "hazard rate": the probability that a survivor will fail is the same at any time. This means that the probability of failure for the initial population will decrease over time, as that population declines. This function depends on only one parameter.

The *Weibull* distribution depends on two parameters, and can therefore represent a wider range of empirical functions. Essentially, one of the parameters is a scale factor for time, the other influences the shape of the function. For low values of this parameter, failures are initially very frequent, but the failure function declines over time, initially more rapidly, then more slowly. It is qualitatively very similar to the exponential failure function, and identical with it for one certain value. For larger values of this parameter, there are initially no failures, but one gets a rapid increase of failures for low values of time, and finally a slow decrease, until ultimately zero is approached. For larger values, the shape reverses: the initial increase of the failure function over time is slow, after the maximum is reached, the decline is more rapid.

The *log-normal* survival function is another two-parameter function. However, though its exact shape changes with the parameters, it is qualitatively always the same: failures increase initially from zero relatively rapidly, and after their maximum, they decrease more slowly. This asymmetry is always present.

The *log-logistic* function is also a two-parameter function. For low values of the shape parameter, failures decline from an initial high, just as with the Weibull distribution. For larger values, failures increase relatively rapidly to a maximum, and then decline more slowly. For large values of the parameter, the initial increase, and the subsequent decline, become more and more symmetric, different from the Weibull distribution.

Though these functions can represent a wide range of survival functions, the actual functions can be more complicated, so that it is possible that none of these models can fit the data adequately. One reason for this inadequacy is that the functions apply to only two system states, a survival state and a failure state. Real systems have multiple states that require more complex models.

In a separate analysis we used a continuous-time Markov model[2] to obtain a distribution that fit the data better. The Markov model used here envisages three possible states for a subject: state 1, the index conviction; state 2, the first reconviction; and state 3, a state from which reconviction is not possible (for example, being unable to drive again). The model expresses the probability of a reconviction as a function of two *transition rates*, R_{12} and R_{13}. $R_{12}dt$ is the probability of moving from state 1 to state 2 in a small time interval, dt. Similarly, $R_{13}dt$ is the probability of moving from state 1 to state 3 in the interval dt. In this model, the transition rates are assumed to be constant in time. The probability of reconviction on or before time t is determined through the relation:

$$P_2(t) = \left(\frac{R_{12}}{R_{12}+R_{13}}\right)\left(1-\exp(-R_{12}t)\right)$$

The values of R_{12} and R_{13} are determined empirically by fitting a curve $P_2(t)$ to the reconviction rate indicated by the data. Note that this three-state model reduces to the exponential distribution when the third state is dropped.

The results of the analyses of the characteristics and subsequent offenses of refusers and non-refusers and of recidivism are summarized below by state and are followed by an analysis across states.

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[2] For a discussion of the application of continuous-time Markov models to decision-making see: Howard, RA. 1971. *Dynamic probabilistic systems.* New York: John Wiley & Sons, Inc. (Chapter 12).

Illinois

The total number of drivers was 7,496, 28% of whom were refusers.

Age, Sex, Past Record, and the Index Offense. The distribution (in percent) by age and sex is shown in Table 3-1. Overall, the distributions are very similar. There is a slight excess of women in the 21-25 and 36-40 age groups, and correspondingly lower numbers in the other groups. If one compares refusers and non-refusers, refusers are more concentrated in the higher age groups (for women, above age 30; for men, above age 25) with the exception of the highest age group.

Table 3-1: Age and Sex Distribution of Subjects, Illinois

Age	All		Non-Refusers		Refusers	
	Female (12.5%)	Male (87.5%)	Female (13.4%)	Male (86.6%)	Female (10.0%)	Male (90.0%)
<21	8.1	8.8	8.9	8.7	2.9	4.6
21-25	27.3	23.5	24.7	25.0	21.3	18.2
26-30	23.0	22.3	24.1	21.7	17.4	24.5
31-35	18.4	15.0	17.5	14.6	22.7	17.8
36-40	12.1	10.6	11.9	10.3	15.5	12.6
41-45	5.4	7.1	5.1	6.8	7.3	9.0
46-55	6.1	8.0	5.3	8.0	9.7	8.8
56-65	2.4	3.8	2.2	3.9	2.9	3.9
>65	0.3	0.9	0.3	1.0	0.5	0.8
Total N	937	6559	730	4697	207	1862

Characteristics of Refusers and Non-Refusers. Preliminary analyses were performed to determine which factors were related to refusal of the alcohol test. Age, sex, and prior DWI offenses had strong influences on subsequent offenses. Prior reckless driving offenses showed a marginally significant relation. The effect of three major factors is shown in Table 3-2. The rows correspond to the number of prior DWI offenses, and the entries are the percentages of breath test refusers in the 1987 cohort.

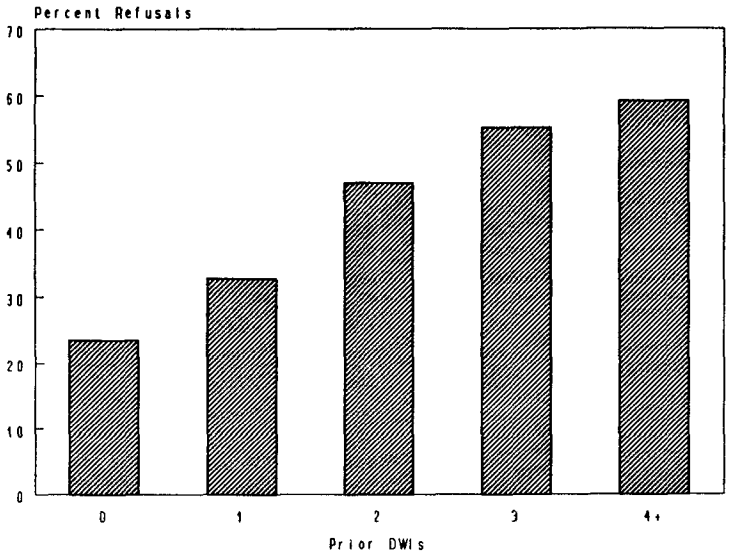
In the younger age groups, men have a higher percentage of refusers than women, but in the older age groups, the picture is not that clear. Because of the small number of women, the numbers for them fluctuate strongly. That the percentage of refusers increases strongly with the past record is obvious. For men it tends to be roughly double for those with the worst records, compared with those with no record. The age effect is relatively weak; the refusal percentages for the middle age groups are higher.

Table 3-2: Percentage of Breath Test Refusers by Age, Sex, and Number of Prior DWIs, Illinois

Age	Number Priors	Sex	
		Female	Male
<26	0	12.70	17.79
	1	39.47	26.48
	2	30.77	47.14
	3	--	56.25
	4	--	80.00
26-30	0	14.47	25.26
	1	23.91	35.36
	2	28.57	57.55
	3	--	48.48
	4	--	46.15
31-35	0	25.60	28.51
	1	23.81	38.20
	2	62.50	46.58
	3	--	62.50
	4	--	33.33
36-40	0	22.99	29.69
	1	32.14	32.77
	2	75.00	42.31
	3	--	50.00
	4	--	66.67
41-45	0	26.83	27.93
	1	40.00	38.69
	2	0.00	52.63
	3	--	72.73
	4	--	55.56
>45	0	32.79	24.45
	1	35.29	34.12
	2	16.67	38.78
	3	--	50.00
	4	--	59.09

To isolate the effect of the prior record from confounding effects of different age and sex distributions, we standardized the refusal rates for drivers with the same past record from Table 3-2 to the overall distribution of age and sex. Figure 3-1 shows how this standardized refusal rate increases with the number of prior DWI offenses. The figure shows a continuing increase and no suggestion of a step function; only between three and four or more prior offenses is there a slight decline in the rate of increase in refusal rate.

Figure 3-1: Percentage of Refusals by Number of Prior DWI Offenses, Standardized for the Overall Distribution of Age and Sex, Illinois



Number of Subsequent Offenses. To determine any relation between the driver characteristics, prior offenses, the nature of the index event (refusal or DWI), and the experience after the index event a number of analyses were performed. The number of alcohol-related offenses was used as a dependent variable.

There was a clear pattern. The nature of the index event had the strongest relation with the subsequent record; prior convictions for DWI, and for any alcohol-related offense, showed also strong relations. Sex and age had weaker though still significant relations. The number of all DWI offenses is contained in the number of all alcohol-related offenses. Using DWI alone gave a slightly better representation than using all alcohol-related offenses, and only a little less good representation than using both together, which is conceptually unsatisfactory (though it can be interpreted as meaning that DWI has a higher "weight" than other alcohol-related offenses).

Table 3-3 and Table 3-4 show the distribution (in row percent) of subsequent alcohol-related offenses, in relation to the number of prior DWI offenses, age, sex, and the key event. In addition to the distribution, the average number of subsequent alcohol-related offenses is shown.

For female drivers (Table 3-3), those with a past record tend to have more subsequent alcohol-related offenses. For the youngest age group, refusers have more subsequent offenses than non-refusers; for the older age groups, this does not seem to be the case. For men (Table 3-4), refusers usually have worse subsequent records than non-refusers. Also, drivers with a worse prior record have usually a worse subsequent record. The middle age groups tend to have a worse record than the younger or the older age groups. Note that differences between adjoining age groups are often only random fluctuations.

In order to separate confounding effects of age, sex and the prior record from an effects of the refusal rate on subsequent offenses, the subsequent offenses were standardized to the overall distribution of age, sex, and prior record. Table 3-5 shows the result. The probability for subsequent alcohol-related offenses is about 50% higher for refusers with priors than it is for non-refusers with priors.

Recidivism. The recidivism analysis in Illinois considered both rearrests and reconvictions. We found that the analysis was essentially unaffected by the choice of an arrest or a conviction as the subsequent event (see Figure 3-2), and used convictions for most of the analyses. This made the results more comparable with those in Missouri which was unable to provide arrest data.

Refusal / DWI Reconvictions. This analysis dealt with reconviction for either a refusal or a DWI violation. Recidivism was modeled as a function of refusal / non-refusal group, prior DWI-related arrests or convictions (two levels, priors and no priors), sex, and age. *All of these variables were highly significant in predicting recidivism*, but the predicted values themselves fell somewhat below those given by the data (see Figure 3-3). This was apparently due to the lack of a suitable distribution in the SAS procedure, which was limited to the Weibull, log-normal, and log-logistic distributions (plus three more that were inappropriate).

The Markov model provided an excellent fit for the data, but had to be determined empirically for given values of the independent variables. An analytic expression of recidivism as a function of the independent variables is not available in the SAS procedure for the Markov model.

Figure 3-4 illustrates how refusal / DWI recidivism differs for refusers and non-refusers. The refusal group has a recidivism rate some 10 percentage points higher than that of the non-refusal group throughout a large part of the time period studied. Similarly, the recidivism of subjects with priors was higher than that of subjects without priors, and the recidivism of male subjects was higher than that of female subjects (Figure 3-5). The effect of driver age was such that older drivers had a lower recidivism than younger drivers.

Table 3-3: Effect of Age and Prior DWIs on Subsequent Alcohol-Related Traffic Offenses, Female Refusers and Non-Refusers, Illinois

Age	Prior DWIs	Subsequent Alcohol-Related Offenses							
		Non-Refusers				Refusers			
		0	1+	Avg.	n	0	1+	Avg.	n
<31	0	94	6	0.06	349	83	17	0.19	54
	1+	87	13	0.14	72	68	32	0.44	32
31-40	0	87	13	0.16	160	83	17	0.17	52
	1+	86	14	0.21	55	85	15	0.15	27
>40	0	96	4	0.06	71	07	3	0.03	31
	1+	96	4	0.04	23	82	18	0.27	11

Table 3-4: Effect of Age and Prior DWIs on Subsequent Alcohol-Related Traffic Offenses, Male Refusers and Non-Refusers, Illinois

Age	Pri-or DWIs	Subsequent Alcohol-Related Offenses									
		Non-Refusers					Refusers				
		0	1	2+	Avg.	n	0	1	2+	Avg.	n
<26	0	88.0	9.8	2.1	0.14	1229	85.7	12.4	1.9	0.17	266
	1	88.4	9.9	0.9	0.15	311	78.5	17.8	3.5	0.26	112
	2+	91.1	8.8	0.0	0.09	45	65.2	30.4	4.3	0.46	46
26-30	0	85.1	12.5	2.4	0.18	707	82.0	17.1	0.8	0.19	239
	1	83.2	14.2	2.3	0.20	245	79.8	19.4	0.8	0.22	134
	2+	75.3	20.2	4.3	0.29	69	65.0	26.5	8.4	0.51	83
31-35	0	88.4	9.0	2.3	0.15	474	82.5	13.2	4.2	0.22	189
	1	81.2	15.7	3.0	0.22	165	76.4	17.6	5.9	0.33	102
	2+	80.4	15.2	4.3	0.26	46	51.2	31.7	17.1	0.73	41
36-40	0	89.1	9.3	1.5	0.12	322	78.6	19.1	2.2	0.24	136
	1	89.0	10.0	0.8	0.12	119	81.0	13.7	5.2	0.28	58
	2+	84.0	9.0	6.8	0.25	44	67.5	12.5	20.0	0.53	40
41-45	0	89.4	9.0	1.4	0.13	209	91.3	7.4	1.2	0.10	81
	1	83.3	14.2	2.3	0.19	84	83.0	13.2	3.7	0.21	53
	2+	76.0	20.0	4.0	0.28	25	69.7	27.2	3.0	0.36	33
>45	0	93.2	5.8	0.9	0.08	414	83.5	13.4	3.2	0.20	134
	1	92.8	7.1	0.0	0.07	139	76.3	20.8	2.8	0.28	72
	2+	70.0	26.0	4.0	0.36	50	74.4	13.9	11.6	0.49	43

Table 3-5: Subsequent Alcohol-Related Offenses Standardized for the Overall Distribution of Age, Sex, and Prior DWI Offenses, Illinois

Group	Subsequent Offenses			
	0	1	2+	Avg.
Non-Refusers	87.5	10.6	1.8	0.15
Refusers	81.3	15.9	2.8	0.23

The Illinois data allowed the introduction of two other variables into the analysis, elapsed time from arrest to conviction and the BAC of drivers who took the test for the index offense. Neither of these two variables was significantly related to recidivism.

Refusal Only Reconvictions. This analysis was concerned with a reconviction for refusal. Again, recidivism was modeled as a function of refusal / non-refusal group, prior DWI-related arrests or convictions (two levels, priors and no priors), sex, and age. The results were similar to those indicated above for refusal or DWI. Refusers had a significantly higher recidivism rate than did non-refusers (Figure 3-6), and recidivism was significantly related to number of priors, age, and sex in the same way as it was for refusal / DWI reconvictions (see discussion above).

Probability of a DWI Conviction for a Refusal-Related Incident. The Illinois file contained information on convictions for multiple charges with the same arrest date. From this data we were able to determine the percentage of refusals that resulted in convictions for other offenses, including DWI. Table 3-6 indicates that about 61% of the drivers with a prior DWI or refusal were also convicted for DWI when they refused a chemical test. By comparison, about 70% of the drivers without a prior DWI or refusal were also convicted for DWI. However, more than half of the DWI-convicted drivers with no priors (38.5 / 70.4) were given court-supervised treatment rather punitive sanctions (second row of figures in Table 3-6). Only 13% of the DWI-convicted drivers with priors (8.2 / 61.1) were sentenced to supervision with no punitive sanctions. These differences were highly significant ($p<.0001$). Clearly, breath test refusers in Illinois had a high probability of a DWI conviction in addition to their refusal "conviction," and refusers with priors had a 50-50 chance of receiving additional punitive sanctions.

Figure 3-2: Arrest Recidivism and Conviction Recidivism in Illinois, Refusers

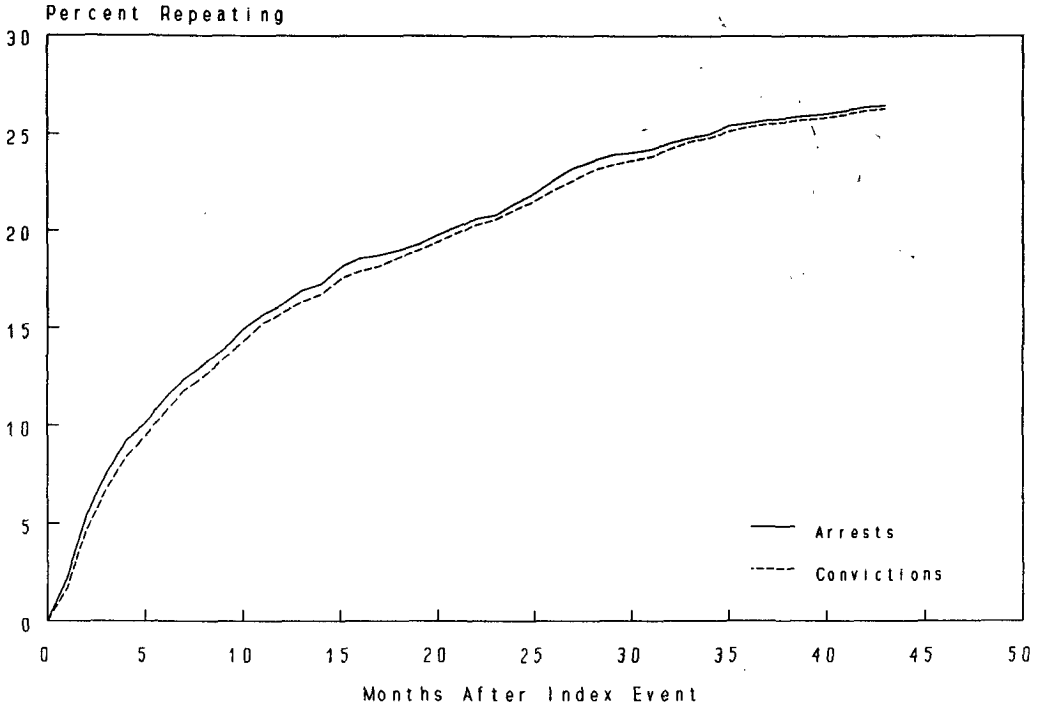


Figure 3-3: Various Distributions for Predicting Recidivism in Illinois

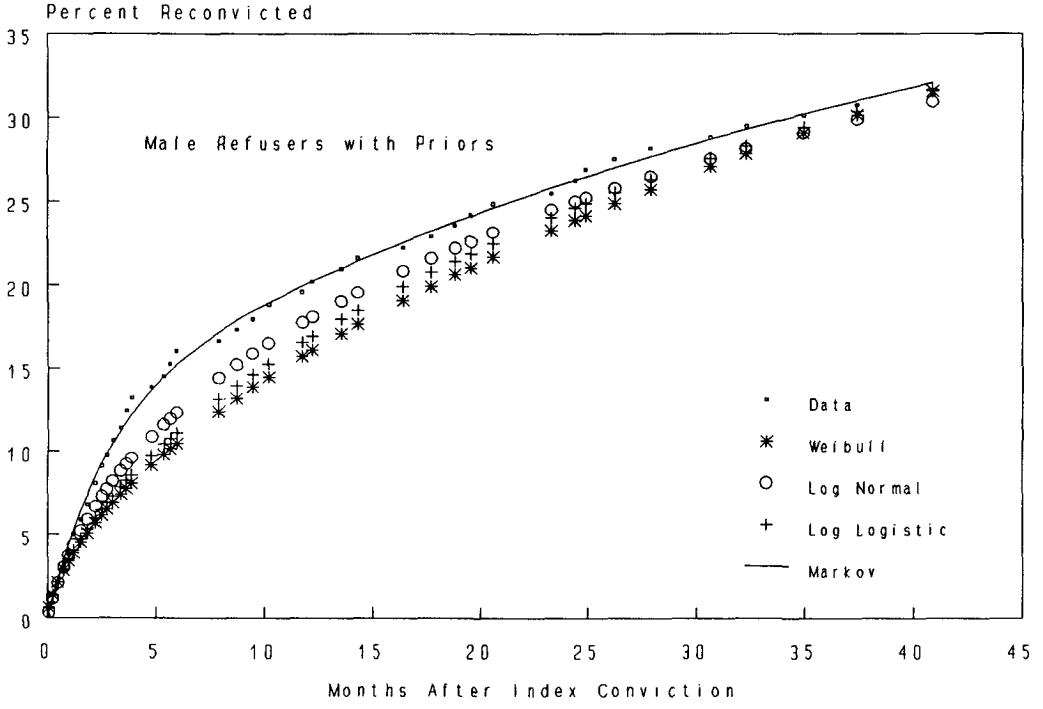


Figure 3-4: Refusal/DWI Recidivism in Illinois, Refusers and Non-Refusers

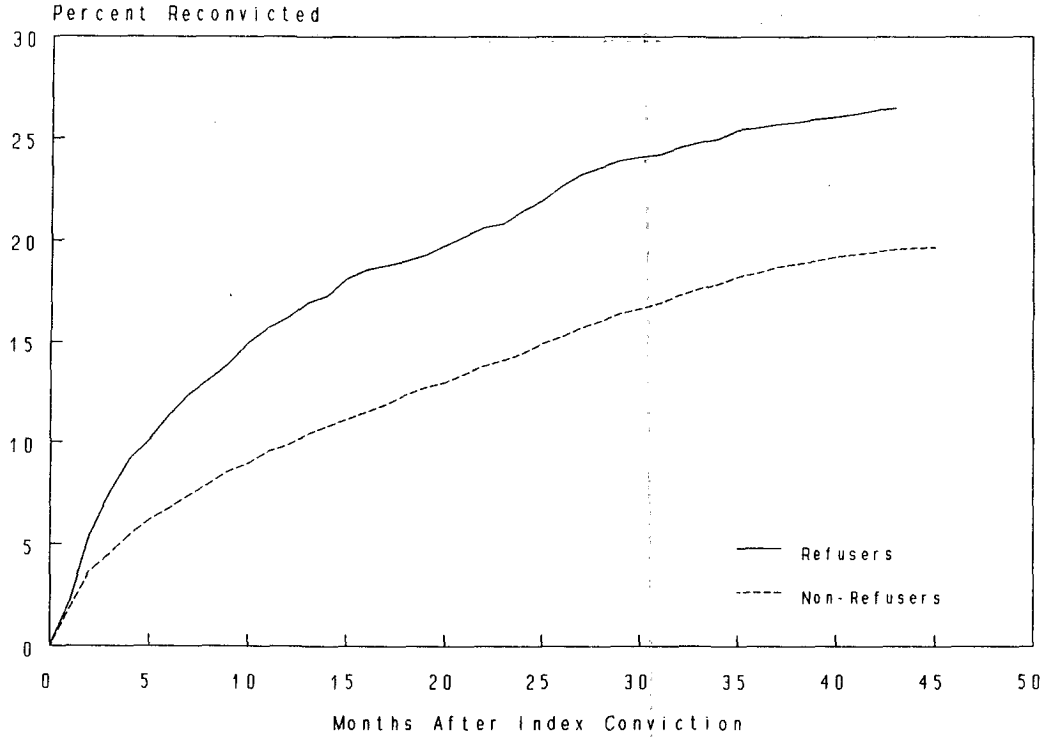


Figure 3-5: Refusal/DWI Recidivism in Illinois, Refusers

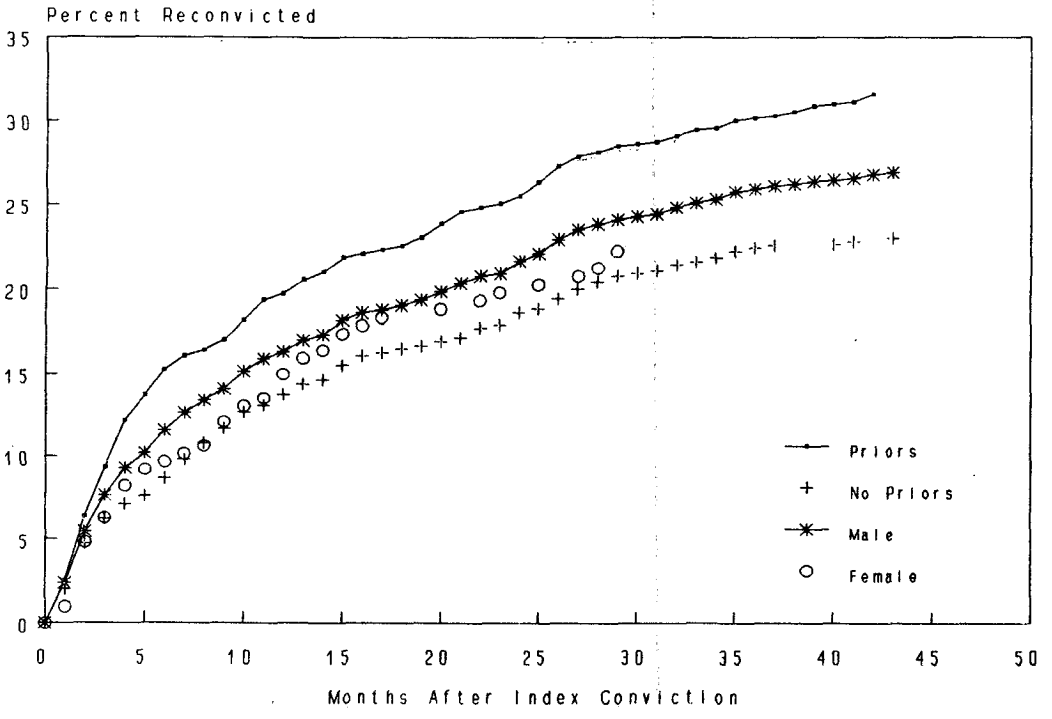
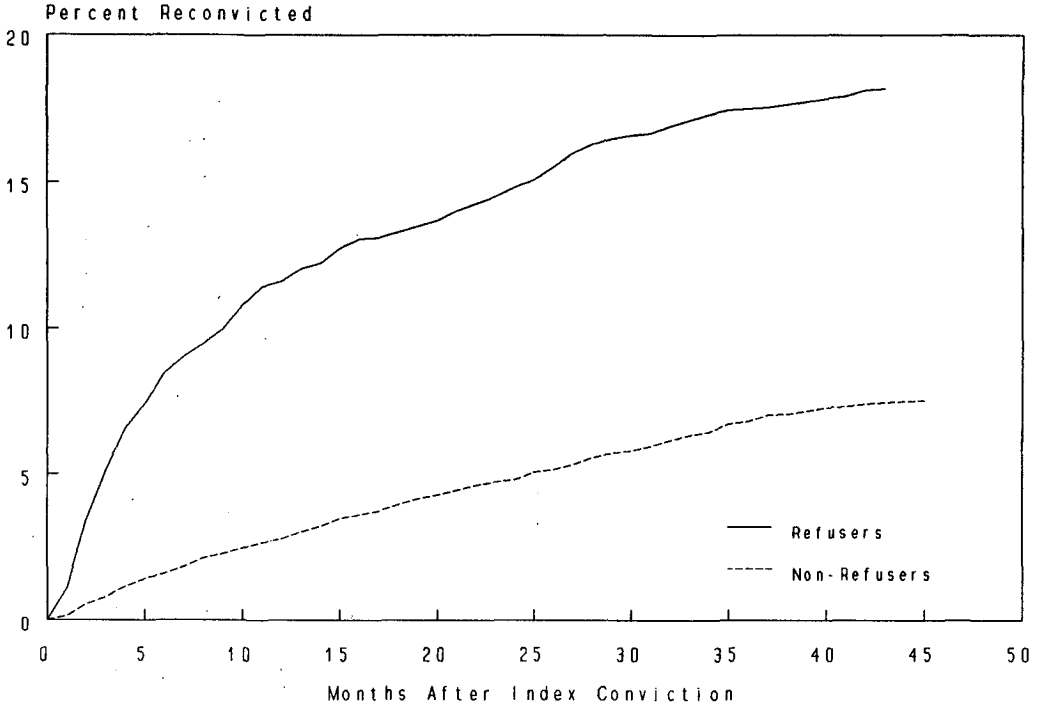


Figure 3-6: Refusal Recidivism in Illinois, Refusers and Non-Refusers



The Illinois DMV estimates that about 19% of the first offenders arrested for DWI in 1987, and about 69% of such multiple offenders were convicted of the DWI offense carrying punitive sanctions.[3] Drivers who refused the chemical test and drivers who took the test are included in this group. It is interesting to compare these figures with those only for drivers who refused test in 1987 as shown in Table 3-6. For first offenders who refused the test, 34% were convicted of DWI-punitive, compared to only 19% of all first offenders arrested for DWI. For multiple offenders who refused the test, 54% were convicted of DWI-punitive, compared to 69% of all multiple offenders arrested for DWI.

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[3] Anonymous. 1990. *DUI fact book: A decade of highway safety*. Springfield, IL: State of Illinois, Office of the Secretary of State.

Table 3-6: Probability of Conviction for Refusal and DWI in Percent, With or Without Prior Convictions, Illinois

Offense	Drivers with No Priors	Drivers with Priors	All
Refusal and DWI With Punitive Sanctions	31.9	52.9	41.5
Refusal and DWI With Court Supervision	38.5	8.2	24.6
Refusal Only	29.6	38.9	33.9

Missouri

Missouri had usable records for 7,979 drivers. One-half of these were refusers.

Age and Sex. The distribution of all subjects by age and sex is shown in Table 3-7.

Table 3-7: Age and Sex Distribution of Subjects, Missouri

Age	Sex	
	Female (8.7%)	Male (91.3%)
<21	3.3	3.6
21-25	19.7	17.7
26-30	27.6	24.8
31-35	17.9	18.2
36-40	14.5	12.4
41-45	7.7	8.8
46-55	7.4	9.5
56-65	2.3	4.0
>65	0.4	1.1

Overall, the age distributions for males and females are fairly similar. The percentages of males in the higher age groups are higher, and consequently those in the lower age groups tend to be lower. This is not surprising, because there are relatively fewer female licensed drivers in the higher age groups. Non-refusers are relatively concentrated in the lower age groups, up to age 25. Refusers are relatively concentrated in the middle age groups, up to age 40. At higher ages the picture is not quite clear.

Characteristics of Refusers and Non-Refusers. Various analyses explored relations between age, sex, and the frequencies of various prior offenses with the nature of the index offense. Prior convictions for reckless driving showed by far the strongest relation, and convictions for DWI and refusal showed also significant relations. Combining offenses did not result in stronger relations. Table 3-8 shows how the percentage probability that refusal is the index offense depends on prior reckless driving offenses, age, and sex.

Women tend to have higher refusal percentages. With regard to age, the refusal percentage tends to be higher in the middle age group. The refusal percentage clearly tends to increase with the previous record.

Number of Subsequent Offenses. The following factors were significantly related to alcohol-related traffic offenses after the index offense: age, sex, refusal, and various types of prior convictions. By far the strongest relation was with refusal. Among the offenses, the number of all previous offenses together showed the strongest influence; refusal, reckless driving and DWI *per se* showed also strong relations. However, the strongest simple relation existed with the number of any previous offense; using combinations, increased the predictions only negligibly.

Table 3-9 and Table 3-10 show the distribution (row percent) of subsequent alcohol offenses in relation to the number of all prior offenses, age, sex, and refusal status. In addition to the distribution, the average number of subsequent alcohol-related traffic offenses is given. For men (Table 3-10), the pattern is very strong. Refusers have on the average twice as many subsequent alcohol-related traffic offenses. They are highest in the middle age groups, and increase with the past record: those with four or more prior alcohol-related offenses have twice as many or more than those with no previous offenses. For women (Table 3-9), the pattern is very similar; because of the much lower case numbers, the fluctuations are much greater.

Recidivism. The recidivism analysis in Missouri dealt only with reconvictions, because arrest data are not kept by the DMV. For the refusal group, the index event was the first chemical test refusal in 1987. For the non-refusal group, the index event was the first DWI conviction in 1987. Again, two types of subsequent events were considered, (1) a conviction for either a refusal or for DWI, and (2) a conviction for refusal.

Refusal / DWI Reconvictions. As with Illinois, recidivism was modeled as a function of refusal / non-refusal group, prior DWI-related arrests or convictions (two levels, priors and no priors), sex, and age. The results paralleled those obtained for Illinois, with *all of these variables highly significant in predicting recidivism.* Again, the Markov model provided an excellent fit for the data (Figure 3-7).

Table 3-8: Percentage Probability that the Index Offense is a Refusal as a Function of Age, Sex, and Prior Reckless Driving Offenses, Missouri

Age	Female		Male	
	Priors	Percent	Priors	Percent
<26	0	41.01	0	40.05
	1+	75.00	1	46.62
	--	--	2	53.16
	--	--	3+	42.37
26-30	0	54.55	0	52.31
	1+	73.00	1	54.44
	--	--	2	61.47
	--	--	3+	59.70
31-35	0	59.22	0	49.44
	1+	50.00	1	57.76
	--	--	2	53.73
	--	--	3+	74.41
36-40	0	57.30	0	47.97
	1+	90.01	1	64.71
	--	--	2	54.55
	--	---	3+	20.02
41-45	0	58.54	0	45.94
	1+	75.00	1	55.67
	--	--	2	75.86
	--	--	3+	76.90
>45	0	43.75	0	46.09
	1+	50.00	1	56.61
	--	--	2	55.26
	--	--	3+	76.90

Figure 3-7: Various Distributions for Predicting Recidivism in Missouri

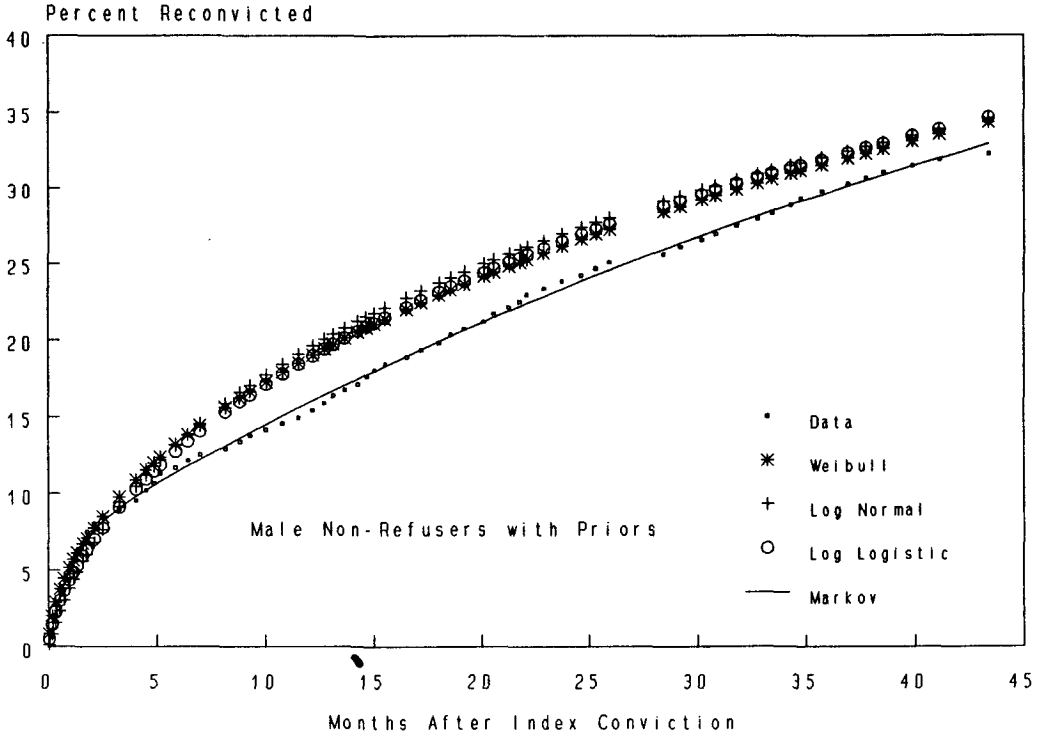


Table 3-9: All Prior Offenses and Subsequent Alcohol Offenses, Females, Missouri

Age	All Priors	Non-Refusers				Refuser			
		0	1	2	Avg.	0	1	2+	Avg.
<26	0	87.8	12.2	0.0	0.12	64.5	29.0	0.0	0.29
	1	92.3	3.8	3.8	0.12	72.2	22.2	5.5	0.33
	2+	75.0	25.0	0.0	0.25	52.0	39.0	9.0	0.56
26-30	0	84.4	13.3	2.2	0.18	63.6	27.2	6.8	0.41
	1	77.0	11.0	11.0	0.37	59.2	25.9	15.0	0.63
	2+	--	--	--	--	50.0	35.0	12.0	0.68
31-45	0	93.0	7.0	0.0	0.07	66.0	28.0	6.0	0.40
	1	85.0	9.0	6.0	0.21	43.0	43.0	13.0	0.83
	2+	--	--	--	--	39.0	31.0	20.0	0.93
>45	0	93.0	7.0	0.0	0.07	62.0	19.0	19.0	0.62
	1+	85.0	9.0	6.0	0.21	54.0	35.0	11.0	0.59

Table 3-10: All Prior Offenses and Subsequent Alcohol Offenses, Males, Missouri

Age	All Priors	Non-Refuser					Refuser				
		0	1	2	3+	Avg.	0	1	2	3+	Avg.
<26	0	83.6	12.3	3.4	0.6	0.21	67.0	29.3	3.0	0.5	0.37
	1	78.8	14.7	6.4	0.0	0.28	59.8	23.4	12.1	4.5	0.62
	2	77.7	17.6	3.2	1.3	0.28	45.3	45.3	4.1	4.1	0.71
	3	68.5	25.8	4.4	1.1	0.38	48.1	39.2	10.1	2.5	0.67
	4+	73.0	17.0	4.3	5.0	0.44	46.0	38.0	13.0	3.4	0.74
26-30	0	83.9	10.5	5.0	0.5	0.24	65.6	23.6	6.4	3.6	0.52
	1	74.8	18.5	4.6	3.0	0.34	55.2	32.1	7.8	4.7	0.66
	2	74.2	15.4	8.8	1.4	0.38	44.8	38.5	11.8	4.7	0.77
	3	68.6	19.3	8.6	1.0	0.49	46.7	35.7	11.0	6.4	0.81
	4+	64.0	22.0	7.8	6.2	0.59	28.0	41.0	18.0	14.0	1.20
31-35	0	82.1	14.8	2.4	0.5	0.21	63.1	28.8	5.8	2.1	0.48
	1	76.6	14.1	6.6	2.4	0.35	60.5	24.5	12.2	2.8	0.60
	2	70.1	22.6	5.1	2.0	0.39	44.0	38.1	11.9	6.0	0.85
	3	67.1	24.2	4.2	4.3	0.47	29.6	35.8	22.2	12.3	1.22
	4+	61.0	23.0	12.0	4.1	0.63	24.0	43.0	18.0	15.0	1.40
36-40	0	76.3	15.7	7.0	0.7	0.32	60.1	27.4	9.7	2.5	0.56
	1	76.4	21.1	1.1	1.2	0.28	53.7	30.1	6.4	9.2	1.97
	2	75.0	18.3	3.3	3.3	0.35	53.0	33.3	6.0	7.5	1.10
	3	56.0	32.0	8.0	4.0	0.60	46.3	43.9	9.7	0.0	0.63
	4+	59.0	54.0	13.0	3.4	0.60	31.0	39.0	15.0	16.0	1.10
41-45	0	85.7	8.0	6.2	0.0	0.12	63.9	26.7	5.8	3.5	0.52
	1	79.1	14.9	4.4	1.5	0.30	49.1	37.2	10.1	3.4	0.69
	2	62.8	25.7	5.7	5.7	0.60	50.0	28.2	13.0	[illegible]	0.85
	3	80.4	12.2	7.3	0.0	0.27	47.2	36.1	11.1	[illegible]	0.89
	4+	69.0	20.0	5.6	5.6	0.48	25.0	44.0	16.0	[illegible]	1.33
>45	0	81.8	14.7	1.7	1.7	0.23	66.2	27.4	4.9	1.4	0.43
	1	82.4	14.6	2.9	0.0	0.20	62.6	33.9	1.7	1.7	0.43
	2	78.6	14.7	4.9	1.6	0.30	48.4	32.8	9.3	9.4	0.83
	3	61.5	25.0	11.5	0.0	0.56	35.2	45.1	9.9	9.8	1.00
	4+	66.0	17.0	14.0	2.5	0.53	32.0	41.0	14.0	13.0	1.29

Figure 3-8 illustrates how refusal / DWI recidivism differs for refusers and non-refusers. As in Illinois, the refusal group had a higher recidivism rate than that of the non-refuser group, but the difference in recidivism between the two groups was much higher in Missouri than in Illinois. We suspect that the reason for the much higher recidivism rate for refusers in Missouri was due to our inability to account for two convictions (on different dates) for the same incident. Because of the lack of arrest data, it was possible to count a later DWI conviction for a driver who refused the test as a DWI conviction for a subsequent arrest, when it may have been just a later conviction growing out of the index arrest. Thus, the recidivism for refusers in Missouri is probably lower than that indicated by the data. As in Illinois, the recidivism of subjects with priors was higher than that of subjects without priors, and the recidivism of male subjects was higher than that of female subjects (Figure 3-9). Again, the effect of driver age was such that older drivers had a higher recidivism than younger drivers.

Refusal Only Reconvictions. The results were similar to those for Illinois. Refusers had a significantly higher recidivism rate than did non-refusers (Figure 3-10) over the higher range of the time period studied, and recidivism was significantly related to number of priors, age, and sex in the same way as it was for refusal / DWI reconvictions.

Probability of a DWI Conviction for a Refusal-Related Incident. The Missouri data did not permit the calculation of probability of a DWI conviction for a refusal-related incident.

Virginia

Records for 1,500 drivers were available for Virginia. Forty-two percent of these were refusers.

Age and Sex. Table 3-11 shows the distribution of age and sex for the study population. The age distributions for men and women are very similar, but women tend to be over-represented in the age range 21-45. The separate distributions for refusers and non-refusers show that women are underrepresented among refusers. If one compares the age distribution of refusers and of non-refusers, within the same sex, one find a few large differences; overall, however, there is no clear indication of a difference in age patterns.

Characteristics of Refusers and Non-Refusers. Initial analyses studied which of the driver factors, including prior offenses, might be related to the index event being a refusal. At first glance, relations with age and sex appeared. However, once prior offenses were included, the relations with age and sex disappeared; they resulted from the different violation histories of the age and sex groups. Of the prior offenses, DWI showed a very strong relation; refusal and reckless driving - which charge has been used when alcohol was present or suspected, but the evidence was deemed not

Figure 3-8: Refusal/DWI Recidivism in Missouri, Refusers and Non-Refusers

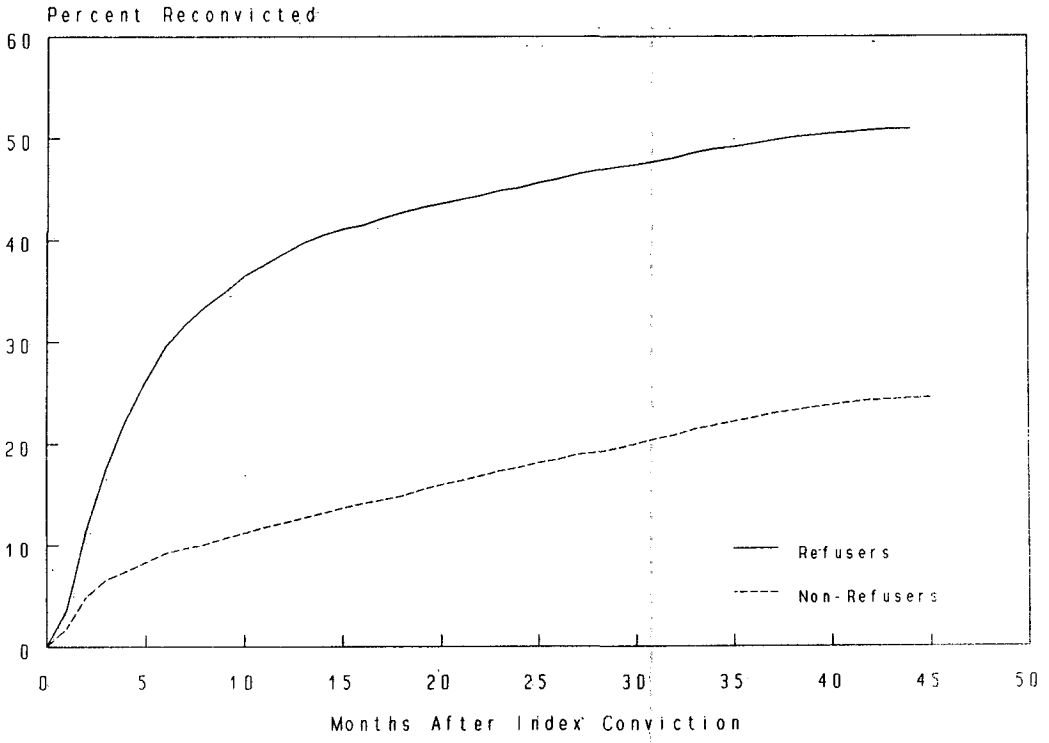


Figure 3-9: DWI/Refusal Recidivism in Missouri, Refusers

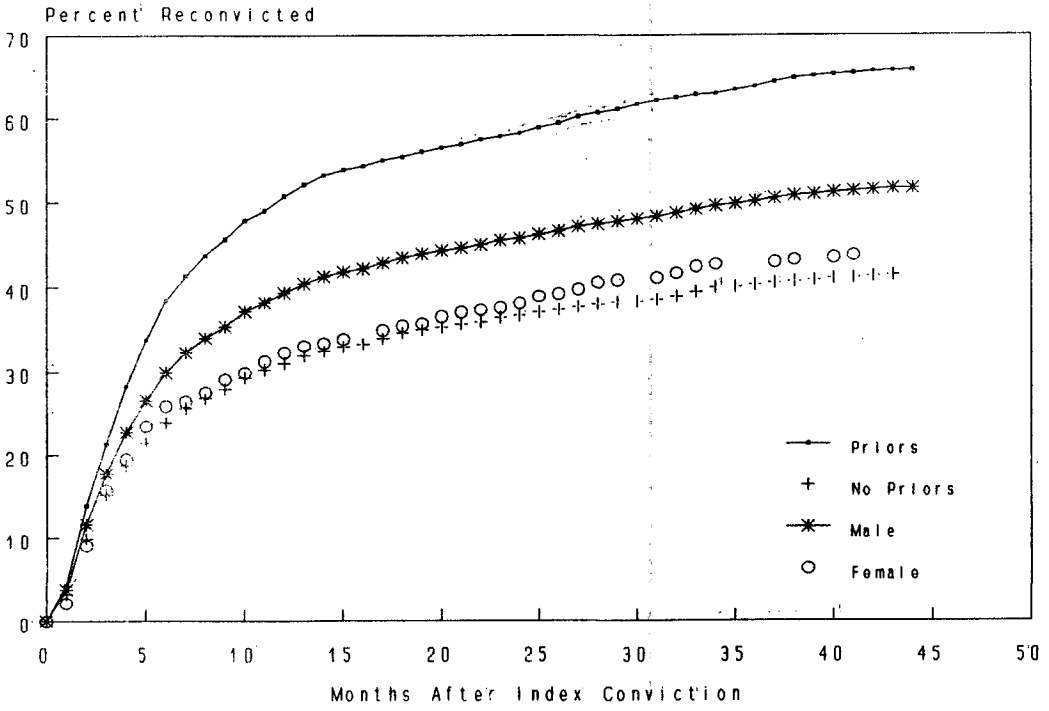
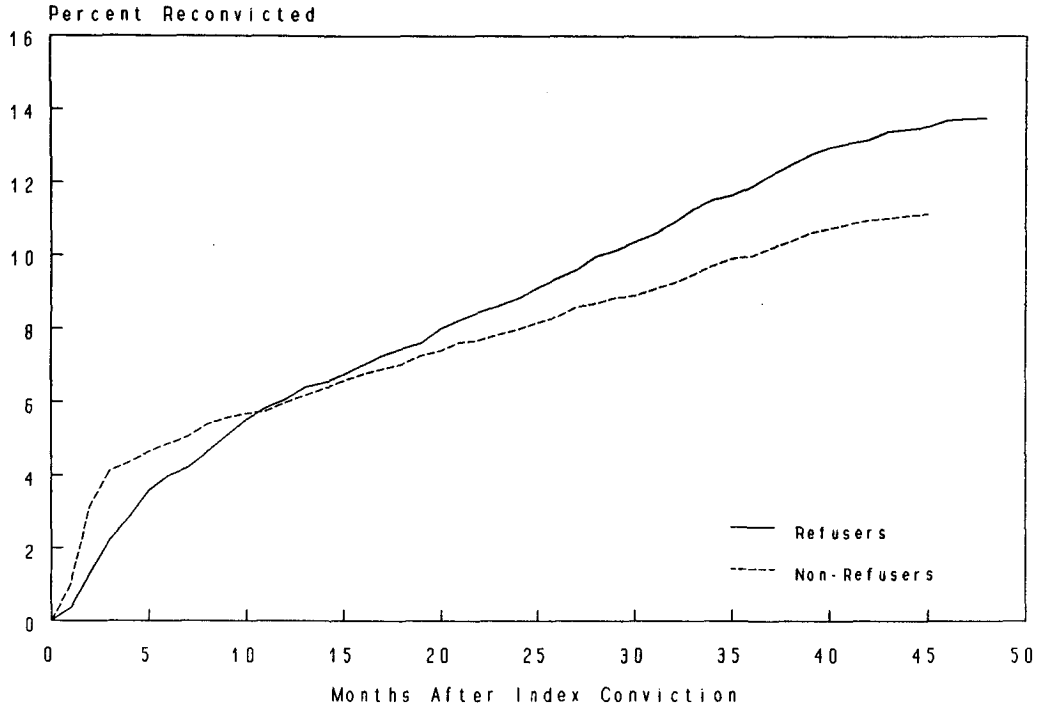


Figure 3-10: Refusal Recidivism in Missouri, Refusers and Non-Refusers



sufficient to support a drunk driving charge - also strong relations; but driving while suspended and other moving violations showed none. When DWI, refusal, and reckless driving were combined, the relation was very strong. It is shown in Table 3-12: the worse the prior alcohol-related record, the higher the probability that the index event was a refusal.

Number of Subsequent Alcohol-Related Offenses. A large number of exploratory analyses were performed to determine which of the factors in the data file influenced future convictions for DWI or refusal. The occurrence of DWI or refusal offenses subsequent to the index event showed no relation to age or sex of the driver. Of offenses prior to the index offense, only the number of reckless driving offenses showed a relation. It is surprising that neither prior DWI offenses, nor the nature of the index event showed any relation. Table 3-13 shows how subsequent DWIs (note that refusals are not included in the count) were related to prior offenses for reckless driving. Though there are some irregularities, the overall pattern is clear: those who had one or more prior reckless driving offenses had more subsequent DWI offenses than those who had no prior offense. However, whether a driver had one, two, or three or more prior offenses made only little difference.

We also looked at subsequent refusals separately. Here the situation was very different. The nature of the index event showed the strongest relation, followed by the prior record, this time, however, represented by the number of DWI offenses.

Table 3-11: Age and Sex Distribution of Virginia Subjects

Age	Sex	
	Female (9.3%)	Male (90.7%)
<21	6.4	9.9
21-25	18.6	17.4
26-30	23.6	19.3
31-35	14.3	15.2
36-40	12.1	11.8
41-45	9.3	6.0
46-55	8.6	5.7
56-65	2.1	5.7
>65	5.0	5.4

Table 3-12: Percent Refusers vs. Number of Prior DWI, Reckless, or Refusal Offenses, Virginia

Prior DWI, Reckless, or Refusal	Percent Refusers	Number of Cases
0	29	851
1	50	325
2	61	170
3+	77	154

Table 3-14 shows the relation. Other offenses showed no relations, nor did age or sex. Also the nature of the relation was different: the average number of subsequent refusals increased with the number of prior DWI offenses; it did not just differ primarily between those who had a prior record and those who had no prior record.

This table has to be interpreted with some caution: there were only eight subsequent refusals among the non-refusers, and 28 among the refusers. Nevertheless, the great difference between refusers and non-refusers is obvious. Also, in contrast to the above tables which are dominated by subsequent DWI offenses, the number of subsequent refusals appears to increase with a worse prior record. It is surprising that very different prior offenses are predictive for the two types of subsequent offenses.

Table 3-13: Prior Reckless and Subsequent DWI Offenses, Virginia

Prior Reckless	Subsequent DWIs				N
	0	1	2+	Avg.	
0	89	10.0	1.1	0.13	1174
1	82	16.0	1.9	0.19	228
2	87	8.7	4.4	0.20	69
3+	79	21.0	0.0	0.21	29

Table 3-14: Prior DWI Offenses and Subsequent Refusals, Virginia

Prior DWIs	Subsequent Refusals							
	Non-Refusers				Refusers			
	0	1	Avg.	n	0	1	Avg.	n
0	99	0.6	0.006	686	98	2.5	0.025	324
1	98	2.2	0.022	135	96	3.4	0.056	179
2	97	3.1	0.031	32	92	8.4	0.084	83
3+	100	0.0	0.000	14	94	6.4	0.063	47

Recidivism. Again, recidivism was measured in terms of time to a refusal-or-DWI reconviction, or time to a refusal-only conviction.

Refusal / DWI Reconvictions. The number of cases in the Virginia file was much smaller than in the other states studied, simply because Virginia had so few refusers. Only the variable "priors" was statistically significant. What is notable is the very low *magnitude* of the recidivism rates in Virginia (Figure 3-11), of the order of one-third of that in Illinois. This is true for non-refusers and refusers alike. The relative effects of priors and the sex of the driver were as expected (Figure 3-12). Both the Markov model and the Weibull-distribution model were good predictors of recidivism (Figure 3-13).

Refusal Only Reconvictions. Subsequent refusals were rare in Virginia, and almost non-existent for non-refusers (Figure 3-14). Less than 2% of the refuser group had refused again after one year, and less than 1% of the non-refuser group had refused after *two years.* These differences were statistically significant. The case numbers were too small to assess the effects of other variables on refusal recidivism.

Figure 3-11: Refusal/DWI Recidivism in Virginia, Refusers and Non-Refusers

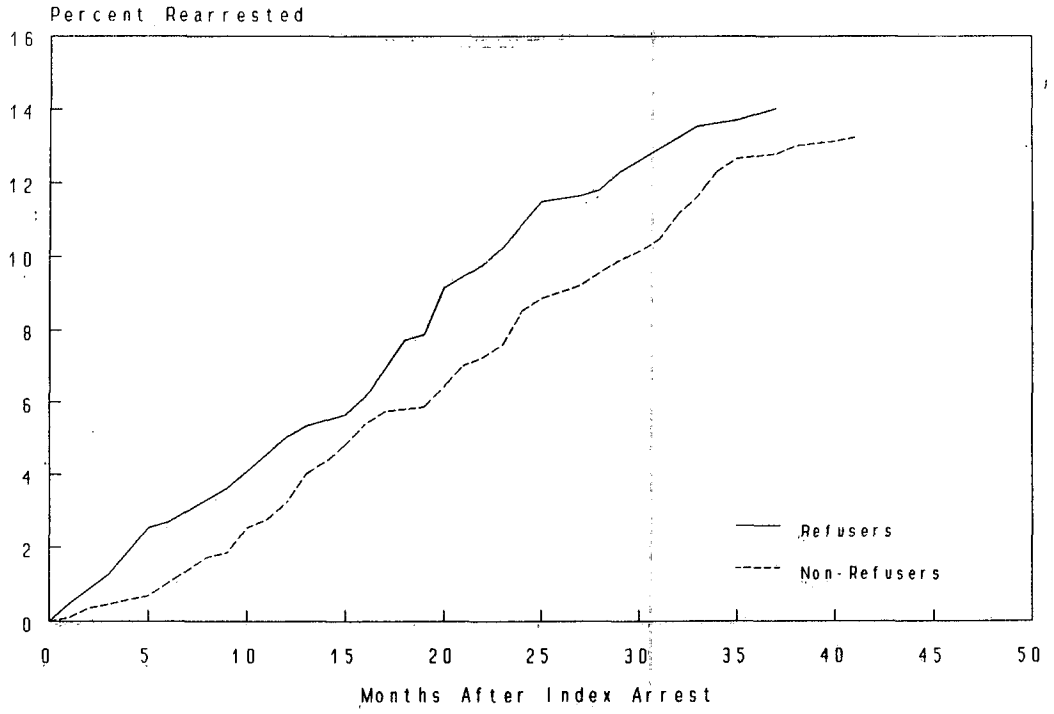


Figure 3-12: Refusal/DWI Recidivism in Virginia, Refusers

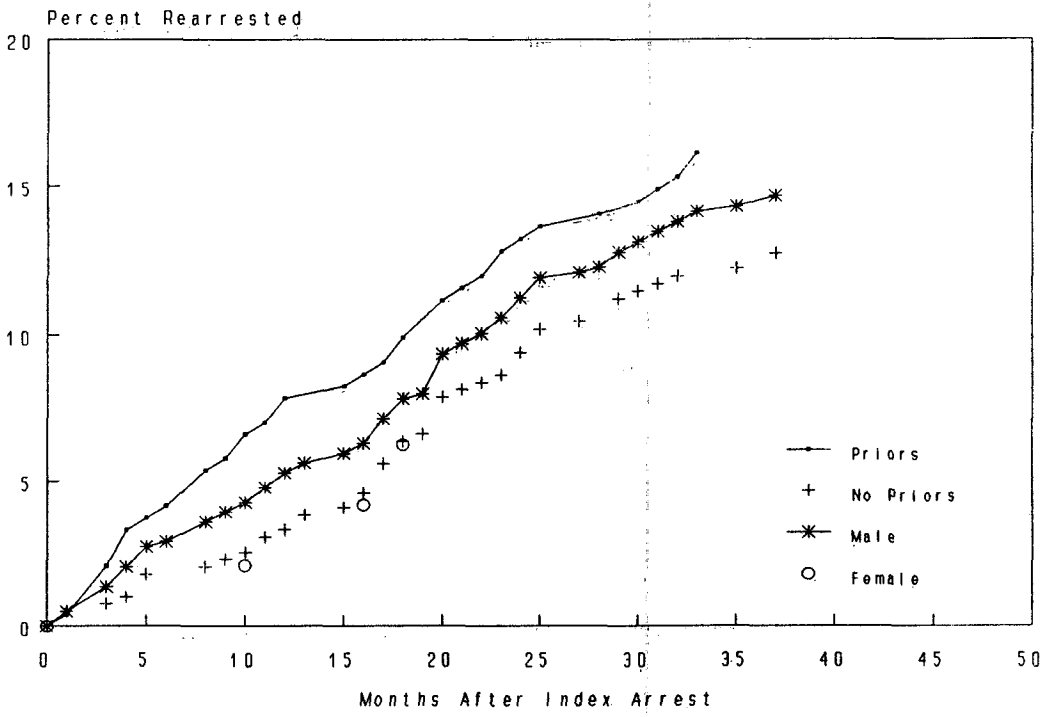


Figure 3-13: Distributions for Predicting Recidivism in Virginia

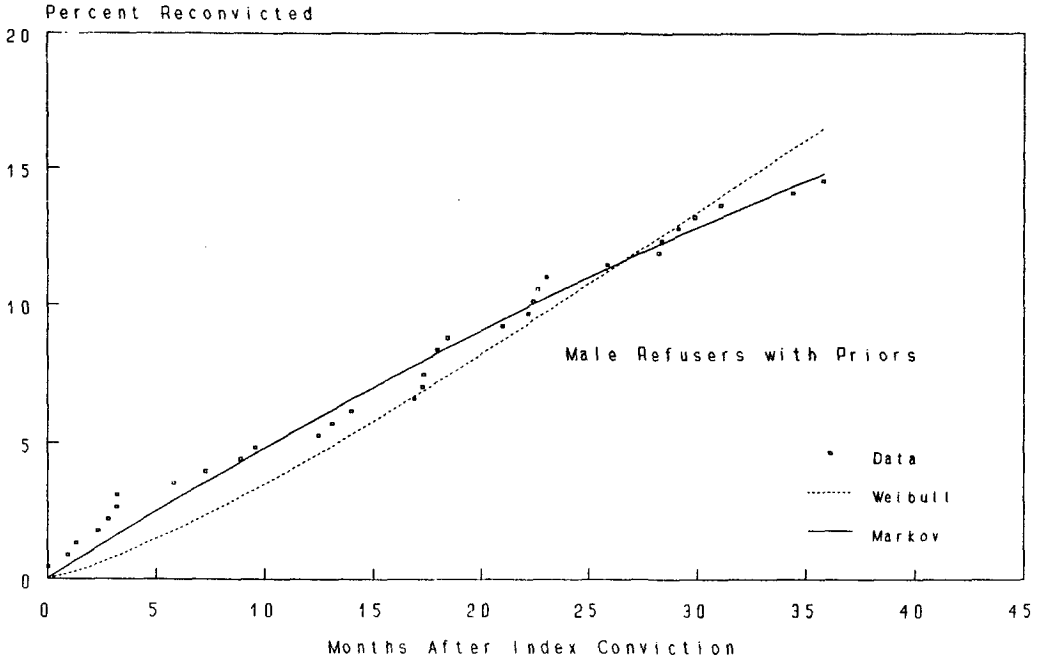
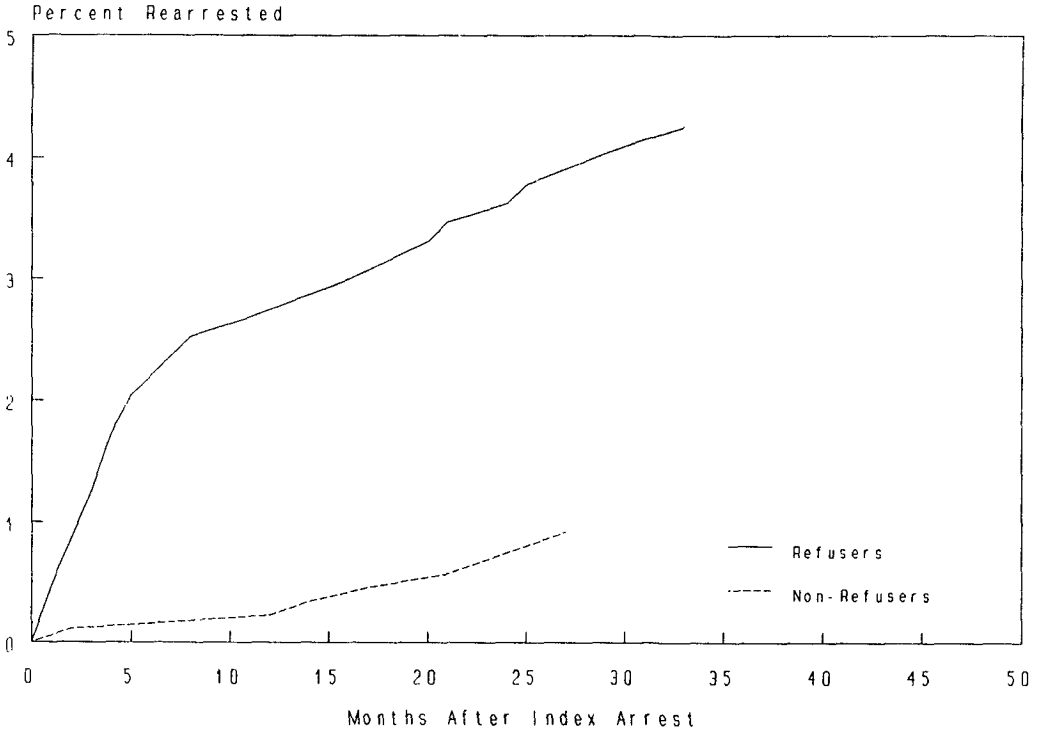


Figure 3-14: Refusal Recidivism in Virginia, Refusers and Non-Refusers



Probability of a DWI Conviction for a Refusal-Related Incident. The Virginia file contained information on convictions for multiple charges with the same arrest date, and this enabled us to determine the percentage of refusals that resulted in convictions for other offenses, including DWI. The results (Table 3-15) are completely different from those obtained for Illinois. In Virginia, only about 8% of the refusing drivers were also convicted for DWI. However, some 31% were also convicted of some other traffic offense. Refusers with a prior DWI or refusal had a better chance of also being convicted of DWI than did refusers with no prior DWI or refusal (10.9% vs. 6.9%). These data indicate it was highly unlikely that a Virginia refuser would also be convicted of DWI.

Table 3-15: Percent Probability of Conviction for Refusal and DWI, Priors and No Priors, Virginia

Offense	Drivers with No Priors	Drivers with Priors	All
Refusal and DWI	6.9	10.9	8.5
Refusal and Other Non-DWI	32.7	28.6	31.1
Refusal Only	60.4	60.5	60.4

California

Usable records were available for 7,449 drivers, 54% of whom were refusers.

Age and Sex. The composition of the study population in terms of age and sex is shown in Table 3-16. Women were over-represented in the age group 31-55, and under-represented in the other groups. For women, refusers tended to be concentrated in the age groups over 30, though there were some small deviations from this pattern. For men, refusers were concentrated in the 25-55 age group.

Characteristics of Refusers and Non-Refusers. Preliminary analyses showed that age was strongly related to the nature of the index offense. The sex of the subjects showed no recognizable relation to the nature of the index offense, not even in conjunction with other factors. Among prior offenses, convictions for an alcohol-related or drug-related driving offense appeared consistently as the variable most closely related: those in the refuser group had much worse prior records. Table 3-17 shows a very clear pattern: the percentage of refusers increases with the number of prior convictions, but the increase from the second to the third, and from the third to the fourth (or more frequent) offense is much smaller than the increases from none to the first, or from the first to the second. There is also a suggestion of an age pattern, at least for drivers with no or only one previous offenses; the refusal rates tend to be lower for the younger age groups, increase until the age of 41-45, and then decrease slightly. For drivers with a worse record, there is no decline for the highest age group, and for drivers with the worst record, no age effect is apparent.

Table 3-16: Age and Sex Distribution of California Subjects

Age	All		Non-Refusers		Refusers	
	Female (11.8%)	Male (88.2%)	Female (13.3%)	Male (86.7%)	Female (10.6%)	Male (89.4%)
<21	3.6	5.1	5.1	7.5	2.1	3.1
21-25	18.4	19.7	21.9	22.7	14.7	17.2
26-30	20.3	23.2	21.0	22.1	19.6	24.2
31-35	21.5	18.5	19.5	17.3	23.6	19.4
36-40	14.8	13.1	15.0	12.1	14.5	13.9
41-45	9.5	8.2	7.7	6.9	11.5	9.3
46-55	9.1	8.2	7.1	6.8	11.2	9.3
56-65	2.4	3.2	2.0	3.6	2.8	3.0
>65	0.3	0.8	0.7	0.9	0.0	0.7
Total N	880	6569	452	2958	428	3611

Table 3-17: Percentage of Refusers by Age and Number of Prior Convictions for Alcohol and Drug Offenses, California

Age	Prior Convictions for DWI					
	0	1	2	3	4+	0+
<26	29.68 1105	49.52 517	60.26 229	73.96 149	80.56 129	-- 2019
26-30	41.06 177	53.98 515	69.41 255	76.51 149	89.15 129	-- 1825
31-40	41.82 1143	60.72 695	72.80 375	80.12 171	80.92 152	-- 2536
41-45	48.97 292	63.73 193	73.33 90	82.69 52	87.88 33	-- 660
>45	42.63 434	59.44 249	77.60 125	82.19 73	88.71 62	-- 943

Number of Subsequent Events. Subsequent convictions for DWI depended most strongly on sex and the type of index offense. Relations to the various types of prior accidents and prior convictions were much weaker, but still significant. Prior convictions for driving with a suspended license was most closely correlated with subsequent convictions for DWI. Table 3-18 shows the distributions (row percent) of the numbers of subsequent alcohol convictions, and also the average number of subsequent alcohol convictions.

Table 3-18: Prior Suspension Convictions and Subsequent Alcohol-Related Convictions, California

Sex	Prior Susp.	Subsequent Alcohol-Related Convictions									
		Non-Refusers					Refusers				
		0	1	2+	Avg	n	0	1	2+	Avg	n
F	0	93.1	6.2	0.7	.08	422	88.8	10.3	0.9	.12	322
	1	93.3	6.7	0.0	.07	15	81.5	14.8	3.7	.19	54
	2+	80.0	13.3	6.7	.27	15	94.1	5.9	0.0	.17	52
M	0	86.6	11.8	1.6	.15	2502	80.2	16.1	3.7	.24	2131
	1	80.8	17.1	2.1	.21	193	82.6	13.5	3.9	.21	593
	2	79.4	19.6	1.0	.22	97	82.3	15.0	2.7	.23	293
	3	80.8	15.4	3.8	.23	52	79.7	17.8	2.5	.20	197
	4+	76.3	20.2	3.5	.25	114	74.6	19.9	5.5	.31	397

For drivers with no prior convictions, the probability of a subsequent alcohol conviction is about twice as high for men as for women, and for refusers about 50% higher than for non-refusers. Overall, the number of subsequent convictions also increases with the number of previous convictions, but the pattern is not very strong, and there may be complex interactions.

An overall comparison is given in Table 3-19. The table compares refusers and non-refusers overall, standardizing to the overall joint distribution of male and female drivers by past record. It still shows that refusers had a worse subsequent record than non-refusers, but, of course, it hides the more complex pattern suggested by the previous table.

Accidents subsequent to the index were also analyzed. Of these, police-reported had-been-drinking (HBD) accidents showed the strongest relation with events prior to the index event. The strongest relation existed with prior alcohol-related convictions ("priors"). This is not too surprising, since "priors" have a longer time horizon than other measures (seven years for this data base, compared to two and a half years for other measures studied). Age showed a clear relation, sex none. Some other simple patterns appeared: subsequent HBD accidents tended to be more

frequent with refusers, they were clearly more frequent with drivers with a prior alcohol record, and they tend to increase with declining age. These relations are shown in Table 3-20. The table shows for each set of pre-conditions the percentage of drivers with 0, 1, and 2 or more subsequent HBD accidents. In addition to the percentage distribution, the actual numbers are shown. Also shown are the average numbers of subsequent HBD accidents.

Table 3-19: Distribution of Subsequent Alcohol-Related Convictions, Standardized to the Overall Distribution of Male and Female Drivers by Past Record

Group	Subsequent Alcohol-Related Convictions			
	0	1	2+	Avg.
Refusers	81.5	15.2	3.3	0.22
Non-Refusers	84.9	13.2	1.8	0.17

Table 3-20: Distribution of HBD Accidents Subsequent to the Index Event, by Age Class, and the Presence of Priors, California

Age	Prior DWIs?	Non-Refusers					Refusers				
		0	1	2+	Avg.	n	0	1	2+	Avg.	n
<31	No	96.9	2.8	0.30	.034	1338	95.2	4.6	0.26	.051	763
	Yes	95.4	4.3	0.31	.056	652	94.7	4.8	0.55	.059	1091
	All	96.4	3.3	0.30	--	1990	94.9	4.7	0.43	--	1854
31-40	No	97.3	2.7	0.00	.027	705	97.4	2.6	0.00	.026	547
	Yes	96.2	3.8	0.00	.037	398	95.0	4.9	0.11	.057	886
	All	96.9	3.1	0.00	--	1103	96.0	4.0	0.07	--	1433
>40	No	97.8	1.7	0.48	.027	413	98.1	1.9	0.00	.019	375
	Yes	96.9	3.3	0.00	.033	241	96.9	2.8	0.35	.039	574
	All	97.4	2.3	0.31	--	654	97.4	2.4	0.21	--	949

Recidivism. The California data base contained data only on DWI recidivism, plus two other non-alcohol related offenses, hit-and-run and reckless driving. DWI recidivism was significantly related to refusal group, priors, driver sex, and driver age in the same direction as found in Illinois and Missouri for refusal-or-DWI recidivism. The effect of refusal group is shown in Figure 3-15, and the effect of priors and driver sex is indicated in Figure 3-16. Several probability distributions (especially the Markov and the Weibull) fit the data quite well (Figure 3-17).

The California data base also contained data on the time from the index event to the first subsequent *reportable traffic accident.* These data show the first major departure from the recidivism trends indicated by the arrest / conviction data in the states studied in this project. The accident data indicate that *the non-refuser group had a higher probability of at least one subsequent reportable accident than did the refuser group* (Figure 3-18). This result held for all values of time for which data were available, that is, up to about 45 months after the index event, and was statistically significant. The same reversal in trend occurred for the variable "priors." Subjects with a prior DWI had a higher probability of a reportable accident subsequent to the index event than did subjects without a prior DWI.

One possible explanation for this finding is that refusers and drivers with prior DWIs simply do not report their minor accidents as often as non-refusers and drivers with no prior DWIs, possibly because they may have been drinking or were violating some other law (for example, driving with a suspended license or violating the conditions of a restricted license). The above analyses (Table 3-20) indicated that refusers did have significantly more HBD accidents subsequent to their index violation. This suggests that the probability of a subsequent *HBD accident* at a given time subsequent to the index event might be higher for refusers than for non-refusers and thus more consistent with results of the recidivism analyses.

Probability of a DWI Conviction for a Refusal-Related Incident. As in Illinois, the data file provided by the state did not permit us to calculated this parameter. However, a prior study of California's implied consent law by Sadler found that 60.6% of refusers were convicted of DWI compared to 66.1% for all DWI arrestees.[4] Sadler concluded: "If the drinking driver population were aware that refusing a test does not substantially increase the probability of avoiding a DWI conviction, fewer refusals might result."

Comparison of State Results

The first comparison addressed the percentage of refusers (as index event), as a function of the prior record. This is the percentage in the combined study cohorts, not the percentage in the population asked to take an alcohol test. In some states, we found that the percentage of refusers also varied with age and/or sex. Since the prior record usually depended on age and sex, we standardized for all numbers of prior alcohol-related convictions to the same distribution of age by sex, for which we used the overall distribution.

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[4] Sadler, D. D. 1986. *An evaluation of the process efficiency and traffic safety impact of the California implied consent program.* Sacramento: California Department of Motor Vehicles.

Because of differences in the data bases, the type of prior convictions used differed somewhat among the states, *viz.:*

California : Alcohol-related traffic offenses
Illinois : DWI
Missouri : DWI, DWI *per se*, or refusal
Virginia : DWI or refusal.

Figure 3-19 plots the percentages of refusals in relation to the prior alcohol-related offenses for these states. It is striking that the bars for Virginia and California appear identical. However, the numerical values are slightly different, up to more than 3%. There is one clear pattern: in Illinois, Virginia, and California, the percentage of refusals increases clearly and strongly with the past record. It roughly triples from no prior offense to four or more prior offenses. On the other hand, for Missouri, there is little change, just a suggestion of a weak increase.

The second comparison examined how the subsequent record differed between non-refusers and refusers in the case-study states. To eliminate confounding effects of age, sex, and prior record, which influence the subsequent record, the distribution of age, sex, and prior record, as applicable, for refusers and for non-refusers was standardized to the overall distribution. In California, the subsequent record depended only on sex, and the number of prior convictions for driving while suspended; it did not depend on age. In Illinois, age, sex, and prior DWI offenses showed a relation. In Missouri, age, sex, and the number of all convictions showed a relation. In Virginia, the number of subsequent DWI offenses showed no difference for refusers and non-refusers (only the very much smaller number of subsequent refusals showed a strong difference, but because it is not comparable with the other states, it is not shown). Therefore, Virginia is not included in the comparison.

In all cases, the refusers had more subsequent alcohol offenses than the non-refusers (Table 3-21). The values for California and Illinois are remarkably similar; in Missouri, the number of subsequent events is much higher than in these two states. Figure 3-20, Figure 3-21, and Figure 3-22 show the distributions in a different way. Because of the wide range of the percentages, the vertical scale is logarithmic.

Figure 3-15: DWI Recidivism in California, Refusers and Non-Refusers

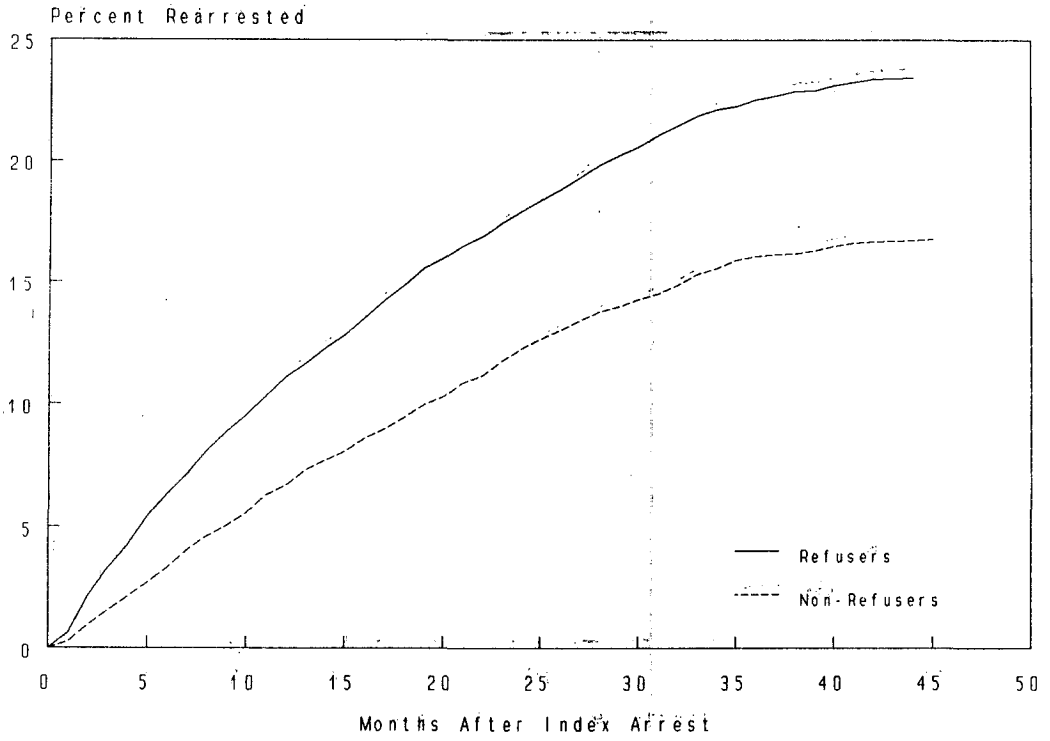


Figure 3-16: DWI Recidivism in California, Refusers

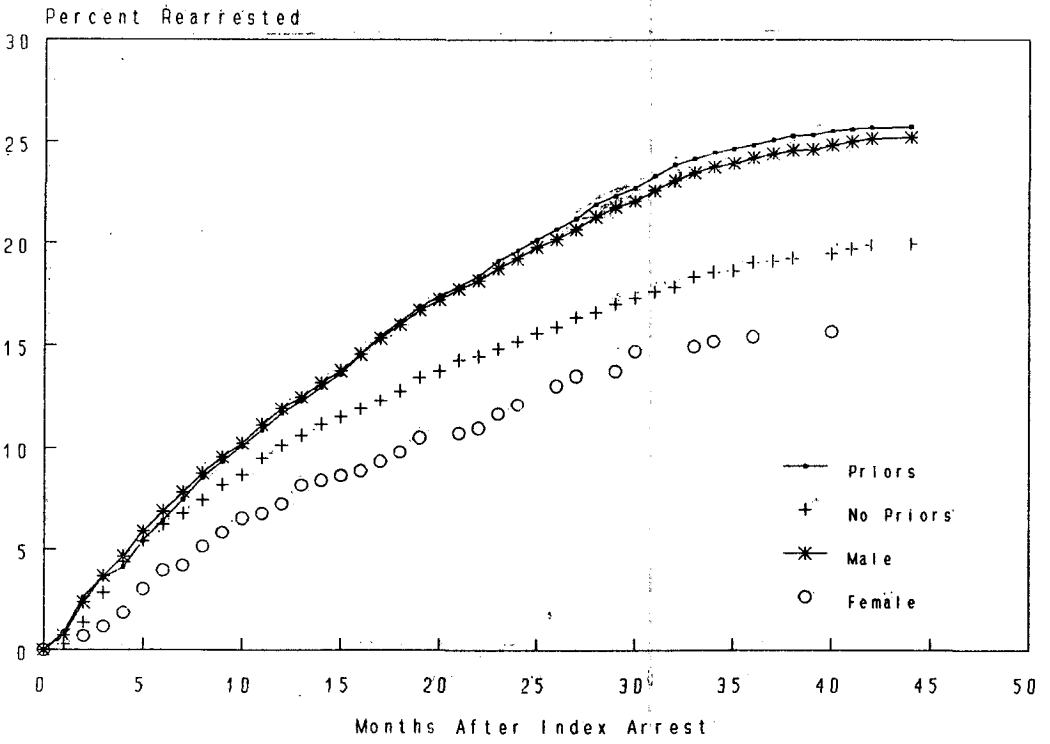


Figure 3-17: Various Distributions for Predicting Recidivism in California

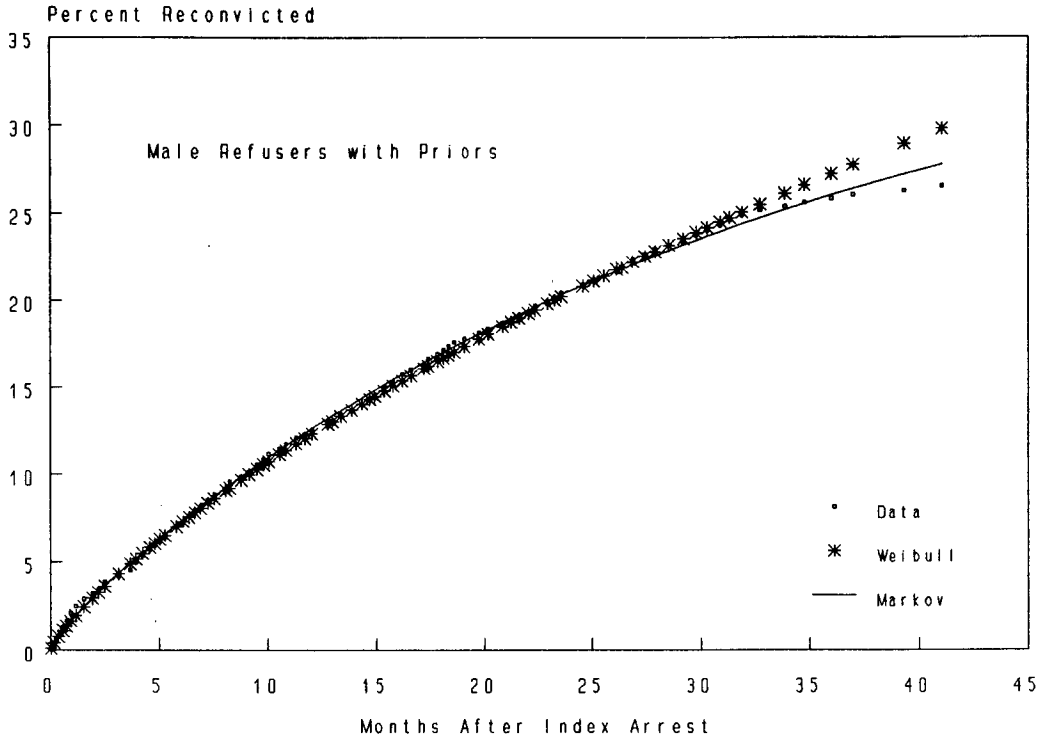


Figure 3-18: Percent of Drivers Having a Reportable Accident in California

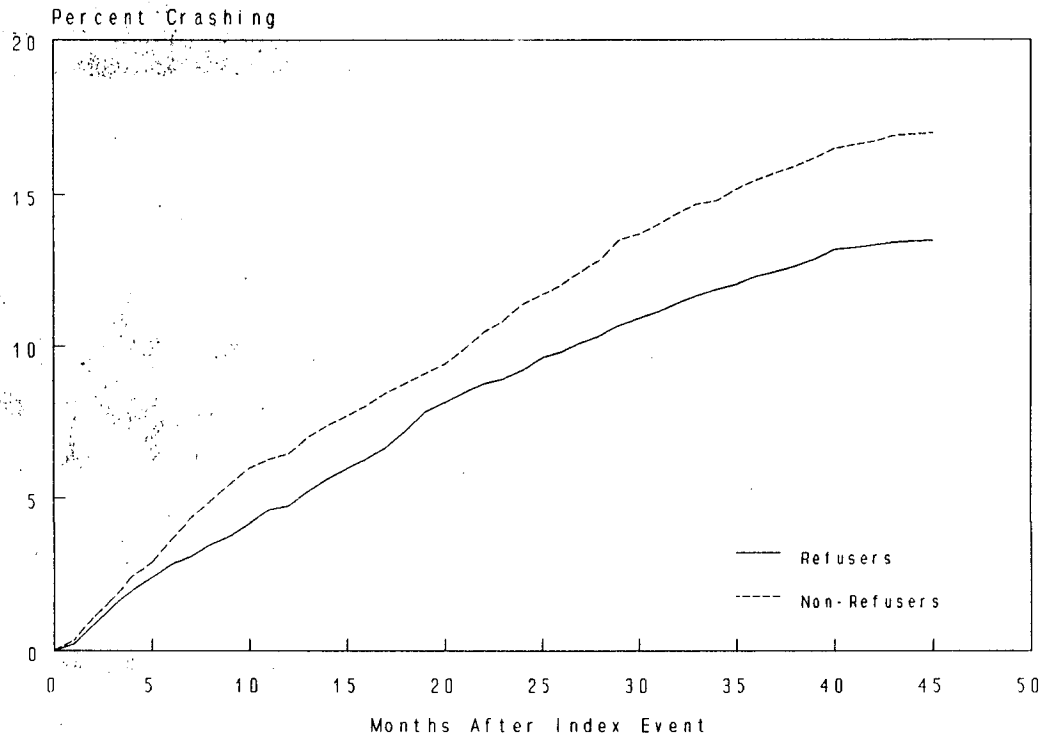


Figure 3-19: Percentage of Refusals Standardized to the Overall Age and Sex Distribution of Study Cohorts in Illinois, Missouri, Virginia, and California

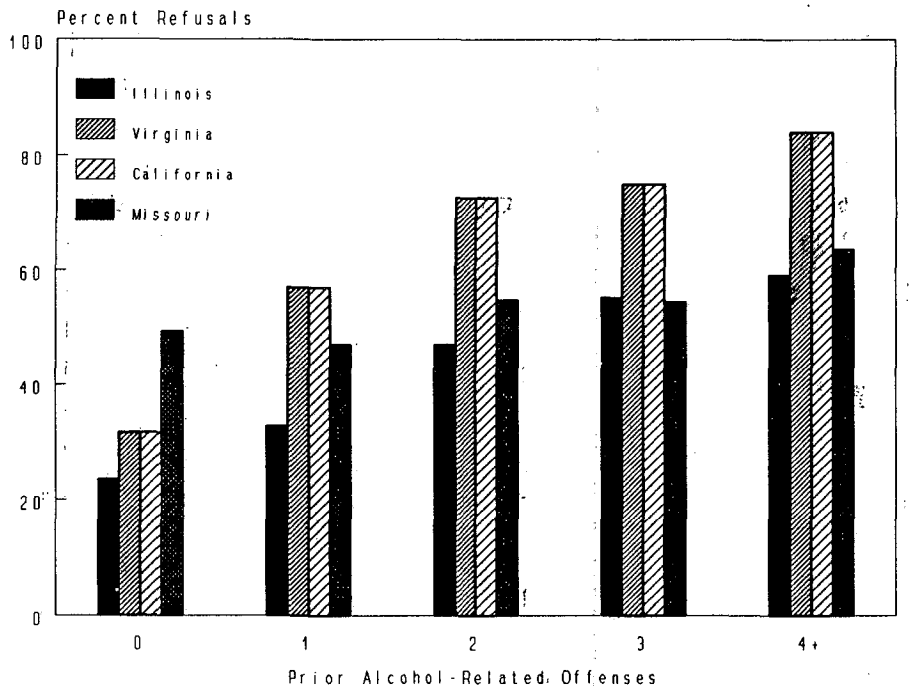


Figure 3-20: Distribution of Subsequent Alcohol-Related Traffic Offenses Standardized for Age, Sex, and Prior Record, California

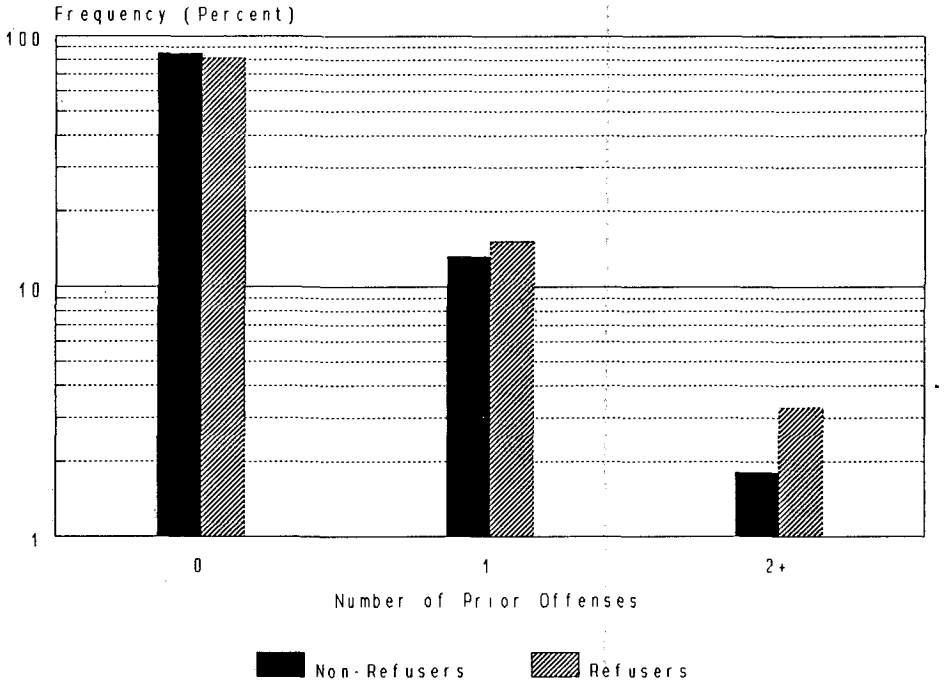


Figure 3-21: Distribution of Subsequent Alcohol-Related Traffic Offenses Standardized for Age, Sex, and Prior Record, Illinois

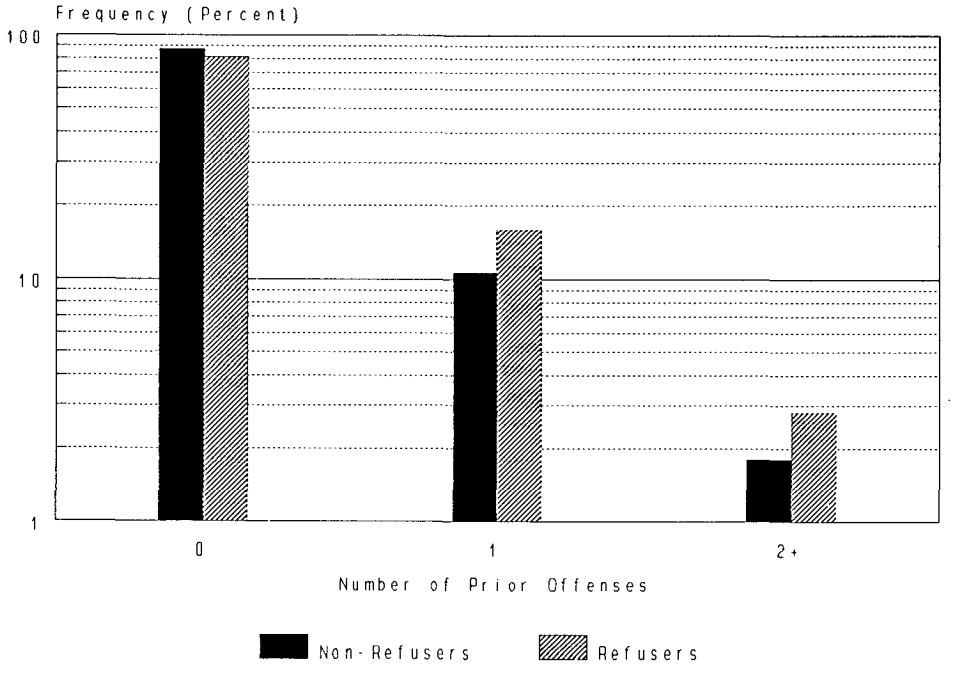


Figure 3-22: Distribution of Subsequent Alcohol-Related Traffic Offenses Standardized for Age, Sex, and Prior Record, Missouri

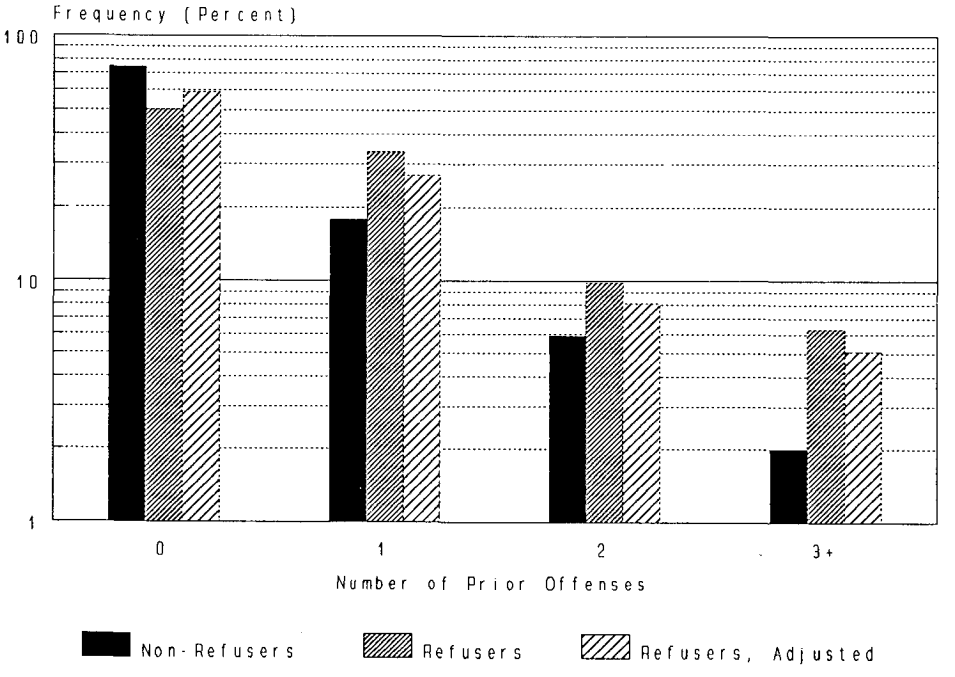


Table 3-21: Distribution of Subsequent Alcohol-Related Traffic Offenses Standardized for Age, Sex, and Prior Record, California, Illinois, and Missouri

State	Group	Subsequent Alcohol-Related Traffic Offenses			
		0	1	2+	Avg.
California	Non-refusers	84.9	13.2	1.8	0.17
	Refusers	81.5	15.2	3.3	0.22
Illinois	Non-Refusers	87.5	10.6	1.8	0.15
	Refusers	81.2	15.9	2.8	0.23
Missouri	Non-refusers	74.4	17.8	5.9	0.35
	Refusers	50.3	33.6	9.8	0.72
	Refusers, adjusted	58.9	27.0	8.1	0.60

Recidivism. In general, the DWI / refusal recidivism rate was significantly higher for males, younger drivers, drivers with prior alcohol-related offenses, and drivers in the refusal cohort. Virginia was an exception to this rule, with only drivers with a prior alcohol-related offense showing a statistically significant increase in recidivism. This result for Virginia appears to be due to a smaller sample size. Table 3-22 illustrates the effects of these variables on percent change in one-year recidivism in the three case study states. The baseline for comparison was non-refusing, 30-year old males with no priors. A log-linear Weibull model was used.

Table 3-22: Percentage Change in Recidivism Due to Changes in Various Variables Affecting Recidivism

State	Priors	Refuser	Female	Age 50
Illinois	40	54	-17	-7
Missouri	79	146	-21	-11
Virginia	31	*	*	*
California	23	40	-41	-21

The table indicates that having a prior DWI or refusal increases the recidivism rate after one year 23% to 79%. Further, in all of the states except Virginia (where only the variable "priors" was significant), refusers had a higher recidivism rate than non-refusers, 40% higher in California, and 54% higher in Illinois. The 146% figure indicated for Missouri is probably too high due to the problem we noted above in determining the recidivism of refusers. Females had 21% to 41% lower recidivism rate than that of males, and the recidivism rate of drivers of age 50 was seven to 21% lower than that of drivers of age 30. There is no apparent pattern differentiating the

low refusal states from the high refusal states, but Figure 3-23 and Figure 3-24 indicate that the recidivism curves in the two low-refusal states fall below those in the two high-recidivism states. This result of course has no statistical significance, since only four states were examined, but it does provide some encouragement for study of other states to see if a low refusal rate could be associated with a lower recidivism rate.

Experimentation with a Markov model that accounts for the possibility of a very high-recidivism group and a lower-recidivism group among refusers suggests that refusers may be comprised of two or more of such groups. Figure 3-25 shows that a two-group model of this type fits the data extraordinarily well in Illinois, and the high-recidivism group comprising about 19% of the refusers in this example has a very high recidivism indeed. Some 65% of the high-recidivism group had incurred another DWI-related conviction one year after the index conviction compared to about 20% of the lower-recidivism group. The attributes of any such groups cannot be specified at this juncture, since the possibility of two groups was discovered through a theoretical (but plausible) model without the benefit of more disaggregated data.

Probability of a DWI Conviction for a Refusal-Related Incident. Data from three of the four states studied indicated that refusers face a significant risk of conviction of the DWI offense they sought to avoid by refusing a chemical test. In Illinois, about 67% of the refusers were also convicted of DWI, and 63% of these received punitive sanctions. Further, the risk of a DWI-punitive conviction for *first offenders* who refused the test was about *twice as high* as it was for all first offenders arrested for DWI in Illinois. However, the risk of a DWI-punitive conviction for *multiple offenders* who refused the test was about *28% lower* than it was for all Illinois multiple offenders arrested for DWI. A prior California study found that some 61% of the refusers were also convicted to DWI, compared to 66% of drivers who took the test. In Virginia, the picture was completely different: only about 8% of the refusers were also convicted of DWI. However, another 31% of the Virginia refusers were convicted of some other traffic offense.

SANCTIONS

Background and Approach

An important consideration in a driver's decision about whether to take a chemical test is the driver's *perception* of the legal-system sanctions he or she will receive if stopped and tested compared to those received if stopped and not tested. Any difference between sanctions prescribed by law and sanctions actually imposed is significant primarily to the extent that it affects a driver's perception of the sanctions. Presumably, the more severe the perceived sanction, the more likely the driver will avoid it by engaging in the desired course of action, in this case, submitting to a chemical test, or, preferably, not driving while impaired in the first place. The effects of legally prescribed sanctions on statewide refusal rates were analyzed in Chapter 2. This section of the report briefly examines actual sanctions in the four case study states.

Figure 3-23: Refusal/DWI Recidivism in Three States, Refusers

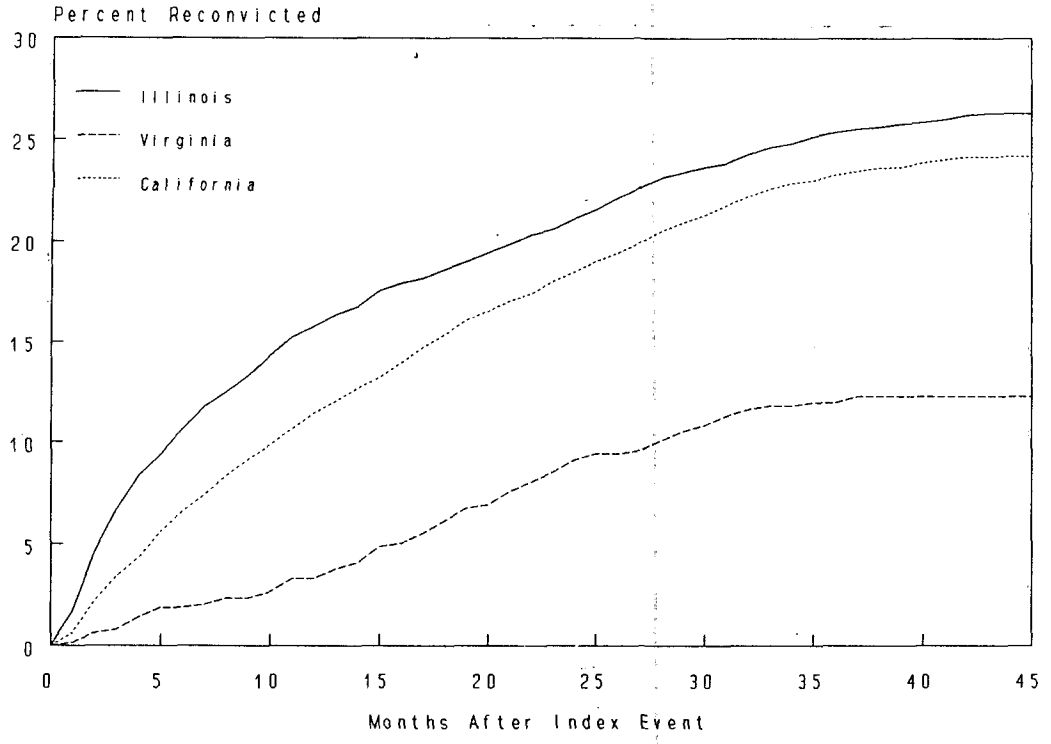


Figure 3-24: Refusal/DWI Recidivism in Four States, Non-Refusers

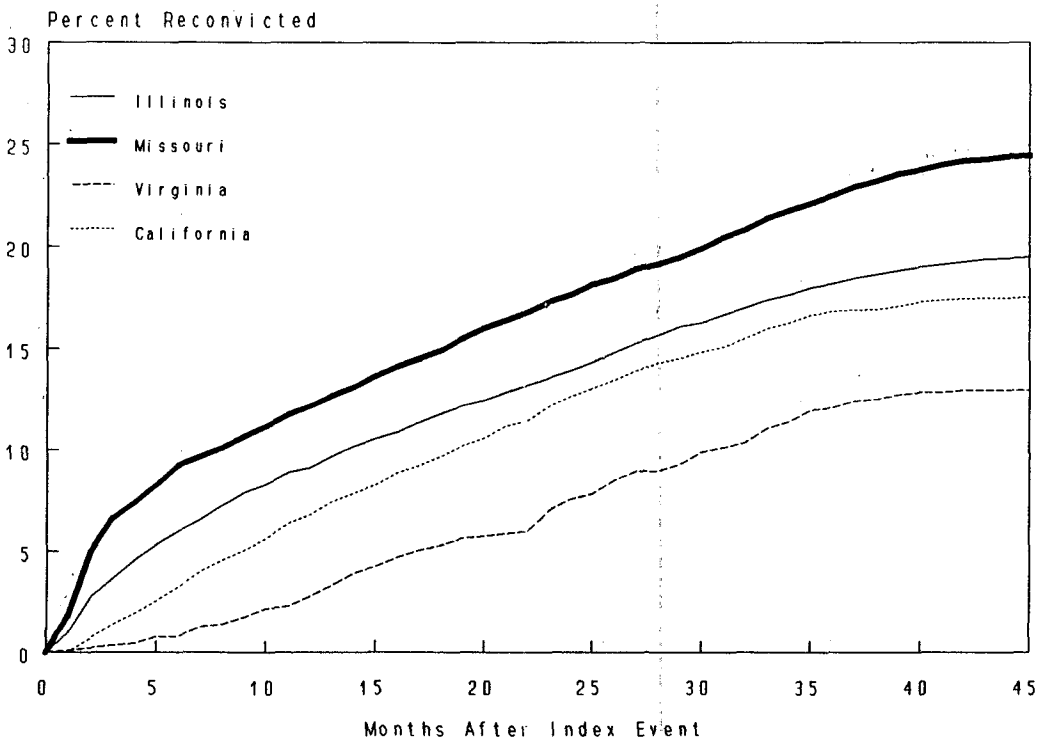
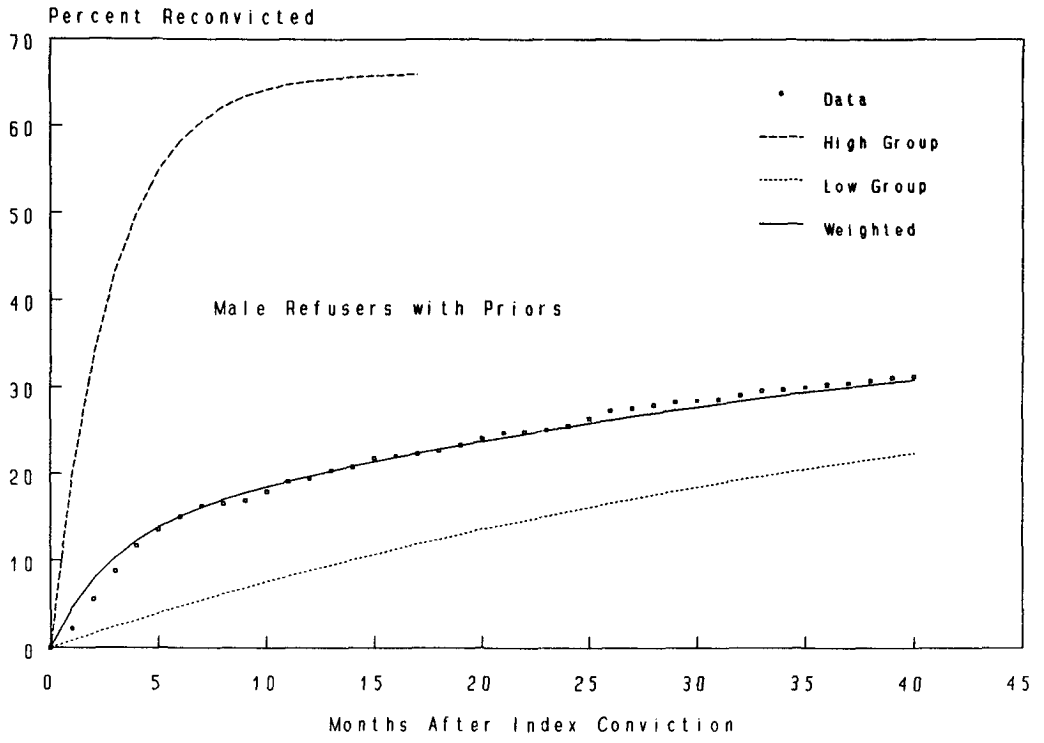


Figure 3-25: Two-Group Markov Model in Illinois



We do not know which affects perception more, the sanction "as advertised" in the legislation, or the sanctions that drivers actually receive. Both depend upon the quality of the information transmitted to and received by the driver and thus are highly dependent upon the information linkages utilized by different groups of drivers. Further, both are subject to contamination before, during, and after the transmission of information. Our experience indicates that actual severity is less than prescribed severity, and that the difference between prescribed and actual is highly dependent upon a very large number of variables in a relationship that is not well understood. (For example, a driver may *expect* the severity of actual sanctions to be less than the severity of prescribed sanctions and act accordingly, etc.) The difference tends to be greater for judicially imposed sanctions and less for administratively imposed sanctions. This is because judicial agencies may exercise more discretion than may administrative agencies.

Not only are the administrative sanctions imposed for implied consent refusal more likely to be imposed as prescribed than are judicial sanctions for DWI, but measuring the actual sanctions imposed administratively tends to be less difficult than measuring those imposed by the courts. This is because the administratively imposed sanctions are generally the responsibility of the licensing agency and thus a part of their computerized records keeping system. Judicially imposed sanctions for DWI conviction other than license revocation usually are not made a part of the records

system of licensing agencies. Computerized records systems of sanctions are also rare within the court system.

Because of the difficulty in obtaining data on actual sanctions, only a rough idea of actual sanctions could be obtained in this study. Only Illinois and California were able to provide data on the percentage of arrested drivers receiving a drivers license suspension or revocation for DWI. Limited data on other sanctions for DWI were obtained from Illinois, Virginia, and California. The Illinois data were obtained through a manual examination of 181 recent DWI convictions in Cook County, Illinois (serving the Chicago area). The Virginia data were obtained from 200 records of 1988 convictions provided by Fairfax County which serves a portion of northern Virginia near Washington, DC. The California data were complied from the computerized file used in the above analyses.

Results

The data on *drivers license sanctions* are shown in Table 3-23. The Illinois data indicates that about 80% of drivers arrested for DWI received either a "summary suspension" following a DWI arrest or a revocation following a court conviction for DWI. In Illinois, a drivers license can be suspended administratively without a court conviction if a driver takes a chemical test and that test indicates a BAC of .10% or higher, or if a driver refuses to take a lawfully requested test. Such laws are often called "administrative *per se*" laws. Data from California, which had no such administrative *per se* law, indicate that only about 30% of arrested drivers received a drivers license sanction, either for DWI or for refusing a chemical test.

Percentages of court-convicted drivers receiving a *fine, jail, or community service sanction* are shown in Table 3-24 for Illinois, Virginia, and California. All three states imposed fines for a large percentage of convictions. Illinois and Virginia imposed a jail sentence on about 20% of the convicted DWIs, but the percentage for California was much higher, ranging from 67% for first offenders to 97% for repeat offenders. The jail sentences in Illinois and Virginia are actual sentences, but it is possible that some of the jail sentences in California may have been suspended. Illinois required community service in about 17% of the cases.

The data for Illinois and Virginia permitted a comparison of the *amount* of the fine (including court costs) and jail imposed in the two states. The mean fine plus costs was $273 in Illinois and $288 in Virginia. There was no statistically significant difference in the these two means. For jail, the mean sentence was 9.4 days in Illinois and 2.1 days in Virginia. This difference is significant ($p<.02$). Both states had a two-day mandatory jail sentence for a second DWI conviction within five years, and Virginia had a 30-day mandatory jail sentence for a third conviction within five years. Thus, even though the *statutory* jail sentence was longer in Virginia, the *actual* jail sentence was longer in Illinois. It is emphasized that this finding is based on data from only one court in each state and does not necessarily apply to all courts in Illinois and Virginia.

Table 3-23: Drivers License Actions as a Percentage of DWI Arrests in Illinois and California, 1987

Action	Illinois	California
Suspension or Revocation	80	30
Restricted	24-31[1]	NA

[1] First number is for first offenders, second for repeat offenders

Table 3-24: Judicial Sanctions in Illinois, Virginia, and California

Sanction	Illinois	Virginia	California[1]
Fine	67	100	100
Jail	22	20	67-97
Community Service	1/	NA	NA

[1] First number is for first offense, second for repeat offenses.

DISCUSSION GROUPS

The goal of the discussion groups was to gather first-hand information on factors, perceived or actual, that motivate drivers to accept or refuse alcohol breath tests. Specific information sought was:

- Knowledge the refusers and non-refusers had before arrest of the test and consequences of taking or refusing the test;
- Details of the arrest experience that may have influenced the decision to take or refuse the test;
- Specific reasons why drivers take or refuse the test; and

- Suggestions for encouraging more drivers to take the test when asked to do so.

Discussion group agendas are shown in Appendix A.

The discussion groups were held in two locations, Arlington, Virginia, and St. Louis Missouri. Missouri and Virginia were chosen for comparative purposes. Virginia had a low refusal rate, and Missouri had a high refusal rate. Arlington and St. Louis were chosen because of the availability of lists of refusers and non-refusers and because of logistical considerations that would permit the recruitment of a suitable number of participants who could travel to the discussion group facility using public transportation. Three discussion group sessions were held in each location, one with persons who had refused an alcohol breath test (refusers), one with persons who had consented to take a test (consenters), and another with persons who had never been arrested for DWI (non-offenders). Participants were recruited at random from lists provided by the local jurisdictions. An attendance incentive of $50 was paid to each participant, and session attendance ranged from nine to 19.

The findings of the discussion groups in each location are summarized below.

Missouri

Pre-Arrest Attitudes and Knowledge. Very few of the refusers and consenters considered the possibility of being arrested for DWI before their initial violation. Refusers told us--because nearly all were professed problem drinkers--that their behavior was unavoidable, and thinking about being arrested would not deter them. Non-refusers, for the most part, believed that being detected and arrested happened to other people but not to them. Non-offenders reported either that they don't drink and drive or don't think about being arrested.

Most of the refusers and consenters were multiple DWI offenders. Several of the consenters had also refused to take breath test before the arrest that brought them into the discussion group. All of these drivers had experienced driver license suspensions or revocations, and several had no license at the time of the discussion group. The majority of those with no license said they continued to drive anyway and did not regard license action as an effective sanction.

None of the participants reported having thoughts, before their initial violation, about what might happen to them if arrested for DWI. Although some of the consenters and refusers were aware of specific penalties for DWI, none knew about the penalties that would actually be imposed. With a good lawyer, refusers and consenters believed they could avoid most of the sanctions. Consenters told us they would have been deterred, for the most part, if they had been more aware, at the time, of the actual penalties for DWI.

All consenters and refusers were aware of the existence of the alcohol breath test before their initial arrest as were the non-offenders. Only a few of the refusers and

consenters had considered the possibility of having to take the test before their initial arrest. All of the refusers said they knew before-hand that they had the right to refuse the test as did the non-offenders. A few of the consenters did not know about this right and alleged they were not offered the option to refuse. Other consenters said they agreed to the test because they believed that by cooperating, they would be treated better by the police.

Nearly all of the participants knew that penalties were given to refusers, but few knew what these penalties were before their initial arrest. Although many of the refusers mentioned the aversive nature of the sanctions for refusal, most reported that such penalties would not deter them from refusing again.

None of the participants had decided before their first drunk driving experience, whether or not to take the test. First-time refusers with no DWI convictions had decided to take the test, and second time refusers would refuse the test to avoid a probable jail sentence. Refusers and consenters said that they had not heard advice from colleagues to refuse the test.

The Arrest Experience. Nearly all of the refusers and consenters said they were unable to effectively use the prior knowledge they may have had, to support their decision to refuse or consent. Both refusers and consenters said police generally did not provide them with the information they needed to make a clear choice, and most said that they had not been intimidated by the police to take the test. Finally, most of the consenters and especially the refusers reported that they were too intoxicated at the time to make a rational decision and that no public information in advance or counselling from the police would help them make a better decision.

Refusers told us that, in their belief, the alcohol breath test was inaccurate. Some of these refusers told us they thought the test was unfair because the legal limit is too low. Some of the consenters also said they believed the test was inaccurate.

Reasons for Refusing or Not Refusing the Test. Refusers said that they would have been better advised to take the test on the first and second violation. Both consenters and non-violators would also agree to take the test on the first two violations; the reason being that the penalties for refusal were believed to be harsher.

Refusers and consenters all reported that they did not have sufficient, accurate information upon which to base their decisions about the alcohol breath test. The refusers and consenters were mostly aware of the penalty for refusal and the certainty that they would receive this penalty.

Because of the apparent high level of awareness of harsh sanctions for refusal, combined with the belief that these sanctions are really handed out, the current situation is perceived to encourage first and second offenders to take the test.

According to refusers and consenters, the actual consequences turned out to be much harsher than they anticipated. Consenters in told us that if they had been more

aware of these actual consequences, they probably would have decided not to drink and drive.

Nearly all of the refusers and consenters would *not* refuse to take the test on the first or second violation if arrested again, but they would refuse the test in a third or subsequent violation. The non-offenders followed the same pattern.

The participants gave no specific advice on how to encourage better compliance with impled consent laws, but provided a variety of suggestions for DWI deterrence. The most commonly heard suggestion was for increased PI&E on penalties although refusers and other multiple repeat offenders said that this probably wouldn't deter problem drinkers. Other suggestions included interlock devices for problem drinkers, improved roadside tests, provision of alternative transportation and designated driver programs.

Virginia

Pre-Arrest Attitudes and Knowledge. As in Missouri, very few of the refusers and consenters considered the possibility of being arrested for DWI before their initial violation, mainly because their drinking problems made DWI unavoidable and because they thought they would not get caught and punished. Many thought that a good lawyer would enable them to escape the penalties and said that they would not have engaged in DWI had they known the penalties.

Most of the refusers and consenters were multiple DWI offenders. Several of the consenters had also refused to take the breath test before the arrest that brought them into the discussion group. All of these drivers had experienced driver license suspensions or revocations, and several had no license at the time of the discussion group. The majority of those with no license said they continued to drive anyway and did not regard license action as an effective sanction.

All of the refusers and consenters knew about the existence of a breath-alcohol test before their initial arrest as were the non-offenders, but few of the refusers and consenters had considered the possibility of having to take the test before their initial arrest. All of the refusers and the non-offenders said that they knew that they had the right to refuse the breath test, but some of the consenters, said that they did not know about this right and stated they were not offered the option to refuse. Other consenters said they agreed to the test because they believed that by cooperating, they would be treated better.

As in Missouri, nearly all of the participants knew that penalties were given to refusers but few knew what these penalties were before their initial arrest. Most reported that such penalties would not deter them from refusing again.

None of the participants had decided before their first drunk driving experience, whether or not to take the test. Nearly all of the refusers and consenters had decided to refuse again the next time.

Before their first arrest, most of the refusers and consenters had been advised by friends to refuse the test.

The Arrest Experience. Nearly all of the refusers and consenters said they were unable to effectively use the prior knowledge they may have had, to support their decision to refuse or consent. Most of the consenters in Virginia said that police intimidated them into taking the test. This degree of perceived intimidation was not as evident in Missouri. Both refusers and consenters said police generally did not provide them with the information they needed to make a clear choice. Finally, most of the consenters and especially the refusers stated that they were too intoxicated at the time to make a rational decision and that no public information in advance or counselling from the police would have helped them make a better decision.

Refusers told us that, in their belief, the alcohol breath test was inaccurate. Some of these refusers also thought the test was unfair because the legal limit is too low.

Reasons for Refusing or Not Refusing the Test. Refusers provided several reasons why they had refused the alcohol breath test. Among these were: advice from an attorney, advice from a friend, distrust of the test accuracy, belief they could avoid DWI conviction, and desire to avoid the stigma of a test-proven DWI conviction. Consenters agreed to take the test because they believed that by being cooperative, they would be treated better by the police if they took the test. None of the refusers or consenters mentioned differences in penalties as a reason for refusing or consenting. Most of the non-offenders would advise a first offender to refuse the test, the principal reason being to avoid the stigma of a test-proven DWI conviction.

Again, refusers and consenters reported that they did not have sufficient, accurate information upon which to base their decisions about the alcohol breath test. The common belief was that a driver can be convicted of DWI after having only one or two drinks.

According to the participants, the current situation encourages first, and especially multiple, offenders to refuse the alcohol breath test. In addition to the reasons for refusal reported above, it appears that the penalties for refusal and DWI on a first offense are highly discretionary and many offenders are just taking their chances. On second and subsequent offenses, it appears that penalties for refusal are perceived to be less aversive than those for DWI.

As in Missouri, the refusers and consenters found the actual consequences of DWI and / or refusal to be much more severe than they anticipated. Again, the consenters said that if they had been more aware of these actual consequences, they probably would have decided not to drink and drive.

Nearly all of the refusers and consenters in Virginia said they would refuse to take the test if arrested again for DWI.

SUMMARY AND CONCLUSIONS

Our analyses suggest that drivers who refuse the chemical test mandated by implied consent laws comprise a high-risk group perhaps having an even higher DWI rate than DWIs in general. Data from all four case study states indicate that refusers have higher DWI and refusal recidivism than non-refusers and are more likely to have more of a variety of prior traffic violations, including DWI. The California data indicated that refusers have a higher probability of subsequent had-been-drinking accidents (police-reported) than do non-refusers, but our California data base does not permit us to calculate the time distribution of these accidents. Although the California data did suggest that refusers may have a lower probability of a subsequent reportable accident of any severity, this could be explained by a failure of refusers to report less serious accidents for fear of apprehension for other violations.

There is also an age / sex effect among breath-alcohol test refusers and an age / sex effect on recidivism. Refusers were relatively rare in the lower age group and the highest age group, and the highest refusal rates are in the mid-age group. Males generally had more future refusals and DWIs future than did females. In general, the time to a repeat refusal or DWI increased with age and was greater for females than for males. This effect was determined from log-linear regression models and was noted for refusers and non-refusers alike.

The existence of a very high-recidivism group and a lower-recidivism group among refusers is suggested by our analyses. If this is true, more study will be needed to identify the characteristics that distinguish the high-recidivism refusers from the low-recidivism refusers. Our discussion groups suggest that many refusers have severe drinking problems and other personality problems that have been associated with high-risk behavior, but other factors may be involved.

It appears that drivers without prior DWIs refuse a chemical test less often and recidivate later than do drivers with prior DWIs. This is consistent with the discussion group results which indicate that some drivers refuse to take the test for a multiple offense DWI simply because they fear the more severe penalties (for example, jail time) associated with the multiple offense. Fear of jail as an inhibitor to taking a chemical test could also help explain our finding that a court in a high-refusal rate jurisdiction imposed a longer jail term for DWI than did a court in a low-refusal rate jurisdiction.

Data from California and Illinois indicated that refusers face a significant risk of conviction of the DWI offense they sought to avoid by refusing a chemical test. In California, a prior study found that drivers who took the test had a DWI conviction rate only five percentage points higher than that of drivers who refused the test. The risk of an additional conviction for the DWI offense carrying punitive sanctions in Illinois was about 40% and depended on whether the driver was a first offender or a multiple offender. Refusers with a prior DWI or refusal were 66% more likely to be convicted for DWI law violations carrying punitive sanctions than were Illinois refusers with no priors. In Virginia, only about 8% of the refusers were also

convicted of DWI, but another 31% of the Virginia refusers were also convicted of some other traffic offense.

Our discussion group participants identified a number of other reasons for their refusing to take a breath alcohol test. These include:

- General misperceptions of the consequences of DWI and refusal prior to first arrest. Both the consenters and refusers said that the actual consequences turned out to be worse than they had anticipated, and said that they probably would not have engaged in DWI had they known the actual consequences.

- Inability to make a rational decision after arrest because of intoxication.

- General belief that the breath test is inaccurate (can give a too-high reading) and that the BAC limit is set too low.

- A belief that the test result would enhance conviction for DWI and the accompanying stigma of a test-proven conviction. For this reason, many of the participants would refuse the test even on an arrest for first-offense DWI.

- A belief that they could avoid conviction by refusing the test.

- Advice from their attorney or a friend not to take the test.

Some participants said they took the test because they thought they would be treated better by the police if they took the test. This finding was more noticeable in Virginia which had a low refusal rate than in Missouri which had a high refusal rate.

The two states with the lower refusal rates had lower DWI-related recidivism rates and fewer subsequent DWI-related violations than did the two states with the higher refusal rates. However, this result does not necessarily indicate that a low refusal rate would in general be associated with a lower recidivism, since only four states were studied in the recidivism analysis.

CHAPTER 4 - CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Test Refusal Problem

Our research indicates that a *potential* test-refusal problem exists to the extent that some 2% to 71% of drivers arrested for DWI in a given state refuse to take a chemical test when request to do so. The mean refusal rate for all states was 19%. Data from our analysis of driver records in four states indicate that, in general, drivers with prior alcohol-related offenses, male drivers, and drivers in the 26 to 55 year age groups tend to have even higher refusal rates. Having a prior offense increases the refusal rate the most in all four states. For example, in Illinois, the refusal rate for drivers with priors was 41% compared to 27% for drivers with no priors.

Not all of the drivers who refuse a chemical test avoid the penalties prescribed by implied consent laws. Refusers who are also convicted of DWI clearly do not avoid such penalties. Accounting for such drivers reduces the magnitude of the test-refusal problem indicated by the aggregate refusal rate. For example, we found that 18% of drivers arrested for DWI in Illinois avoided a DWI conviction by refusing a test. By comparison, the overall refusal rate for Illinois was 31%. Further, in many states, refusers can receive longer driver license suspensions or revocations than they might have received for DWI. On the other hand, jail and community service are not explicitly authorized in implied consent statutes in 47 states, so that DWI arrestees could avoid these penalties by refusing a chemical test.

We found that three factors showed a statistically significant relationship with refusal rate. These factors were (1) whether the license suspension or revocation for refusal was hard (no restricted license given) or soft (a restricted license given under some circumstances); (2) the length of the suspension or revocation for a first refusal; and (3) the DWI arrest rate per licensed driver. The hard suspension was associated with a lower refusal rate, and the refusal rate decreased with increasing DWI arrest rate. In states with a soft suspension, a suspension or revocation period of 90 or fewer days was associated with a higher refusal rate. The available data did not permit a clear separation of the effects of arrest rates and length of suspension revocation.

Characteristics of Refusers and Non-Refusers

Our analyses suggest that drivers who refuse the chemical test mandated by implied consent laws comprise a high-risk group perhaps having an even higher DWI rate than DWIs in general. Data from all four case study states indicate that refusers have higher DWI and refusal recidivism than non-refusers and are more likely to have more of a variety of traffic violations, including DWI. For example, in Illinois and California, the percentage of refusers having another alcohol-related traffic offense

one year after their index offense was some 50% higher than the percentage for non-refusers. We also found that males tend to refuse more often than do females and that younger drivers and older driver refuse less often than do drivers in the mid-age range.

Among refusers, we found that those with various kinds of prior traffic offenses were more likely to have future alcohol-related traffic offenses than were those without priors. As indicated above, older drivers and very young drivers were under-represented among refusers. Many refusers in our discussion groups appeared to have severe drinking problems and perhaps other personality problems that have been associated with high-risk behavior. Other factors may be involved as well. Our driver records analyses also suggested the existence of a very high-recidivism group and a lower-recidivism group among refusers.

These findings have serious implications for states seeking ways of improving their implied consent laws. It may well be that the high-risk refusers (and perhaps some other refuser subgroups as well) are not an appropriate group for deterring with the administrative sanctions which suspend or revoke licenses that in many cases may already have been suspended or revoked. Indeed, many of the multiple offenders in our discussion groups indicated that they had their license suspended or revoked on more than one occasion. These individuals said they had refused the test because they believed that the test result would enhance conviction for a multiple DWI and its more severe penalties, (which were also more severe than the refusal penalties). We note that this view about license sanctions for high-risk refusers was voiced by several DMV staff whom we queried about ways of increasing implied consent compliance in their state.

On the other hand, first-offenders and other lower-risk refusers may be suitable targets for enhanced driver-license sanctions. The discussion group refusers in Missouri said that they most likely would not have refused the test *had they been better informed about the penalties for refusal and the penalties for DWI.* This finding is consistent with the above finding that suggested that states with high public awareness of refusal sanctions may have lower refusal rates.

Our discussion group participants identified many misconceptions about implied consent laws. Both the consenters and refusers in our discussion groups said that the actual consequences turned out to be worse than they had anticipated, and said that they probably would not have engaged in DWI had they known the actual consequences. There was also a general belief that the breath test is inaccurate (can give a too-high reading), that the BAC limit is set too low, that the test result would enhance conviction for DWI and the accompanying stigma of a test-proven conviction, and that they could avoid conviction by refusing the test.

RECOMMENDATIONS

Our study indicates a need for strong traffic law system action against chemical test refusers and potential refusers. This means maintaining a high DWI arrest rate and dealing firmly with stopped drivers, including describing clearly the implications of refusal. Driver license suspensions or revocations should be "hard" without a provision for a restricted license except under the most extenuating of circumstances. The duration of such suspensions or revocations should be substantially greater than the duration of a suspension or revocation for DWI. Refusers should be prosecuted for DWI as well as refusal in cases where evidence merits prosecution.

There is evidence that license suspension alone will not prevent refusal for many "hard core" refusers with a past history of DWI, test refusal, and other serious traffic offenses. Strong criminal sanctions (including jail terms) for refusal may help deter these individuals. However, we doubt that such sanctions alone will prevent many of this group of high-risk refusers from future refusals, and suspect that a large percentage will require treatment for other dysfunctional behaviors (including alcoholism) that are no doubt related to DWI and implied consent violations.

There is also evidence of a lack of accurate information about implied consent and the consequences of test refusal among persons who engage in drinking-driving. Public information and education programs are needed to correct misconceptions about implied consent laws and to convince drivers that refusing a chemical test does not pay, either in reducing the chance of a conviction for DWI or in receiving less severe sanctions. Other strategies for increasing drinking-driver awareness of implied consent should also be studied, for example, including material on implied consent in the curricula of DWI schools. In addition, the general driving public should be made aware that refusing a test is illegal and socially unacceptable. This might help create the perception that an administrative action for refusing a test carries a stigma of the same magnitude as DWI.

APPENDIX A - DISCUSSION GROUP AGENDAS

Implied Consent Project
Discussion Group Agenda
for Consenters and Refusers

INTRODUCTION

Sponsor
Facilitator
General Purpose
What the group's participants have in common
Specific purpose
Confidentiality

BACKGROUND

1. Did you ever consider, beforehand, the possibility of being arrested for DWI?

2. What did you think would happen to you?

3. What did you think were the penalties for DWI?
   License suspension; length, hard/soft
   Jail
   Fine
   Community Service
   Insurance
   Other

KNOWLEDGE BEFORE ARREST

4. Were you aware of the alcohol breath test?
   Where did you hear about it?

5. Did you consider the possibility of ever having to take the alcohol breath test?

6. Did you know that you had the right to refuse the alcohol breath test?

7. Did you know that there are penalties for refusing the alcohol breath test?
   Did you know what these penalties are?
   What did you think were the penalties for refusal?
   License suspension; length, hard/soft
   Jail
   Fine
   Community Service
   Insurance
   Other
   License suspension

8. Had you already decided, beforehand, in the event that you were arrested, whether to consent or refuse?

9. Did you hear any publicity about the alcohol breath test before you were arrested?
   What did the publicity say?
   Did the publicity have any effect on your decision to consent or refuse?

10. Were you acquainted before your arrest with anyone who was arrested for DWI?
    Did you hear any advice from anyone about whether or not to take the alcohol breath test?

ARREST EXPERIENCE

11. Were you able to use the knowledge you had before the arrest to make a decision about taking the alcohol breath test?

12. Do you believe you were presented with a clear and free choice to consent or refuse? Did you feel coerced to take the alcohol breath test?

13. Did the police provide you with information to help you make the right decision?
    About the penalties for refusal compared with the penalties for DWI?
    Did you understand this information?
    Did you believe this information?

14. Were you able to make a rational choice at the time given the circumstances?

15. Did you think the alcohol breath test would be fair and accurate?

16. Why did you <take the alcohol breath test> <refuse to take the alcohol breath test>?

HINDSIGHT

17. What penalties did you actually receive?

18. Did the actual consequences to you come out as you expected?

19. Knowing the actual consequences now, if you could, would you change your decision about taking the alcohol breath test?

20. What factor or factors would change your decision?

21. Do you think the current situation deters or encourages people to take the alcohol breath test?

Implied Consent Project
Discussion Group Agenda
for Non-Violators

INTRODUCTION

Sponsor
Facilitator
General purpose
What the groups have in common
Specific purpose
Confidentiality

DISCUSSION

1. Have you ever considered the possibility of being arrested for DWI?

2. What do you think would happen to you?

3. Do you drink and drive?

4. What did you think are the penalties for DWI?
   Licenses suspension; length, hard/soft
   Jail
   Fine
   Community service
   Insurance
   Other

5. Do you know that drivers suspected of DWI are asked to take an alcohol breath test?

6. Have you heard anything about such alcohol breath tests?
   Where did you hear about it?
   Has this had any effect on your decision to consent or refuse?

7. Have you considered the possibility of ever having to take the alcohol breath test?

8. Do you know that you have the right to refuse the alcohol breath test?

9. Do you know that there are penalties for refusing the alcohol breath test?
   Do you know what these penalties are?
   What do you think are the penalties for refusal?
   License suspension; length, hard/soft

Jail
Fine
Community service
Insurance
Other

10. Have you already decided, in the event that you are arrested, whether to consent or refuse?

11. Are you acquainted with anyone who has been arrested for DWI?
    Have you heard any advice from anyone about whether or not to take the alcohol breath test?

EXERCISE

Consider yourself in the following situation. You are driving home after having too much to drink. You do not know whether you are above the legal limit. A police officer pulls you over and after looking over your appearance, speech and movement says, "I have reason to believe that you are operating a motor vehicle while under the influence of alcohol. I'm afraid you're going to have to come downtown with me."

Under the circumstances, you have no choice but to be arrested, handcuffed and driven to the police station. The arresting officer has advised you of your rights to remain silent and to be represented by a lawyer.

At the police station, you are asked to take a breath test that would provide legal proof whether or not you are intoxicated. You are told that you have the right to refuse this alcohol breath test but that if you do refuse, you are subject to certain penalties and may still be convicted of DWI. What combination of penalties for DWI conviction, and refusing the alcohol breath test would have equal deterrence?