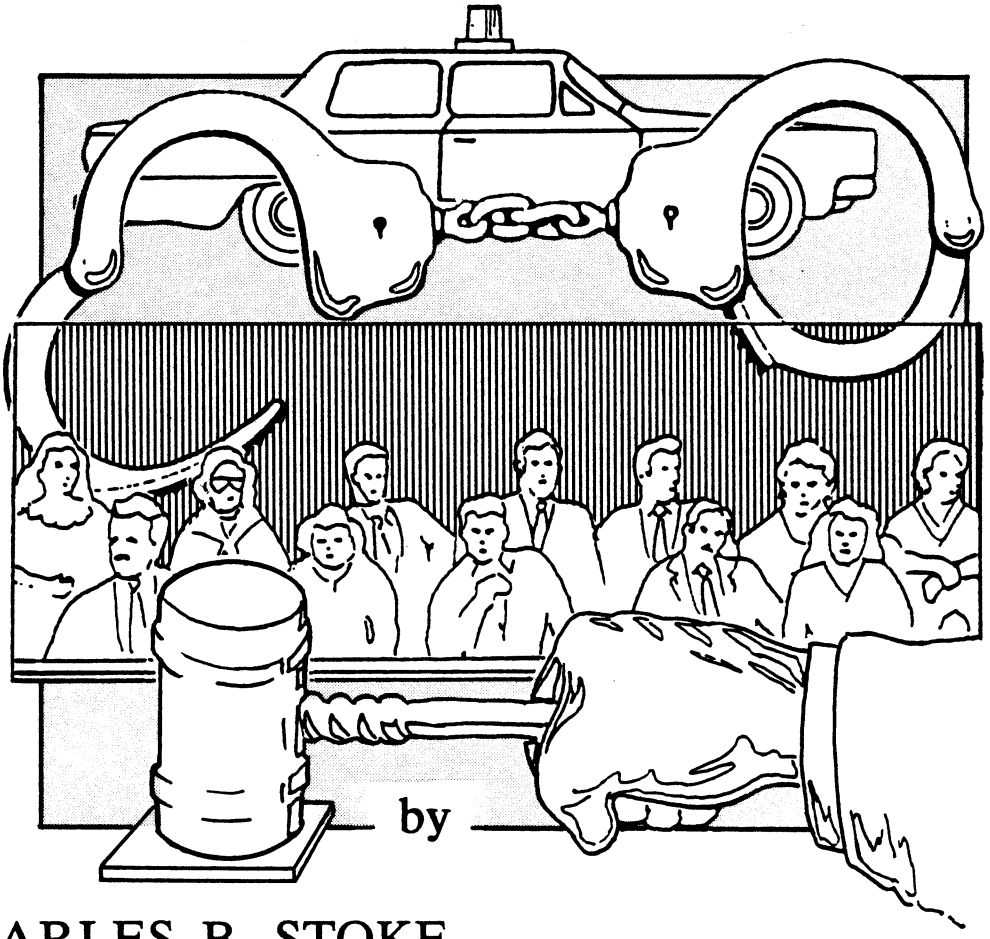
FINAL REPORT

ARRESTS AND CONVICTIONS FOR DRUNKEN DRIVING IN VIRGINIA BEFORE AND AFTER ADOPTION OF A PER SE OFFENSE



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Abstract

In July 1984, Virginia introduced a per se offense for drunken driving at the 0.15% BAC level; the presumptive level of intoxication remained at 0.10%. There was concern that this difference between the per se and presumptive levels led to fewer arrests and convictions for drunken driving. In April 1986, the per se offense was lowered to 0.10% to match the presumptive level. The Virginia Transportation Research Council was asked to study rates for arrests and convictions for drunken driving under the varying laws. Three time periods were sampled: no per se offense, a per se offense of 0.15%, and a per se offense of 0.10%. The results of the data analysis indicated that there was no statistical difference in the number of arrests or convictions under the different laws.

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(A Cooperative Organization Sponsored Jointly by the Virginia Department of Transportation and the University of Virginia)

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by

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INTRODUCTION

The problem of drunken driving has been the subject of state and federal concern for many years. A variety of legislative solutions have been proposed and enacted. A reform popular in the 1970s and early 1980s was the enactment of a "per se" offense, adopted by 44 states between 1967 and 1987. This study examined the numbers of arrests and convictions for drunken driving offenses in Virginia during the initial period of the state's per se offense (when the offense was defined as a blood alcohol concentration [BAC] of 0.15% or greater) and compared them with the numbers of arrests and convictions both before the offense was created and after its definition was changed to 0.10% or greater.

Traditionally, drunken driving statutes have defined the offense as one of "driving under the influence of alcohol" (DUI) or "driving while intoxicated" (DWI). The increasing accuracy of chemical tests for BAC has led to more precise definitions of influence and intoxication. (Whether the offense is one of "influenced," "intoxicated," or "impaired" depends on the statutory language. In Virginia, the various drunken driving offenses are referred to as both "DUI" and "DWI.") Over the years, BACs of various levels have been defined by state law to create a rebuttable presumption of intoxication or influence. See, e.g., Va. Code § 18.2-269 (1988) (Appendix A.) That is, a BAC above the established level would not be conclusive proof of intoxication but would create only a presumption that the defendant was, in fact, intoxicated or under the influence. To avoid conviction, it would be necessary to present evidence strong enough to refute that presumption. Such statutes are referred to as "presumptive" DUI laws.

The concept of a per se offense for drunken driving represents a radically different approach. The Virginia statute is typical: "It shall be unlawful for any person to drive or operate any motor vehicle,

engine, or train (i) while such person has a blood alcohol concentration of .10 percent or more by weight by volume. . . ." Va. Code § 18.2-266 (1988) (Appendix A.) Rather than merely treating a BAC of that level as evidence of intoxication, a statute that makes it illegal to operate a motor vehicle with a BAC of 0.10% (the level most often used) makes such a BAC an element of the crime. If the prosecution can prove that the defendant had a BAC at or above the statutory level and was operating a motor vehicle, then the defendant is guilty of the per se offense. Whether or not the alcohol had affected that individual's ability to drive is irrelevant. The per se law is based on the belief that the public interest is served if no one with such a high BAC drives. Because the BAC cannot be precisely determined without a blood, breath, or urine test, a defendant who can keep the test results out of court by successfully challenging the collection or handling of the sample or the accuracy of the test itself may avoid conviction. Theoretically, the per se offense offers a tremendous savings in the time arresting officers are required to appear in court: if the results of the test for BAC are admissible, then no corroborating evidence is needed from the officer as to the defendant's condition. When the 0.10% level is a rebuttable presumption, the police officer's testimony about the defendant's behavior and demeanor can be crucial in obtaining a guilty verdict. Under a per se offense, however, the prosecution does not need such testimony.

The concept of a per se offense was introduced into the Uniform Vehicle Code in 1970, and many states have since incorporated the concept into their state code. Forty-four states currently have a per se offense. Of these, 40 use the 0.10% limit. (Two use 0.08%, one uses 0.12%, and one uses 0.15%.) In addition, 23 states have what is called an "administrative per se statute" that provides for automatic administrative suspension of the operator's license for violation of the per se offense. Virginia has defined a per se level of intoxication, but a court hearing is required prior to the imposition of sanctions.

Several states eliminated the presumptive level when they enacted the per se offense. That is, in those cases, the offense of DUI still survives, but a BAC reading creates no presumptions as to whether the driver was or was not under the influence. The trier of fact (judge or jury) must decide that question, considering all admissible evidence.

Other states, including Virginia, have retained the presumptive level. The coexistence of a per se and a presumptive offense has led to conflicting judicial interpretations of the statutes. Some courts have held that the disjunctive wording creates two separate crimes: it is unlawful to drive while having a BAC greater than 0.10% or while under the influence of alcohol. At the time of arrest, the driver is charged with one or the other: the per se and presumptive limits are thus not

two different methods of proving the offense but rather two separate offenses. Travelers Indemnity Co. v. McInroy, 342 So. 2d 842, 844 (Fla. 1st Dist. Ct. App. 1977).

Other courts, however, have held that the "per se" wording simply provides an alternate method of proving the offense of DWI. Lester v. State, 253 Ga. 235, 238, 320 S.E.2d 142, 145 (1984). This means that a driver can be charged with DWI and the state can evaluate the available evidence to decide how to proceed in the prosecution. There have been no Virginia cases directly ruling on this issue, but the Attorney General, in at least two opinions, has favored the interpretation of alternate methods of proof. 1985-86 Va. Rep. Att'y Gen. 205; 1984-85 Va. Rep. Att'y Gen. 197.

PROJECT OBJECTIVE

In 1984, the per se offense for drunken driving was created in Virginia, making it illegal for anyone to operate a motor vehicle with a 0.15% or higher BAC. Less than two years later, the illegal limit was lowered to 0.10%. Under both offenses, a BAC greater than 0.10% gave rise to a presumption of being under the influence. The varying definitions of the per se offense, as well as the relationship between the per se and presumptive levels, have been difficult for the courts, the police, and the public to understand. The broad goal of this study was to determine if the variations in the definition of the offense have had any impact on the enforcement and adjudication of drunken driving offenses. Specifically, this study attempted to determine what actually happened to DUI arrests and convictions when the per se offense was defined by a BAC limit higher than the presumptive level.

The per se offense went into effect on July 1, 1984. The year before, The Governor's Task Force To Combat Drunk Driving had recommended the creation of a per se offense at the 0.10% level as a means to increase the number of convictions while decreasing the amount of time police officers had to spend in court. The Task Force relied on data showing that 91.5% of evidentiary BAC tests for DUI had results of 0.10% or higher (The Governor's Task Force, 1983, p. 78). The bill that was passed by the General Assembly in early 1984, however, established the offense at the 0.15% level. 1984 Va. Acts 666.

One assumption underlying the establishment of a per se offense was that it would result in more convictions with a lower expenditure of police time. More convictions, in turn, would lead to more arrests, as the number of arrests that police make reflects, to some degree, their belief as to the likelihood of conviction. That is, if police officers believe that a high percentage of those charged will pay a penalty, their

diligence in making arrests will correspond to the degree to which they regard intoxicated drivers as a social problem.

However, the per se offense with a 0.15% level was perceived by some to be having the opposite effect. Officials of the state's Alcohol Safety Action Program attributed a drop in arrests to police officers' unhappiness with the new law (Stuckenbroeker, 1985). Anecdotal reports from Commonwealth Attorneys around the state indicated dissatisfaction with the new statute. There was some concern that establishing the per se offense at 0.15% gave an aura of legitimacy to BACs below that level, making it more difficult to convict someone with a 0.12% or 0.13% BAC than it had been earlier. Also, some officers were reluctant to charge under the per se offense because at the time of arrest they did not know the exact BAC level. If it were less than 0.15%, the offender would go free under the per se law. To the officer, conviction might seem more likely with the offense of DUI since the BAC would create a presumption that would prevail unless the defendant presented sufficient countervailing evidence. This, of course, negated the goal of reducing police officers' time in court.

Concern about these possible negative influences on the control of drunken driving in Virginia led to the proposal of this study in 1986. Apparently motivated by the same concern, the General Assembly in April 1986 lowered the BAC level for the per se offense from 0.15% to 0.10%. 1986 Va. Acts 635. This study examined the varying definitions of drunken driving in Virginia in recent years and compared the numbers of arrests and convictions under the different definitions.

METHODOLOGY

Design of the Analysis

This study dealt with three periods of time in which different definitions of "DUI" were in effect in Virginia as a result of statutory changes. Time period I (prior to July 1, 1984) had no per se law, but a BAC greater than 0.10% created a presumption of alcohol influence. In time period II (July 1, 1984 through April 15, 1986), the per se offense was defined as operating a motor vehicle with a BAC of 0.15% or higher; the presumption of influence remained at 0.10%. Time period III (April 16, 1986, to the present) defined the per se offense at 0.10% and the presumption at 0.10%. The central question of this study was whether there had been a significant difference in the numbers of arrests and convictions among these time periods. If the per se offense had worked

as conceptualized, the numbers of arrests and convictions would be higher after its enactment in 1984. But, if the confusion and discouragement about the new law posited by some state officials truly existed, then the numbers of arrests and/or convictions would be lower or have no clear pattern in time period II and would show a rise in time period III.

Typically, laws against drunken driving have been evaluated in terms of their deterrent effect on the general population. (See, e.g., Ross, 1981b.) This study, however, was planned to examine the enforcement and adjudication of DUI cases, not the deterrent effect on the entire population of drivers. It was a study of the actions of police officers, prosecuting attorneys, and judges rather than of drivers. Indeed, one piece of the original proposal was to have been a survey of such personnel, of their reactions and experiences under new laws. It was decided, however, that too much time has elapsed for such subjective recollections to be valid.

Changes in areas of the DUI laws other than BAC levels and changes in data collection, storage, and retrieval methods over the time periods involved posed problems with regard to the methodology of this study. Prior to July 1, 1982, DUI arrestees in Virginia who agreed to enter an alcohol education program could "plea bargain" to a lesser offense than DUI. In 1982, the General Assembly changed the law permitting this option, requiring a DUI conviction as a prerequisite for entrance into such programs. 1982 Va. Acts 301. This meant that, compared to the previous year, DUI "convictions" rose by 105.4% in 1982 and by 68.1% in 1983 (Virginia Alcohol Safety Program, 1984, p. 112). Thus, any comparison of conviction data before 1983 with those of later years would be distorted by this change in definition.

In 1983, the Department of Motor Vehicles (DMV) file on DWI arrests and convictions was redesigned. Statistics from the DWI file from January 1984 to the present are all products of this new system and are directly comparable. However, because of the system enhancement of the DWI file in late 1983, the arrest and conviction data collected by DMV in 1982 and 1983 cannot be compared with data from later years. To provide comparable data from time period I, therefore, another source of data was needed. Data on DUI arrests are also collected and maintained on a statewide basis by the State Police for the Uniform Crime Report (UCR). Their method of collection and reporting has remained stable through the years, so their figures provide a consistent data set. The UCR statewide totals of arrests for DUI from 1983 to the present were used in this study. (See Table 1.)

It is commonly accepted that there is monthly variation in the number of arrests for DUI (Ross, 1981a). The original per se law (0.15%) went into effect in July 1984 and was amended to 0.10% in April 1986. Arrests during this time period are highlighted in Table 1. Any

TABLE 1

STATEWIDE DUI ARRESTS

	1983	1984	1985	1986	1987
January	3690	3442	**3168**	**2960**	3247
February	3086	3717	**3279**	**2959**	3563
March	4104	4141	**4045**	**3810**	4339
April	3995	3887	**3623**	**3569**	3742
May	4171	4032	**3704**	3531	4141
June	3709	3559	**3468**	3284	3874
July	3630	**3038**	**3462**	3765	3552
August	3481	**2911**	**3476**	3942	3691
September	3705	**3358**	**3485**	3995	3878
October	3498	**3502**	**3861**	4017	4087
November	3462	**3350**	**3441**	3981	3486
December	3939	**3970**	**3852**	3696	3800
TOTAL	**44920**	**42907**	**42864**	**43509**	**45400**

Source: Uniform Crime Report of Virginia State Police.

Note: Time period II (per se offense of 0.15% is highlighted in the table).

comparison of arrests prior to or after this time period would have had to cover the same calendar months so as not to be distorted by the variations in the monthly figures. To obtain comparable data across time periods I, II, and III, it was decided to use calendar years 1983, 1985, and 1987 as a sample of the time periods. These samples represent monthly arrests under a law with no per se offense, a per se offense with a 0.15% BAC level, and the current per se offense with the 0.10% level. Besides providing equivalent months, the use of whole years eliminated the times of transition associated with the actual statutory changes in July 1984 and April 1986.

The UCR, although consistent in definition and data storage over five years for DUI arrests, maintains no records on convictions. As discussed above, DMV has collected data on DUI arrests and convictions for some time, but the present system of collection began only in January 1984. No other agency maintains data on DUI convictions. Therefore, the only data available for convictions before the per se law are for January through June 1984. The same problems of monthly variations and transition periods after the passage of each law exist for conviction data as for arrests. To avoid these distortions, conviction data from the first six months of 1984 (time period I), the first six months of 1985 (time period II), and the same six months for 1987 (time period III) were used for the analysis. This was a smaller number of observations than desired, but was forced by the limitations of the data. Table 2 shows the monthly statewide totals of DUI convictions for these years, with time period II highlighted.

The "DUI arrests" figures (Table 1) represent all arrests related to DUI or DWI whether the defendant was charged under state law or local ordinance. The data as maintained do not specify the number and paragraph of the violation. It was therefore not possible to determine whether defendants were charged with the per se offense (Va. Code § 18.2-266[i]) or with DWI (Va. Code § 18.2-266[ii]). The data available for this study could not, therefore, allow an answer to the question of whether the police were more likely to charge arrestees with the per se or presumptive offense or just with the general offense of drunken driving.

A useful measure for this study would have been the conviction rate for each time period, that is, a measure that could show whether one type of law resulted in a higher proportion of arrestees being convicted. In addition to the problems of data collection before 1984, the way the data are currently maintained made it impossible to follow particular arrests through the final disposition of the case. A "proxy" conviction rate could have been approximated based on the average time lapse between arrest and disposition in court. For example, if the average had been two months, the March convictions could have reflected a proportion of the January arrests. This approach was rejected for two reasons. First,

Table 2

STATEWIDE DUI CONVICTIONS

	1984	1985	1986	1987
January	3268	**3508**	**3411**	3269
February	3240	**2970**	**2969**	3278
March	3335	**3161**	**2966**	3819
April	3449	**3246**	**2892**	3273
May	3407	**3228**	3144	3609
June	3362	**3198**	3236	3528
July	**3225**	**3094**	3152	3510
August	**3113**	**3087**	3186	3234
September	**2687**	**2840**	3154	3311
October	**3528**	**3384**	3964	3375
November	**3060**	**2820**	2992	2931
December	**2788**	**2631**	3180	3033
Unknown			5	
TOTAL	**38462**	**37167**	**38251**	**40170**

Source: DWI files, Virginia Department of Motor Vehicles.

Note: Time period II (per se offense of 0.15%) is highlighted in the table.

since 136 jurisdictions were involved, each with different procedures and delays, the "average" time lapse analytically did not seem to represent anything in the real world. Second, the data used for arrests and convictions were collected by two different agencies with different methods, so combining them was not methodologically sound.

Survey of the States

At the time this study was proposed, it was hoped that information from other states might be useful in assessing Virginia's experience. Specifically, if there were other states that had varied the levels of per se and presumptive statutory limits over time, data from them might be compared with Virginia's. To this end, a questionnaire was developed to survey the Attorneys General of the 50 states regarding presumptive and per se levels for DUI laws. (See the sample questionnaire in Appendix B.) The survey sought information not only about current laws regarding per se and presumptive levels for DUI offenses but also previous levels, if different, and dates of effect. In March 1987, a questionnaire and letter were sent to the Attorney General of each state. The response was slow and spotty, prompting two more letters (July and September of 1987) to nonrespondents and a few telephone calls before responses from each state were obtained.

The responses varied considerably in completeness and clarity. Some respondents enclosed the relevant parts of their statutes or codes. In 15 instances, the responses given on the questionnaire were inconsistent with the printed statutes. While this survey was being conducted, the NHTSA Digest of State Alcohol-Highway Safety Related Legislation (National Highway Traffic Safety Administration, 1988) was published. Its data on per se/presumptive levels showed 17 inconsistencies with the information furnished by the states. After the three sources of information were checked and cross-checked, Table 3 was compiled. If the three sources of information conflicted, the printed statutes were treated as definitive.

There is considerable variation in the wording and interpretation of presumptive statutes. The questionnaire asked if there was a presumptive statute, and if so, the level of BAC involved and date of effect. One of the goals of the survey was to determine which states were similar to Virginia, in which a BAC of .10% or greater creates a presumption that the driver was under the influence of alcohol, whereas the per se offense is at a different level. Twenty-seven states currently have such statutes with presumptive levels, but they are worded in various ways.

Some states consider a BAC of 0.10% to be prima facie evidence of drunken driving, legally sufficient to establish a fact or case unless

TABLE 3

STATE LAWS ON PER SE AND PRESUMPTIVE BAC LIMITS

	Per Se Statute (6/1/88)	Effective Date	Previous Limit, If Different	Effective Date	Presumptive Statute (6/1/88)	Effective Date	Previous Limit, If Different	Effective Date
Alabama	.10	1980	---	---	.10	1980	---	---
Alaska	.10	1980	---	---	.10	1982	---	---
Arizona	.10	1982	---	---	.10	1973	.15	1952
Arkansas	.10	1969	---	---	---	---	---	---
California[1]	.10	1982	---	---	.10	1970	---	---
Colorado	.15	1983	---	---	.10	1975	.15	1963
Connecticut	.10	1971	.15	1963	---	---	---	---
Delaware	.10	1983	---	---	---	---	---	---
Florida	.10	1975	---	---	.10	1968	---	---
Georgia	.12	1983	---	---	.10	1968	.15	1954
Hawaii	.10	1983	---	---	---	---	---	---
Idaho	.10	1983	---	---	---	1984	.08	*
Illinois	.10	1985	---	---	.10	1985	---	---
Indiana[2]	.10	1985	.15	1977	.10	1985	.15	1977
Iowa	.10	1986	.13	1982	---	1986	.10	1982
Kansas[2]	.10	1986	---	---	.10	1986	---	---
Kentucky	---	---	---	---	.10	1968	.15	1954
Louisiana	.10	1984	---	---	.10	1984	---	---
Maine[2]	.10	1981	---	---	.10	1981	.15	*
Maryland[3]	---	---	---	---	.08	1981	.10	1973
Massachusetts	---	---	---	---	.10	1972	.15	1961
Michigan	.10	1986	---	---	.10	1972	.15	1968
Minnesota	.10	1971	---	---	---	1971	.10	1967
Mississippi	.10	1983	---	---	---	---	---	---
Missouri[2]	.10	1975	.15	1965	.10	*	---	---

*Effective date unknown.

[1] "Presumptive" is only a permissive inference not a conclusive or rebuttable presumption.

[2] 0.10% is prima facie evidence, not a presumption.

[3] 0.08% is prima facie evidence, not a presumption.

TABLE 3 (Continued)

	Per Se Statute (6/1/88)	Effective Date	Previous Limit, If Different	Effective Date	Presumptive Statute (6/1/88)	Effective Date	Previous Limit, If Different	Effective Date
Montana	.10	1983	---	---	.10	1971	.15	1957
Nebraska	.10	1971	---	---	---	1971	.15	1963
Nevada	.10	1983	---	---	.10	---	---	---
New Hampshire[2]	.10	1983	---	---	.10	1971	.15	1949
New Jersey	.10	1983	---	---	---	1983	.10	1977
New Mexico	.10	1983	---	---	---	1983	.10	1978
New York[4]	.10	1972	.12	1972	---	---	---	---
N. Carolina	.10	1983	---	---	---	---	---	---
N. Dakota	.10	1983	---	---	---	---	---	---
Ohio	.10	1983	---	---	---	1983	.15	1968
Oklahoma	.10	1967	---	---	.10	1967	---	---
Oregon	.08	1984	.10	1975	---	1975	.10	1971
Pennsylvania	.10	1982	---	---	---	---	---	---
Rhode Island[5]	.10	1983	---	---	---	---	---	---
S. Carolina	---	---	---	---	.10	1969	---	---
S. Dakota	.10	1973	---	---	.10	1971	.15	1949
Tennessee	---	---	---	---	.10	1969	---	---
Texas	.10	1984	---	---	---	---	---	---
Utah	.08	1983	.10	1944	---	1983	.10	1944
Vermont	.10	1970	.15	1959	.10	1970	.15	1959
Virginia	.10	1986	.15	1984	.10	1972	.15	1950
Washington	.10	1987	---	---	---	1985	.10	1983
W. Virginia	.10	1986	---	---	.10	1981	---	---
Wisconsin	.10	1987	.15	1978	---	---	---	---
Wyoming	---	---	---	---	.10	1973	---	---

[4] 0.07% is prima facie for determining whether a person's ability was impaired, a lesser offense then driving while intoxicated.

[5] Also has a separate per se offense for juveniles, with BAC of .04, but jurisdiction is in Family Court, not criminal.

disproved. In practical terms, a prima facie statute has the same effect as one that creates a rebuttable presumption. A common type of presumption involves a BAC of 0.05% or less, which establishes a presumption that the defendant was not under the influence of alcohol. Several of the questionnaires showed an affirmative answer to the question of a presumptive law, but if it was of the type that referred to a presumption of not intoxicated or impaired, it was disregarded: only those that established a level at or above which the driver is presumed to be intoxicated were counted as "yes".

Two states have a discrepancy similar to Virginia's between the per se and presumptive levels: Colorado, with 0.15% per se and 0.10% presumptive, and Georgia, with 0.12% per se and 0.10% presumptive. Colorado's statute is different from Virginia's in that it creates two levels of punishment for the two crimes. Colo. Rev. Stat. § 42-4-1202 (1988). The Georgia statute (O.C.G.A. § 40-6-391[a]) is textually very similar to Virginia's. The Georgia Supreme Court has interpreted the Georgia statute as defining one crime, with two alternative methods of proving it. Lester at 238, 320 S.E.2d at 145. As stated earlier, this issue has not been addressed by the Virginia courts. Arrest and conviction data from these states would not necessarily be comparable to Virginia figures because of the confusion in the legal interpretation. Also, with the difficulties encountered in locating usable Virginia data, it was decided that time constraints on this study prevented the collection of data from other states. The study was therefore limited to Virginia data.

ANALYSIS

In the selection of a statistical method for analyzing the data, careful attention was given to the limitations described above. Interrupted time series analysis, frequently used to measure the impact of new legislation, was not appropriate because of the limited time periods for which accurate data were available. Analysis of variance (ANOVA) appeared to be the best means of analyzing the data. This test uses the mean of each sample in determining if the variations among the samples represent true differences among the groups or are the product of random fluctuations. The means, standard deviations, and sums of squares for the arrest data are shown in Table 4. The tabulations were produced by the Statistical Package for the Social Sciences (SPSS/PC + Data Entry II).

The lowest number of arrests was in 1985, the year the per se law was at the 0.15% BAC level. This seems to support the perception that police officers were making fewer arrests. There was also less monthly

Table 4

SUMMARY OF DATA ON DUI ARRESTS

Year	Mean	Standard Deviation	Sum of Squares	Cases
1983	3743.33	309.67	1054880.67	12
1985	3572.00	254.34	711602.00	12
1987	3783.33	306.70	1034720.67	12
Total	3699.56	291.35	2801203.33	36

variation in 1985 than in the years representing the other two time periods. In 1987, when the per se level had been reduced to 0.10%, the number of arrests climbed. The results of ANOVA performed on the means of the samples of the three time periods are presented in Table 5.

Table 5

ANALYSIS OF VARIANCE (ARRESTS)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance Level
Between groups	302467.56	2	151233.78	1.782	.184
Within groups	2801203.33	33	84884.95		

Eta = .3122; Eta squared = .0975.

A significance level of $p < .05$ to reject the null hypothesis was selected for this study. Because of the small size of the samples and other limitations of the data, a higher degree of rigor was considered necessary. The ANOVA done on the arrest data did not show a significant difference at the $p < .05$ level. That is, the difference in the numbers of arrests among the three time periods was not large enough to permit the conclusion that the definition of the per se offense affected the number of arrests. The observed difference in the actual numbers may be

the result of normal fluctuations. The number of arrests made at any time obviously is a result of many variables: number of police officers, emphasis given DUI arrests as compared to other police duties, number of vehicle miles travelled, public attitudes about drinking and driving, etc. There is, therefore, always some variation in the number of arrests from year to year. Although these data show the increase and decrease in arrests to be in the direction predicted by the original hypothesis that generated this study, the difference is small and not statistically significant.

The summary of data on convictions is presented in Table 6. For reasons discussed above, there are only reliably comparable data for six months in each time period. These may not be truly independent samples of the populations under study, but the unavailability of data required this restriction. An underlying assumption required for ANOVA is that the samples come from populations with similar variances. At first glance, the data do not seem to meet that criterion, but although the standard deviations are not equal, the discrepancy among them is not large in relation to the size of the means.

Table 6

SUMMARY OF DATA ON CONVICTIONS

Year	Mean	Standard Deviation	Sum of Squares	Cases
1984	3343.50	79.99	31989.50	6
1985	3218.50	173.28	150135.50	6
1987	3462.67	228.14	260237.33	6
Total	3341.56	171.73	442362.33	18

The ANOVA results for the conviction data are presented in Table 7. The conviction data, for reasons discussed above, were a smaller sample than the arrest data. Some researchers would interpret this "F" value as statistically significant, had the $p < .10$ significance level been selected. For this study, however, the more rigorous $p < .05$ level was selected. Given that the data set did not ideally fit the assumptions required for ANOVA, it was better to use a conservative measure in interpreting the results. It is possible that a larger sample may have produced a statistically significant result at the $p < .05$ level. It is

Table 7

ANALYSIS OF VARIANCE (CONVICTIONS)

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance Level
Between groups	178886.11	2	89443.06	3.033	.078
Within groups	442362.33	15	29490.82		

Eta = .5366; Eta squared = .2879.

interesting to note that under the current 0.10% BAC per se law, the number of convictions is higher than under the other two laws. This increase may be merely a product of chance variation, or it may prove to be significant in the future as more data are amassed. Furthermore, since the number of arrests is unchanged, if the number of convictions has risen, then the conviction rate is higher, resulting in increased sanctions for DUI arrestees. But in the absence of more definitive data, these interpretations can be seen only as possible trends.

CONCLUSION

This study sought to discover if the variations in the per se and presumptive limits of the Virginia DUI law resulted in statistically significant differences in the numbers of arrests and/or convictions for the offense. Inconsistencies in data collection over the years involved severely restricted the data available for analysis. ANOVA was used to determine the significance of variation among the different time periods. No significant difference, at the $p < .05$ level, was found for either arrests or convictions. Whether this is a result of the small data set or of the laws' actual impact is unknown.

The analysis presented in this study does not show that the different laws had no impact, but that the data do not permit one to say with confidence that there was an impact. However, there is no reason to believe that the lowering of the per se level to 0.10% had a negative impact on the numbers of arrests or convictions. The data indicate that, at worst, there is no difference in enforcement and adjudication between the current law and the earlier laws.

REFERENCES

The Governor's Task Force To Combat Drunk Driving. (1983). Action plan to combat drunk driving in Virginia: A preventable loss. Charlottesville, VA: Virginia Highway and Transportation Research Council.

National Highway Traffic Safety Administration. (1988). Digest of state alcohol-highway safety related legislation, (6th ed.). Washington, DC: U.S. Department of Transportation.

Ross, H. L. (1981a). Deterrence of the drinking driver: An international survey. Buffalo, NY: State University of New York at Buffalo.

Ross, H. L. (1981b). Deterring the drinking driver. Lexington, MA: D. C. Heath.

Stuckenbroeker, G. (1985, December 10). Drop in DUI arrests expected. Richmond Times-Dispatch, pp. 1, 3.

Virginia Alcohol Safety Action Program. (1984). Alcohol/drugs and driving. Richmond, VA: Division of Motor Vehicles.

APPENDIX A

LAWS APPLICABLE TO DRUNKEN DRIVING

CODE OF VIRGINIA
TITLE 18
CHAPTER 7

ARTICLE 2

Driving Motor Vehicle, etc. While Intoxicated

§ 18.2-266. Driving motor vehicle, engine, etc., while intoxicated, etc. - It shall be unlawful for any person to drive or operate any motor vehicle, engine or train (i) while such person has a blood alcohol concentration of 0.10 percent or more by weight by volume as indicated by a chemical test administered in accordance with the provisions of § 18.2-268, (ii) while such person is under the influence of alcohol, (iii) while such person is under the influence of any narcotic drug or any other self-administered intoxicant or drug of whatsoever nature, or any combination of such drug, to a degree which impaires his ability to drive or operate any motor vehicle, engine or train safely, or (iv) while such person is under the combined influence of alcohol and any drug or drugs to a degree which impairs his ability to drive or operate any motor vehicle, engine or train safely. For the purposes of this section, the term "motor vehicle" shall include mopeds, while operated on the public highways of this Commonwealth. (Code 1950, § 18.1-54; 1960, c. 358; 1975, cc. 14, 15; 1977, c. 637; 1984, c. 666; 1986, c. 635; 1987, c. 661.)

§ 18.2-269. Presumptions from alcoholic content of blood. - In any prosecution for a violation of § 18.2-266 (ii), or any similar ordinance of any county, city or town, the amount of alcohol in the blood of the accused at the time of the alleged offense as indicated by a chemical analysis of a sample of the accused's blood or breath to determine the alcoholic content of his blood in accordance with the provisions of § 18.2-268 shall give rise to the following rebuttable presumptions:

(1) If there was at that time 0.05 percent or less by weight by volume of alcohol in the accused's blood, it shall be presumed that the accused was not under the influence of alcoholic intoxicants;

(2) If there was at that time in excess of 0.05 percent but less than 0.10 percent by weight by volume of alcohol in the accused's blood, such facts shall not give rise to any presumption that the accused was or was not under the influence of alcoholic intoxicants, but such facts may be considered with other competent evidence in determining the guilt or innocence of the accused;

(3) If there was at the time 0.10 percent or more by weight by volume of alcohol in the accused's blood, it shall be presumed that the accused was under the influence of alcoholic intoxicants. (Code 1950, § 18.1-57; 1960, c. 358; 1964, c. 240; 1966, c. 636; 1972, c. 757; 1973, c. 459; 1975, cc. 14, 15; 1977, c. 638; 1983, c. 504; 1986, c. 635.)

APPENDIX B

DRUNKEN DRIVING LAW SURVEY

DRUNKEN DRIVING LAW SURVEY
Fifty State Questionnaire

State:

Respondent:

Title:

A. Current and Previous Per Se Levels

Has a Per Se BAC level for the DUI(DWI) offense been established in your state? No_____ Yes_____

1. If yes, current level _____%
2. Effective date of law _____
3. Code section _____

4. Previous level, if different from current level _____%
5. Effective date of law _____
6. Code section _____

7. Other previous level(s) _____%
8. Effective date(s) of law(s) _____
9. Code section _____

B. Current and Previous Presumptive Levels

Has a Presumptive BAC level for the DUI(DWI) offense been established in your state? No_____ Yes_____

1. If yes, current level _____%
2. Effective date of law _____
3. Code section _____

4. Previous level, if different from current level _____%
5. Effective date of law _____
6. Code section _____

7. Other previous level(s) _____%
8. Effective date(s) of law(s) _____
9. Code section _____

C. Please furnish the name, title, and phone number of a state official who can be contacted for additional information.

Name:

Title:

Phone Number:

D. Comments