THE EFFECTS OF THE EXCLUSIONARY RULE ON CRIME

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I. INTRODUCTION

After months of focusing attention on the troubles of the Middle East, the U.S. has turned its eyes back home to domestic policy. President Bush's newly proposed domestic policy, not surprisingly, includes proposals dealing with the immense problem of drug trafficking. Included in his bill is a proposal to make evidence admissible in federal criminal court procedings if and only if a firearm is involved and where the evidence would otherwise be suppressed due to violation of the U.S. Supreme Court's so-called exclusionary rule.[1] The exclusionary rule makes evidence which has been gathered during an illegal search or seizure inadmissible in both federal and state court proceedings. Bush's so-called inclusionary rule, at present simply a narrow exception, could open up a huge hole if the constitutionality of the exclusionary rule were tested again.

For thirty years now the main punishment for police who have blundered has been to render the evidence which they have collected against the accused inadmissible in court proceedings. Since the 1914 introduction of the exclusionary rule by the Supreme Court in Weeks v. U.S.[2], supporters have argued that this privilege, the protection against illegal search and seizure, is a natural extension of the fourth amendment right to "be secure...against

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[1] 232 U.S. 383 (1914).

[2] Ibid.

unreasonable search and seizures." However, proponents feel that this right may be better protected in other ways. For example, Canada does not exercise an exclusionary rule; instead it relies upon the tort system to correct overzealous searches.

In a landmark Supreme Court case of 1961, Mapp v Ohio,[3] the court ruled that the federal exclusionary rule, which holds that evidence obtained during an illegal search may be suppressed in federal court proceedings, also applied to all state court proceedings as well as federal. In evaluating this controversy, it is useful to investigate the history of the exclusionary rule and its intended purpose, before presenting the statistical analysis.

II. HISTORY

Before 1914 the exclusionary rule was not a part of written or common law. For all practical purposes, its debut was in Weeks v. U.S.[4] when the court ruled that illegally seized evidence was inadmissable in federal court proceedings, yet still admissible in state courts in accordance with state law. New York was one state that refused to accept such a proposition. A New York Court of Appeals judge, Judge Cardozo, wrote in an often quoted statement,

> the criminal is to go free because
> the constable has blundered...A room

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[3] 367 U.S. 643 (1961).

[4] 232 U.S. 383 (1914).

> is searched against the law, and the body of a murdered man is found...The privacy of the home has been infringed, and the murderer goes free.[5]

The next major development was that the Supreme Court in Wolf v. Colorado[6] ruled that individuals who are illegally searched are infringed upon and denied their right to due process of law under the fourth amendment to the U.S. Constitution; however, the court still held that this ruling did not apply to state courts. Search and seizure practices and admissibility of evidence were lawful or unlawful in accordance with state laws. Not until 1961 did the court reverse itself via Mapp v. Ohio[7] and hold that any illegally obtained evidence was inadmissible in both state and federal court proceedings.

A puzzling aspect of the entire ruling, however, is the intent and the actual consequences of the exclusionary rule. The original goal of the exclusionary rule was that of a deterrent to illegal practices by the police and prosecution, yet "an illegal search in no way reduces the reliability of the evidence".[8] It is still unclear how this rule "punishes" overzealous policemen when policemen and departments are commonly rated on their arrest rates, not on their conviction rates. Justice Burger has contended that

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[5] People v Defore, 242 N.Y. 21 (1926).

[6] 338 U.S. 25 (1949).

[7] 367 U.S. 643 (1961).

[8] Katsh, Ethan M. Taking Sides: Clashing Views on Controversial Legal Issues. Guilford, CT: Dushkin, 1983.

"there is no empirical evidence to support the claim that the rule actually deters illegal conduct of law enforcement officials".[9] The exclusionary rule does nothing to protect citizens againt illegal arrest. And an innocent individual is in no way compensated after being victimized by illegal search. Guilty suspects have been released because crucial incriminating evidence, illegally obtained, has been deemed inadmissible, while an innocent man receives no compensation after an illegal search. If the goal of the police is to control crime and bring the guilty to justice, this negative incentive may only promote criminal activity. Implicit in this argument is the statistical notion of Type I and Type II errors. Type I errors convict the innocent, whereas Type II errors fail to convict the guilty. The exclusionary rule protects Type II errors from happening, but does little or nothing to prevent Type I errors.

Has the exclusionary rule failed in its apparent purpose and instead bolstered criminal activity? That is, has it done little or nothing to reduce Type I errors but instead increased Type II errors? The empirical investigation which follows attempts to address this issue.

III. MODELS

There exists an implied theoretical causation between many variables and crime. The two models below are based on

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[9] Ibid.

conventional economic theory. Parmount in understanding the economic theory of crime is to recognize that most criminals are rational individuals. They weigh anticipated costs versus anticipated benefits to decide whether or not to commit crime. In less controversial terms, persons with serious criminal propensities respond to incentives like others do. However, since criminals generally lack perfect information, their perception of the costs and benefits are sometimes mistaken. Better informed criminals have a better chance of making an accurate evaluation of the crime market and thus face lower odds of being punished.

Several models have been proposed to estimate the importance of the exclusionary rule on crime rates. The first model is a variant of Gary Becker's original economic theory of crime published in 1968. To account for differences in crime among the states we can estimate a two-equation model. The first equation is a supply of crime, and the second is a crime control equation:

1) $Ci = b0 + b1Pi + b2Si + b3W + b4Ri + b5X + e$

WHERE

Ci = crimes of type i,

bi = parameters,

with

b0, b5 <>= 0;

b1,b2,b3 < 0;

b4 > 0;

Pi = probability of imprisonment,

Si = the severity of punishment,

W = the after-tax legal wage,

R = the criminal return per offense,

X = the vector of other crime factors,

e = the error term.

2) $Pi = c0 + c1V + c2Ci + u$

WHERE

Pi = probability of imprisonment,

(same as above)

ci = parameters

with

$c0 <>= 0;$

$c1 > 0;$

$c2 < 0;$

V = the criminal justice system

Ci = crimes of type i

(same as above)

u = the error term

The presence of an exclusionary rule can be added to equation 2), the production function for the law enforcement industry or the crimes cleared by conviction equation, as a "rules of the game measure", and thereby isolate its separate impact. We would expect the exclusionary rule to reduce the number of crimes cleared by conviction, holding constant police and prosecution resources. The exclusionary rule should lower probability of conviction, ceteris paribus, which in turn lowers the cost of commiting a crime.

A specific version of this model would be:

3) $Ci = b0 + b1Pi + b2MALE + b3U + b4Y + b5RURAL + e$

4) $Pi = c0 + c1POLICE + c2Ci + c3ERULE + u$

Such a two-equation model would be a desirable way to perform this experiment; yet because of data limitations and time constraints, we must settle for a one equation model to estimate whether or not the exclusionary rule affects reported crime. Even after limiting the model to one equation, several options must still to be decided.

The two equation model can be combined into a single equation to arrive at a workable model.

5) $$Ci = b0 + b1Pi + b2MALE + b3U + b4Y + b5RURAL + b6POLICE + b7ERULE + e$$

Average or median sentence served by crime type, by state is unpublished for the years for which the study is conducted (1957-1964), and therefore it is omitted from this study. Each variable is chosen to control for differences among states. For instance, the crime rate per 100,000 population is the dependent variable instead of the total crimes reported to account for differences in population between states. The percentage of males age 15-24 affects crime because this is the most "crime prone" sex and age group; therefore, states which have a larger percent of their population within this age group should have more crime, all else equal. Per capita income is in the model because more wealth the returns to crime. Probability of imprisonment represents the "cost" of committing crime. If criminals are rational, i.e., they respond to incentives, they will weigh anticipated costs vs. anticipated benefits to decide whether or not to commit crime. Consequently, in states where the justice system treats criminals harshly, it "costs" more to commit crime; less crime will be

commited if the costs are comparatively high.

The variable which represents the percentage of the population which is rural accounts for the differences in composition between urban and rural localities. More crimes are committed in the city, therefore a state which has a higher percentage of urban dwellers should have a higher crime rate. The unemployment rate is in the model as an opportunity cost measure of the legal wage. Theory suggests that as the number of unemployed increases, so does the number of crimes committed, ceteris paribus, although this variable has not proven a strong correlation with crime in previous studies. Since the two-equation model includes police-prosecution resources in the production function, its direct theoretical effect on crime rates in a one-equation model is questionable, yet when incorporated into the single equation model it appears as statistically significant at conventional levels, and thus may be a relevent independent variable. The number of police per 10,000 population is the chosen measure of police-prosecution resources. However, while police presumable deter crime, crime also increases the presence of police. There exists a two-way dependence that implies that police may not have a negative coefficient in the single-equation model. again its theoretical affect is questionable. Additionally, reporting effects may cause further increases in crime, i.e., as police increase, reported crime increases. The dummy variable, ERULE, is a variable to detect whether a state, pre-1961, excercised an exclusionary rule or not. States which had a self imposed exclusionary rule receive a 1 as a value for this variable, while states which had no exclusionary

rule receive a 0. A random disturbance term, e, is a way of including other nonrepresented variables.

IV. THE DATA

This study attempts to detect whether the exclusionary rule, first imposed on all states in 1961, has a measurable impact on crime rates. Prior to 1961 twenty-four states had a "self-imposed" exclusionary rule and twenty-four did not. In states without an exclusionary rule, judicial discretion determined the admissibility of evidence, whether illegally obtained or not. The states exhibit no particular geographic concentration. In the 1950's, the South had nine exclusionary rule states and five states without an exclusionary rule.

The data are cross-sectional, with observations 1-48 data averages for 1957-1960, and observations 49-96 data averages for 1962-1964, for those variables published for those years.[10] In estimating the model, the exclusionary rule is a zero-one, binary variable, zero for states without an exclusionary rule prior to Mapp v Ohio, and one for states which had an exclusionary rule. For observations 49-96(the sixties), every state has a one, since all states had a federally imposed exclusionary rule.

The state data are then compiled into two data sets. The first set separates states into "exclusionary" and "nonexclusionary" groups for the 1950's, and the second set also

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[10] A complete list of variable sources is located in Appendix B.

separates states along their "exclusionary" or "nonexclusionary" status for the 1960's. Those which did not have an exclusionary rule prior to 1961 are termed "nonexclusionary" states, n=24, and those which did have an exclusionary rule are categorized as "exclusionary" states, n=24. Uncontrolled means of crime rates are compared to controlled means of crime rates for respective exclusionary and nonexclusionary states. Controlled means are calculated by regressing the crime rate of type i on %males 15-24, per capita income, probability of imprisonment for commiting crime i, % population rural, the unemployment rate, the police per 10,000 population, and the presence or absence of an exclusionary rule. These predicted values can then be plugged into the above equation to generate controlled means. States which did not have an exclusionary rule prior to 1961 should have a larger jump in crime following 1961 compared to states that did have an exclusionary rule prior to 1961, because the rules of the game changed for the former but not for the latter. Probability of imprisonment for nonexclusionary rule states had been lowered, while exclusionary rule states' probability of imprisonment should have remained unaltered by the Mapp v Ohio ruling.

V. THE RESULTS

Total crime rates per 100,000, the murder rate per 100,000, the assault rate per 100,000, and the buglary rate per 100,000 are all investigated. Table 1 reports the coefficient values and their respective t-statistics for the four regressions run using 1950's

data.

TABLE 1

REGRESSION MODELS OF IMPACT OF

EXCLUSIONARY RULE ON CRIME, 1957-60

(N=48)

VARIABLES	TOTAL INDEX CRIME	MURDER	ASSAULT	BURGLARY
INTERCEPT	-2049.484	-12.482	-182.715	-435.4268
(t-stat)	(1.930635)	(.993328)	(1.313529)	(.786319)
MALES	287.469*	2.581*	34.1097*	86.404
(t-stat)	(2.879968)	(2.18541)	(2.51550)	(1.63687)
INCOME	.17677	-.00357	-.01765	.040548
(t-stat)	(.9364836)	(1.61406)	(.689006)	(.412831)
PROBABILITY	-36.4439*	-.05145*	-1.4516**	-26.8508**
(t-stat)	(2.234208)	(2.02250)	(1.97239)	(1.72909)
RURAL	-3.7694	-.00793	-.97838	-2.74943
(t-stat)	(.8096754)	(.146965)	(1.63306)	(1.20483)
URATE	48.9188	.512211	6.8388	24.6683
(t-stat)	(1.258389)	(1.22542)	(1.43664)	(1.18379)
POLICE	30.4880*	.272269**	1.6251	8.34636
(t-stat)	(2.20904)	(1.70701)	(.878316)	(1.13874)
ERULE	161.0918*	1.22969	15.060	67.1663**
(t-stat)	(2.13406)	(1.44150)	(1.46478)	(1.70659)
R-SQUARED	.508577	.488994	.446708	.380110
F-STAT	5.913758	4.921334	4.498178	3.416343

* Significantly different from zero at 5% level, two-tailed test

**Significantly different from zero at 10% level, two-tailed test

The sign of the coefficients for the variables estimated in the regression for total crime rates which uses only 1950's data, i.e., oberservations 1-48, are promising. For every 1,000 males aged 15-24 in the population, crime rates increase by 287% supporting the hypothesis that the number of males aged 15-24 in the population is positively correlated with crime rates. The number of males is also statistically significant at the 1% level using a standard t-test. Per capita income affects the total crime rate only slightly, but in a positive direction. For each $1 increase in per capita income, crime rates increase .18%. Additionally, this effect is reflected by per capita income's insignificant t-value, at the standard 5% level. Of parmount importance is the value and direction of the probability coefficient. As stated previously, as the probability of conviction decreases, crime increases. The regression results support this assumption. The regression predicts that for every 1% increase in the probability of imprisonment, crime rates decrease by 36%. Probability also passes the standard 5% level for a two-tailed significance test. The percentage of the population residing in rural localities, like per capita income, is insignificant at the 5% level, thus, its coefficient is small. But, it still follows theory suggesting a negative predicted value for the coefficient. This result supports the reasoning that more crimes occur outside of rural areas. The model suggests that for every 1% increase in the unemployment rate, crime increases 49%,

yet the variable urate fails the accepted .05 significance test. The regression result for the police variable is somewhat surprising, yet explainable by the before mentioned theory of two-way causation. The regression reports that for every additional policeman per 10,000 population crime increases, not decreases, by 30%. While police presumably deter crime, crime also attracks police, thus explaining the positive coefficient generated by the police variable. Police has a significant t-statistic at the 5% level, for a two-tailed test, which is again unusual since presumably police resources are controlled for within the probability of imprisonment variable according to the two-equation model. The exclusionary rule variable, which is also biased downward due to its predicted affect on probability, appears significant at the accepted 5% level. It has a rather large positive coefficient supporting the hypothesis that the exclusionary rule increases crime rates. All else equal, states with an exclusionary rule had a crime rate 161% higher that nonexclusionary states.

An R-squared value for an equation explains the amount of variation in the dependent variable attributable to the regression equation. When R-squared equals one, all of the variation in the dependent variable is explained by the equation. When R-squared is equal to zero, none of the variation in the dependent variable is explained by the independent variables. A standard F-statistic test can be performed to test if R-squared is significantly different from zero. In the case of total crime rates per 100,000, a 99% confidence interval can be constructed around R-squared.

With an R-squared value of .508577, approximately 50% of the variation in the dependent variable, total crime rates, can be explained by the seven independent variables.

The fact that the exclusionary rule is both positive and significant at the 5% level for total crime rates foreshadows its effect on the individual crime rates tested. Although the regressions for murder rates, assault rates, and burglary rates lack some of the statistical beauty of the total crime rate regression, they are promising.

When the murder rate regression for the 1950's is analyzed, several differences are apparent. Per capita income becomes negative insinuating that as income increase $1, the murder rate decreases by .003%. Per capita income's t-statistic rises from .936 to 1.61406 just falling short of the 10% significance level. The males variable remains strongly significant at the 5% level predicting a 2.6% increase in the murder rate for each population increase of 10,000 males aged 15-24. Probability still passes the standard t-test at the 5% level and continues to have a negative impact on crime. The unemployment rate and the % rural variable have similar affects on murder as they do on total crime rates. Both remain insignificant at the .1% level and exhibit the hypothesized sign. The police variable is again positive but now significant at the lower 10% level. The exclusionary rule loses some of its potency as it drops from the 5% to the 20% significance level. It still, however, has a relatively large coefficient comparatively, generating a 1.2% increase in murder rates for states that had adopted an exclusionary rule prior to Mapp v Ohio.

The R-squared term for the murder rate regression passes the standard F-statistic test attributing approximately 49% of the variation in murder rates to the independent variables.

The assault rate regression for the 1950's closely mirrors the murder rate regression. Per capita income again has a negative sign and is statistically insignificant. The significance of males rises to the 2% level while remaining positive, and the unemployment rate stay both positive and insignificant for the 5% level. Probability of imprisonment's statistical significance declines to just below the 5% level, but it maintains its negative sign. The percentage of the population residing in rural localities stays at about the same magnitude, yet its t-statistic rises to just below the 10% level. The police per 10,000 population drops its statistical significance while maintaining its positive affect on crime. Finally, the exclusionary rule also drops its statistical significance down to the 20% level again generating a relatively large coefficient comparatively.

The R-squared value for the assault regression is .446708, surpassing the F-critical value at the .01 level. Approximately 45% of the regression equation can be explained by the independent variables.

The 1950's burglary regression is not as statistically sound as the other regressions with only the probability of imprisonment and the exclusionary rule passing the two-tailed t-test at the 10% level. Income's sign switches back to being positive, suggesting that income positively affects crimes against property as opposed

to crimes against the person. The effect of males on the burglary rate is again positive, falling just below the 10% significance level. Percent rural and the unemployment rate keep the hypothesized signs, but both fail the standard t-test. Police is again statistically insignificant, but still positive.

Predictably, the R-squared value for the 1950's burglary equation is lower than that of its counterparts. At .380110 it is still significantly different from zero at the 1% level, but only 38% of the variation in the dependent variable can be attributed to the independent variables.

The coefficients in the joint cross-section regression, 1957-1964, and their t-statistics are reported in Table 2.

TABLE 2

REGRESSION MODELS OF IMPACT OF

EXCLUSIONARY RULE ON CRIME, 1957-64

(N=96)

VARIABLES	TOTAL INDEX CRIME	MURDER	ASSAULT	BURGLARY
INTERCEPT	-2268.543	-9.3129	-167.994	-726.2783
(t-stat)	(3.991171)	(1.74987)	(2.286942)	(2.52123)
MALES	289.608*	2.1236*	32.5601*	115.47*
(t-stat)	(4.999073)	(3.80771)	(4.26113)	(3.99538)
INCOME	.098531	-.00425*	-.03367*	.039450
(t-stat)	(1.041996)	(4.66001)	(2.64139)	(.792319)

PROBABILITY	-32.7353*	-.02813**	-1.3292*	-20.4079**
(t-stat)	(2.619452)	(1.76618)	(2.42996)	(1.77813)
RURAL	-4.5295	-.00165	-.06091	-3.89475*
(t-stat)	(1.407296)	(.058773)	(1.55364)	(2.51246)
URATE	61.5230*	.241403	1.9599	29.6848*
(t-stat)	(2.271107)	(.933428)	(.563715)	(2.13453)
POLICE	48.4849*	.39344*	4.035753*	12.92139*
(t-stat)	(4.492926)	(3.80640)	(2.847570)	(2.347306)
ERULE	136.9861**	1.09834	13.542	69.8064**
(t-stat)	(1.94830)	(1.62714)	(1.42756)	(1.94065)
R-SQUARED	.613137	.410384	.405782	.517327
F-STAT	19.92440	8.252784	8.389708	13.16776

* Significantly different from zero at 5% level, one-tailed test

**Significantly different from zero at 10% level, one-tailed test

In comparison, all of the coefficients have the same sign in both regression results implying that the model is stable.

In the joint cross-section regression model of total crime rates, males and police are highly significant at the 1% level and undoubtably positive. Probability of imprisonment maintains its statistical importance and predicts that a 1% increase in the probability of imprisonment, all else equal, generates a 33% decrease in the total crime rate. Income remains statistically insignificant as well as percent rural. The positive relationship

between income and total crime rates holds, as does the negative relationship between percent rural and total crime rates. Unemployment rates are significant at the 5% level predicting a 62% increase in the total crime rates for each 1% increase in the unemployment rate. The exclusionary rule is significant at the 10% level for the joint cross-section regression, whereas in the previous total crime rate regression
the exclusionary rule was significant at the 5% level. This variation in significance can be explained by the fact that one-half of the observations in the 1950's regression are without an exclusionary rule; however, when the sample is increased to 96 no additional nonexclusionary states are added, thus only one-fourth of the observations are nonexclusionary.

The R-squared value for total crime rates increases to .613137 and the F-statistic rises due to the increase in observations. Approximately 61% of the variation in total crime rates can be explained by the seven independent variables.

For the joint 1950-1960's murder rate regression, income and police gain significance, while probability loses some of its explanatory power. Income becomes very significant at the 1% level as probability declines to the 10% acceptance level. The remainder of the variables are fairly constant. The t-statistic on the exclusionary rule variable rises to just below the 10% significance level, attributing a 1.1% increase in murder rates due to the exclusionary rule.

The R-squared value is slightly lower for the joint cross section regression then for the 1950's regression. The R-squared

value accounts for 41% of the explained variation in the regression.

Assault rate variables change only slighty between the 1950's regression and the combined cross-section regression. Income and police per 10,000 population become significant at the 2% level likewise with probability of imprisonment. Each variable holds the same sign during the joint cross-sectional regression as it did during the 1950's regression. The significance of the exclusionary rule holds at the 20% level predicting a 14% higher assault rate in states which have an exclusionary rule.

The R-squared value of the joint assault regression is not as high as the 1950's R-squared value; however, the regression can still be deemed significant at the 1% level, explaining 40% of the variation in the dependent variable.

The joint regression for burglary is far superior to the 1950's regression. Only one variable, income, is statistically insignificant. All others have a significant impact on burglary rates. The exclusionary rule is significant at the 10% level raising burglary rates by as much as 70%.

The joint regression for burglary has an equally pleasing R-squared value of .517327. Almost 52% of the variance in burglary rates is due to the independent variables.

Another less statistical experiement comparing means is also reported in Table 3.

Table 3

UNCONTROLLED CRIME MEANS

NONEXCLUSIONARY STATES	**EXCLUSIONARY STATES**

TOTAL CRIME			
RATES			
1950's	791.5	<	875.5
1960's	1029.2	<	1097.9
MURDER			
RATES			
1950's	4.5	<	5.5
1960's	4.1	<	4.7
ASSAULT			
RATES			
1950's	44.9	<	61.3
1960's	58.8	<	75.6
BURGLARY			
RATES			
1950's	347.5	<	395.8
1960's	472.1	<	508.3

% CHANGE

TOTAL CRIME			
RATES	30.0%	>	25.4%
MURDER			
RATES	-8.28%	<	-13.39%
ASSAULT			
RATES	30.9%	>	23.4%
BURGLARY			
RATES	35.9%	>	28.4%

One would predict that those states which did not have an exclusionary rule prior to 1961 would experience a higher growth rate in crime compared to states which already had an exclusionary rule, because the rules of the game changed for the former but not the latter. When uncontrolled means are tabulated total crime, assault, and buglary all exhibited the predicted growth pattern, with nonexclusionary states experiencing a higher growth rate in criminal activity than exclusionary states. However, murder's uncontrolled mean is not as predictable. Murder rate uncontrolled means revealed a decrease in reported murders between the 1950's and the 1960's with the exclusionary states enjoying a larger decrease in reported murders.

Table 4 reports the "controlled" means for crime rates and there percentage change.

Table 4

CONTROLLED CRIME MEANS

	NONEXCLUSIONARY STATES		**EXCLUSIONARY STATES**
TOTAL CRIME			
RATES			
1950's	795.0	<	836.1
1960's	1090.7	>	1083.3
MURDER			
RATES			
1950's	4.55	<	5.37
1960's	4.49	<	4.53
ASSAULT			

RATES			
1950's	46.54	<	58.56
1960's	67.23	<	68.10
BURGLARY			
RATES			
1950's	353.9	<	387.6
1960'S	497.4	>	489.9
% CHANGE			
TOTAL CRIME			
RATES	37.2%	>	29.6%
MURDER			
RATES	-1.4%	<	-15.7%
ASSAULT			
RATES	44.5%	>	16.3%
BUGLARY			
RATES	40.6%	>	26.4%

These "controlled" means are tabulated by plugging independent variable means into the appropriate model. As Table 4 shows total crime rates, assault rates, and burglary rates increased at a greater rate for nonexclusionary states, supporting the hypothesis that the exclusionary rule affects measurable crime rates.

States which did not have an exclusionary rule prior to 1961 experienced a 37% increase in total crime rates, whereas states which did have an exclusionary rule realized a 29% increase in

total crime. Nonexclusionary states crime rates increased at a 26% higher rate then exclusionary states.

Reported burglaries in nonexclusionary states increased from 354 buglaries per 100,000 population to 497 buglaries per 100,000 population, but only increased from 388 buglaries per 100,000 to 489 buglaries per 100,000 for exclusionary states. This translates into a 41% increase in buglary for nonexclusionary states and a 26% increase for exclusionary states. Nonexclusionary states' burglary rate is growing at a 54% higher rate than exclusionary states' burglary rates.

Those states which did not have an exclusionary rule prior to Mapp v Ohio experienced an increase in reported assaults of 45%, while their counterparts assault rate only increased by 16%. Nonexclusionary states dealt with an increase in assault rates 181% greater than that of exclusionary states.

As stated above, the uncontrolled means of murder rates declined from 1950 to 1960; yet once difference among the states are accounted for, the results are somewhat supportive of the theory that the exclusionary rule affects murder rates. Murder rates in exclusionary states decline by more than in nonexclusionary states; hence it could be theorized that had the exclusionary rule not been imposed upon undesirous states, they also would have experienced a similar large decrease in murder rates per 100,000 between the 1950's and the 1960's. With the exclusionary rule mandate, nonexclusionary states murder rate decreased by 1.2% while exclusionary rule states realized a 15.7% decrease in murders per 100,000 population. A rate of change

growth rate difference of 1026%.

VI. IMPLICATIONS

The exclusionary rule lowered the cost of commiting crime in the United States. As economic theory predicts, when the marginal cost of an activity declines, the activity expands. The model in no way attempts to measure the effects of other similar changes which altered the criminal justice system during the 1960's, also lowering the cost of crime. Gideon v Wainwright(1963), Escobedo v Illinois(1964), and Miranda v Arizona(1966), also lowered the probability of imprisonment, thereby lowering the cost of crime.

The U.S. has long been the champion of human rights, but at what cost? Has there been an explicit tradeoff between Type I and Type II errors or have these Type II errors increased irregardless of Type I errors? Is it possible that alternatives to the exclusionary rule could perform more efficiently and generate the desired result of police restraint?

VII. ALTERNATIVES

Several alternatives to the exclusionary rule have been proposed which could serve as deterents to illegal activities by police and prosecution. The most promising one at present is the tort solution. Let those who have been injured by illegal search and seizure sue the policeman or prosecutor who broke the rules. This remedy allows innocent individuals, as well as guilty ones to

be compensated with a lesser tradeoff in increased crime. Yet, this option has drawbacks. Before a plaintiff may claim punitive damages, actual damage or injury must be shown. Also the plaintiff must prove that the officer lacked probable cause in the search.[11] Yet, these privately incurred costs probably are lower than the societal costs of increased crime. This solution is a direct remedy and appears superior to the alternative of allowing the guilty to go free.

Another viable alternative involves allowing the individual departments to take disciplinary action against the overzealous policeman. In Chicago policemen which fail to account for all that they seize are suspended or even prosecuted criminally.[12] Without the federally mandated exclusionary rule in place, perhaps solutions which have been successful in other areas, such as the one mentioned above, could be borrowed. In this manner questionable search and seizure practices by police can be controlled and curbed without failing to prosecute and convict guilty criminals.

President Bush's proposal for an "inclusionary rule" also supports this line of reasoning. The Bush bill suggests that officers be directly punished when they violate fourth amendment rights instead of allowing the guilty to go free.

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[11] Morris, Clarence. "Punitive Damages In Tort Cases," 44 Harvard Law Review. 1173, 1180-81, 1931.

[12] Spiotto, James E. "Search and Seizure: An Empirical Study of the Exclusionary Rule and Its Alternatives," Journal of Legal Studies, Vol. 2, No. 1, 1973.

VIII. CONCLUSION

Many citizens fear that without an exclusionary rule their right to be protected against illegal search and seizure will be null and void. This is not the case. Citizen rights against unreasonable search and seizure can be more efficiently protected by repealing the exclusionary rule and instead implementing superior remedies.

IX. SUGGESTIONS FOR FUTURE RESEARCH

The data available to conduct this study are far from optimal. Several variables are unpublished for the years involved, and compromises had to be made. For instance, it is not politically popular to publish the average sentence served by a criminal when for the most part it is a mere fraction of his sentenced time. Also variables such as unemployment rates are not published annually by state. If these numbers were available, they would greatly increase the accuracy of the estimates. Another helpful endeavor would compare the Mapp v Ohio ruling and other Warren court rulings in order to isolate the exact effect of the exclusionary rule on crime rates, as well as measure the costs of these other rulings. Additionally, a study of the exclusionary rule in deterring police misconduct could be compared to this study to evaluate the costs of the exclusionary rule in terms of additional crime versus the benefits in terms of fewer unreasonable searches.

APPENDIX A

	NONEXCLUSIONARY STATES		EXCLUSIONARY STATES
2,50	Arizona	1,49	Alabama
3,51	Arkansas	4,52	California
5,53	Colorado	7,55	Delaware
6,54	Conneticut	8,56	Florida
9,57	Georgia	10,58	Idaho
13,61	Iowa	11,59	Illinois
14,62	Kansas	12,60	Indiana
16,64	Louisiana	15,63	Kentucky
17,65	Maine	18,66	Maryland
19,67	Massachusetts	20,68	Michigan
21,69	Minnesota	22,70	Mississippi
25,73	Nebraska	23,71	Missouri
26,74	Nevada	24,72	Montana
27,75	New Hampshire	31,79	North Carolina
28,76	New Jersey	34,82	Oklahoma
29,77	New Mexico	35,83	Oregon
30,78	New York	37,85	Rhode Island
32,80	North Dakota	39,87	South Dakota
33,81	Ohio	40,88	Tennessee
36,84	Pennsylvania	41,89	Texas
38,86	South Carolina	45,93	Washington
42,90	Utah	46,94	West Virginia
43,91	Vermont	47,95	Wisconsin
44,92	Virginia	48,96	Wyoming

APPENDIX B

SOURCES OF VARIABLES

CRIME RATES:

Total crime rates and individual crime rates are published by state in the FBI Uniform Crime Reports. Means for the 1950's, 1957-1960, are calculated from "Table 2.-Index of Crime by State, 1957," and "Table 3.-Index of Crime by State, 1959," FBI Uniform Crime Reports. Means for the 1960's, 1962-64, are calculated from "Table 2.-Index of Crime by State, 1961," and "Table 3-Index of Crime by State, 1963," FBI Uniform Crime Reports. Total offenses are based on all reporting agencies and estimated for unreported areas.

% MALES AGE 15-24:

The number of males age 15-24 per state is only published for census years; therefore, it is necessary to take the mean number of males age 15-24 for a 1950's and 1960's estimate. This data is published in Statistical Abstract. The percentage of the population male age 15-24 for the 1950's regression is an average of the numbers found in "No. 24. Population, by Age, by State and for Puerto Rico: 1950," Statistical Abstract, 1959, and "No. 20. Population, by Sex and Age-States and Puerto Rico: 1960," Statistical Abstract, 1966. The source of the 1960's mean is the above mentioned chart along with "No. 24. Population, by age-

States: 1970", Statistical Abstract, 1971.

PER CAPITA INCOME:

Per capita income is a measure of current income received from all sources during the calendar year by residents of each state. It excludes payments to military and civilian workers outside of the U.S. Per capita income is published yearly in Statistical Abstract. The value of per capita income for the 1950's regression is a mean of the values published in "No. 419. Personal Income, by States: 1929 to 1959," Statistical Abstract, 1961 and "No. 441. Personal Income, by States: 1929 to 1961," Statistical Abstract, 1963. The value of per capita income for the 1960's regression is a mean of the values published in "No. 458. Personal Income, 1940 to 1963, and Rank Order, 1963, by States," Statistical Abstract, 1964, and "No. 464. Personal Income, 1950 to 1965, and Rank Order, 1965, by States," Statistical Abstract, 1966.

PROBABILITY OF IMPRISONMENT:

Admissions to prison for individual crime rates by state are not published annually; therefore, admissions to prison for individual crime rates for the 1950's regression are the values taken from "Table 3-Offense by State: 1960," National Prisoner Statistics, 1961. Values for the 1960's regression are taken from "Table A2.-Offenses of Court Commitments with Sentence of 1 Year of Longer, by State: 1964," National Prisoner Statistics, 1965. 1965. Admissions to prison for total crime are available from "No. 232. Federal and State Prisons- Prisoners Present and Prisoners

Received, by State: 1950 to 1964, Statistical Abstract, for the 1950's regression and "No. 197 Federal and State Prisons-Prisoners Received, by State: 1950 to 1958," Statistical Abstract, for the 1960's regression.

Total crime per state is published in the same charts as crime rates per state, FBI Uniform Crime Reports. Total crime means for the 1950's are a combination of 1957 to 1960 data, whereas the 1960's means are a combination of 1962 to 1964 data.

Probability of imprisonment is the ratio of admissions to prison to total crime.

% RURAL:

The percentage of a state population that resides in rural areas is available for all the years involved in the study. The values of this variable are the calculated means for 1957-60 and 1962-64 respectively. This information is published in "Table 2-Index of Crime by State, 1958,1959," FBI Uniform Crime Reports., and "Table 3-Index of Crime by State, 1962,1963," FBI Uniform Crime Reports.

UNEMPLOYMENT RATES:

Unemployment rates are only published by states for census years. Thus, an average of the 1950 and 1960 unemployment rates was used to generate the value of URATE for the 1950's regression. Similarly, an average of the 1960 and 1970 unemployment rates was used to generate the value for URATE for the 1960's. The unemployment rates by state for census years is published in

Statistical Abstract. They are located in "No. 260.-Employment Status of the Population, by Sex, by State and Other areas: 1950," Statistical Abstract, 1958, "No. 268.-Employment Status, by Sex, by Region, Divisons, and States: 1960," Statistical Abstract, 1965, and "No. 337.-Unemployment-States: 1968 to 1970," Statistical Abstract, 1971.

POLICE PER 10,000 POPULATION:

The number of police per 10,000 population is published annually in Statistical Abstracts. The values for the police variable are in "No. 540.-Employment of State and Local Government in Relation to Population, for Selected Functions, by State: 1959," Statistical Abstracts, 1960, and "No. 581.-Employment of State and Local Government in Relation to Population, for Selected Functions, by State: 1963," Statistical Abstracts, 1964.

ERULE:

The presence of the exclusionary rule is denoted by a value of one in the regression equation; the lack of an exclusionary rule is denoted by a value of zero in the regression equation. The source of this information is Elkins v United States 364 U.S. 206(1960).

APPENDIX C

DATA AND REGRESSION RESULTS

CRMRT = Total crime rates per 100,000; defined by the FBI Uniform Crime Reports as the seven major felony crimes.

CRMUR = Murder rates per 100,000.

CRAST = Assault rates per 100,000.

CRBUG = Burglary rates per 100,000.

MALES = % of the population male ages 15-24.

PCINC = Per capita income.

PROB = Probability of imprisonment for total crime rates.

PROBMU = Probability of imprisonment for commiting murder.

PROBAS = Probability of imprisonment for commiting assault.

PROBBU = Probability of imprisonment for commiting burglary.

RURAL = % of the population living in rural areas.

URATE = Unemployment rate

POLICE = Number of police per 10,000 population

ERULE = Exclusionary rule

obs	DRAFT	MALE	PRINC	PROB	RURAL	URATE	POLICE	ERULE
1	709.9500	7.700000	1389.500	10.58818	46.10000	4.950000	12.85000	1.000000
2	1544.900	7.150000	1947.000	4.148630	18.35000	5.250000	16.10000	0.000000
3	570.9500	7.310000	1861.200	3.096466	53.65000	7.000000	10.40000	0.000000
4	1650.700	6.620000	2421.000	2.095249	9.100000	4.100000	21.50000	1.000000
5	1176.750	7.630000	2079.300	0.419103	28.95000	5.000000	16.28000	0.000000
6	644.7500	6.230000	2638.500	4.755148	9.450000	3.850000	28.55000	0.000000
7	984.7000	6.600000	2876.000	5.779753	23.80000	4.750000	15.98000	1.000000
8	1416.500	6.670000	1914.000	4.691702	22.95000	3.950000	19.75000	1.000000
9	830.0000	7.770000	1523.300	7.807349	37.90000	5.600000	13.65000	0.000000
10	649.4000	7.340000	1725.300	6.503335	56.15000	3.650000	15.40000	1.000000
11	1050.180	6.460000	2532.300	3.590129	13.75000	3.300000	19.60000	1.000000
12	798.0500	6.920000	2080.300	3.389155	30.40000	3.100000	16.73000	1.000000
13	460.3500	6.760000	1917.800	6.308828	42.30000	4.300000	12.78000	0.000000
14	691.3500	6.940000	1970.500	7.020617	35.00000	5.350000	13.45000	0.000000
15	730.3000	7.490000	1454.000	7.388925	51.10000	7.650000	12.75000	1.000000
16	806.3500	7.740000	1584.000	6.409671	37.60000	4.700000	18.55000	0.000000
17	475.4000	7.180000	1754.000	9.579781	40.25000	5.000000	13.73000	0.000000
18	900.6800	6.760000	2284.300	15.68259	16.90000	6.150000	22.58000	1.000000
19	740.5300	6.480000	2425.000	9.653831	1.550000	4.250000	27.58000	0.000000
20	1076.480	6.850000	2214.300	4.460850	17.95000	4.450000	19.28000	1.000000
21	614.4800	6.790000	1950.000	3.488614	34.85000	3.700000	12.30000	0.000000
22	383.1800	7.830000	1090.800	9.381636	63.45000	5.950000	11.75000	1.000000
23	1005.330	6.610000	2088.000	4.316659	27.35000	3.650000	17.75000	1.000000
24	835.1500	6.780000	1945.800	7.854266	51.70000	6.450000	14.70000	1.000000
25	448.3300	6.960000	1961.500	10.79836	43.55000	5.450000	13.13000	0.000000
26	1803.120	6.950000	2402.300	4.695438	29.50000	4.850000	27.25000	0.000000
27	391.8800	6.690000	1958.500	2.861271	34.00000	5.650000	15.10000	0.000000
28	855.5500	6.190000	2578.000	4.250082	5.900000	3.600000	25.80000	0.000000
29	1201.680	8.170000	1786.800	4.744677	36.25000	3.900000	13.88000	0.000000
30	954.4700	6.200000	2661.300	8.087783	8.600000	4.700000	29.03000	0.000000
31	765.3600	8.350000	1440.600	9.040405	54.95000	4.950000	11.58000	1.000000
32	389.7800	7.540000	1606.000	6.620626	57.10000	4.100000	11.35000	0.000000
33	692.5500	6.580000	2276.000	3.937614	18.75000	6.250000	15.38000	0.000000
34	949.2000	7.170000	1755.300	6.535029	32.25000	5.800000	14.46000	1.000000
35	816.5300	6.580000	2095.000	5.456223	31.90000	6.250000	17.36000	1.000000
36	649.3000	6.630000	2184.800	3.157672	11.20000	3.750000	18.08000	0.000000
37	1074.260	7.110000	2071.500	1.332386	7.000000	3.450000	23.60000	1.000000
38	748.7300	8.410000	1279.000	5.513593	48.30000	4.550000	12.38000	0.000000
39	525.7000	7.360000	1638.500	9.886746	57.60000	4.200000	10.48000	1.000000
40	799.5000	7.610000	1475.500	4.093572	40.35000	4.650000	12.73000	1.000000
41	1044.380	7.560000	1858.300	4.887206	21.95000	5.000000	14.55000	1.000000
42	869.1000	7.950000	1815.500	2.895782	20.55000	4.050000	13.95000	0.000000
43	484.8500	7.170000	1780.000	14.00346	59.65000	6.650000	12.95000	0.000000
44	806.7000	8.360000	1750.000	6.566346	38.75000	6.550000	13.38000	0.000000
45	988.6800	6.960000	2217.500	3.827178	28.85000	3.400000	16.83000	1.000000
46	428.1000	7.540000	1596.500	7.818519	49.05000	4.700000	10.33000	1.000000
47	484.7700	6.730000	2036.500	7.203810	31.30000	3.400000	16.98000	1.000000
48	835.4000	7.190000	2182.300	10.47547	40.30000	4.700000	16.35000	1.000000

obs	crmrt	male	pcinc	prob	rural	urbrte	police	crclr
49	997.1666	7.950000	1664.333	7.403991	34.46666	5.100000	12.50000	1.000000
50	1434.800	8.130000	2190.000	6.383685	15.50000	4.750000	16.50000	1.000000
51	668.5000	7.560000	1609.667	8.084894	50.20000	5.350000	10.00000	1.000000
52	3199.467	7.190000	2939.000	1.371200	7.633333	6.200000	19.50000	1.000000
53	1525.133	8.160000	2495.666	8.545504	15.86666	4.100000	15.50000	1.000000
54	961.7999	8.720000	3168.666	3.287150	8.500000	4.150000	18.50000	1.000000
55	1195.167	7.340000	3176.000	3.854170	35.13333	4.300000	16.50000	1.000000
56	1039.000	8.970000	2158.666	8.430677	19.86666	4.400000	19.50000	1.000000
57	1119.333	8.190000	1872.333	6.359579	37.13333	3.850000	13.00000	1.000000
58	825.2000	9.020001	1986.667	4.415688	51.03330	5.450000	14.00000	1.000000
59	1677.933	7.140000	2950.333	1.438299	12.40000	4.100000	21.00000	1.000000
60	1069.367	7.630000	2479.000	8.504804	26.83333	4.150000	14.00000	1.000000
61	590.4666	7.200000	2282.667	5.224654	40.90000	3.350000	15.00000	1.000000
62	817.1666	7.740000	2328.333	5.900537	33.30000	3.800000	18.00000	1.000000
63	944.9333	8.120000	1799.333	5.291845	48.76666	5.300000	12.50000	1.000000
64	1008.033	8.010000	1801.667	5.072676	38.60000	5.750000	16.50000	1.000000
65	578.8333	7.540000	2020.333	8.316468	35.06666	5.250000	11.50000	1.000000
66	1238.533	7.350000	2753.666	10.99027	14.73333	4.000000	23.00000	1.000000
67	1179.100	7.200000	2835.666	1.540440	0.833333	4.000000	22.50000	1.000000
68	1391.267	7.530000	2568.000	9.456250	16.00000	6.400000	17.00000	1.000000
69	927.3000	7.580000	2329.666	1.735979	32.33330	4.600000	12.50000	1.000000
70	487.2000	8.170000	1389.333	7.726185	38.56666	5.200000	11.00000	1.000000
71	1391.066	7.210000	2456.666	3.970253	27.46667	4.150000	19.00000	1.000000
72	1063.933	7.730000	2242.333	5.281947	47.50000	6.500000	16.50000	1.000000
73	665.0330	7.480000	2322.666	8.145140	39.63333	2.900000	18.50000	1.000000
74	2741.300	7.600000	3267.000	2.455806	16.53333	5.600000	27.50000	1.000000
75	533.5000	7.420000	2333.667	2.545063	29.43333	3.900000	14.00000	1.000000
76	1240.633	6.690000	2947.333	2.983718	5.133333	4.200000	23.00000	1.000000
77	1319.233	8.420000	1977.666	8.640316	31.03333	5.200000	13.00000	1.000000
78	1330.733	6.790000	3016.667	2.287205	8.033330	4.600000	26.00000	1.000000
79	813.4333	8.670000	1822.666	6.308984	53.33333	3.950000	12.00000	1.000000
80	478.7666	8.340000	2128.000	4.791676	60.13333	5.100000	11.00000	1.000000
81	886.8999	7.340000	1705.666	4.118221	15.53333	4.750000	14.00000	1.000000
82	1109.000	7.760000	1993.000	6.303148	30.46667	4.300000	12.50000	1.000000
83	1167.833	7.490000	2502.666	4.511146	27.93333	6.500000	16.00000	1.000000
84	773.7333	6.970000	2465.333	2.495712	13.10000	4.950000	18.00000	1.000000
85	1260.700	7.810000	2481.666	1.141899	3.433333	4.650000	19.00000	1.000000
86	1082.067	9.010000	1602.666	4.375074	46.50000	3.950000	12.00000	1.000000
87	599.2000	7.810000	1930.666	8.927108	55.03333	3.900000	10.50000	1.000000
88	1012.333	7.910000	1784.000	3.386736	36.96666	4.800000	12.00000	1.000000
89	1247.000	8.040000	2103.000	4.442532	19.46666	4.050000	14.00000	1.000000
90	979.3350	8.820000	2159.666	6.354064	16.26666	4.650000	13.00000	1.000000
91	827.9669	7.850000	2162.666	10.44918	53.56666	3.800000	11.00000	1.000000
92	978.9333	8.310000	2101.333	4.305187	36.06666	3.600000	12.00000	1.000000
93	1170.600	7.930000	2552.666	3.105410	20.53333	7.250000	14.00000	1.000000
94	489.5666	7.860000	1854.333	8.282403	51.13333	6.700000	11.00000	1.000000
95	607.5000	7.460000	2395.666	5.794057	30.13333	3.950000	16.50000	1.000000
96	860.6333	7.560000	2458.000	6.868944	29.93333	4.950000	17.00001	1.000000

obs	CRIMUR	MALE	POPNO	PROBPI	RURAL	UNATE	POLICE	ERULE
1	12.87500	7.700000	1359.500	30.62086	40.10000	4.950000	13.55000	1.000000
2	5.884990	7.130000	1947.000	88.97697	18.85000	5.850000	14.10000	0.000000
3	3.500000	7.010000	1241.200	17.12516	53.65000	7.000000	10.40000	0.000000
4	3.600000	6.620000	2681.000	11.74275	8.100000	4.100000	21.40000	1.000000
5	4.050000	7.230000	2076.300	28.60645	22.45000	5.000000	16.85000	0.000000
6	1.800000	6.231000	3998.500	10.25541	7.450000	2.800000	22.70000	0.000000
7	4.974990	6.800000	3876.000	31.81816	25.80000	4.750000	15.95000	1.000000
8	11.17500	8.470000	1914.000	12.05439	22.65000	3.950000	19.75000	1.000000
9	10.80750	7.771000	1535.300	11.17744	37.30000	5.600000	13.65000	0.000000
10	8.300000	7.840000	1725.500	NA	41.15000	3.650000	15.40000	1.000000
11	4.475000	6.440000	3852.300	17.49345	13.75000	3.500000	19.60000	1.000000
12	3.600000	6.920000	2950.300	8.388282	31.40000	3.100000	16.70000	1.000000
13	1.050000	6.740000	1917.800	77.81078	45.30000	4.500000	13.70000	0.000000
14	2.750000	6.960000	1970.500	10.85641	35.60000	3.250000	12.45000	0.000000
15	6.187500	7.690000	1454.000	11.74900	51.10000	7.650000	18.75000	1.000000
16	6.775000	7.740000	1584.000	15.40837	37.60000	4.700000	15.55000	1.000000
17	1.850000	7.130000	1754.000	28.37143	40.25000	5.000000	13.70000	0.000000
18	5.050000	6.960000	2284.300	17.10526	16.90000	6.150000	22.58000	1.000000
19	1.350000	6.490000	2422.000	17.91045	1.550000	4.250000	27.58000	0.000000
20	3.700000	6.850000	2814.300	19.03114	17.95000	4.450000	19.88000	1.000000
21	1.800000	6.790000	1950.000	47.50497	34.85000	3.700000	18.30000	0.000000
22	9.775000	7.930000	1090.500	86.70586	63.45000	5.950000	11.75000	1.000000
23	3.100000	6.610000	2068.000	19.81567	29.35000	3.650000	17.75000	1.000000
24	3.350000	6.980000	1945.800	40.00000	51.70000	6.450000	14.70000	1.000000
25	3.500000	6.760000	1961.500	19.58048	40.55000	5.450000	13.13000	0.000000
26	8.875000	6.950000	2402.300	49.48454	29.50000	4.350000	27.25000	0.000000
27	1.850000	6.690000	1958.500	37.50000	34.00000	5.650000	15.10000	0.000000
28	9.475000	6.190000	2578.000	NA	5.900000	3.600000	25.80000	0.000000
29	5.625000	8.170000	1786.800	13.86139	26.25000	3.900000	13.88000	0.000000
30	2.600000	6.200000	3661.300	6.090266	8.600000	4.700000	29.03000	0.000000
31	9.550000	8.350000	1440.800	36.15295	54.95000	4.950000	11.58000	1.000000
32	0.700000	7.840000	1606.000	66.66666	57.10000	4.100000	11.33000	0.000000
33	3.300000	6.580000	2276.000	22.68371	18.75000	6.250000	15.38000	0.000000
34	6.624999	7.070000	1755.300	15.13158	32.25000	5.600000	14.48000	1.000000
35	2.400000	6.580000	2095.000	16.37427	31.90000	6.250000	17.38000	1.000000
36	2.550000	6.630000	2184.800	17.84777	11.30000	3.750000	18.08000	0.000000
37	0.950000	7.110000	2071.800	72.72727	7.000000	3.450000	23.80000	1.000000
38	11.20000	8.410000	1279.000	11.63227	48.50000	4.550000	12.38000	0.000000
39	1.800000	7.360000	1638.500	16.32653	57.60000	4.200000	10.48000	1.000000
40	8.274990	7.610000	1475.500	15.86207	40.35000	4.650000	12.73000	1.000000
41	8.800000	7.560000	1858.300	29.17420	21.95000	5.000000	14.55000	1.000000
42	1.125000	7.950000	1815.500	30.76923	20.55000	4.050000	13.95000	0.000000
43	1.675000	7.170000	1780.000	NA	59.65000	6.650000	12.95000	0.000000
44	8.675000	8.360000	1730.000	30.08850	38.75000	6.550000	13.33000	0.000000
45	1.925000	6.960000	2217.500	55.04587	22.85000	3.400000	16.63000	1.000000
46	4.575000	7.540000	1596.300	24.00000	49.05000	4.700000	10.33000	1.000000
47	1.125000	6.730000	2036.500	15.73034	31.30000	3.400000	16.98000	1.000000
48	4.150000	7.790000	2082.300	NA	40.30000	4.700000	16.35000	1.000000

obs	GROUP	MALE	POINC	PROBNO	RURAL	URATE	POLICE	CRULE
49	9.750000	7.950000	1664.333	81.40244	34.46666	5.100000	18.50000	1.000000
50	5.599999	8.020001	2190.000	58.40909	15.80000	4.750000	16.50000	1.000001
51	7.500000	7.360000	1609.667	85.21127	50.20000	5.850000	10.00000	1.000000
52	8.949999	7.690000	2989.000	86.21656	7.633333	6.300000	19.50000	1.000000
53	4.500000	8.160000	2495.666	84.09091	18.86666	4.100000	15.50000	1.000000
54	1.800000	6.920000	3163.666	80.41667	8.500000	4.050000	16.50000	1.000000
55	4.450000	7.840000	3176.000	51.16279	25.13333	4.200000	16.50000	1.000000
56	8.400000	6.970000	3156.666	42.43697	19.86666	4.400000	19.50000	1.000000
57	10.55000	5.390000	1872.333	63.15789	37.13333	8.850000	13.00000	1.000000
58	8.250000	8.020001	1986.667	26.08696	51.06330	5.450000	14.00000	1.000000
59	5.300000	7.140000	2950.333	38.78146	12.40000	4.100000	21.00000	1.000000
60	2.850000	7.630000	2479.000	43.79562	26.83333	4.150000	14.00000	1.000000
61	1.300000	7.300000	2882.667	74.28571	40.80000	3.350000	12.00000	1.000000
62	3.000000	7.740000	2826.333	56.06061	33.60000	3.800000	13.00000	1.000000
63	5.899999	8.120000	1799.333	61.90476	48.76666	5.300000	12.50000	1.000000
64	7.600000	8.010000	1801.667	50.19157	33.60000	5.750000	16.50000	1.000000
65	1.700000	7.540000	2020.333	47.05882	35.06666	5.350000	11.50000	1.000000
66	6.500000	7.350000	2753.666	45.87156	14.73333	4.000000	23.00000	1.000000
67	1.950000	7.200000	3225.666	55.33981	9.833333	4.000000	22.50000	1.000000
68	3.300000	7.350000	2568.000	45.89552	16.00000	6.400000	17.00000	1.000000
69	1.300000	7.520000	3329.666	52.17391	32.33330	4.600000	12.50000	1.000000
70	8.650000	8.170000	1389.333	48.32494	58.56666	5.200000	11.00000	1.000000
71	5.300000	7.210000	2456.666	29.37365	27.46667	4.150000	18.00000	1.000000
72	2.350000	7.730000	2242.333	30.30303	47.30000	6.500000	16.50000	1.000000
73	3.150000	7.480000	2822.666	57.14286	39.63333	3.900000	13.50000	1.000000
74	7.850000	7.600000	3267.000	39.34426	16.53333	5.800000	27.50000	1.000000
75	8.050000	7.420000	2333.667	7.692308	28.43333	3.900000	14.00000	1.000000
76	8.949999	6.690000	2947.333	NA	5.133333	4.200000	22.00000	1.000000
77	5.400000	8.420000	1977.666	49.54128	31.03333	5.500000	13.00000	1.000000
78	4.300000	6.790000	3016.667	47.33420	8.033330	4.600000	25.00000	1.000000
79	7.700000	8.670000	1822.666	70.90663	53.33333	3.950000	12.00000	1.000000
80	1.499999	8.340000	2128.000	42.10526	60.13333	5.100000	11.00000	1.000000
81	3.250000	7.340000	1705.666	45.42683	15.53333	4.750000	14.00000	1.000000
82	4.849999	7.760000	1993.000	47.69875	30.46667	4.300000	12.50000	1.000000
83	8.400000	7.480000	2502.666	31.46067	27.96333	6.500000	15.00000	1.000000
84	2.800000	6.970000	2465.333	35.40373	13.10000	4.950000	18.00000	1.000000
85	1.300000	7.610000	2481.666	76.26087	3.433333	4.650000	19.00000	1.000000
86	9.050000	9.010000	1602.666	36.04396	46.50000	3.950000	12.00000	1.000000
87	1.250000	7.810000	1930.666	66.66666	55.03333	3.900000	10.50000	1.000000
88	6.200000	7.910000	1784.000	44.82759	36.96666	4.500000	12.00000	1.000000
89	7.400000	8.040000	2103.000	30.92917	19.46666	4.050000	14.00000	1.000000
90	1.950000	8.820000	2159.666	41.02564	16.26666	4.650000	13.00000	1.000000
91	0.500000	7.850000	2182.666	0.000000	53.56666	3.800000	11.00000	1.000000
92	6.300000	8.510000	2101.333	49.08425	36.06666	3.600000	12.00000	1.000000
93	2.450000	7.930000	2552.666	48.64865	20.53333	7.250000	14.00000	1.000000
94	4.500000	7.660000	1854.333	27.16049	51.13333	6.700000	11.00000	1.000000
95	1.600000	7.460000	2395.666	38.46154	30.13333	3.950000	16.50000	1.000000
96	4.350000	7.360000	2453.000	38.70968	39.93333	4.950000	17.00000	1.000000

obs	DP4ST	MALE	POINC	PROBAS	RURAL	URATE	POLICE	ERULE
1	109.2250	7.700000	1389.500	3.696540	40.10000	4.950000	12.55000	1.000000
2	105.5750	7.130000	1947.000	6.058222	19.05000	5.850000	16.13000	0.000000
3	58.62501	7.210000	1261.800	2.784446	53.65000	7.000000	10.43000	0.000000
4	111.4500	6.620000	2621.000	0.891996	8.100000	4.100000	21.90000	1.000000
5	37.00000	7.230000	2079.300	4.716981	23.95000	5.000000	16.28000	0.000000
6	20.62500	6.230000	2833.500	9.528809	9.450000	3.950000	22.55000	0.000000
7	20.47500	6.600000	2876.000	19.78022	25.80000	4.750000	15.99000	1.000000
8	114.9250	6.670000	1914.000	4.440890	22.85000	3.950000	19.75000	1.000000
9	102.7250	7.770000	1533.300	4.211588	37.00000	5.600000	13.85000	0.000000
10	16.47500	7.340000	1725.300	7.356332	56.15000	8.650000	15.40000	1.000000
11	73.20000	6.460000	2532.300	0.493997	13.75000	3.500000	19.60000	1.000000
12	31.60000	6.920000	2090.300	1.649768	30.40000	3.100000	16.73000	1.000000
13	7.399000	6.760000	1917.800	18.53658	42.30000	4.800000	12.78000	0.000000
14	28.77500	6.960000	1970.500	8.248071	35.00000	5.850000	13.45000	0.000000
15	46.55000	7.680000	1454.000	5.364390	51.10000	7.650000	12.75000	1.000000
16	62.52500	7.740000	1584.000	3.786444	37.60000	4.700000	15.55000	0.000000
17	10.55000	7.130000	1754.000	35.55556	40.25000	5.000000	13.73000	0.000000
18	93.97500	6.960000	2284.300	16.23826	16.90000	6.150000	22.58000	1.000000
19	17.75000	6.480000	3432.000	5.963432	1.550000	4.250000	27.56000	0.000000
20	85.07500	6.850000	2214.300	2.157188	17.75000	4.450000	19.28000	1.000000
21	7.525000	6.790000	1950.000	9.448819	34.85000	3.700000	12.30000	0.000000
22	64.77500	7.830000	1690.800	5.116362	63.45000	5.950000	11.75000	1.000000
23	72.55000	6.610000	2088.000	1.934080	29.35000	2.650000	17.75000	1.000000
24	19.82500	6.980000	1943.200	13.10212	51.70000	6.450000	14.70000	1.000000
25	14.57500	6.960000	1961.500	9.167672	43.55000	5.450000	13.13000	0.000000
26	50.07500	6.950000	2402.300	5.128205	29.50000	4.850000	27.25000	0.000000
27	4.625000	6.690000	1958.500	29.09091	84.00000	7.650000	15.10000	0.000000
28	52.77500	6.190000	2578.000	NA	5.700000	5.600000	25.80000	0.000000
29	62.37500	8.170000	1796.900	8.674589	34.25000	3.900000	13.88000	0.000000
30	73.95000	6.200000	2661.300	3.334908	8.600000	4.700000	39.03000	0.000000
31	183.7500	8.350000	1440.800	1.707654	54.95000	4.950000	11.58000	1.000000
32	5.925000	7.840000	1606.000	15.78947	57.10000	4.100000	11.33000	0.000000
33	32.42500	6.580000	2276.000	3.515339	18.75000	6.250000	15.38000	0.000000
34	39.00000	7.070000	1755.300	4.943949	32.25000	5.800000	14.48000	1.000000
35	80.22500	6.580000	2095.000	5.890603	31.90000	6.250000	17.38000	1.000000
36	49.67500	6.630000	2184.800	1.387387	11.30000	3.750000	18.08000	0.000000
37	22.90000	7.110000	2071.800	3.053435	7.000000	3.450000	23.80000	1.000000
38	102.2000	8.410000	1279.000	3.458213	48.50000	4.350000	12.38000	0.000000
39	16.20000	7.360000	1638.500	9.865471	57.60000	4.200000	10.49000	1.000000
40	59.07500	7.610000	1475.500	2.904163	40.35000	4.650000	12.78000	1.000000
41	105.6250	7.560000	1858.300	1.016045	21.95000	5.000000	14.55000	1.000000
42	24.67500	7.950000	1815.500	6.374502	20.55000	4.050000	13.95000	0.000000
43	8.249900	7.170000	1780.000	34.28571	59.65000	6.550000	12.95000	0.000000
44	107.9500	8.360000	1750.000	6.689201	38.75000	6.550000	13.33000	0.000000
45	14.22500	6.960000	2217.500	11.33501	22.85000	3.400000	16.83000	1.000000
46	32.30000	7.540000	1596.500	4.545455	49.05000	4.700000	10.38000	1.000000
47	14.15000	6.730000	2036.500	9.739504	31.30000	3.400000	16.98000	1.000000
48	32.15000	7.760000	2062.300	4.796163	40.30000	4.700000	16.35000	1.000000

obs	DRAFT	MALE	POINT	PROBAB	RURAL	URATE	POLICE	RULE
49	186.3500	7.950000	1664.833	1.454466	34.46666	5.100000	12.50000	1.000000
50	116.0500	8.020000	2190.000	3.011364	15.80000	4.750000	16.50000	1.000000
51	70.45000	7.560000	1809.667	8.540157	30.20000	5.850000	10.00000	1.000000
52	131.6500	7.690000	2989.000	1.409060	7.633333	6.200000	19.50000	1.000000
53	88.15000	5.160000	8495.666	3.829584	18.86666	4.100000	13.50000	1.000000
54	83.95000	6.720000	3163.666	7.679827	6.300000	4.050000	16.50000	1.000000
55	90.45000	7.340000	3176.300	12.66667	25.13333	4.800000	16.50000	1.000000
56	135.0500	6.970000	2156.666	2.461739	19.86666	4.400000	19.50000	1.000000
57	108.2500	8.090000	1872.333	4.265358	37.13333	3.850000	13.00000	1.000000
58	44.00000	8.020001	1986.667	2.926829	31.03330	5.450000	14.00000	1.000000
59	135.2000	7.140000	2950.333	9.557544	12.40000	4.100000	21.00000	1.000000
60	48.44999	7.630000	2479.000	1.945946	26.53333	4.150000	14.00000	1.000000
61	19.85000	7.300000	2282.667	6.788512	40.80000	3.350000	12.00000	1.000000
62	53.29999	7.740000	2328.333	3.202697	33.80000	3.800000	13.00000	1.000000
63	51.30000	8.120000	1799.333	4.169260	48.76666	5.200000	12.50000	1.000000
64	107.3000	8.010000	1801.667	1.812771	33.60000	5.750000	16.50000	1.000000
65	18.34999	7.540000	2120.333	84.19355	35.06666	5.350000	11.50000	1.000000
66	102.0000	7.550000	2753.666	14.20067	14.73333	4.000000	23.00000	1.000000
67	35.00000	7.200000	2825.666	3.352857	0.833333	4.300000	22.50000	1.000000
68	104.1000	7.650000	2568.000	2.429054	16.00000	6.400000	17.00000	1.000000
69	24.45000	7.520000	2329.666	2.093023	32.83330	4.600000	12.50000	1.000000
70	38.84999	8.170000	1389.333	2.829956	56.56666	5.200000	11.00000	1.000000
71	95.45000	7.210000	2456.666	1.582354	27.46667	4.150000	18.00000	1.000000
72	84.54999	7.730000	2242.333	6.967213	47.50000	6.500000	16.50000	1.000000
73	18.20000	7.480000	2322.666	8.664260	39.63333	3.900000	13.50000	1.000000
74	86.10000	7.600000	3267.000	3.259982	16.53333	5.800000	27.50000	1.000000
75	11.40000	7.420000	2333.667	5.479452	28.43333	3.900000	14.00000	1.000000
76	95.20000	6.690000	2947.333	NA	5.133333	4.800000	23.00000	1.000000
77	92.30000	8.420000	1977.666	1.815870	31.03333	5.800000	13.00000	1.000000
78	95.20000	6.790000	3016.667	2.870531	8.033330	4.600000	26.00000	1.000000
79	192.9000	8.670000	1822.666	1.120730	53.33333	3.950000	13.00000	1.000000
80	16.25000	6.340000	2129.000	4.807693	60.13333	5.100000	11.00000	1.000000
81	46.50000	7.340000	1705.666	8.376155	15.53333	4.750000	14.00000	1.000000
82	71.34999	7.760000	1993.000	3.794959	30.46667	4.300000	12.50000	1.000000
83	45.04999	7.480000	2502.666	6.386826	27.93333	6.500000	16.00000	1.000000
84	57.29000	6.970000	2465.333	1.021186	13.10000	4.950000	18.00000	1.000000
85	38.59999	7.810000	2481.666	1.726619	3.433333	4.650000	19.00000	1.000000
86	124.0000	9.010000	1602.666	3.106983	46.50000	3.950000	12.00000	1.000000
87	20.05000	7.810000	1930.666	10.52632	55.03333	3.900000	10.50000	1.000000
88	67.15000	7.910000	1784.000	2.148282	36.96666	4.800000	12.00000	1.000000
89	121.4000	8.040000	2103.000	0.826611	19.46666	4.050000	14.00000	1.000000
90	39.55000	8.820000	2159.666	1.278772	16.26666	4.650000	13.00000	1.000000
91	9.949999	7.650000	2162.666	42.50000	58.56666	3.800000	11.00000	1.000000
92	123.6000	8.510000	2101.333	3.621170	34.06666	3.600000	12.00000	1.000000
93	35.55000	7.930000	2552.666	5.049089	20.53333	7.250000	14.00000	1.000000
94	36.95000	7.660000	1854.333	3.330610	51.13333	6.700000	11.00000	1.000000
95	18.90000	7.460000	2395.666	5.463976	30.13333	3.950000	16.50000	1.000000
96	86.34999	7.860000	2453.000	0.808213	39.96333	4.950000	17.00000	1.000000

Obs	CRIME	MALE	POPC	PROBBU	RURAL	UNEMP	POLICE	CRIME
1	305.3500	7.700000	1387.500	6.003758	40.10000	4.950000	18.55000	1.000000
2	617.1750	7.130000	1947.000	2.310383	19.35000	5.350000	16.10000	0.000000
3	673.5250	7.310000	1861.800	6.670441	53.65000	7.000000	10.40000	0.000000
4	787.5000	6.620000	2621.000	0.765151	8.100000	4.100000	21.90000	1.000000
5	593.7750	7.230000	2079.300	3.420289	23.95000	5.000000	16.20000	0.000000
6	695.0000	6.220000	2833.500	2.415735	9.450000	3.850000	22.55000	0.000000
7	448.9750	6.600000	2876.000	4.204204	25.80000	4.750000	15.95000	1.000000
8	705.0250	6.670000	1914.000	2.299242	22.85000	3.950000	19.75000	1.000000
9	366.4750	7.770000	1523.300	6.168831	37.00000	5.600000	13.85000	0.000000
10	868.1500	7.340000	1725.300	3.504935	56.15000	3.650000	15.40000	1.000000
11	392.8250	6.460000	2532.300	1.631724	18.75000	3.500000	19.60000	1.000000
12	386.1750	6.920000	2080.300	2.009259	30.40000	5.100000	16.70000	1.000000
13	823.6500	6.760000	1917.800	2.315040	42.30000	4.800000	12.70000	0.000000
14	329.6499	6.940000	1970.500	3.420556	35.00000	5.350000	13.45000	0.000000
15	325.4250	7.680000	1454.000	4.566118	51.10000	7.650000	12.75000	1.000000
16	306.0000	7.740000	1584.000	4.708664	37.60000	4.700000	15.55000	0.000000
17	811.7500	7.130000	1754.000	5.228114	40.25000	3.000000	12.70000	0.000000
18	324.1749	6.960000	2284.300	5.826634	16.90000	6.150000	22.50000	1.000000
19	899.4500	6.480000	2422.000	1.251883	1.550000	4.250000	27.50000	0.000000
20	506.1000	6.950000	2214.300	2.214799	17.95000	4.450000	19.20000	1.000000
21	299.6250	6.790000	1950.000	1.292226	34.85000	8.700000	12.30000	0.000000
22	175.3250	7.830000	1090.800	6.323385	63.45000	5.750000	11.75000	1.000000
23	457.9500	6.810000	2088.000	3.041786	29.35000	8.650000	17.75000	1.000000
24	347.8250	6.980000	1945.800	3.404980	51.70000	6.450000	14.70000	1.000000
25	202.0500	6.960000	1961.500	6.009031	43.55000	5.450000	13.10000	0.000000
26	860.5999	6.950000	2402.300	2.327057	29.50000	4.850000	27.25000	0.000000
27	222.6500	6.690000	1958.500	1.595139	34.00000	5.650000	15.10000	0.000000
28	981.4500	6.190000	2578.000	NA	5.900000	5.600000	25.80000	0.000000
29	412.3500	8.170000	1796.800	1.635657	36.25000	3.900000	13.85000	0.000000
30	314.6499	6.200000	2661.300	1.217509	8.600000	4.700000	29.05000	0.000000
31	250.7000	8.350000	1440.800	8.070840	54.95000	4.950000	11.55000	1.000000
32	173.6000	7.840000	1606.000	3.880867	57.10000	4.100000	11.35000	0.000000
33	309.3500	6.580000	2276.000	4.168442	18.75000	6.250000	15.30000	0.000000
34	444.0500	7.070000	1755.300	4.377053	32.25000	5.800000	14.40000	1.000000
35	366.4750	6.580000	2095.000	2.649828	31.90000	6.250000	17.30000	1.000000
36	299.5500	6.630000	2184.800	1.578026	11.30000	3.750000	18.60000	0.000000
37	460.3999	7.110000	2071.800	0.917307	7.000000	3.450000	23.80000	1.000000
38	338.9250	8.410000	1279.000	3.311320	48.50000	4.550000	12.30000	0.000000
39	229.4000	7.360000	1638.500	4.000000	57.60000	4.200000	10.40000	1.000000
40	421.0500	7.610000	1475.500	1.638900	40.35000	4.650000	12.70000	1.000000
41	515.4250	7.560000	1858.300	3.279921	21.95000	5.000000	14.55000	1.000000
42	384.0000	7.950000	1815.500	2.141400	20.55000	4.050000	13.95000	0.000000
43	232.6000	7.170000	1780.000	6.793094	59.65000	6.650000	12.95000	0.000000
44	333.3000	8.360000	1750.000	4.698837	38.75000	6.550000	13.30000	0.000000
45	454.5250	6.960000	2217.500	2.711392	22.85000	3.400000	16.85000	1.000000
46	212.1500	7.540000	1596.500	5.519119	49.05000	4.700000	10.35000	1.000000
47	190.1500	6.730000	2036.500	3.958138	31.30000	3.400000	16.90000	1.000000
48	299.4750	7.760000	2082.300	3.098373	40.30000	4.700000	14.35000	1.000000

obs	CABIN	MALE	POINT	PROBBU	RURAL	URATE	POLICE	EMPLE
49	414.4700	7.950000	1664.333	4.510098	34.46666	5.100000	12.50000	1.000000
50	849.2800	8.120001	2190.000	1.847804	15.80000	4.750000	16.50000	1.000000
51	814.8000	7.560000	1609.667	5.936112	50.30000	5.850000	10.00000	1.000000
52	1048.800	7.690000	2989.000	0.364702	7.633333	6.500000	19.50000	1.000000
53	675.8500	8.160000	2495.666	2.187359	19.86666	4.100000	15.50000	1.000000
54	801.4000	6.920000	2183.666	1.811730	6.500000	4.050000	15.50000	1.000000
55	640.4500	7.840000	3176.000	2.390567	85.13333	4.200000	16.50000	1.000000
56	895.9500	6.970000	2156.666	2.487126	19.56666	4.400000	19.50000	1.000000
57	498.7000	8.190000	1872.333	5.975395	37.13333	5.850000	18.00000	1.000000
58	838.7500	8.020001	1696.667	2.686567	51.03333	5.450000	14.00000	1.000000
59	844.3500	7.140000	2950.333	1.192529	10.40000	4.100000	21.00000	1.000000
60	498.3500	7.630000	2479.000	1.668874	26.03333	4.150000	14.00000	1.000000
61	880.3999	7.300000	3682.667	2.139175	40.80000	3.850000	12.00000	1.000000
62	410.8500	7.740000	2385.333	3.404255	88.30000	5.600000	13.00000	1.000000
63	448.8500	8.120000	1799.333	3.953132	48.76666	5.300000	12.50000	1.000000
64	489.0999	6.010000	1801.667	4.739243	23.60000	5.750000	16.50000	1.000000
65	297.4500	7.540000	2020.333	3.751066	35.06666	5.350000	11.50000	1.000000
66	515.7000	7.530000	2753.666	4.380025	14.73333	4.000000	23.00000	1.000000
67	484.4000	7.200000	2925.666	0.478606	0.833333	4.000000	22.50000	1.000000
68	615.8999	7.350000	2568.000	1.874681	16.00000	6.400000	17.00000	1.000000
69	469.7500	7.520000	2329.666	0.842603	32.33330	4.600000	12.50000	1.000000
70	226.0500	8.170000	1389.333	6.048387	58.56666	5.200000	11.00000	1.000000
71	705.6999	7.210000	2456.666	1.847800	27.46667	4.150000	19.00000	1.000000
72	475.1000	7.730000	2242.333	3.160405	47.50000	6.300000	16.50000	1.000000
73	310.1499	7.480000	2322.666	4.406989	39.63333	2.900000	13.50000	1.000000
74	1114.650	7.600000	3267.000	1.551465	16.53333	5.800000	27.50000	1.000000
75	279.2999	7.420000	2333.667	2.403577	28.43333	3.900000	14.00000	1.000000
76	578.5000	6.690000	2947.333	NA	5.133333	4.200000	23.00000	1.000000
77	505.8999	8.420000	1977.666	1.597132	31.03333	5.800000	13.00000	1.000000
78	479.7500	6.790000	3016.667	0.676197	8.033330	4.600000	26.00000	1.000000
79	339.7000	8.670000	1822.666	5.691729	53.33333	3.950000	12.00000	1.000000
80	215.0500	8.340000	2128.000	2.978569	60.13333	5.100000	11.00000	1.000000
81	448.8999	7.340000	1705.666	2.411042	15.53333	4.750000	14.00000	1.000000
82	537.3999	7.760000	1993.000	3.939190	30.46667	4.300000	12.50000	1.000000
83	528.3002	7.480000	2502.666	2.240409	27.93333	6.500000	16.00000	1.000000
84	365.1000	6.970000	2465.333	0.983771	13.10000	4.950000	16.00000	1.000000
85	590.9002	7.810000	2481.666	1.052137	3.433333	4.650000	19.00000	1.000000
86	531.7499	9.010000	1602.666	2.656419	46.50000	3.950000	12.00000	1.000000
87	254.1000	7.810000	1930.666	4.680694	55.03333	3.900000	10.50000	1.000000
88	538.6500	7.910000	1784.000	1.842633	36.96666	4.800000	12.00000	1.000000
89	627.7000	8.040000	2103.000	3.045959	19.46666	4.050000	14.00000	1.000000
90	513.8000	8.820000	2159.666	1.379446	16.26666	4.650000	13.00000	1.000000
91	337.0000	7.850000	2162.666	1.755041	53.56666	3.800000	11.00000	1.000000
92	435.5999	8.510000	2101.333	2.771776	26.06666	3.600000	12.00000	1.000000
93	564.6499	7.930000	2552.666	1.785714	20.53333	7.250000	14.00000	1.000000
94	247.8000	7.660000	1854.333	3.257850	51.13333	6.700000	11.00000	1.000000
95	260.7500	7.460000	2395.666	3.144211	30.13333	3.950000	16.50000	1.000000
96	382.2000	7.860000	2453.000	2.759740	39.93333	4.950000	17.00000	1.000000

LS // Dependent Variable is CRMRT
Date: 4-10-1991 / Time: 0:03
SMPL range: 1 - 48
Number of observations: 48

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-2049.4840	1061.5597	-1.9306347	0.061
MALE	287.46876	99.816665	2.8799675	0.006
PCINC	0.1767662	0.1887553	0.9364836	0.355
PROB	-36.443921	16.311786	-2.2342080	0.031
RURAL	-3.7694464	4.6555034	-0.8096754	0.423
URATE	48.918804	38.874177	1.2583882	0.216
POLICE	30.487997	13.801417	2.2090482	0.033
ERULE	161.09178	75.486034	2.1340608	0.039

R-squared	0.508577	Mean of dependent var	822.5365
Adjusted R-squared	0.422578	S.D. of dependent var	326.1902
S.E. of regression	247.8663	Sum of squared resid	2457508.
Durbin-Watson stat	1.953700	F-statistic	5.913758
Log likelihood	-328.3520		

Covariance Matrix

C,C	1126909.	C,MALE	-95713.79
C,PCINC	-148.9658	C,PROB	2253.005
C,RURAL	-1682.394	C,URATE	-10654.39
C,POLICE	-3228.892	C,ERULE	-9080.937
MALE,MALE	9963.367	MALE,PCINC	10.70051
MALE,PROB	-48.67637	MALE,RURAL	8.538455
MALE,URATE	347.8492	MALE,POLICE	99.58829
MALE,ERULE	453.8285	PCINC,PCINC	0.035629
PCINC,PROB	-0.389265	PCINC,RURAL	0.319490
PCINC,URATE	1.191909	PCINC,POLICE	-0.694535
PCINC,ERULE	0.640826	PROB,PROB	266.0743
PROB,RURAL	-33.57496	PROB,URATE	-269.5416
PROB,POLICE	-15.10793	PROB,ERULE	-237.9352
RURAL,RURAL	21.67371	RURAL,URATE	2.965168
RURAL,POLICE	29.89813	RURAL,ERULE	-13.46562
URATE,URATE	1511.202	URATE,POLICE	-20.61277
URATE,ERULE	849.3135	POLICE,POLICE	190.4791
POLICE,ERULE	-29.49562	ERULE,ERULE	5698.141

LS // Dependent Variable is CRMUR
Date: 4-10-1991 / Time: 0:05
SMPL range: 1 - 48
Number of observations: 44

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-12.482097	12.565932	-0.9933284	0.327
MALE	2.5812093	1.1811110	2.1854079	0.035
PCINC	-0.0035663	0.0022095	-1.6140559	0.115
PROBMU	-0.0514478	0.0254378	-2.0224971	0.051
RURAL	-0.0079275	0.0539415	-0.1469653	0.884
URATE	0.5122113	0.4179892	1.2254176	0.228
POLICE	0.2722686	0.1595000	1.7070134	0.096
ERULE	1.2296845	0.8530595	1.4414991	0.158

R-squared	0.488994	Mean of dependent var	4.948920
Adjusted R-squared	0.389632	S.D. of dependent var	3.522204
S.E. of regression	2.751758	Sum of squared resid	272.5982
F-statistic	4.921334	Log likelihood	-102.5571

Covariance Matrix

C,C	157.9027	C,MALE	-13.44904
C,PCINC	-0.021254	C,PROBMU	0.007268
C,RURAL	-0.237662	C,URATE	-0.992762
C,POLICE	-0.448309	C,ERULE	-1.399915
MALE,MALE	1.395023	MALE,PCINC	0.001565
MALE,PROBMU	-0.001658	MALE,RURAL	0.002930
MALE,URATE	0.024840	MALE,POLICE	0.011792
MALE,ERULE	0.114081	PCINC,PCINC	4.88D-06
PCINC,PROBMU	-5.31D-06	PCINC,RURAL	4.65D-05
PCINC,URATE	8.93D-05	PCINC,POLICE	-7.79D-05
PCINC,ERULE	8.29D-05	PROBMU,PROBMU	0.000647
PROBMU,RURAL	-0.000280	PROBMU,URATE	0.001799
PROBMU,POLICE	-0.000157	PROBMU,ERULE	0.001980
RURAL,RURAL	0.002910	RURAL,URATE	-0.005619
RURAL,POLICE	0.004368	RURAL,ERULE	-0.005975
URATE,URATE	0.174715	URATE,POLICE	-0.005868
URATE,ERULE	0.062641	POLICE,POLICE	0.025440
POLICE,ERULE	-0.006371	ERULE,ERULE	0.727710

LS // Dependent Variable is CRAST
Date: 4-10-1991 / Time: 0:06
SMPL range: 1 - 48
Number of observations: 47

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-182.71501	139.10242	-1.3135286	0.197
MALE	34.109688	13.559815	2.5154981	0.016
PCINC	-0.0176495	0.0256159	-0.6890055	0.495
PROBAS	-1.4515965	0.7359567	-1.9723940	0.056
RURAL	-0.9783848	0.5991129	-1.6330557	0.111
URATE	6.8388274	4.7602979	1.4366386	0.159
POLICE	1.6251467	1.8502986	0.8783159	0.385
ERULE	15.060076	10.281436	1.4647833	0.151

R-squared	0.446708	Mean of dependent var	50.80583
Adjusted R-squared	0.347400	S.D. of dependent var	40.46318
S.E. of regression	32.68765	Sum of squared resid	41670.81
F-statistic	4.498178	Log likelihood	-226.1942

Covariance Matrix

C,C	19349.48	C,MALE	-1687.111
C,PCINC	-2.483780	C,PROBAS	-5.941970
C,RURAL	-22.50203	C,URATE	-136.5378
C,POLICE	-54.29328	C,ERULE	-151.7346
MALE,MALE	183.8686	MALE,PCINC	0.165745
MALE,PROBAS	2.240347	MALE,RURAL	-0.649246
MALE,URATE	2.063887	MALE,POLICE	1.929006
MALE,ERULE	17.64192	PCINC,PCINC	0.000656
PCINC,PROBAS	-0.004948	PCINC,RURAL	0.006305
PCINC,URATE	0.017789	PCINC,POLICE	-0.014123
PCINC,ERULE	-0.014296	PROBAS,PROBAS	0.541632
PROBAS,RURAL	-0.173021	PROBAS,URATE	-0.524820
PROBAS,POLICE	0.145821	PROBAS,ERULE	2.244450
RURAL,RURAL	0.358936	RURAL,URATE	-0.388302
RURAL,POLICE	0.434247	RURAL,ERULE	-1.452887
URATE,URATE	22.66044	URATE,POLICE	-0.534462
URATE,ERULE	7.613560	POLICE,POLICE	3.423605
POLICE,ERULE	-0.439303	ERULE,ERULE	105.7079

LS // Dependent Variable is CRBUG
Date: 4-10-1991 / Time: 0:08
SMPL range: 1 - 48
Number of observations: 47

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-435.42675	553.75319	-0.7863192	0.436
MALE	86.403888	52.786095	1.6368684	0.110
PCINC	0.0405475	0.0982183	0.4128305	0.682
PROBBU	-26.850798	15.528854	-1.7290908	0.092
RURAL	-2.7494263	2.2820029	-1.2048303	0.236
URATE	24.668276	20.838389	1.1837900	0.244
POLICE	8.3463607	7.3294591	1.1387417	0.262
ERULE	67.166306	39.356941	1.7065937	0.096

R-squared	0.380110	Mean of dependent var	365.3553
Adjusted R-squared	0.268848	S.D. of dependent var	151.8870
S.E. of regression	129.8747	Sum of squared resid	657830.0
F-statistic	3.416343	Log likelihood	-291.0341

Covariance Matrix

C,C	306642.6	C,MALE	-26503.24
C,PCINC	-40.13236	C,PROBBU	730.6712
C,RURAL	-415.4554	C,URATE	-2678.952
C,POLICE	-806.3046	C,ERULE	-2251.354
MALE,MALE	2786.372	MALE,PCINC	2.947257
MALE,PROBBU	-85.12037	MALE,RURAL	4.574381
MALE,URATE	117.2500	MALE,POLICE	17.95568
MALE,ERULE	160.4550	PCINC,PCINC	0.009647
PCINC,PROBBU	-0.021634	PCINC,RURAL	0.075483
PCINC,URATE	0.217946	PCINC,POLICE	-0.202680
PCINC,ERULE	0.105280	PROBBU,PROBBU	241.1453
PROBBU,RURAL	-9.988803	PROBBU,URATE	-142.7817
PROBBU,POLICE	8.427117	PROBBU,ERULE	-80.76606
RURAL,RURAL	5.207537	RURAL,URATE	-2.862098
RURAL,POLICE	7.241460	RURAL,ERULE	-8.271858
URATE,URATE	434.2385	URATE,POLICE	-11.19637
URATE,ERULE	202.3437	POLICE,POLICE	53.72097
POLICE,ERULE	-19.29654	ERULE,ERULE	1548.969

LS // Dependent Variable is CRMRT
Date: 4-04-1991 / Time: 0:03
SMPL range: 1 - 96
Number of observations: 96

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-2268.5432	568.39043	-3.9911706	0.000
MALE	289.60770	57.932287	4.9990725	0.000
PCINC	0.0985314	0.0945602	1.0419957	0.301
PROB	-32.735358	12.497025	-2.6194521	0.011
RURAL	-4.5294922	3.2185774	-1.4072963	0.163
URATE	61.522979	27.089425	2.2711069	0.026
POLICE	48.484959	10.791400	4.4929259	0.000
ERULE	136.98607	70.310491	1.9483020	0.055

R-squared	0.613137	Mean of dependent var	945.2297
Adjusted R-squared	0.582364	S.D. of dependent var	409.5117
S.E. of regression	264.6460	Sum of squared resid	6163299.
Durbin-Watson stat	1.873799	F-statistic	19.92440
Log likelihood	-667.5673		

Covariance Matrix

C,C	323067.7	C,MALE	-27791.04
C,PCINC	-20.36451	C,PROB	-1252.396
C,RURAL	-484.0299	C,URATE	-1877.139
C,POLICE	-3009.807	C,ERULE	8116.659
MALE,MALE	3356.150	MALE,PCINC	0.612097
MALE,PROB	158.3766	MALE,RURAL	-20.66555
MALE,URATE	-167.5648	MALE,POLICE	192.0366
MALE,ERULE	-1229.661	PCINC,PCINC	0.008942
PCINC,PROB	0.158243	PCINC,RURAL	0.087584
PCINC,URATE	0.015267	PCINC,POLICE	-0.322707
PCINC,ERULE	-2.224756	PROB,PROB	156.1756
PROB,RURAL	-18.65546	PROB,URATE	-53.23503
PROB,POLICE	-13.98095	PROB,ERULE	-44.62579
RURAL,RURAL	10.35924	RURAL,URATE	-3.975544
RURAL,POLICE	15.93100	RURAL,ERULE	-7.341787
URATE,URATE	733.8369	URATE,POLICE	-13.19570
URATE,ERULE	265.7682	POLICE,POLICE	116.4543
POLICE,ERULE	77.97978	ERULE,ERULE	4943.565

LS // Dependent Variable is CRMUR
Date: 4-04-1991 / Time: 0:11
SMPL range: 1 - 96
Number of observations: 91

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-9.3128967	5.3220607	-1.7498667	0.084
MALE	2.1236436	0.5577219	3.8077108	0.000
PCINC	-0.0042488	0.0009118	-4.6600053	0.000
PROBMU	-0.0281348	0.0159298	-1.7661765	0.082
RURAL	-0.0016483	0.0280447	-0.0587731	0.953
URATE	0.2414032	0.2586200	0.9334281	0.354
POLICE	0.3934345	0.1033613	3.8063998	0.000
ERULE	1.0983410	0.6750118	1.6271433	0.108

R-squared	0.410384	Mean of dependent var	4.673653
Adjusted R-squared	0.360657	S.D. of dependent var	3.091359
S.E. of regression	2.471818	Sum of squared resid	507.1203
F-statistic	8.252784	Log likelihood	-207.2873

Covariance Matrix

C,C	28.32433	C,MALE	-2.470592
C,PCINC	-0.001880	C,PROBMU	0.013901
C,RURAL	-0.057549	C,URATE	-0.173300
C,POLICE	-0.267234	C,ERULE	0.627960
MALE,MALE	0.311054	MALE,PCINC	7.39D-05
MALE,PROBMU	-0.002623	MALE,RURAL	-0.000410
MALE,URATE	-0.016790	MALE,POLICE	0.015663
MALE,ERULE	-0.088845	PCINC,PCINC	8.31D-07
PCINC,PROBMU	-3.60D-06	PCINC,RURAL	9.53D-06
PCINC,URATE	2.64D-06	PCINC,POLICE	-2.98D-05
PCINC,ERULE	-0.000186	PROBMU,PROBMU	0.000254
PROBMU,RURAL	-1.88D-06	PROBMU,URATE	0.000553
PROBMU,POLICE	0.000155	PROBMU,ERULE	-0.000947
RURAL,RURAL	0.000787	RURAL,URATE	-0.000971
RURAL,POLICE	0.001379	RURAL,ERULE	-0.001224
URATE,URATE	0.066884	URATE,POLICE	-0.001563
URATE,ERULE	0.011929	POLICE,POLICE	0.010684
POLICE,ERULE	0.006219	ERULE,ERULE	0.455641

LS // Dependent Variable is CRAST
Date: 4-04-1991 / Time: 0:07
SMPL range: 1 - 96
Number of observations: 94

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-167.93390	73.431653	-2.2869415	0.025
MALE	32.560057	7.6411818	4.2611284	0.000
PCINC	-0.0336686	0.0127465	-2.6413864	0.010
PROBAS	-1.3291864	0.5469994	-2.4299596	0.018
RURAL	-0.6091313	0.3920671	-1.5536405	0.125
URATE	1.9598749	3.4767137	0.5637148	0.575
POLICE	4.0357529	1.4172621	2.8475699	0.006
ERULE	13.542191	9.4862359	1.4275621	0.158

R-squared	0.405782	Mean of dependent var	59.09430
Adjusted R-squared	0.357415	S.D. of dependent var	42.69686
S.E. of regression	34.22640	Sum of squared resid	100744.4
F-statistic	8.389708	Log likelihood	-461.3014

Covariance Matrix

C,C	5392.208	C,MALE	-471.1397
C,PCINC	-0.270904	C,PROBAS	-6.776363
C,RURAL	-8.973688	C,URATE	-37.50225
C,POLICE	-54.83281	C,ERULE	98.06166
MALE,MALE	58.38766	MALE,PCINC	-0.000857
MALE,PROBAS	1.169451	MALE,RURAL	-0.306406
MALE,URATE	-2.158039	MALE,POLICE	3.852975
MALE,ERULE	-14.17348	PCINC,PCINC	0.000162
PCINC,PROBAS	-0.002122	PCINC,RURAL	0.002291
PCINC,URATE	0.001237	PCINC,POLICE	-0.006082
PCINC,ERULE	-0.045534	PROBAS,PROBAS	0.299208
PROBAS,RURAL	-0.072565	PROBAS,URATE	-0.028104
PROBAS,POLICE	0.126764	PROBAS,ERULE	1.370135
RURAL,RURAL	0.153717	RURAL,URATE	-0.167910
RURAL,POLICE	0.206409	RURAL,ERULE	-0.542469
URATE,URATE	12.08754	URATE,POLICE	-0.258488
URATE,ERULE	3.712236	POLICE,POLICE	2.008632
POLICE,ERULE	1.674442	ERULE,ERULE	89.98867

LS // Dependent Variable is CRBUG
Date: 4-04-1991 / Time: 0:09
SMPL range: 1 - 96
Number of observations: 94

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-726.27834	288.06509	-2.5212300	0.014
MALE	115.46745	28.900232	3.9953813	0.000
PCINC	0.0394590	0.0498019	0.7923197	0.431
PROBBU	-20.407918	11.477169	-1.7781317	0.080
RURAL	-3.8947504	1.5501754	-2.5124579	0.014
URATE	29.684838	13.906941	2.1345339	0.036
POLICE	12.921391	5.5047744	2.3473061	0.022
ERULE	69.806439	35.970667	1.9406490	0.056

R-squared	0.517327	Mean of dependent var	428.0978
Adjusted R-squared	0.478039	S.D. of dependent var	186.2309
S.E. of regression	134.5460	Sum of squared resid	1556826.
F-statistic	13.16776	Log likelihood	-589.9789

Covariance Matrix

C,C	82981.50	C,MALE	-6956.500
C,PCINC	-5.568599	C,PROBBU	-516.6099
C,RURAL	-139.4317	C,URATE	-473.2711
C,POLICE	-789.2798	C,ERULE	2016.429
MALE,MALE	835.2234	MALE,PCINC	0.141792
MALE,PROBBU	21.71296	MALE,RURAL	-1.387627
MALE,URATE	-36.53066	MALE,POLICE	51.30872
MALE,ERULE	-302.6858	PCINC,PCINC	0.002480
PCINC,PROBBU	0.163110	PCINC,RURAL	0.019679
PCINC,URATE	-0.020619	PCINC,POLICE	-0.084424
PCINC,ERULE	-0.560305	PROBBU,PROBBU	131.7254
PROBBU,RURAL	-6.281925	PROBBU,URATE	-29.60210
PROBBU,POLICE	-3.493033	PROBBU,ERULE	-5.492573
RURAL,RURAL	2.403044	RURAL,URATE	-1.288371
RURAL,POLICE	3.831351	RURAL,ERULE	-2.986020
URATE,URATE	193.4030	URATE,POLICE	-3.025495
URATE,ERULE	60.58910	POLICE,POLICE	30.30254
POLICE,ERULE	17.05091	ERULE,ERULE	1293.889