Fall 2002

On Police Use of Deadly Force and the Southwest Phenomenon

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Honors Senior Project
Fall 2002

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HONORS THESIS

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Abstract

Over the last few decades police use of force has come under more and more scrutiny. Because it is the police who we depend on for protection, it is unsettling that the police commit unlawful violent acts. This is especially true when it comes to police use of deadly force. This study summarizes the research on police use of deadly force and attempts to reproduce some of the key findings. State-level data on police killings and various implications of two major theories are tested using multiple regression analyses. So far, replication of the results of previous studies with new data has failed. Interestingly enough, however, my study discovered a strong, previously unrecognized pattern: that states in the Southwest have unusually high rates of police killings of civilians, holding constant violent crime rates and other factors. More research needs to be done in order to ultimately determine why this Southwest phenomenon occurs.

Introduction

Police officers are commonly known as those annoying agents of our government that all too readily hand out speeding tickets and parking infractions. Those who appreciate police officers understand their value as protectors of the peace. However, it is when police officers use force, especially deadly force, that everyone takes note. The police are the only public servants the American public willingly allows to use force as a method of control. Consequently, the police are the only accepted group of people that may use deadly force upon the American public in situations other than self-defense. Because the police are allowed this awesome power, they are closely scrutinized whenever it is used. Moreover, with great power comes great responsibility, and the responsible use of deadly force by police officers is just as closely watched as is its implementation.

Realizing the importance of such power and the irreversible effects it can have, sociologists have sought to understand police use of deadly force over the past few decades. Generally, there have been two groupings of theories on why police call upon deadly force. The first group believes that police use of deadly force is a method used to control the lower classes of society, while the second group believes that the use of deadly force is simply a reaction to each individual officer's perception of how dangerous a person or situation may be. Previous studies done on these theories will be discussed below. This study seeks to imitate some of those studies in hopes of reaffirming or rebutting their findings.

Literature Review

All of the research articles reviewed here utilize variations of two commonly argued theories that explain police use of deadly force. The first theory is conflict theory, which asserts that police use deadly force as a method of coercion to reinforce higher society's dominance over the lower levels of society (Sorensen et al. 1993).[1] The second theory is comprised of many different variations that tend go by many different names. For this paper, I will use the term "danger-perception theory," coined by MacDonald et al. (2001).[1] This theory, and the others similar to it, asserts that police use of deadly force is not an effect of class conflict, but, rather a result of each individual police officer's exposure to dangerous people and/or situations (MacDonald et al. 2001). The different variations on the danger-perception theory will be examined as they are reviewed.

[1] For this study, the terms "conflict theory" and "danger-perception theory" will be used in place of any theories that are similar in nature, but different by name. This includes Jacobs and O'Brien's (1998) "political threat theories" (conflict) and "reactive hypotheses" (danger-perception), as well as the Sorensen et al. (1993) use of a "community violence hypothesis" (danger-perception). Therefore, for the sake of clarity, only the terms "conflict theory" and "danger-perception theory" will be found in the main body of this paper.

Fyfe (1988) reviews most of the research in the area of police use of deadly force up to the late 1980's. He goes over the basic explanations of why there may be variations in police use of deadly force, such as internal organizational explanations (conflict theory) and environmental explanations (danger-perception theory). In further discussion of these topics he also looks at what previous research has uncovered about the police shooters and the civilian victims. Fyfe also examines what others have found on elective and non-elective police killings.

Fyfe defines elective shootings as those shootings in situations where officers "may decide to shoot or refrain from shooting at no risk to themselves or of others" (1998:185). Non-elective shootings would therefore be shootings in situations where officers were forced to either shoot or die. Past studies reviewed by Fyfe on elective vs. non-elective shootings have shed light on some of the issues surrounding police use of deadly force. All agree that in life-or-death situations, officers must use deadly force and there is no debate. It is in elective situations, however, that most of the controversy arises.

In situations where use of deadly force may be elective, an officer's choices and decisions become very significant. In some cases, departmental policies may be restrictive on the use of deadly force. In other cases, the decision to use deadly force may be based on an officer's experience, his or her intuition, or his or her perception of the situation. These elective situations exemplify conflict theory and danger-perception theory in action. In those cases where an officer is restricted in the use of deadly force by policy, effects of conflict theory might be found. Where the use of deadly force depends solely on the officer's discretion, evidence for the danger-perception theory is then found.

Thus, data from these elective shooting situations can provide valuable information for testing.

Jacobs and Britt (1979) explores the merits of economic inequality as a predictor of police use of deadly force, specifically as a measure of conflict theory. The authors use police-caused homicides as their dependent variable. They do not give a specific source for their numbers, but do say that the data ranges from 1961 up until 1970. The state-level data for police-caused homicides from those years are then regressed on several state-level independent variables intended to measure different aspects of conflict theory, such as the percent of the population that is black, economic inequality, and a dummy variable for southern states. Jacobs and Britt also use an index for violence which is comprised of the violent crime rate and number of riots for each state. Based on conflict theory, they predict that states with high levels of economic inequality will have higher rates of police-caused homicides. To test their theory, the authors analyze the data using multiple regression techniques.

Their analysis supports conflict theory's explanation of police-caused homicides with strong results for economic inequality. Further evidence for the validity of conflict theory is found through the significant coefficient for percent black. However, supporting the danger-perception theory, Jacobs' and Britt's index for violence is actually a better predictor of police-caused homicides than was economic inequality. They do, nonetheless, claim that "an (sic) hypothesis derived from conflict theory does predict the amount of deadly force that is employed by the police in the American states" (1979:410).

MacDonald et al. (2001) looks at the temporal relationship between police use of deadly force and criminal homicides. Unlike Jacobs and Britt (1979), this article seeks to test the validity of the danger-perception theory. MacDonald et al. hypothesize that criminal homicides will temporarily increase the perceived amount of danger for police officers, thereby increasing police use of deadly force. In order to test their hypothesis, the authors obtain data from the Federal Bureau of Investigation's (FBI) Supplemental Homicide Report (SHR) for homicides between 1976 and 1996.[2] MacDonald et al. then use a time-series model to test the temporal relationship of police use of deadly force and criminal homicides.

The results of the time-series model support their hypothesis. They find that "during time periods when the incidences of particular types of homicide are at their highest levels, police will be more likely to use deadly force" (MacDonald et al. 2001:168). These homicides that result in a police officer's increased likelihood to use deadly force include justifiable citizen homicides and robbery-related homicides, but exclude "love triangle" homicides of passion. Thus, MacDonald et al. (2001) supports the danger-perception theory that as police perceive situations and/or people to be more dangerous their use of deadly force increases. The next two articles by Jacobs and O'Brien (1998) and by Sorensen et al. (1993) test for both conflict theory and a variation of the danger-perception theory.

Jacobs and O'Brien (1998) explores the determinants of police use of deadly force. The determinants they test can be separated into two sets, one based on conflict

[2] The standard source of data on police killings of civilians is the National Vital Statistics System, which obtains its information from coroner's offices, and is traditionally the only source for interstate data. However, the McDonald et al. (2001) use of the FBI's SHR provides more detailed information in this case.

theory, what they call "political threat theories" (1998:845), and one based on the danger-perception theory, or what they call "reactive hypotheses" (1998:846). The authors' reactive hypothesis is very similar to the danger-perception theory. Both are based on police officers' responses to dangerous people and situations. Both theories assert that as officers encounter more danger, their likelihood of using deadly force also increases. From this study, the authors particularly want to discover what determinants best predict police use of deadly force. Jacobs and O'Brien use data from the FBI's SHR for the 1980 year. Their data consists of 170 cities across the United States that are over 100,000 in population. They use thirteen independent variables to predict police use of deadly force, such as percent black, income inequality, black versus white income, murder rates, and a dummy variable for cities with black mayors. The authors then employ Tobit analyses to test which variables best predict police use of deadly force.

Jacobs and O'Brien (1998) actually conduct two separate analyses, one for the effects on the total population, and one only including the effects on the black population. Curiously, the authors do not attempt to discover the effects on the non-black population. Results of the Tobit analyses, nonetheless, reveal that racial inequality, as measured by the income of blacks versus whites, is the best predictor of police use of deadly force. It also reveals that a city's murder rate is a good predictor of police use of deadly force as well. Interestingly, in contrast to Jacobs and Britt (1979), Jacobs and O'Brien (1998) find that income inequality is not a good predictor. Finally, they find that cities with a high population of blacks have a greater number of police killings of blacks, except in cities with black mayors, where the numbers are lower. Their separate analysis of the black population reveals similar results, but in this case the authors' broken homes variable (female-headed household) and the percent change in black population variable predict police killings of blacks as well. Thus, Jacobs and O'Brien find support for both conflict theory (via the racial inequality and percent black variables) and the danger-perception theory (via the murder rate variable).

Sorensen et al. (1993) also tested the power of both conflict and the danger-perception theories to explain the use of deadly force by police officers. In this study, the authors actually test what they call a "community violence" hypothesis. This is also very similar to the danger-perception theory in that the authors argue that police use of deadly force is a result of the levels of violence in the community in which the police officer works. Therefore when a community has high levels of violence, an officer will perceive a greater risk of danger and respond with a higher level of violence (deadly force). To determine which theory best explains police use of deadly force the authors use data from the FBI's SHR for the years between and including 1976 and 1988 for their situational analysis, while data from 1980 to 1984 is used for their city level analysis. Using police killings of felons as their dependent variable, the authors then use income inequality as their main measure of conflict theory, and the violent crime rate as their main measure of their community violence hypothesis, although other variables are also tested.

It is not made clear the method by which they analyze their data. Results of their analysis, however, prove to be fruitful. At the individual/situational level, Sorensen et al. (1993) find that the community violence hypothesis is a better predictor of police use of deadly force. Conversely, at the city level, economic inequality and percent minority (both conflict theory measures) are the best predictors. Therefore, although support is found at the city level for their community violence hypothesis (danger-perception theory), they conclude that conflict theory is the better of the two theories in explaining why police use deadly force.

Data & Methods

Almost all of the previous studies on police use of deadly force use some variation of a police-caused homicide measure as their dependant variable. This study will be no different. My version of this variable measures the rate of police killings per million population (RPKALL) in a given state. Data for this variable comes from the National Center for Health Statistics (NCHS) in 1992 and includes all fifty states. RPKALL is actually the result of a combination of two variables in from the NCHS, police killings of blacks and police killings of whites. The combination of those variables was then divided by the state population and multiplied by one million to obtain RPKALL.

In order to test the conflict and danger-perception theories discussed in the Literature Review section, I will use two independent variables for each theory that are similar to the ones used by previous researchers. To test conflict theory's ability to explain police use of deadly force, the variables POOR and PCBLK will be used. Traditionally, variables similar to POOR and PCBLK have been used as conflict theory measures because they represent changes in the size of those "dangerous" lower classes, which may threaten those who are currently in the possession of power.

The POOR variable is a measure of the percent of each state's population that is poor. Data for both of these variables come from the NCHS as well. The POOR variable is intended to take the place of the GINI index (a measure of income inequality) that is used in most of the literature reviewed in this study. The GINI index measures the degree to which a population unequally share a certain resource, in this case, income. The index is scaled from 0 to 1, 0 representing no inequality in a population, 1 representing a maximum degree of inequality. The unavailability of GINI to this author forces the use of the POOR variable. In future studies, the use of the GINI index would be preferable. Both variables, however, are indicators of inequality, and therefore both should be good measures for the conflict theory. Thus, based on the reviewed literature concerning income inequality and police killings, it is expected that as the percentage of the population that is poor increases, the number of police killings will also increase.

PCBLK is a measure of the percentage of a state's population that is black. This variable was created by taking the number of blacks in each state and dividing that number by the state population (number of blacks and state population come from the NCHS). Based on the conflict theory, which argues that as the minority class of blacks in each state increases, they threaten the power of the upper class more and more, I hypothesize that as the percentage of the population that is black increases, so too will police killings of civilians increase.

Researchers who sought to support some variation of the danger-perception theories used variables intended to measure the things that might increase a police officers' perception of danger. This study will use the two variables DRUDPC and HOMRALL. DRUDPC is a measure of drug arrests per capita in a state. Data for DRUDPC comes from the FBI's Uniform Crime Report (UCR). The logic behind using the DRUGPC variable goes as follows: in any area where there are a high number of drug arrests, there is a higher likelihood that police will come into contact with people who very much do not wish to be apprehended (drug dealers and users) (MacDonald et al. 2001). In addition, the naturally high level of violence involved with drugs, and the proactive drug enforcement policies of many police departments effectively create very hostile environments for officers. Thus in these hostile environments that officers must routinely patrol, perception of danger will naturally increase, leading to more lethal police-civilian confrontations. Therefore, based on the danger-perception theory, it is expected that as the drug arrests per capita increases, police killings would also increase.

Although this variable was not used in any of the reviewed literature, I believe it should be a good predictor of police killings. McDonald et al. (2001) used variables intended to measure amounts of crime in predicting police killings. The use of DRUDPC is similar here. McDonald et al. (2001) used their variables as indicators of more opportunities in which police might have deadly confrontations with civilians. Thus, DRUDPC, which measures the opportunities in which officers must deal with drug criminals, is used in the same way.

The HOMRALL variable, like the RPKALL variable, is a combination of two variables taken from the NCHS, the number of homicides for whites and the number of homicides for black. Then, just like for RPKALL, that combination was divided by the state population and multiplied by one million. The resulting HOMRALL is therefore the combined number of homicides for both blacks and whites per million people. HOMRALL is intended to measure the amount of danger perceived by police officers in each state. According to the danger-perception theory, as number of homicides increase, the amount of danger perceived by a police officer increases and results in an increase of police killings. Thus, increases in HOMRALL are expected to increase police killings.

Some of the studies reviewed used other similar measures of violent crimes. The reason HOMRALL was used here instead of a violent crime index of some sort will be explained below.

One final independent variable was originally thrown into the mix because more often than not, the same was done in many of the reviewed studies. Due to too many factors to name here, the southern United States has always been a hotbed for crime and punishment. Because of this, a dichotomous variable (1 if the state has southern location, and 0 if otherwise) for the southern United States (SOUTH) was originally tested. However, due to insignificant results (not shown in this study), the variable was changed. In place of SOUTH, SW was created to control for states with a southwestern location (1 for states in the Southwest, and 0 if in another location). States included in the SW variable are Arizona, California, Colorado, Nevada, New Mexico, and Utah. At this point, the explanation for the use of SW is too space consuming, and will therefore be discussed in the discussion of results section. For now, it is sufficient to know that southwest location in the United States is the final variable that is controlled for in this study.

At this point, I will mention a few of the variables originally intended to be measured for this study, but were later dropped. As mentioned above, this study utilizes HOMRALL instead of a violent crime index that I had created, which originally included data for murders, rapes, robberies and assaults. HOMRALL was chosen over the created violent crime index because the index was highly correlated with several other variables, whereas HOMRALL was highly correlated with only the index variable. Also dropped was a measure of property crime rates (too highly intercorrelated with several variables) and a measure for black elected officials (too highly intercorrelated with PCBLACK).

Using the variable definitions (capitalized variable names in parentheses), the prediction equation, which will be tested by means of linear multiple regression analysis, should look like the below, where "a" is held constant and represents the predicted value of my dependent variable when all the other variables are set to zero:

Rate of Police Killings of Blacks and Whites (RPKALL) = a + b_1 Percent Poor Population (POOR) + b_2 Percent Black Population (PCBLK) + b_3 Drug Arrests per Capita (DRUDPC) + b_4 Rate of Homicides of Blacks and Whites (HOMRALL) + b_5 Southwestern United States (SW)

Results

Table 1

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
RPKALL	50	21.830480	.624610	22.455090	5.253427	4.255092810
POOR percent poor	50	16.80	7.80	24.60	14.1120	4.04993
PCBLK	50	.35	.00	.36	.0960	.09264
DRUDPC	50	.007073	.000300	.007373	.00254748	.001642339
HOMRALL homall/pop x 1 million	50	759.79	11.30	771.09	86.8597	108.01962
SW southwest	50	1.00	.00	1.00	.1200	.32826
Valid N (listwise)	50					

Table 2

Correlations

		RPKALL	POOR percent poor	PCBLK	DRUDPC	HOMRALL homall/pop x 1 million	SW southwest
RPKALL	Pearson Correlation	1	.179	-.131	.307*	.150	.717**
	Sig. (2-tailed)	.	.215	.363	.030	.298	.000
	N	50	50	50	50	50	50
POOR percent poor	Pearson Correlation	.179	1	.479**	.097	.379**	.062
	Sig. (2-tailed)	.215	.	.000	.505	.007	.670
	N	50	50	50	50	50	50
PCBLK	Pearson Correlation	-.131	.479**	1	.242	.422**	-.228
	Sig. (2-tailed)	.363	.000	.	.090	.002	.112
	N	50	50	50	50	50	50
DRUDPC	Pearson Correlation	.307*	.097	.242	1	.196	.228
	Sig. (2-tailed)	.030	.505	.090	.	.173	.111
	N	50	50	50	50	50	50
HOMRALL homall/pop x 1 million	Pearson Correlation	.150	.379**	.422**	.196	1	-.010
	Sig. (2-tailed)	.298	.007	.002	.173	.	.943
	N	50	50	50	50	50	50
SW southwest	Pearson Correlation	.717**	.062	-.228	.228	-.010	1
	Sig. (2-tailed)	.000	.670	.112	.111	.943	.
	N	50	50	50	50	50	50

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The descriptive statistics for each variable tested for this study are shown in Table 1. Table 2 shows the correlations among all of the variables. RPKALL is significantly correlated with DRUDPC and SW, with the strongest correlation among all variables being between RPKALL and SW (.717). This would indicate that there is a very strong relationship between living in the Southwest United States and being killed by a police officer. More on this relationship will be gone through in the discussion of results section later.[3] In addition, POOR is significantly correlated with PCBLK and HOMRALL. PCBLK and HOMRALL are also significantly correlated.

[3] It should be noted at this point that after the first regression analysis containing the SW variable, five states continued to lie outside the ideally anticipated area. These states were then removed from the sample in order to reduce their influence on the results. The new results, minus the five outlying states, proved to be more fruitful than the previous results. However, the VIFs for two of the variables (Contd. Next Page)

Table 3

	POOR	PCBLK	DRUDPC	HOMRALL	SW	Adj. R^2
Coefficients	.152 (.145)	-6.903 (-.150)	406.576 (.157)	5.306E-03 (.135)	8.287 (.630)	.524
t-Values	1.230	-1.174	1.459	1.199	5.878**	

Notes: Dependent Variable = RPKALL
*p<.001
n = 50

Table 3 shows the unstandardized and standardized (in parentheses below) coefficients, the adjusted R^2 value, and the t-values for each independent variable when regressed against RPKALL. No collinearity problems appear among my independent variables; the Variance Inflation Factors (VIF) for each variable are well below the standard threshold of four. Only one variable, SW, is found to be significant. Neither the conflict theory variables (POOR & PCBLK), nor the danger-perception variables are supported by this model. Very interestingly, SW (significant at the .001 level), very strongly predicts the rate of police killings. When controlling for Southwest location, though, none of the other variables are significant, and therefore, no support is found for any of the previous studies' results. This, however, is due to the inclusion of SW into this study, and its absence in previous studies. The consequences of including SW in this study when it was not included in other studies will be resolved in the discussion of results section.

Although the previously unrecognized effect of Southwest location is a very interesting discovery, the original object of this study was to reproduce some of the results of prior studies. Not forgetting this objective, I also ran a separate regression

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skyrocketed above the commonly accepted number of four. Thus, the results of the regression analysis not including the five outlying states are not completely reliable. So, for the sake of providing more reliable results, the regression analysis including all fifty states is used as the main model for this paper.

without the SW variable. Although Descriptive Statistics, Correlations, and Regression Results are not shown here, I will mention some of the results of the analysis not including the SW variable. The adjusted R^2 value comes in at .241. PCBLK is found to be significant at the .001 level with a value of -3.772, while HOMRALL is significant at the .01 level with a value of 3.010. POOR and DRUDPC are found to be insignificant. Thus, based on these results one might be led to believe that one variable for each theory (PCBLK for conflict and HOMRALL for danger-perception) is supported. Unfortunately, these results are marred by high VIFs, meaning the results are not entirely reliable. Thus, the regression analysis testing only for conflict and danger-perception variables does not support either theory or any of the previous studies reviewed above. The most interesting result, however, is the discovery of the effect of Southwest location on the rate of police killings, which will now be discussed below.

Discussion

Originally, the purpose of this paper was to review the literature on police use of deadly force and to reproduce some of the previous research's findings. The direction changed after my initial regression analysis when I discovered several outlying states that had rates of police killings much higher than those of other states. Based on the prior research, I was led to believe that Southern location may have more police killings of civilians. I did not, however, expect to find that Southwestern location was actually the place where the rates were the highest. After this discovery, I created the SW variable to control for Southwest location in the regression analysis. The results were quite unexpected.

As discussed earlier section, the SW variable was found to be the strongest predictor of police killings. Although, my goal of replicating previous studies' results might have failed, this new discovery might just be worth the failure. This new discovery, however, leads to new questions. What is it about the Southwest that makes it such a hotbed for police use of deadly force? One explanation for the regional difference comes from the "Sunbelt" argument.

According to the Sunbelt argument, the southwestern part of the United States has undergone massive changes over the past few decades. The Sunbelt argument, itself, actually draws off the "Rustbelt" argument which contends that due to high unemployment rates in many industrial cities since the 1970's people have begun to migrate west for better opportunities. In reviewing some of the literature about the Sunbelt, I found that several factors have led to major changes in the structure of the Southwest.

Grant and Wallace (1994) explained that over the last few decades (specifically the 1970s and the 1980s) there has been a relocation of manufacturing employment. Where the Northeast and Midwest regions of the country once dominated the manufacturing industry (in what is appropriately nick-named the "Rustbelt"), the post-industrial world we live in now has seen most of the manufacturing jobs go international where labor is cheaper, taxes are lower, workers are less organized, and environmental restrictions are fewer. Grant and Wallace (1994) go on to explain that this globalization of manufacturing has led domestic manufacturers to seek similar advantages found internationally within the United States. This land of new opportunity just happened to be the southwestern United States, or the "Sunbelt." Then, as the jobs moved to the

Southwest, the people followed. What they found, however, was that the burgeoning service industry was dominating the region and that the manufacturing jobs they had sought were in smaller demand.

The result of the mass exodus from the Rustbelt to the Sunbelt had many consequences. Grant and Martinez (1997) studied the relationship between the restructuring of the economy and its effects on crime. They discovered that because of the redistribution of both population and industry, unemployment rates predicted increases in total crime rates, especially property crime rates because of its lucrative nature. Although their study examines the nationwide effects of the restructuring of the economy, I apply their logic to the Southwest region particularly. Thus, because of the migration of industry workers from the Rustbelt to the service industry-oriented Sunbelt, most workers were likely not well-suited to the available job openings. This would then result in higher unemployment rates when industry workers were unable to find suitable jobs. Then, without adequate income, some are forced to find other means of livelihood. Therefore, as Grant and Martinez (1997) found, an expected increase in crime should occur.

Two other studies found that homicide rates have been affected by regional differences over the past few decades. In their landmark study, Kowalski and Petee (1991) discovered a "convergence between the South and the West" (75) in regards to the homicide rates of both regions. Parker and Pruitt (2000) obtain similar results concerning Black and White homicide rates in the South and in the West. Based on the findings of both of the above studies, the change in homicide rates may also be related to the Rustbelt-to-Sunbelt shift and crime result that Grant and Martinez (1997) found.

However, homicide rates were controlled for in this study, and therefore any further significance of homicide rates in the Southwest must be attributed to things not known at this time.

Despite this effort to explain why the Southwest experiences more police killings of civilians than does other regions of the United States, more empirical studies need to be conducted in the area. In order to possibly procure some answers, this author suggests that future studies might use city or county data, rather than state data, to get a better idea of the differences between the Southwest and the rest of the United States. City and/or county data may also be able to better pinpoint differences in causes of police killings among areas of the Southwest. Future research might also examine unemployment rates, domestic migration, both legal and illegal immigration, the political atmosphere of the Southwest, and police funding, or the lack thereof, as possible explanations for the Southwest phenomenon.

In addition, the relationship between homicides and the Southwest found by Kowalski and Petee (1991) and by Parker and Pruitt (2000), but contradicted by this study needs to be resolved. If there is something about the homicide rates of the Southwest that are actually predicting police use of deadly force, then it is extremely important to locate whatever small nuances may exists. Then, only when we can better explain this phenomenon, can any policies be suggested or implemented. Until then, it will be up to other sociologists to determine the strange nature of the relationship between the Southwest and police use of deadly force.

Appendix

Regression Analysis Results

Descriptive Statistics

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Correlations Matrix

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**. Correlation is significant at the 0.01 level (2-tailed).

Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757[a]	.572	.524	2.936459597

a. Predictors: (Constant), SW southwest, HOMRALL homall/pop x 1 million, DRUDPC, POOR percent poor, PCBLK

b. Dependent Variable: RPKALL

Regression Analysis Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	1.276	1.689		.755	.454	-2.128	4.679
	POOR percent poor	.152	.124	.145	1.230	.225	-.097	.402
	PCBLK	-6.903	5.880	-.150	-1.174	.247	-18.754	4.947
	DRUDPC	406.576	278.581	.157	1.459	.152	-154.868	968.020
	HOMRALL homall/pop x 1 million	5.306E-03	.004	.135	1.199	.237	-.004	.014
	SW southwest	8.287	1.410	.639	5.878	.000	5.446	11.128

Regression Analysis Coefficients[a]

Model		Collinearity Statistics Tolerance	VIF
1	(Constant)		
	POOR percent poor	.699	1.430
	PCBLK	.593	1.686
	DRUDPC	.841	1.190
	HOMRALL homall/pop x 1 million	.771	1.298
	SW southwest	.822	1.217

a. Dependent Variable: RPKALL

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	POOR percent poor	PCBLK	DRUDPC	HOMRALL homall/pop x 1 million	SW southwest
1	1	4.127	1.000	.00	.00	.01	.01	.02	.01
	2	.954	2.080	.00	.00	.04	.00	.02	.63
	3	.443	3.051	.02	.01	.00	.04	.74	.08
	4	.245	4.103	.03	.01	.79	.00	.18	.19
	5	.201	4.533	.03	.04	.01	.86	.01	.05
	6	2.918E-02	11.892	.92	.94	.15	.08	.03	.04

a. Dependent Variable: RPKALL

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.8763655	15.235533	5.2534271	3.219145367	50
Std. Predicted Value	-1.049	3.101	.000	1.000	50
Standard Error of Predicted Value	.49043775	2.8924315	.92642787	.424344380	50
Adjusted Predicted Value	1.6477829	42.921745	5.9777608	6.280451260	50
Residual	-8.463017	8.7081003	.00000000	2.782609913	50
Std. Residual	-2.882	2.966	.000	.948	50
Stud. Residual	-3.297	3.263	-.039	1.071	50
Deleted Residual	-35.82066	10.544357	-.72433373	6.043381181	50
Stud. Deleted Residual	-3.756	3.705	-.039	1.140	50
Mahal. Distance	.387	46.562	4.900	7.029	50
Cook's Distance	.000	24.063	.514	3.400	50
Centered Leverage Value	.008	.950	.100	.143	50

a. Dependent Variable: RPKALL

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