

CRIMINOLOGY

THE INFLUENCE OF THE *GARNER* DECISION ON POLICE USE OF DEADLY FORCE

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ABSTRACT

In March of 1985, the Supreme Court in *Tennessee v. Garner* held that laws authorizing police use of deadly force to apprehend fleeing, unarmed, non-violent felony suspects violate the Fourth Amendment, and therefore states should eliminate them.

This paper investigates the impact of that decision on the number of homicides committed by police officers nationwide. The investigation shows a significant reduction (approximately sixteen percent) between the number of homicides committed before, and after the decision. This reduction was more significant in states which declared their laws regarding police use of deadly force to be unconstitutional after the *Garner* decision.

Evidence suggests that the reduction is due not only to a reduction in shooting fleeing felons, but also to a general reduction in police shooting. This paper discusses a mechanism that can explain the unique *Tennessee v. Garner* dynamic.

I. INTRODUCTION

People have criticized use of deadly force ever since police officers began carrying guns. In 1858, a New York Times editorial about a case in which a police officer shot and killed a fleeing suspect stated:

The pistols are not used in *self-defence*,—but to stop the men who are running away. They are considered substitutes for swift feet and long arms. Now, we doubt the propriety of employing them for such a purpose. A Policeman has no right to shoot a man for running away from him. . . .

But what right have Policemen to carry revolvers at all? . . . We

doubt very much the policy of arming our Policemen with revolvers.¹

Similar arguments have persisted to the present day as the public has consistently denounced civilian homicides by police officers. People have accused officers of shooting arbitrarily, or unjustifiably,² and most frequently of exhibiting racism in such situations.³ These accusations have been supported by numerous empirical studies showing that police officers kill African-Americans at a disproportionately higher rate than whites.⁴

In March of 1985, the United States Supreme Court, in *Tennessee v. Garner*,⁵ held that laws authorizing police use of deadly force to apprehend fleeing, unarmed, non-violent felony suspects violate the Fourth Amendment, and therefore states should eliminate them. This paper investigates the impact of the *Garner* decision on homicides committed by police nationwide. However, before estimating the influence of the decision, it is appropriate to describe the different policies that existed prior to *Garner*, and the changes in the law resulting from *Garner*.

A. POLICIES AND LEGAL SITUATION BEFORE GARNER

Prior to *Garner*, laws controlling police use of deadly force fell into one of four groups: The Any-Felony Rule; The Defense-of-Life Rule; The Model Penal Code; The Forcible Felony Rule.⁶ At one extreme of the spectrum was the Any-Felony Rule. English common law authorized officers to use any means necessary to arrest felony suspects or prevent them from fleeing. In the United States, courts interpreted this rule as legal permission to shoot an unarmed felony suspect in flight.⁷

¹ *Police with Pistols*, N.Y. TIMES, Nov. 15, 1858, at 4.

² An early study claims that from the incidents that were checked by the author, only two-fifths were justifiable, one-fifth was questionable, and two-fifths were not justifiable. Arthur L. Kobler, *Police Homicide In A Democracy*, 31 J. SOC. ISSUES 163, 165 (1975).

³ See, e.g., Paul Takagi, *A Garrison State In "Democratic" Society*, 5 CRIME & SOC. JUST. 27, 29-30 (1974).

⁴ Mark Blumberg, *Police Use of Deadly Force: Exploring Some Key Issues*, in POLICE DEVIANCE 219, 229 (Thomas Barker & David L. Carter eds., 2d ed. 1991); James J. Fyfe, *Blind Justice: Police Shootings in Memphis*, 73 J. CRIM. L. & CRIMINOLOGY 707, 720 (1982); William A. Geller & Michael S. Scott, *Deadly Force: What We Know*, in THINKING ABOUT POLICE: CONTEMPORARY READING 453 (Carl B. Klockars & Stephen D. Mastrofske eds., 2d ed. 1991); David B. Griswold & Charles R. Massey, *Police and Citizen Killings of Criminal Suspects: A Comparative Analysis*, 4 AM. J. POLICE 1, 6 (1985).

⁵ 471 U.S. 1 (1985).

⁶ GEOFFREY P. ALPERT & LORIE A. FRIDELL, POLICE VEHICLES AND FIREARMS: INSTRUMENTS OF DEADLY FORCE 70-71 (1992). See also Mark Blumberg, *Controlling Police Use of Deadly Force: Assessing Two Decades of Progress*, in CRITICAL ISSUES IN POLICING: CONTEMPORARY READINGS 442, 442-43 (Roger G. Dunham & Geoffrey P. Alpert eds., 1989).

⁷ See ALPERT & FRIDELL, *supra* note 6, at 70; Lawrence W. Sherman, *Execution Without*

At the other end of the spectrum was the Defense-of-Life Rule. Under this doctrine, the only justification for using deadly force was to protect human life, either the police officer's own life or a civilian's life.⁸ The only justification for risking loss of life was the preservation of another life. Following this rationale, police shooting of an unarmed fleeing suspect was unjustifiable, and unacceptable. Until recently, this was the official policy of the FBI.⁹

The other two policies, the Model Penal Code (MPC) and the Forcible-Felony Rule, tried to balance the two extremes. Ultimately, however, they had the same practical result. The American Law Institute drafted the MPC to guide states that want to modify their criminal statutes and procedures.¹⁰ The Code offered two conditions to the use of deadly force: (1) The crime involved the use or threatened use of deadly force; and (2) There is a substantial risk that the suspect will cause death or serious bodily harm if his apprehension is delayed.¹¹

States enacting the Forcible-Felony Rule have defined specific felonies as "forcible felonies." Those states allow police to use deadly force only against people suspected of committing those felonies. Usually, forcible felonies include murder, arson, rape, kidnapping, and armed robbery.¹²

Critics have directed most of their criticisms towards the Any-Felony Rule, commenting that this rule is not adequate for modern times.¹³ Indeed, when the English Common Law developed this rule, the courts recognized only a few felonies, and the penalty for them was capital punishment. Moreover, police did not have firearms, so the permission to use "any means" meant actual physical force, or, at most, perhaps a sword. Ultimately, England has eliminated the rule, perhaps recognizing its inadequacy in today's world.

In the United States, many people have argued that the Any-Felony Rule is unconstitutional. They have claimed that it violates the Fourth Amendment's protection against illegal search and seizure, the Eighth Amendment's prohibition of cruel and unusual punish-

Trial: Police Homicide and the Constitution, 33 VAND. L. REV. 71, 74-79 (1980).

⁸ ALPERT & FRIDELL, *supra* note 6, at 71.

⁹ WILLIAM A. GELLER & MICHAEL S. SCOTT, DEADLY FORCE: WHAT WE KNOW, A PRACTITIONER'S DESK REFERENCE ON POLICE-INVOLVED SHOOTINGS 267-275 (1992) [hereinafter DEADLY FORCE: PRACTITIONER'S DESK REFERENCE].

¹⁰ ALPERT & FRIDELL, *supra* note 6, at 70.

¹¹ MODEL PENAL CODE § 3.08(2)(b)(i),(iv) (Proposed Official Draft 1962).

¹² ALPERT & FRIDELL, *supra* note 6, at 71; J. Paul Boutwell, *Use of Deadly Force to Arrest a Fleeing Felon—A Constitutional Challenge, Parts I & III*, in READINGS ON POLICE USE OF DEADLY FORCE 65, 73 (James J. Fyfe ed., 1982).

¹³ Blumberg, *supra* note 6, at 443-44. Sherman, *supra* note 7, at 97.

ment, and the Fourteenth Amendment's guarantee of due process.¹⁴

Despite long standing criticism, the Any-Felony Rule was the law prior to *Garner* in at least twenty-four states, while some combination of the other three policies existed in the other states.¹⁵ However, police departments usually follow their internal guidelines rather than the state's laws. Further, many of these guidelines are more restrictive than the state law. Thus, the actual police departments' policies before *Garner* varied significantly not only from state to state, but also within each state.¹⁶

B. *TENNESSEE V. GARNER*

Most jurisdictions considered police use of deadly force for all felonies to be legitimate until the Supreme Court decided *Tennessee v. Garner*. In that case, Garner brought a wrongful death action under the federal civil rights statute against a police officer and his respective department for the fatal shooting of Garner's son as he fled the scene of a burglary. Garner's son was unarmed at the time of the shooting. Justice White wrote for the majority, in a monumental decision: "We conclude that such force may not be used unless it is necessary to prevent the escape and the officer has probable cause to believe that the suspect poses a significant threat of death or serious physical injury to the officer or others."¹⁷

Although scholars agree that *Garner*-type shootings are unconstitutional,¹⁸ they disagree on what the phrase "the suspect poses a significant threat of death or serious physical injury" means. Some believe that the decision "created a constitutional right to run for many felony suspects;"¹⁹ others argue that it gave police officers the right to use deadly force only to protect life.²⁰

¹⁴ See Boutwell, *supra* note 12; Floyd R. Finch, Jr., Comment, *Deadly Force to Arrest: Triggering Constitutional Review*, 11 HARV. C.R.-C.L. L. REV. 361 (1976); Sherman, *supra* note 7, at 97.

¹⁵ While the Supreme Court lists 24 states where the 'Any Felony' rule was in existence before *Garner*, others claim different numbers. Professors Fyfe and Walker show surprise at that number, and claim some inaccuracy. James J. Fyfe & Jeffery T. Walker, *Garner Plus Five Years: An Examination of Supreme Court Intervention Into Police Discretion and Legislative Prerogatives*, 14 AM. J. CRIM. JUST. 167, 177 (1990). This article uses the 22 states mentioned by Professors Fyfe and Walker as the sample for the states influenced by *Garner*, and all the rest as states that were not. See *id.* at 177-78, table 1.

¹⁶ For the variety of policies, see GELLER & SCOTT, *supra* note 9, at 247-75.

¹⁷ *Tennessee v. Garner*, 471 U.S. 1, 3 (1985).

¹⁸ Ginny Looney, *The Unconstitutional Use of Deadly Force Against Nonviolent Fleeing Felons: Garner v. Memphis Police Department*, 18 GA. L. REV. 137, 163 (1983); John Simon, *Tennessee v. Garner: The Fleeing Felon Rule*, 30 ST. LOUIS U. L.J. 1259, 1277 (1986).

¹⁹ Michael D. Greathouse, *Criminal Law—The Right to Run: Deadly Force and the Fleeing Felon: Tennessee v. Garner*, 105 S. Ct. 1694 (1985), 11 S. ILL. U. L.J. 171, 184 (1986).

²⁰ David B. Griswold, *Controlling the Police Use of Deadly Force: Exploring the Alternatives*, 4

It seems that the Supreme Court equivocated. It severely restricted the Any-Felony Rule, but did not limit the use of deadly force to self-defense. Its language is similar to the MPC, but demands less by not requiring a life-threatening crime. As a result, most commentators agreed that the Court's decision in *Garner* would not significantly affect police conduct,²¹ because the creation or modification of laws has never effectively modified police behavior.²²

Professors Fyfe and Walker conducted a nationwide study which examined the impact of the *Garner* decision on policy-makers.²³ They examined legislative changes, activities of state attorneys general, and subsequent federal case law, and found that of the twenty-two states that *Garner* apparently affected, only four have amended their statutes to comply with the Court's holding.²⁴ In the remaining eighteen states, only two state attorneys general have officially advised the police of the decision. Fyfe and Walker attribute this response to legislators' fear that complying with *Garner* would cause voters to view them as being "soft on crime."²⁵ However, their study did not deal with the empirical question of whether *Garner* influenced the number of homicides committed by police.

The primary focus of this article is to fill that void, and investigate empirically the effect of the *Garner* decision on the number of homicides police officers commit nationwide.

II. RESEARCH METHODOLOGY

A. DATA SET

Law enforcement agencies that report criminal homicides on the basic Uniform Crime Report (UCR) form are requested (but not required) to submit a Supplementary Homicide Report (SHR) for each month.²⁶ Agencies do not submit SHRs for months in which police do not receive any reports of homicides. The form is incident-oriented—*i.e.*, if more than one murder occurred during the same incident, the agency fills out only one form, which covers each of the homicides. Each form details the age and race of the offenders and

AM. J. POLICE 93, 102 (1985).

²¹ See ALPERT & FRIDELL, *supra* note 6, at 69; James J. Fyfe, *Police Use of Deadly Force: Research and Reform*, 5 JUST. Q. 165, 199 (1988).

²² James J. Fyfe & Mark Blumberg, *Response to Griswold: A More Valid Test of the Justifiability of Police Actions*, 4 AM. J. POLICE 110, 111 (1985). See also William B. Waegel, *The Use of Lethal Force By Police: The Effect of Statutory Change*, 30 CRIME & DELINQ. 121, 136 (1984).

²³ Fyfe & Walker, *supra* note 15.

²⁴ *Id.* at 178.

²⁵ *Id.* at 179.

²⁶ FEDERAL BUREAU OF INVESTIGATION, UNIFORM CRIME REPORT HAND BOOK 63, 63-65 (1984).

victims (if known), and the weapon used. The form also details the circumstances and background of the incident, using terms such as "love triangle," "killed by babysitter," "brawl under alcohol," "argument over money," "killed while robbery," "killed while rape," "justifiable homicide-civilian," and "justifiable homicide-police."²⁷

The data sources for this research are SHR files for the years 1976 through 1988, as processed by the Inter-University Consortium for Political and Social Research (ICPSR) from the original SHR master tapes provided by the FBI.²⁸ While the SHR has clear limitations, the problems are not significant for the general question being tested,²⁹ and are similar to the problems in data sets used in previous research about deadly force.³⁰

B. THE STATISTICAL METHOD

The empirical analysis discussed in this article relies on "interrupted time series analysis," which estimates the impact of a specific event of social behavior. Analysts have used it to estimate the effect of political changes on the stock market, to measure the effect of installing a service fee on the number of phone calls to directory assistance, and to test and measure the impact of experimental psychological treatment. The most intensive use, however, has been to test the influence of new laws on changing public behavior.³¹

Under this method, analysts measure the average number of ob-

²⁷ Marc Riedel, *Nationwide Homicide Data Sets: An Evaluation of the Uniform Crime Reports and the National Center for Health Statistics Data*, in MEASURING CRIME: LARGE-SCALE, LONG-RANGE EFFORTS 175, 178 (Doris L. MacKenzie et al. eds., 1990) [hereinafter MEASURING CRIME].

²⁸ Two states, Florida and Kentucky, were not included because of flawed data.

²⁹ The validity of the UCR is a question beyond the scope of this paper. See generally Yoshio Akiyama & Harvey M. Rosenthal, *The Future of the Uniform Crime Reporting Program: Its Scope and Promise*, in MEASURING CRIME, *supra* note 27, at 49-74; Victoria W. Schneider & Brian Wiersema, *Limits and Use of the Uniform Crime Reports*, in MEASURING CRIME, *supra* note 27, at 22-48; Paul H. Blackman & Richard E. Gardener, *Flaws in the Current and Proposed Uniform Crime Reporting Programs Regarding Homicide and Weapons Use in Violent Crime* (1986) (Paper Presented at the Annual Meeting of the American Society of Criminology). Concerning the SHR, Professor Maxfield points to some flaws in the data caused largely by law enforcement agencies filling out the forms inappropriately. See Michael G. Maxfield, *Circumstances in Supplementary Homicide Reports: Variety and Validity*, 27 CRIMINOLOGY 671, 685-92 (1989). The main problem in the "circumstances" variable seems to be that the same circumstances can be interpreted in more than one way. See generally Colin Loftin, *The Validity of Robbery-Murder Classifications in Baltimore*, 1 VIOLENCE & VICTIMS 191, 191-204 (1986).

³⁰ On the general question of measuring homicides by police officers, see Lawrence W. Sherman & Robert H. Langworthy, *Measuring Homicide by Police Officers*, 70 J. CRIM. L. & CRIMINOLOGY 546 (1979). For a comprehensive review on the SHR measure of police homicides, see DEADLY FORCE: PRACTITIONER'S DESK REFERENCE, *supra* note 9, at 32-37.

³¹ DAVID McDOWALL ET AL., INTERRUPTED TIME SERIES ANALYSIS 10-11 (1980).

servations in a time unit, before and after a specific event. If the event influenced social behavior, these averages should be different. However, some trends which are not correlated to the tested event may influence the time series' behavior. For example, some commentators have suggested that, even before *Garner*, the trend in justifiable homicides by police was declining.³² Thus, any conclusion based only on average differences may be incorrect.

One way to avoid this is to build a mathematical model which takes into account trends and correlations in the data. After controlling for those, analysts may properly measure the averages and calculate the influence of the event.

The most popular way to estimate the effect of a specific event for this purpose is through the use of Auto Regressive Integrated Moving Average (ARIMA) models.³³ The advantage of ARIMA models (compared with regression models) is that they are more sensitive to the data, rather than the specific variables chosen by theory. One problem, however, is that the ARIMA models may not be sensitive enough to find a correlation between two variables. If, however, researchers do find a correlation, they can rely on it conservatively.

An accurate model using ARIMA requires researchers to first identify the reasonable model, then estimate the parameters for that model, and then conduct an appropriate diagnosis of the model.³⁴ Once an appropriate model is built, analysts may add the intervention component and test its influence on the model.

Using an ARIMA model, the influence of *Garner* on the number of homicides committed by police nationwide was tested.³⁵ Also, *Garner's* influence on various states was tested. The author divided the data into two groups: states whose deadly force laws were declared unconstitutional ("unconstitutional states"); and states whose laws

³² See generally LAWRENCE W. SHERMAN ET AL., *CITIZENS KILLED BY BIG CITY POLICE 1970-84* (1986).

³³ For details on ARIMA, see GEORGE E.P. BOX & GWILY M. JENKINS, *TIME SERIES ANALYSIS: FORECASTING AND CONTROL* 12, 73-78, 87-103 (1976). On the specific question of intervention in time series, see Douglas A. Hibbs, Jr., *On Analyzing the Effects of Policy Interventions: Box-Jenkins and Box-Tiao vs. Structural Equation Models*, *SOCIOLOGICAL METHODOLOGY* 137 (1977); Richard McCleary & David McDowall, *A Time Series Approach to Causal Modeling: Swedish Population Growth, 1750-1849*, 10 *POLITICAL METHODOLOGY* 357 (1984); RICHARD MCCLEARY ET AL., *APPLIED TIME SERIES ANALYSIS FOR THE SOCIAL SCIENCES* (1980); DAVID MCDOWALL ET AL., *INTERRUPTED TIME SERIES ANALYSIS* (1980).

³⁴ SPSS INC., *SPSS-X USER'S GUIDE* 385 (3d ed. 1988). Technically, the author identifies the model using the auto-correlation-function (ACF) and the partial-auto-correlation-function (PACF). The parameters must lie within the bounds of stationarity-invertability, and be statistically significant, to be considered adequate. Two tests are usually applied to verify the estimated model; the residuals of the ACF must describe white noise (without spikes in key lags), and the Q-statistic must be insignificant.

³⁵ The study examined a total of 4733 cases from January 1976 to December 1988.

were adequate before *Garner* ("constitutional states"). The study measured *Garner's* influence on each of these groups to determine whether it was greater on one than on the other.³⁶

C. VERIFICATION TESTS

To avoid the possibility that a variable which is unrelated to *Garner* affected the results, the author first determined the total number of homicides (including justifiable) committed by police during the same time period. If the measurement process is accurate, the number of total homicides before and after *Garner* should not differ. Also, the author measured the influence of *Garner* on the ratio of police homicides to the total number of criminal homicides. If the data were faulty, the ratio between them would be influenced to a lesser extent than the individual categories.³⁷

These two validations are important because of the correlation between the number of police homicides and the number of criminal homicides.³⁸ If, despite this connection, the number of police homicides decreased, while the number of criminal homicides remained constant, the *Garner* decision most likely influenced that reduction.

III. FINDINGS

A. THE REDUCTION IN POLICE HOMICIDES

Graph 1³⁹ shows the incidence of police homicides over time. The line in the middle is the intervention point (the month of the *Garner* decision). As the graph indicates, the data does not contain an outlier.

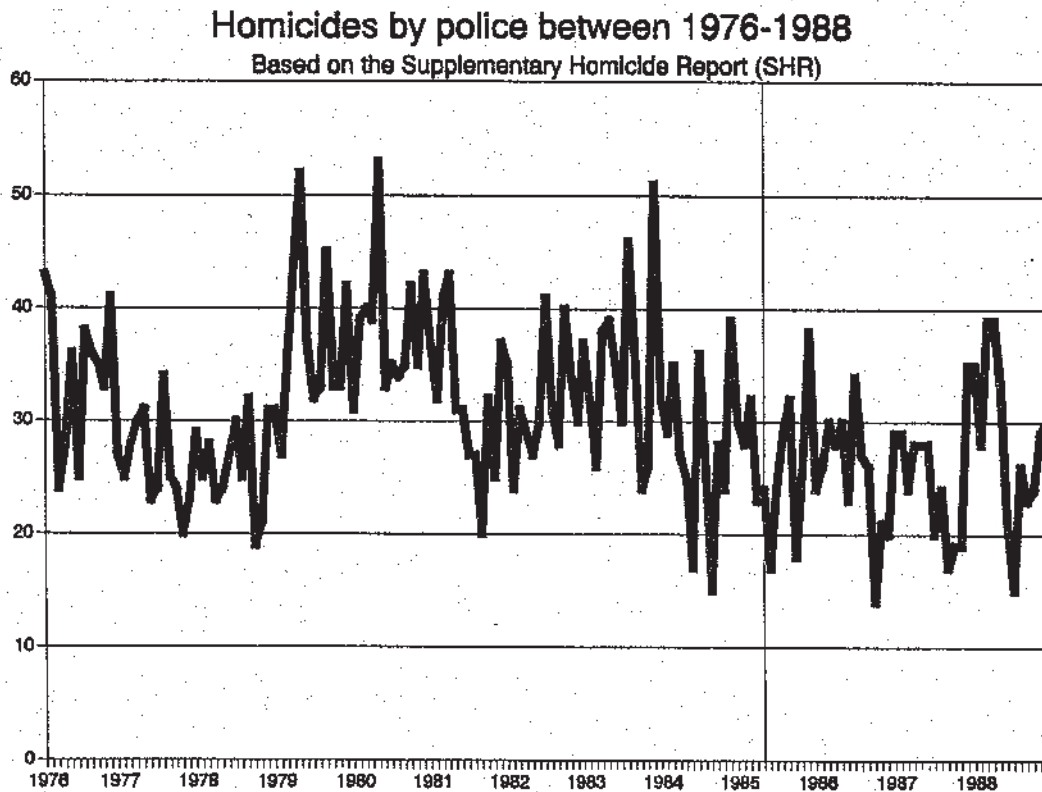
³⁶ The study actually looks at the influence of *Garner* on police shooting in general and not only at cases that resulted in death. However, the number of homicides is a direct result of the number of shootings. According to the SHR, from the total of 4733 police homicides used for this study, 4670 (98.67%) were the results of shooting.

³⁷ See generally THOMAS D. COOK & DONALD T. CAMPBELL, *QUASI-EXPERIMENTATION: DESIGN & ANALYSIS ISSUES FOR FIELD SETTINGS* (1979). For a short summary, see Thomas D. Cook, *Clarifying the Warrant for Generalized Causal Inferences in Quasi-Experimentation*, in *EVALUATION AND EDUCATION: AT QUARTER CENTURY* 115 (Milbrey W. McLaughlin & D.C. Phillips eds., 1991).

³⁸ See James J. Fyfe, *Geographic Correlates of Police Shooting: A Microanalysis*, 17 *J. RES. CRIME AND DELINQ.* 101 (1980); Richard R.E. Kania & Wade C. Mackey, *Police Violence as a Function of Community Characteristics*, 15 *CRIMINOLOGY* 27 (1977). But see Robert H. Langworthy, *Police Shooting and Criminal Homicide: The Temporal Relationship*, 2 *J. QUANTITATIVE CRIMINOLOGY* 377 (1986). For the connection between police homicides and violent crime in general, see David Jacobs & David Britt, *Inequality and Police Use of Deadly Force: An Empirical Assessment of a Conflict Hypothesis*, 26 *SOCIAL FORCES* 403, 412 (1979).

³⁹ Looking at graphs alone is not an accurate way to reach conclusions, and can sometimes be misleading. It is recommended, however, to avoid outlying points. See generally F.J. Anscombe, *Graphs in Statistical Analysis*, 27 *AM. STATISTICIAN* 17 (1973).

GRAPH 1



As stated, analysts cannot add the intervention component until they identify the right statistical model for the data. As Graph 2, which shows the auto-correlation-function (ACF), and Graph 3, which shows the partial-auto-correlation-function (PACF) of the original data illustrate, the most appropriate model is the auto-regressive model of order 1. Graph 4 shows the auto-correlation-function (ACF), and Graph 5 shows the partial auto-correlation-function (PACF) of this model.

The model passes the diagnostic stage because there are no significant values in key lags in any graphs; the parameter estimates are within the permitted boundaries; and the Q-test is not significant.⁴⁰ Thus, this model is appropriate to test the intervention—*i.e.*, the effect of the *Garner* decision on police homicides.

Table 1 includes the parameters for the intervention model for the number of police homicides each month ("police" variable), and the ratio of police homicides to criminal homicides ("ratio" variable).

⁴⁰ The Q-statistic is distributed as a chi-square statistic. At the 0.05 level, the critical value (with 23 degrees of freedom) is 35.17. If the Q-test is more than the critical value (as in Graph 2), the model does not fit the assumption about non-auto-correlation of the residuals. If this is the case, the model is inappropriate.

GRAPH 2

ACF VARIABLE IS POLICE.

MAXLAG IS 25. LBQ/

FIRST CASE NUMBER TO BE USED = 1
 LAST CASE NUMBER TO BE USED = 156
 NO. OF OBS. AFTER DIFFERENCING = 156
 MEAN OF THE (DIFFERENCED) SERIES = 28.1026
 STANDARD ERROR OF THE MEAN = 0.5430
 T-VALUE OF MEAN (AGAINST ZERO) = 51.7513

AUTOCORRELATIONS

1-12	.35	.20	.27	.21	.10	.02	.22	.18	.14	.20	.20	.15
ST.E.	.08	.09	.09	.10	.10	.10	.10	.10	.11	.11	.11	.11
L-B. Q	20.	27.	38.	46.	47.	47.	55.	60.	63.	70.	77.	80.
13-24	.06	0.0	-.05	-.01	0.0	-.06	.02	.05	.02	-.15	-.13	0.0
ST.E.	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.12
L-B. Q	81.	81.	81.	81.	81.	82.	82.	83.	83.	87.	90.	90.
25-25	-.01											
ST.E.	.12											
L-B. Q	90.											

PLOT OF AUTOCORRELATIONS

LAG	CORR.	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	0.2	0.4	0.6	0.8	1.0	
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+											
1	0.353						I						
2	0.205						+ IXXX+XXXXX						
3	0.269						+ IXXX+X						
4	0.211						+ IXXXX+XX						
5	0.103						+ IXXXXX						
6	0.025						+ IX +						
7	0.215						+ IXXXXX						
8	0.176						+ IXXXX+						
9	0.138						+ IXXX +						
10	0.197						+ IXXXXX						
11	0.198						+ IXXXXX						
12	0.148						+ IXXXX+						
13	0.058						+ IX +						
14	-0.001						+ I +						
15	-0.054						+ XI +						
16	-0.010						+ I +						
17	0.004						+ I +						
18	-0.059						+ XI +						
19	0.023						+ IX +						
20	0.045						+ IX +						
21	0.018						+ I +						
22	-0.155						+XXXXXI +						
23	-0.125						+ XXXI +						
24	0.000						+ I +						
25	-0.010						+ I +						

Show the ACF for the variable 'police' (police homicides), and the Q statistic. As can be seen, the ACF has significant value in all the first four lags, and the Q statistic is significant (Q distribution here is like chi-square distribution with twenty-five degrees of freedom).

GRAPH 3

PACF VARIABLE IS POLICE.

MAXLAG IS 25./

FIRST CASE NUMBER TO BE USED = 1
 LAST CASE NUMBER TO BE USED = 156
 NO. OF OBS. AFTER DIFFERENCING = 156
 MEAN OF THE (DIFFERENCED) SERIES = 28.1026
 STANDARD ERROR OF THE MEAN = 0.5430
 T-VALUE OF MEAN (AGAINST ZERO) = 51.7513

PARTIAL AUTOCORRELATIONS

1-12	.35	.09	.20	.07	-.03	-.08	.21	.05	.07	.08	.04	0.0
ST.E.	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
13-24	-.05	-.12	-.11	.03	.01	-.08	.04	0.0	0.0	-.19	-.06	.09
ST.E.	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
25-25	.15											
ST.E.	.08											

PLOT OF PARTIAL AUTOCORRELATIONS

LAG	CORR.	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	0.2	0.4	0.6	0.8	1.0	
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+											
							I						
1	0.353						+ IXXXX+XXXXX						
2	0.091						+ IXX +						
3	0.197						+ IXXXX+X						
4	0.065						+ IXX +						
5	-0.029						+ XI +						
6	-0.078						+ XXI +						
7	0.208						+ IXXXX+X						
8	0.053						+ IX +						
9	0.067						+ IXX +						
10	0.081						+ IXX +						
11	0.040						+ IX +						
12	0.001						+ I +						
13	-0.046						+ XI +						
14	-0.118						+XXXI +						
15	-0.114						+XXXI +						
16	0.028						+ IX +						
17	0.011						+ I +						
18	-0.079						+ XXI +						
19	0.036						+ IX +						
20	-0.002						+ I +						
21	-0.003						+ I +						
22	-0.188						X+XXXI +						
23	-0.058						+ XI +						
24	0.093						+ IXX +						
25	0.149						+ IXXXX						

Shows the PACF for the variable 'police' (police homicides).

GRAPH 4

ACF VARIABLE IS OUTR.
MAXLAG IS 25. LBQ./

FIRST CASE NUMBER TO BE USED = 2
LAST CASE NUMBER TO BE USED = 156
NO. OF OBS. AFTER DIFFERENCING = 155
MEAN OF THE (DIFFERENCED) SERIES = -0.0688
STANDARD ERROR OF THE MEAN = 0.5087
T-VALUE OF MEAN (AGAINST ZERO) = -0.1353

AUTOCORRELATIONS

1-12	-.05	0.0	.19	.12	.03	-.09	.19	.08	.02	.11	.11	.09
ST.E.	.08	.08	.08	.08	.08	.08	.09	.09	.09	.09	.09	.09
L-B Q	.30	.30	6.1	8.5	8.6	9.9	16.	17.	17.	19.	21.	22.
13-24	.02	0.0	-.07	0.0	.04	-.08	.03	.05	.08	-.15	-.10	.05
ST.E.	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09
L-B Q	22.	22.	23.	23.	24.	25.	25.	25.	26.	30.	32.	33.
25-25	.04											
ST.E.	.09											
L-B Q	33.											

PLOT OF AUTOCORRELATIONS

LAG	CORR.	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	0.2	0.4	0.6	0.8	1.0	
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+											
		I											
1	-0.047						+ XI						
2	0.002						+ I						
3	0.190						+ IXXX+X						
4	0.121						+ IXXX+						
5	0.028						+ IX						
6	-0.090						+ XXI						
7	0.185						+ IXXX+X						
8	0.078						+ IXX						
9	0.024						+ IX						
10	0.114						+ IXXX+						
11	0.106						+ IXXX+						
12	0.095						+ IXX						
13	0.020						+ I						
14	-0.004						+ I						
15	-0.068						+ XXI						
16	0.003						+ I						
17	0.042						+ IX						
18	-0.084						+ XXI						
19	0.026						+ IX						
20	0.048						+ IX						
21	0.077						+ IXX						
22	-0.149						+XXXXXI						
23	-0.095						+ XXI						
24	0.054						+ IX						
25	0.039						+ IX						

Shows the ACF and the Q-statistic for the residuals of 'police' (police homicides) for the autoregressive first-order model.

GRAPH 5

PACF VARIABLE IS OUTR.
MAXLAG IS 25./

FIRST CASE NUMBER TO BE USED = 2
LAST CASE NUMBER TO BE USED = 156
IPAGE 7 2T POLICE HOMICIDES
NO. OF OBS. AFTER DIFFERENCING = 155
MEAN OF THE (DIFFERENCED) SERIES = -0.0688
STANDARD ERROR OF THE MEAN = 0.5087
T-VALUE OF MEAN (AGAINST ZERO) = -0.1353

PARTIAL AUTOCORRELATIONS

1-12	-.05	0.0	.19	.14	.04	-.13	.13	.08	.07	.09	.06	.06
ST.E.	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
13-24	.01	-.07	-.15	-.04	.04	-.06	0.0	0.0	.08	-.14	-.14	-.02
ST.E.	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
25-25	.16											
ST.E.	.08											

PLOT OF PARTIAL AUTOCORRELATIONS

LAG	CORR.	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	0.2	0.4	0.6	0.8	1.0	
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+											
		I											
1	-0.047						+	XI	+				
2	0.000						+	I	+				
3	0.190						+	IXXX+X					
4	0.145						+	IXXXX					
5	0.044						+	IX	+				
6	-0.132						+	XXXI	+				
7	0.126						+	IXXX+					
8	0.077						+	IXX	+				
9	0.072						+	IXX	+				
10	0.090						+	IXX	+				
11	0.064						+	IXX	+				
12	0.056						+	IX	+				
13	0.014						+	I	+				
14	-0.071						+	XXI	+				
15	-0.154						+	XXXXI	+				
16	-0.044						+	XI	+				
17	0.036						+	IX	+				
18	-0.060						+	XXI	+				
19	0.002						+	I	+				
20	0.003						+	I	+				
21	0.076						+	IXX	+				
22	-0.137						+	XXXI	+				
23	-0.145						+	XXXXI	+				
24	-0.025						+	XI	+				
25	0.160						+	IXXXX					

Shows the PACF for the residuals of 'police' (police homicides) for the auto-regressive first-order model.

The estimate for the first order component relating to the police variable is 0.2804 with a T-ratio of 3.60. The mean (before the intervention) is 29.43 police homicides a month with a 35.8 T-ratio. The intervention component is -4.75 with a -3.15 T-ratio.

TABLE 1

	'Police'	'Ratio'
First third mean:	29.54	1.95
Second third mean:	29.88	1.90
Third third mean:	24.88	1.68
Model Type:	Autoregressive order 1	Autoregressive order 1
Parameter:	0.28	0.32
T-Ratio:		
(of the parameter)	3.60	4.19
Intervention:	-4.75	-0.26
T-ratio:		
(of the intervention)	-3.15	-2.56
Mean:	29.43	1.91
T-ratio:		
(of the mean)	35.88	34.57
Reduction:	-16.13%	-13.61%

Summarizes the results for the variables 'police' (number of police homicides) and 'ratio' (the ratio between police homicides and criminal homicides).

Model type:	is the ARIMA model which fitted the data.
Parameter:	is the first order parameter.
Intervention:	is the size of the intervention (reduction) component.
Mean:	is the mean of the variable before the intervention point.
Reduction:	is the size of the reduction in percentage.

Based on the first order component for the police variable, the full equation is:

$$H_t = 29.43 + H_{t-1} * 0.28 - 4.7 * I + A_t$$

where I is a dummy variable representing the time before and after the intervention, and A_t is the random component.

These results indicate that police homicides decreased from 29.43 per month to 24.68 following the Court's decision in *Garner*. This is a monthly average of 4.75, a reduction of approximately sixteen (16.15) percent.

Table 1 also includes the parameters for the "ratio" variable, which represents the ratio between police homicides and criminal homicides. The estimate for the first order component is 0.32, with a T-ratio of 4.19. The mean of the ratio between police homicides and criminal homicides is 1.91. The intervention component is -0.26, with a T-ratio of -2.56. This means that after *Garner*, the percentage of police homicides that contributed to the total number of homicides fell

by approximately 0.26%. As before, the full equation is:

$$\text{Ratio } t = 1.91 + \text{Ratiot-1} * 0.32 - 0.26 * I + A_t$$

The total reduction of the "ratio" variable between police homicides and criminal homicides decreased by 13.55% following the *Garner* decision.

The difference between the police homicide reduction (16.15%) and the ratio reduction (13.55%) is due to variation in the criminal homicides number and not in the police homicides number. As Table 1 illustrates, the mean of police homicides in the first-third of the third period (29.54) is almost the same as in the second-third (29.88), while the ratio mean went down from 1.95 in the first-third to 1.90 in the second-third. In both cases, however, the big reduction occurred in the third-third (each third represents 52 months out of the sample of 156. The intervention point is seven months after the beginning of the third-third).

B. "CONSTITUTIONAL" AND "UNCONSTITUTIONAL" STATES

Table 2 summarizes three intervention variables in addition to the "police" and "ratio" variables.

The first variable is the total number of criminal homicides ("total" variable). The results in Table 2 show that the T-ratio of the intervention is -0.72, so even the small reduction of 2.9% is not valid. This suggests that there was no significant intervention in the total homicides as reported in the Supplementary Homicide Report, and therefore, the results of this study are not an outcome of measurement variability.

TABLE 2.

	Size of intervention component	T-ratio of intervention component	Mean before intervention	Reduction in percent
Total:	-46.28	-0.72	1576	-2.9%
State	-2.16	-3.66	9.072	-23.80%
Notstate:	-2.64	-2.47	20.37	-12.96%

Summarizes the results of the intervention for five other variables: 'Total'—the number of criminal homicides. 'State'—the number of police homicides in states whose laws were influenced by the *Garner* decision. 'Notstate'—the number of police homicides in states whose laws were not influenced by the *Garner* decision. Size of intervention component indicates the number of homicides reduced by the decision. A mean before intervention is the mean predicted by the model in the assumption that the intervention made a difference.

Table 2 indicates that the *Garner* decision influenced both the constitutional and unconstitutional states. In the unconstitutional states (termed "State" in Table 2), the reduction was an average of

2.16 homicides following the *Garner* decision; in constitutional states (termed "Notstate"), the reduction was 2.64 homicides following *Garner*. Clearly, however, the decision in *Garner* had a greater influence on the unconstitutional states than the constitutional ones. Because of the differences in the number of police homicides to start with, the percentage reduction was different. In the constitutional states, the number of homicides declined by approximately thirteen percent (-12.96%). In the unconstitutional states the reduction was approximately twenty-four percent (23.80%).

C. SUB-CIRCUMSTANCES

Another variable in the data set is called sub-circumstances. Sub-circumstance is defined only for the cases where the "circumstances" variable value is "justifiable homicide—police" or "justifiable homicide—civilian." In cases of criminal homicide, it has a zero value. This variable has seven values (the values are defined by the SHR itself, and this is how they appear in the code book):

1. Felon attacked police officer
2. Felon attacked fellow police officer
3. Felon attacked civilian
4. Felon attempted flight from a crime
5. Felon killed in commission of crime
6. Felon resisted arrest
7. Not enough information to determine

Unfortunately, the sample is too small to use ARIMA for each category (or even a combination of categories). However, the mean values in each category before and after the *Garner* decision reveal as indicated in Table 3, that the sub-category of shooting felons who attacked police officers increased slightly from an average of 10.91 police homicides per month before *Garner* to 11.489 per month after *Garner*. Also, attempted flight went down from 2.135 to 1.044 per month (a reduction of 51%), the number of felons killed in the commission of a crime decreased by 29% (from 8.847 police homicides per month to 6.267), and cases of resisting arrest went down from 3.874 cases a month to 2.644 (a reduction of approximately 32%).

This reduction has to be viewed cautiously for two reasons. First, comparing averages alone is not generally a good measure for estimating impact.⁴¹ Second, it is not surprising that police officers tend to report shootings differently when the norms have been changed. Professor Fyfe reported that after a new New York City Police Department policy banned warning shots, the number of police shootings re-

⁴¹ See *supra* note 33 and accompanying text.

TABLE 3.

Code	Description	Total-Before	Mean-Before	Total-After	Mean-After
1	Felon attacked police officer	1211	10.910	517	11.489
2	Felon attacked fellow police officer	211	1.901	41	.911
3	Felon attacked a civilian	69	.622	36	.800
4	Felon attempted flight from a crime	237	2.135	47	1.044
5	Felon killed in commission of a crime	982	8.847	282	6.267
6	Felon resisted arrest	430	3.874	119	2.644
7	Not enough information to determine	417	3.760	134	2.978
	SUM OF ALL	3557	32.050	1176	26.133

Table 3 shows the total and monthly means for each sub-circumstances category.

ported as "accidental" jumped from 4.5% to 9.2%.⁴² The Memphis Police Department reported similar results. Professors Sparger and Giacomassi reported that after a policy change, the number of shootings classified as "apprehend suspect" declined by 58.6% while the rate of "defend life" increased 91.5%.⁴³ These changes in Memphis occurred despite the fact that there was no reduction in the total amount of police shootings.

IV. DISCUSSION

A. THE FACTS

Three conclusions seem to be self-evident from the data presented here. The first, and most important one is that *Garner* had a clear effect on justifiable police homicides. It reduced the total number of police homicides by approximately sixty homicides a year (more than sixteen percent). Second, *Garner* had an influence in both unconstitutional states and constitutional states. The magnitude of the reduction, however, was greater in unconstitutional states. Finally, *Garner* influenced not only a reduction in the number of police shootings of fleeing felons, but of all shootings, even those that are not correlated to defending life. This conclusion, however, needs more empirical support before it can be unequivocally accepted.

⁴² James J. Fyfe, *Administrative Interventions On Police Shooting Discretion: An Empirical Examination*, 7 J. CRIM. JUST. 309, 318 (1979).

⁴³ Jerry R. Sparger & David J. Giacomassi, *Memphis Revisited: A Reexamination of Police Shootings After the Garner Decision*, 9 JUST. Q. 211, 218 (1992).

B. WHY DID THE GARNER DECISION HAVE SUCH AN IMPACT?

The impact of *Garner* is surprising. Even before *Garner*, many police departments had already restricted their guidelines, and repealed the Any-Felony Rule. Accordingly, observers did not expect *Garner* to have such a dramatic impact.⁴⁴

A recent study on the influence of the *Garner* decision on the Memphis Police Department (MPD) may explain this phenomenon. Sparger & Giacomassi investigated MPD shootings in three different periods: 1969-1974; 1980-1984; 1985-1989.⁴⁵ They concluded that *Garner* definitely reduced police shootings.⁴⁶ Even though Memphis' policy before *Garner* was consistent with the Supreme Court's decision, the police restricted the policy even further after the decision. In fact, the policy after *Garner* emphasized "that deadly force should be used only as a last resort to protect life, not merely to apprehend fleeing dangerous felons."⁴⁷

This tendency by police departments to restrict their shooting guidelines beyond legal requirements is not a new one. Kenneth Matulia, who conducted a survey among fifty-seven big city police departments, wrote that "the individual police department rules . . . generally place a more restrictive standard of conduct than permitted by law."⁴⁸ Professors Geller and Scott also described a tendency in law enforcement agencies to move towards guidelines which were more restrictive than *Garner* required.⁴⁹

Thus, the adoption of more restricted policies by police departments nationwide after the Court's decision in *Garner* seems to have caused the reduction in police homicides. This is consistent with the evidence that restricted policies can reduce police shootings, and therefore police homicides.⁵⁰ The magnitude of the change can explain the differences in reduction between the unconstitutional states (23.8% reduction in police homicides), and the constitutional states (12.96% reduction). The modifications which should have been made in department policies were higher in states that had the Any-Felony Rule than in states which did not. As a result, *Garner's* influence was more accentuated in the unconstitutional states.

⁴⁴ See *supra* note 22 and accompanying text.

⁴⁵ See generally Sparger & Giacomassi, *supra* note 43.

⁴⁶ *Id.* at 224.

⁴⁷ *Id.* at 214.

⁴⁸ KENNETH J. MATULIA, A BALANCE OF FORCES: MODEL DEADLY FORCE POLICY AND PROCEDURE 17 (2d ed. 1985).

⁴⁹ DEADLY FORCE: A PRACTITIONER'S DESK REFERENCE, *supra* note 9, at 256.

⁵⁰ *Id.* at 257-67; see also Gerald I. Uelmen, *Varieties of Police Policy: A Study of Police Policy Regarding the Use of Deadly Force in Los Angeles County*, 6 LOY. L.A. L. REV. 1 (1973).

The self-restrictions on police behavior concerning deadly force were not only the result of good will but were also a political necessity. Police shootings of civilians have huge social costs, including riots.⁵¹ This has happened not only in the United States but in other nations too,⁵² and it is almost anticipated in some neighborhoods. Aside from public disturbances, police use of deadly force often spawns civil lawsuits.⁵³ The fear of riots and law suits may explain why mayors and police chiefs prefer to severely limit the instances in which their officers may use deadly force.

In sum, the *Garner* decision seems to have reduced police homicides directly (by reducing police shooting at fleeing felons), and indirectly (by influencing police departments to reduce and modify their guidelines beyond *Garner* to appear just and sensitive to the public). As a result, all police shooting unrelated to protecting life seems to be declining.

C. SOME UNDESIRABLE OUTCOMES

Until the 1960s, the number of homicides in the United States was relatively stable.⁵⁴ There were fewer homicides then there are today, and the percentage of homicides which qualified as justifiable (by police or civilians) was much higher than today. As Professor Brearley wrote in 1932, "it may be safely concluded that justifiable homicides comprise from one-fourth to one-third of the total number of slayings."⁵⁵

These statistics suggest that the more society views police and civilian homicides as justifiable, the more criminals these homicides deter. Professor Cloninger investigated the connection between police homicides and the crime rate in fifty cities.⁵⁶ He found that non-homicide violent crime rates are inversely related to the police's lethal

⁵¹ For a list of occasions where shooting or other incidence between police officers and civilians caused rioting, see *DEADLY FORCE: A PRACTITIONER'S DESK REFERENCE*, *supra* note 9, at 1-14.

⁵² Any incident where a police officer causes some unnecessary harm to civilians can cause riots. For example, on July 17, 1992, in Bristol, England, two local men died in a collision with a police car after they had stolen a police motorcycle. Their death immediately caused three days of rioting and looting. Maurice Chittenden & Christopher Lloyd, *Police Say Infiltrators Organised Bristol Riots*, *THE TIMES* (LONDON), July 19, 1992, at 3.

⁵³ See generally Michael M. Kaune & Chloe A. Tischler, *Liability in Police Use of Deadly Force*, 8 *AM. J. POLICE* 89 (1989).

⁵⁴ Margaret A. Zahn, *Homicide in the Twentieth Century: Trends, Types, and Causes*, in *VIOLENCE IN AMERICA* 216, 222 (Ted R. Gurr ed., 1989).

⁵⁵ H.C. BREARLEY, *HOMICIDE IN THE UNITED STATES* 63 (1932). See also, Zahn, *supra* note 54, at 221-22.

⁵⁶ Dale O. Cloninger, *Lethal Police Response As A Crime Deterrent*, 50 *AM. J. ECON. & SOC.* 59-69 (1991).

response rate, and concluded that police use of deadly force has a deterrent effect on the crime rate.⁵⁷

Further, police officers believe that the threat of deadly force deters felony criminals, and that harsh statutory limitations on police discretion is dangerous.⁵⁸ In fact, some officers have already complained that the *Garner* decision, and resulting restrictive practices, have made their work frustrating and more dangerous.⁵⁹

Arguably, Justice O'Connor recognized this concern in her dissenting opinion: "I cannot accept the majority's creation of a constitutional right to flight for burglary suspects seeking to avoid capture at the scene of the crime."⁶⁰ The majority of the Court considered this concern, but decided that the deterrent effect does not justify the risk of unnecessary police homicides. While the data is not sufficient to answer the empirical questions, the possibility that the Court's decision in *Garner* eroded the deterrent effect of police homicide should be considered in any evaluation of *Garner's* influence.

D. SUMMARY

Despite suspicion about the ability of the Supreme Court to change police discretion,⁶¹ the *Garner* decision demonstrates that a decision can have a strong effect on police behavior. However, more research is needed on the local level to determine whether police departments have changed their policies to comply with *Garner*. This would provide a better understanding of the types of policies that can influence police use of deadly force.

⁵⁷ *Id.*

⁵⁸ A.L. Rodez, *Deadly Force As a Deterrent to Felony Crimes Against Property: An Analysis of Michigan Police Officer Attitudes Toward Statutory Limitations On Their Use of Discretion* (1980) (unpublished Ph.D. dissertation, Michigan State University); Abraham N. Tennenbaum, *Police Officers' Need For Self-Defense Causes Brutality*, in *POLICE BRUTALITY* 100-01 (Bruno Leone ed., 1991).

⁵⁹ Gordon Witkin et al., *Cops Under Fire*, U.S. NEWS AND WORLD REP., Dec. 3, 1990, at 32, 38.

⁶⁰ *Tennessee v. Garner*, 471 U.S. 1, 32-33 (O'Connor, J., dissenting).

⁶¹ See generally GERALD N. ROSENBERG, *THE HOLLOW HOPE: CAN COURTS BRING ABOUT SOCIAL CHANGE?* (1991).