

ABSTRACT

Title of Thesis: *INCORPORATING IDEAS OF
DISPLACEMENT AND DIFFUSION OF
BENEFITS INTO EVALUATIONS OF
COUNTERTERRORISM POLICY*

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Criminology and Criminal Justice

Criminologists and terrorism specialists alike have conducted research on the deterrent effect of policies; however, to date, only criminologists have thoroughly examined the associated displacement of crime and diffusion of benefits. Using data from the Eco-Incidents Database, this study first examines the deterrent effect of government efforts targeting animal rights and environmental terrorism over several years. Next, it extends this application by examining non-terrorist actions by both terrorist groups and non-terrorist groups to see if deterrent actions have any unintended consequences. Results show no evidence of displacement, but rather that several government actions evidenced a diffusion of benefits. If anti-terrorist laws reduce other types of crime, particularly by non-terrorists, then this has policy implications for law enforcement strategies.

*INCORPORATING IDEAS OF DISPLACEMENT AND DIFFUSION OF
BENEFITS INTO EVALUATIONS OF COUNTERTERRORISM POLICY*

by

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Chapter 1: Introduction

Deterrence efforts and their subsequent externalities, displacement and diffusion of crime-control benefits, are a common theme of discourse in criminological literature (see, for example, Weisburd et al. 2006; Clark and Weisburd 1994; Johnson, Guerette, and Bowers 2012; Weisburd et al. 2011; Braga and Weisburd 2014). However, the same terminology is sparsely applied to studies of terrorism (for exceptions, see Hsu and Apel 2015; Clarke and Newman 2006). This fact stands in contrast to years of terrorism literature emphasizing that terrorists are rational actors and react to typical deterrent tactics such as target hardening (Brandt and Sandler 2010; Wang and Bier 2011), forceful crackdowns or operations (LaFree, Dugan, and Korte 2009), and conciliatory measures (Dugan and Chenoweth 2012). However, as many authors have noticed, deterrence is not a certain result of these actions. Typically, the impact is more complicated and may cause the terrorists to change tactics or targets (Enders and Sandler 1993) or increase their efforts in retaliation (LaFree, Dugan, and Korte 2009). Furthermore, many studies ignore the possibility that benefits diffuse to groups outside their scope. Adopting this criminological nomenclature into terrorism research will add depth to the current understanding of ramifications from counterterrorism policy decisions.

An apt application of deterrence, displacement, and diffusion of benefits is toward the study of animal-rights and environmental terrorism in the United States. It is important to provide a brief history and context of the movement in order to justify why this case study fits the proscribed criminological framework.

In 1992, Congress passed the Animal Enterprise Protection Act (AEPA) in reaction to the growing number of terrorist attacks perpetrated by animal rights and

environmental terrorist groups, particularly the Animal Liberation Front (ALF). ALF originated in Great Britain in the 1960s and 1970s with goals of inflicting economic damage on organizations profiting from harming animals, revealing the nature of animal abuse inflicted by organizations, and freeing animals from such organizations (Liddick 2006). As the 1970s progressed, ALF began to influence similar operations in the United States. While the Federal Bureau of Investigation (FBI) believes domestic animal-rights terrorism began in the early 1970s, the first ALF attack in the United States occurred in 1977 (Best and Nocella 2004). The largest environmental terrorist group, the Earth Liberation Front (ELF), was a nascent group in Great Britain in 1992, but its influences were already spreading to Canada and the United States. The first ELF attack in Canada took place on June 19, 1995 when members damaged a lodge and burnt down a wildlife museum (Best and Nocella 2004). The first ELF terrorist attack in the United States occurred on December 25, 1996 when ELF members stormed a fur farm, destroyed property, and released a number of minks in Michigan (Best and Nocella 2004)

While the animal rights and environmental terrorist movement was rising to prominence in the 1980s and 1990s, a distinct community of non-violent animal rights and environmental protesters were also growing in notoriety. At the World Trade Organization (WTO) meetings in Seattle in 1999, a group named the Direct Action Network had planned to stage non-violent protests against the actions of the agricultural and trading groups participating in the meetings. However, when the day to initiate the actions arrived, a number of more violent participants had mixed with those that planned on peaceful protests. Therefore, while many of the events on November 30, 1999 were non-violent protests, including activists hanging a large banner from a crane in the middle

of Seattle, some actions escalated into violence leading to police confrontation. As a result, the protests received much negative media attention. The New York Times even erroneously claimed that several of the protestors were throwing Molotov Cocktails at responding police officers (Christian, 2000). Importantly, media sources also failed to distinguish between the non-violent protestors and the violent ones who clashed with the police. As such, the entire movement was associated with the disruptive actions at the WTO meetings. The incidents of disruption and protest may also have increased pressure for the government to direct its attention toward left-wing radical groups who reporters deem to be threatening the safety of police officers and committing destructive crimes. Furthermore, the protests at the WTO deepened the federal government's commitment to protect business interests and establish a general policy to concentrate on crimes costly to business operations or detrimental to property. However, the blurred line that the WTO protests had cast between non-violent lawbreakers and violent terrorists played a role in influencing the nature of government actions to come. As a result, many members of non-violent groups feared that measures taken to stop terrorist groups were also targeting them (Potter 2006).

Following the growing influence ALF and ELF attained in the late 1990s and early 2000s, the Federal Government, particularly the FBI, began to focus more critically on counterterrorism measures aimed at stopping their attacks. In February 2001, Louis Freeh, the director of the FBI, testified before Congress and named ELF the number one domestic terrorist threat. Following the attacks on September 11, 2001, terrorism, on both an international and domestic front, became even more of a mainstream concern and media focus. In the mid-2000s, there were several notable court rulings, crackdowns and

laws passed that focused on animal rights and environmental extremist groups. In 2003, the American Legislative Exchange Council (ALEC) proposed a bill called the Animal and Ecological Terrorist Act that strove to provide more of a punitive divide between those that vandalize and those that vandalize with intent to cause permanent damage and for the expressed purpose or intent to coerce. The bill would also have redefined an animal rights or environmental terrorist group as comprising of two or more people who, at the minimum, support “politically-motivated activity” (American Legislative Exchange Council 2003). In May 2004, John Lewis, the FBI’s deputy assistant director, petitioned Congress to pass stricter laws against those who influence others to commit terrorist actions against animal enterprises, even when they do not physically commit the acts themselves. Lewis’ testimony is found in *Animal Rights: Activism vs. Criminality* (2004). In December 2005 and January 2006, the FBI merged several independent investigations to create *Operation Backfire*, wherein they initially indicted thirteen people on charges of terror, including 11 members of the group The Family. The Family was a close-knit unit of ELF and ALF members who committed arson attacks in the United States together and claimed responsibility in the name of either ELF or ALF. Another notable occurrence involved the prosecution of the Stop Huntingdon Animal Cruelty-7 (SHAC-7). Seven people had constructed a website with the intent of inciting others to interrupt the day-to-day operations of the Huntingdon Life Sciences (HLS) research lab’s United States campus in East Millstone, New Jersey. Due in part both to the increased movement to target animal rights and environmental terrorists and the increased pressure applied by large businesses affected by such attacks, the SHAC-7 were charged with “animal enterprise terrorism” (among other charges) under the auspices of the AEPA, and

six of the seven were convicted on March 2, 2006. Finally, in November 2006, the Animal Enterprise Terrorism Act (AETA) was signed into law. Among other provisions, which I will discuss in detail later, the law created stiffer penalties for tertiary targeting, which prohibited intentional damage of property belonging to anyone with an association to an animal enterprise. This particular stipulation of the law directly links to the ruling in the SHAC-7 trial, as the SHAC-7 website operators often posted addresses or phone numbers of employees working for businesses associated with Huntingdon Life Sciences.

In introducing the expansive list of laws and crackdowns, the government aimed to deter domestic terrorism by ALF and ELF, among other groups. However, one can theorize that the actions also had an effect on non-terrorist law-breaking activities that the laws were not expressly targeting. In criminological literature, this would be akin to examining the potential displacement and diffusion effects of these laws. In this situation, the evidence would predict a diffusion of benefits, which would occur if non-violent law-breaking activities decreased after the implementation of government laws and actions targeting terrorism. Perhaps, for example, non-violent law-breaking groups perceived the government actions as ambiguous and overly vague and took fewer actions out of fear that the government could misconstrue their actions as terrorism.

This thesis will examine the effect that government actions had on both its intended target, terrorist actions, and its unintended target, non-violent law-breaking actions by both terrorist groups and non-terrorist groups. To examine the impact on terrorist attacks, this thesis will examine the deterrent impact of the actions on the number of terrorist attacks committed by animal rights and environmental groups. By extension, this thesis will then examine if terrorist groups' activities displace to other

forms of crime subsequent to the government actions. Finally, this paper will examine the impact of the government actions on the number of non-violent law-breaking actions undertaken by non-terrorist groups. A decrease in the number of actions would suggest that the government actions led to a diffusion of benefits unto the non-violent law-breaking groups.

Chapter 2: Deterrence, Displacement, and Diffusion of Benefits

This chapter establishes the theoretical precedent to provide context for the potential influence of the notable government laws and actions on law-breaking activity. I begin by explaining how these government actions might deter terrorism and then consider other unexpected consequences of deterrence efforts, particularly how the laws and actions might have led terrorist and non-terrorist groups to change their non-violent law-breaking.

Deterrence

Ideas concerning the connection between deterrence and crime began with the writings of Thomas Hobbes (1928 [1651]), Cesare Beccaria (1986 [1764]), and Jeremy Bentham (1970 [1789]). Hobbes posited the idea of a social contract, wherein each person in a society is willing to hold others responsible for acting within the confines of the rules. As such, the punishment for the crime must outweigh the hedonistic benefits the crime would provide. Beccaria and Bentham further stressed that the severity of the punishment need only be proportional to the severity of the committed offense. If punishments were equivalent across offenses, then criminals would commit the worst offense possible. Beccaria also stressed two points that are salient to the current study. First, he argued that an objective determination of the severity of the crime should depend on how much harm the crime causes to society. Second, in order to have the greatest deterrent effect, laws must be clearly written and publically available. All three philosophers stressed that the threat of punishment must be credible. Punishment must be certain, properly severe, and meted with celerity.

Later criminologists argued that deterrence could be divided by whether it is specific or general. Specific deterrence refers to the deterrence of an offender who has directly experienced punishment. General deterrence is a more nebulous term and several criminologists have attempted to define and expand the concept. Early criminological research had conceptualized general deterrence as the effect a policy had on those in society who witnessed or were told of the punishment without actually experiencing it themselves (Andenaes 1974; Gibbs 1975). For example, the SHAC-7 prosecution may have had a residual impact on the perception of other potential lawbreakers. Gibbs (1986) was the first to explore general deterrence in greater detail, positing a general deterrence paradigm that separated objective and perceived measures of severity, celerity, and certainty. He also attempted to account for the degree to which offenders knew of the potential ranges of punishments they might receive for certain types of crimes. Williams and Hawkins (1986) criticized previous general deterrence literature for only considering legal sanctions. The authors reasoned that extralegal sanctions, such as social stigma and loss of standing in the community, ought to be considered in all empirical studies of general deterrence (see also Paternoster et al. 1983). Finally, Stafford and Warr (1993) re-conceptualized general deterrence by speculating on the effect of an indirect experience with punishment. The authors questioned the distinction between specific and general deterrence, reasoning that both forms often subjected themselves to the same people. Therefore, the authors reasoned that general deterrence could actually be someone's vicarious, or indirect, experience of punishment. An example of indirect general deterrence may be avoiding crime because friends, group members, or neighbors have experienced punishment. As such, one of the authors' main

arguments is that empirical examinations of deterrence need to consider one's perceptions of other people's experience with punishment and avoidance.

Researchers rely upon rational choice theory to explain the concept of deterrence. Deriving from the work of early philosophers, rational choice theorists assume that human beings are rational actors that weigh the pros and cons of offending before they commit a crime. As Beccaria posited, the negative impact of punishment must outweigh the hedonistic pleasure seeking that is fundamental to behavior. Clarke and Cornish (1985) and Cornish and Clarke (1987) first applied the economics-based rational choice theory to criminology. The authors reasoned that one's decision to commit a crime depends on factors such as "the potential rewards of crime and the degree of effort required" (Clarke and Cornish 1985: 137).

Rational choice theory has widely been used to explain terrorism. Enders and Sandler (1993) reasoned that members of a terrorist group are attempting to achieve a shared goal and respond rationally to attempts at constraining the achievability of that goal. Furthermore, as noted by LaFree and Dugan (2009), terrorist groups members can perceive either internal benefits, such as group morale, or external benefits, such as increased media attention or a more effective message for propaganda. As such, there have been several avenues policy-makers have taken in an attempt to influence the decisions of these rational actors, namely to increase the certainty of punishment (primarily through target hardening) or to increase the severity of punishment. Empirical examinations have yielded mixed results. For example, Dugan, LaFree, and Piquero (2005) tested the effect of the 1973 installation of metal detectors in airports on hijackings. The authors found no deterrent effect on hijackings undertaken by terrorists,

although non-terrorists did seem to be deterred. LaFree, Dugan, and Korte (2009) tested the effect of policies employed by the British government in attempts to eradicate terrorist groups in Northern Ireland. The authors found that, save for one military operation, there was actually a backlash effect. The policies did not deter terrorists, as attacks actually increased following the intervention. Northern Ireland terrorist groups noted that the perceived brutality of the government forces only increased the rewards they might gain from committing a terrorist act. A backlash effect is not the only result that might occur from deterrent measures. Two other potential results, displacement of crime and diffusion of benefits, are discussed next. Each of these dynamics is an unintended, but important, consequence that warrants careful consideration when analyzing a deterrent policy.

Displacement of Crime

As situational crime prevention became a larger part of criminological research in the 1970s, studies began to recognize that deterrent policies had other unexpected effects. A study by Press (1971) examined the impact of police presence on street crime in New York City and found that while the presence reduced crime in the targeted areas, it increased in adjacent districts. Another study by Chaiken et al. (1974) found that when buses required exact change, the number of bus robberies decreased but the number of subway robberies increased. Several other situational crime prevention studies in the 1970s similarly found that crime reduction efforts displaced crime to other situations (Lateef 1974, Tyrpak 1975). To describe these findings, Reppetto (1976) formally introduced the term “displacement.” Criminals were reacting to the prevention strategies by changing some aspect of the way they committed crime in order to be less detectable

to law enforcement. In the language of rational choice theory, displacement would occur when other crimes would yield the same benefits without increasing the perceived risks or effort undertaken (Clarke and Weisburd 1994). Accordingly, Reppetto (1976) identified five different types of displacement. The first, spatial displacement, changes the location at which the crime is committed. The second, temporal displacement, changes the time at which the crime is committed. The third, target displacement, changes the target of the crime. The fourth, tactical displacement, changes the type of method that is used to commit the crime. The fifth, functional displacement, changes the type of crime that is committed. A sixth category, added by Barr and Pease (1990), is perpetrator displacement, which changes the physical perpetrator committing the crime. An example of this might result after the arrest of gang members. Instead of crime ceasing, other gang members typically assume the role of the arrested members.

In the existing study, displacement, specifically tactical displacement, will be evidenced if government actions resulted in decrease in terrorism but an increase in other criminal actions by terrorist groups. That is, displacement would stipulate that terrorist groups displace their activities to arenas that should not be under the auspices of government actions meant to curtail terrorism.

Diffusion of Benefits

In the late 1980s, situational crime prevention studies began to discover that displacement of crime was not inevitable. Some authors found deterrent effects without additional residuals. Mayhew et al. (1989) found that helmet-wearing laws reduced motorcycle theft without displacing the crime to thefts of other vehicles. Clarke and

Mayhew (1988) found that de-toxifying the gas used in homes led to fewer gas-related suicides and did not affect the suicide rate for other methods.

Other authors expanded upon these findings and discovered that sometimes a policy's impact extended beyond targeted deterrence. Poyner (1988) found that putting cameras on city buses reduced vandalism both on those buses and on non-targeted buses. This beneficial effect of an intervention was also found in a pair of studies measuring residential burglary. Not only did the protected houses experience less burglary, but other houses in the neighborhood did as well (Lindsay and McGillis 1986; Forrester et al. 1988). Miethe (1991: 422) labeled this phenomenon the "free-rider effect."

Clarke and Weisburd (1994: 169) more formally introduced the concept of a diffusion of benefits commensurate with rational choice theory defined as the "spread of the beneficial influence of an intervention beyond the places which are directly targeted, the individuals who are the subject of control, the crimes which are the focus of intervention or the time periods in which an intervention is brought." Diffusion of benefits occurs when potential offenders are unsure of whether the laws extend to the crime the thief intended to commit. This uncertainty might be related to the length of time a policy will last, the area of space covered by the policy, or the exact nature of the policy's parameters. An example of the last uncertainty might be confusion regarding the target and scope of the policy.

Both Clarke and Weisburd (1994) and Clarke and Eck (2005) note that it makes substantive sense that the types of crime displacement can also be considered as types of diffusion of benefits, only on the opposite end of the spectrum. Table 1, reproduced from Clarke and Eck (2005), gives practical examples of how five of the six types (perpetrator

displacement is missing) of crime displacement can be fitted to the diffusion of benefits. Given that there exists a recognizable faction of non-terrorist groups that protest and occasionally break the law through *non-violent* tactics, as opposed to the terrorist groups who the legal sanctions mean to target, this thesis examines potential tactical diffusion of benefits effects.

Table 1-A reproduction from Clarke and Eck (2005) showing the contrast of displacement of crime and diffusion of benefits

Displacement and Diffusion of Benefits for Burglary of Apartments				
	Type	Definition	Displacement	Diffusion
<u>Em</u> <u>piri</u> <u>cal</u> <u>Su</u> <u>ppo</u> <u>rt</u>	Geographical	Geographic Change	Switch to another building	Reduce burglaries in targeted building and in nearby buildings
	Temporal	Time Switch	Switch from day to evening	Reduce burglaries during day and evening
	Target	Switching object of offending	Switch from apartments to houses	Reduce burglaries in apartments and houses
	Tactical	Change in method of offending	Switch from unlocked doors to picking locks	Reduction in attacks on locked and unlocked doors
	Functional	Switching crimes	Switch from burglary to theft	Reduction in burglar and theft

for Displacement of Crime and Diffusion of Benefits

Examining potential displacement and diffusion of benefits effects has proven to be worthwhile and informative to criminological policy. In fact, in a manual intended to guide problem-oriented policing studies, Clarke and Eck (2005) mandate checking for displacement and diffusion effects as part of a scientific study. Extant research has shown that many evaluations of interventions do find some sort of displacement or diffusion of benefits effect. For instance, meta-analyses conducted separately by Eck (1993) and Hesseling (1994) examined studies that explicitly looked for a displacement of crime after an intervention and found some supportive evidence. Eck only found evidence in 3 out of 33 studies, while Hesseling found evidence in 33 out of 55. Of the

two, only Hesselning also looked for potential diffusion of benefits by focusing on the studies for which he did not find displacement effects. Hesselning found that six studies supported a diffusion of benefits hypothesis. A later meta-analysis conducted by Guerette and Bowers (2009) was the first to assess research that explicitly looked for a diffusion of benefits at the same time as displacement. The authors found that, of the 574 observations contained within the 102 studies (several studies examined multiple forms of displacement or diffusion of benefits), diffusion of benefits and displacement effects were found in 27% and 26% respectively. Especially pertinent to this study, the meta-analysis found that of the 49 observations measuring tactical effects, 17 revealed either displacement or diffusion of benefits.

Specific criminological studies have also focused more closely on potential tactical displacement of crime and diffusion of benefit effects. A study completed by Vijlbrief (2012) examined how drug dealers adapted to new regulations by the Dutch government attempting to limit the availability of the chemicals needed to make ecstasy and methamphetamine. The author found evidence of tactical displacement; the targeted dealers shifted tactics either by trying to use other chemicals to make their drugs or by producing the banned essential chemicals by using their own methods. Another study conducted by Holt, Blevins, and Kuhns (2008) found evidence of tactical displacement by johns in response to increased police monitoring. When street patrols were especially heavy, johns would typically employ prostitutes that worked indoors, such as in escort services or illegitimate massage parlors. Other examples of tactical displacement included johns putting in-state license plates on their cars to avoid police stopping them in a high-prostitution area and using Craigslist to find prostitutes because it involved less

overt risk of detection. A third study conducted by Ratcliffe and Makkai (2004) examined the effect of Operation Anchorage, a policing crackdown aimed at reducing burglary in two different areas of the Australian Capital Territory. Additionally, the authors measured the rate of vehicular crimes before and after the operation. Using one-way analysis of variance (ANOVAs), the authors found that there was a significant decrease in both burglary and crime against vehicles after the Operation. This evidences a tactical diffusion of benefits, where the offenders have altered their “modus operandi” (Bowers and Johnson 2003: 276) in committing property crime.

Displacement and diffusion of benefits have been less extensively examined in studies of counterterrorism tactics’ effectiveness. Many that found displacement or diffusion effects have done so in the context of examining police actions taken after a large terrorist attack. Two studies have found evidence of a tactical diffusion of benefits that occurred after policy decisions reacting to terrorism. Draca, Machin, and Witt (2008) examined the impact of Operation Theseus, a large-scale increase in police deployment in five central boroughs of London after the July 7, 2005 tube attacks, and concluded that a 34% increase in police presence led to a 13% decrease in crime. Furthermore, the authors tested to see if crime was geographically displaced into neighboring boroughs and found no supportive evidence. Di Tella and Schargrodsky (2004) examined police presence in Buenos Aires following a terrorist attack on a Jewish Community Center in 1994. Police were assigned 24-hour stations at every Jewish institution throughout the city to protect against another potential terrorist attack. Whether a result of the police presence or not, there were no subsequent terrorist attacks. Additionally, the authors also found that rates of automobile theft in those neighborhoods

with an increased police presence were significantly lower than those in other neighborhoods, which represents a tactical diffusion of benefits because the initial police presence was designed to stop those who commit terrorist acts, not those who break into cars.

Other scholars have examined the effects of counterterrorism measures that target funding sources. These studies have typically found evidence of displacement concerning the tactics used to raise money. For example, research conducted by O'Neill (2007) found that tactics such as targeting charities or adding banking regulations might have been ineffective because groups found different methods to launder money. Similarly, Hamm (2007) conducted a case study of a crackdown on Irish Republican Army (IRA) fundraising in the United States in the 1970s and found that, as a result, the IRA committed more serious crimes, such as extortion and bank robbery, to finance its activities.

Relatedly, a study by Enders and Sandler (1993) examined the effectiveness of counter-terrorism policies designed to inhibit specific types of terrorist attacks on complementary or easily substitutable attack types. The authors used Vector Autoregression (VAR) to analyze how an intervention might affect the number of attacks on several different attack types. The authors discovered that a number of the policies caused a tactical displacement or target displacement. For example, installations of metal detectors in airports led to a decrease in hijackings but an increase in other sorts of hostage attacks and an increase in assassinations. The authors found no evidence that the policies resulted in a decrease in the number of attacks for attack types not targeted by the policies.

Finally, Hsu and Apel (2015) examined the impact that placement of metal detectors had on various forms on terrorist attacks, following the example set by Sandler and Enders (1993). The authors found evidence in favor of both displacement and diffusion of benefits. The results showed an increase in bomb attacks on non-aviation targets following the intervention, supportive of displacement. However, there was also evidence of a diffusion of benefits, demonstrated, for example, in a decrease in other attacks on aviation industry targets (e.g. airports writ large, not just hijackings) after the installation of metal detectors. The authors also found a diffusion of benefits to non-aviation targets and attack types, such as fewer attacks on diplomatic targets and fewer assassinations and hostage takings.

Notably, very little of the extant literature has explicitly connected its findings back to the larger criminological considerations. This study will attempt to address this shortcoming by expressly framing the analysis to discern deterrence, displacement, and diffusion of benefits and then expressing the relevance of the findings within the larger criminological framework.

Chapter 3: Context of the Government Actions

In the previous section, I established a general theoretical guideline for framing the relationship between government actions and reactions by terrorist groups and other lawbreakers. In order to connect the framework to the extant study, it is important to convey, in detail, the temporal progression of the government's agenda to deter animal-rights and environmental terrorism. While the majority of laws and actions occurred after September 11, 2001, I first discuss the Animal Enterprise Protection Act (AEPA) that was passed in 1992 in order to establish a baseline upon which future laws will be built.

The 1992 AEPA was the first to create an offense named animal enterprise terrorism. A terrorist was prescribed to include anyone who participates in "interstate or foreign commerce" and "intentionally damages or causes the loss of any property (including animals or records) used by the animal enterprise, or conspires to do so." The AEPA also detailed several sentencing guidelines for crimes committed under the new statute. There were four notable provisions within these guidelines. The first conditioned that causing less than \$10,000 in damages would result in fines and a possible prison term for up to six months. The second conditioned that causing more than \$10,000 in damages would result in fines and a possible prison term for up to three years. The third provision conditioned that any attack of terrorism resulting in serious bodily harm would result in fines and up to 20 years in prison. Finally, any attack that caused death would result in fines and up to life in prison.

In 1996, Congress amended the AEPA with the intention to expand some of the provisions and clarifying others. There were two main notable changes made. First, Congress expanded the penalty section of the provision into more narrow divisions and

then revised for each new level of severity. For example, a new sub-section of the law stipulated that when an animal enterprise terrorist offense exceeded \$100,000 and resulted in *substantial* bodily damage, the prison term should fall between five and ten years. This remains semantically different from the proviso that the AEPA created in 1992 to account for an attack that might cause *serious* bodily damage. Second, there were also amendments to previous penalty recommendations. Causing less than \$10,000 in damages became grounds for up to a year in prison instead of a six-month maximum. Causing between \$10,000 and \$100,000 in damage also became punishable by up to five years in prison instead of three years.

In 1999, Senator Orrin Hatch (R-Utah) proposed an amendment to the Violent and Repeat Juvenile Offender Accountability and Rehabilitation Act of 1999 that would have also implemented changes to the AEPA with an eye toward three main purposes. The first was to establish a database of attacks against animal enterprises or any business engaging in commercial activity thought to be disrupting the environment. The database would be produced in cooperation with the ATF, maintained at a national clearinghouse, and publicized for use by the appropriate law enforcement agencies. The second purpose was to include a section stipulating that, no matter the presence of humans, the damaging or destroying of a property by means of a fire or explosive device would mandate anywhere from a five to twenty year prison sentence. The third purpose was to increase the potential severity of punishment. Hatch proposed to increase the maximum penalty for committing less than \$10,000 damage to a five-year prison term and to add the possibility of a death sentence to attacks that resulted in death. While the Senate approved the amendment, it never was passed into law.

On December 5, 2001, Representative George Nethercutt (R-Washington) proposed the Agroterrorism Prevention Act, which would have been very similar to Hatch's amendment to the Juvenile Justice Act. The Bill called for increased penalties, added a provision that allowed for the death penalty in attacks that result in death, and established an incident database through collaboration with the National Science Foundation (NSF) called the National Agroterrorism Incident Clearinghouse. One of the main departing points from previous legislation was that the Bill would also include attacks against plant enterprises as well as animal enterprises. The second new idea in the Bill proposed to award scholarships and grants to colleges and universities to improve security against attacks and to develop security reports and education exercises designed to increase awareness regarding potential attacks. As with Hatch's amendment, the Bill was not signed into law.

In 2002, Congress amended the AEPA in several ways. Most importantly, the new law eliminated the requirement that an attack cause physical disruption to an animal enterprise. Now, causing any permanent damage to an animal enterprise's property was enough to warrant inclusion under the statute. Furthermore, the law expanded punishment to include restitution for any economic damage that resulted from the offense.

In 2004 and 2005, the Senate and House of Representatives hosted hearings to discuss the extant threat from environmental and animal rights activities. A goal was to crack down on those who targeted tertiary entities, such as spouses of company workers or companies that have contracts or collaborate with an offending company. The increased focus was in response to the actions taken by the SHAC to harass supporters of

the HLS. However, those that opposed the Bill worried that it created too strong a connection between the attacks of September 11 and the actions perpetrated by animal rights and environmental extremists. At the 2004 hearing, Senator Patrick Leahy (D-Vermont) expressed surprise at the language used in the hearing, stating

When most Americans think of threats that currently face this country, we do not mean "animal and eco-terrorism." Indeed, most Americans would not consider the harassment of animal testing facilities to be "terrorism," any more than they would consider anti-globalization protestors or anti-war protestors or women's health activists to be terrorists. This Administration aggressively stamps everything with a 'terrorism' label... But even this Administration had not up until now, as far as I know, thought the Animal Enterprise Protection Act a major component of its "war on terrorism."

The final, and most controversial, piece of legislation, the Animal Enterprise Terrorism Act (AETA), was passed by the House of Representative on November 13, 2006 and signed into law by the president two weeks later. The AETA expanded upon previous actions with several key edits and distinctions (Potter, n.d.). The first change is that the AEPA had previously qualified an offense as one that has the "purpose of causing physical disruption to the functioning of an animal enterprise." In the AETA this criteria was broadened to include those offenses aiming to damage or interfere with the actions of an animal enterprise. More importantly the law expanded the motivations one might have in their action to consider it an act of terrorism. While the AEPA said that the perpetrator must "intentionally damage or cause of the loss of any property...used by the animal enterprise, or conspire to do so," the AETA added a provision that also included

the intent to “place a person in reasonable fear” of death or bodily injury to them or their partner by any sort of method. The most important new aim of the AETA was to crack down on what it termed as “tertiary targeting.” The AETA expanded the term “animal enterprise” to encompass any entity that “uses or sells animals or animal products.” Then, the act included any action that targets not only the animal enterprise, but also any person or business that has a connection with the animal enterprise. Examples of this included both legal actions (such as phone blockades, vigils staged at people’s houses, email blockades, and peaceful protests) and illegal actions (such as economic sabotage, setting off stink bombs in offices, damaging cars, and subscribing office workers to pornographic magazines). Another key inclusion in the AETA was the ability to punish conspiracy to commit attacks in the same manner as a completed attack. Members of the general animal and environmental rights community met this provision with consternation because they felt it was unfair to punish harshly those that might have changed their mind about committing an attack. There was also no precedent for such a legal stipulation. Finally, and most importantly, the provision created the impression that the laws were targeting the entire animal rights and environmental cause rather than violent terrorist groups (Kuipers 2011; Potter n.d.; Johnson 2007).

The penalty section of the AETA also expanded upon previous legislation. For example, an action that may result in loss of profits but not in bodily injury, death, or property loss or damage had an associated punishment of up to one year in prison. However, on November 13, 2006, Representative Robert Scott (D-Virginia) acknowledged in Congress that one might expand the interpretation of the first provision in the penalty section to create an umbrella over non-violent protests. Specifically, Scott

cited an example of a protest aimed at stopping trucks from delivering supplies to a company. While he acknowledged that they would be violating trespassing and obstruction laws, he worried that this might be punished more severely under the auspices of the AETA. As such, the AETA had the potential to infringe upon protesting, which is guaranteed by the first amendment. Non-violent advocates also expressed concern over the potential for loose interpretation of the statutes (McCoy 2007; Lovitz 2007). I will expand upon this in detail later in this thesis.

In addition to the major legislative changes that were proposed or enacted, the federal government undertook a highly publicized action, *Operation Backfire*, and prosecuted a group called the SHAC-7 in order to deter other animal rights and environmental terrorists. These actions indeed are an exemplar of general deterrence, in that their focus on a smaller group of people is posited to affect a larger population's perceived risk of apprehension and severe punishment. *Operation Backfire* occurred in late 2005 and early 2006. The impetus for the action began in 2003 when FBI investigators turned Jacob Ferguson, an activist who had participated in several environmentally motivated arson attacks across the United States, into an informer. Using Ferguson's information, the FBI was able to create an investigative team to track movements of radical group members about whom he provided information, in particular a nebulous group of participants called The Family. A joint interagency taskforce was established to track down members of the Family who committed a string of arson and destructive attacks under the auspices of ALF or ELF. The task force was able to arrest 11 members of the Family whom they claimed were instrumental in orchestrating or conducting the acts (Deshpande and Ernst 2012). The FBI was quick to label the

defendants terrorists and sought to prosecute the cases with a “terrorism enhancement” provision that had the potential to add up to 20 years in prison because the crime was intended to “promote a federal crime of terrorism” (Harris, 2007). Although many animal rights and environmental activists argued that the Family’s crimes were solely protesting companies that were destroying the environment, and contained no preconceptions of influencing political beliefs, the presiding judge qualified many of the cases for the terrorism enhancement in *United States v. Thurston* (2007). This rather draconian ruling provoked fear not only in remaining members of ALF and ELF but in animal rights and environmental activists who were concerned that a liberal interpretation of the AETA and the terrorism enhancement penalty might be applied to non-violent activities and protests they undertook (Potter 2006).

The final notable event that occurred around this time was the prosecution and conviction of the SHAC-7 beginning in May 2004. The SHAC-7 were seven individuals, from the larger SHAC campaign, who created a website dedicated to inciting action against the HLS animal research facility’s campus in New Jersey. While the defendants did not actually partake in any physical action against the company, they posted information on their website to support those who would take action. Examples of such information included addresses, phone numbers, and fax numbers of companies and company employees or locations of protests and meetings. Furthermore, SHAC’s website documented any action that activists undertook in protest of HLS. More active SHAC members engaged in activities that targeted those who provided HLS with money; therefore, they targeted those businesses with stock in HLS, those that provided shipping to HLS, and banks that loaned money to HLS. It was such action that prompted the push

for the AETA to include provisions accounting for inciting fear in people related to those who were perceived to have violated either animal or environmental rights.

As this was before the enactment of the AETA, the seven individuals who were indicted were charged under a provision of the AEPA covering conspiracy to commit interstate stalking and using the internet to further interstate stalking. The indictment frightened those who undertake legal protests and actions primarily because it implied that one could be held responsible for any illegal or terrorist action undertaken by a different group done to further the general cause (Parker 2009). For example, the indictment raised the concern that if protesters encouraged others to also protest and they then engaged in illegal acts, the encouragers might be held liable. As such, legal activists worried that the indictment was interpreting the law in a way that jeopardized their first amendment rights (McCoy 2007).

Chapter 4: Applying Deterrence, Displacement, and Diffusion to This Study

In the context of the current study, there are at least four possible outcomes from implementing the laws, shown in Table 2¹.

Table 2-Selected possible outcomes from government actions

Type	Supportive Empirical Finding
No Effect	Government actions have no impact on acts of terrorism or non-terrorism
Deterrence Only	Government actions cause a decrease in acts of terrorism
Displacement	Government actions cause a decrease in acts of terrorism, but an increase in other criminal actions
Diffusion of Benefits	Government actions cause a decrease in acts of terrorism as well as a decrease in other criminal actions

The first outcome would be no effect on terrorist actions. To effectively discuss the remaining three outcomes, it is best to separate the relevant actors into two entities: 1) animal-rights and environmental terrorists and 2) animal-rights and environmental non-terrorists. Given that dichotomy, the second possible outcome from the government actions would be evidence that supported deterrence only. This would occur if, after the

¹ There are at least two possible outcomes considered, but not included in the provided table. The first supports a backlash effect. In this case, the number of terrorist acts would increase after the government implemented its actions. A backlash effect might also explain a rise in non-terrorist acts by non-terrorist groups. If groups do not consider the government actions to be legitimate, or consider the actions excessive, backlash might occur. However, in this situation, the main targets of these groups' actions are companies that endanger animals or the environment and not the government. Therefore, backlash is theoretically unjustified in this scenario. The second set of outcomes are the remaining permutations that can occur which do not neatly fit within any paradigm. For example, a policy results in increased terrorism, decreased non-terrorism by terrorist groups, and increased non-terrorism by non-terrorist groups. While these results are possible, I have not included them in Table 1 both because of parsimony and because of their lack of fit into any sort of rationale.

AETA, *Operation Backfire*, and the prosecution of the SHAC-7, the number of acts of terrorism decreased but the number of acts of non-terrorism remained steady.

The third and fourth possible outcomes also relate to the impact of the government actions on the number of non-terrorist actions. The third outcome would occur if terrorist groups replaced violent terrorist acts with non-terrorist crimes after the government targeted terrorism. The logic behind displacement would dictate that, in order to pursue their goals and avoid serious punishment, members of animal-rights and environmental terrorist groups would shift their tactics to those not targeted by the government actions, such as non-violent law breaking. The fourth outcome would evidence a diffusion of benefits if the number of non-violent law-breaking actions by non-terrorist groups decreased after the implementation of the government actions.

Criminological literature emphasizes the need to examine displacement and diffusion of benefits in crime-control studies. Additionally, reaction from lawmakers and non-violent activists, in this scenario, provide further evidence that a diffusion of benefits is a possible outcome from the government policies. First, several of the statutes from the AETA can be broadly interpreted. Lovitz (2007) notes that the use of the word “disrupt” in some of the language, e.g. “disrupting economic activity,” may be interpreted in many different ways, including events where non-violent protesters indirectly impact work productivity. McCoy (2007) further notes that the term “animal enterprise” is overly broad in this particular law because it could include both companies that operate legally and those that operate unlawfully. While a clause in the AETA makes an exception in the case of unlawful competitive animal events, such as cockfights, animal-rights advocates such as McCoy and members of the ACLU expressed concern that

interference with other illegal enterprises may be interpreted as falling under the statute. Authors have also shared apprehension over the use of the words “interfere” and “property” to describe a potential penalty under the law (McCoy 2007; Israel 2006; Cronin 2013). McCoy particularly stresses the importance of the word “property,” which she notes might encompass intangible quantities such as loss of profits or poor publicity. These results, the author notes, are exactly what the non-violent protesters are aiming to cause.

A second argument is that many of the AETA statutes are too vague. Cronin (2013) worried about the ambiguity of the new laws regarding tertiary targeting, criticizing the use of the phrase “connection to an intimate partner” when describing an example of tertiary targeting. Intimate partner might have any of a range of definitions; one might argue that the partner does not necessarily need to reside at the same location as the offending worker. “Connection,” too, is a vague construct, in that one may possess any strength of relationship with someone to establish a “connection.” While the law explicitly notes that it is not meant “to prohibit any expressive conduct (including peaceful picketing or other peaceful demonstration) protected from legal prohibition by the First Amendment to the Constitution,” many people, such as Dennis Kucinich (D-Ohio), still expressed trepidation that the potentially broadly-defined terms would have a “chill” upon the First Amendment constitution rights of protest. Indeed, there is some evidence that the law intended to include non-violent protesters under its auspices. An analysis done by Potter (n.d.) noted that one of the earlier versions of the act penalizes an offense that was “exclusively a non-violent physical obstruction” that “may result in loss of profits but does not result in bodily injury” (Potter n.d., pp.4). The amended act still

allows for a penalty for an offense that *does not* instill the reasonable fear of bodily injury or death (AETA 2006, emphasis added). Potter and others worried about the vague nature of this penalty: could it extend to non-violent protesters? McCoy (2007) also reasoned that each part of AETA was already appropriately encompassed in the letter of other extant laws.

Indeed, many activists and analysts have expressed concern at the potential for those who only participate in non-violent actions to be arrested and prosecuted under the confines of AETA (Lovitz 2007; Pannekoek 2014). In 2009, police arrested four people for passing out pamphlets and drawing chalk slogans on the sidewalk. Prosecutors charged the four under the auspices of the AETA and in 2010, a judge dismissed the case, stating that the case in no way met the definition of terrorism used by the Federal Government (*United States v. Buddenburg*, 2010). Another case (*Blum v. Holder*, 2013) was heard in a Massachusetts District Appeals Court, where activists appealed the legality of the AETA because it was eroding first amendment rights, specifically that it engaged in “content and viewpoint discrimination.” The suit claimed that the Act is not neutral because it supports industries and businesses that are on one side of the political spectrum. The filers of the suit worried further that such discrimination would persist and continue to erode First Amendment rights as businesses become more powerful in the political arena. A judge dismissed the case in 2014 because the plaintiffs lacked proper standing to go to court.²

² In reading the discussion of the AETA and its provisions, it is difficult to discern which precise acts the law would stipulate as terrorist acts. Given that the act has the word terrorism in it, and a uniform definition of terrorism is necessary for subsequent empirical analyses (which use the FBI’s definition), I assume that the act is meant to deter only activities that conform to the FBI’s definition. Although it falls outside the intent of this study, an analysis that measured the relationship between the government actions and all animal rights and environmental group actions (terrorist and non-terrorist) was substantively no different from the analysis that looked at the relationship between the government actions and only terrorist

Empirical Examinations of Government Actions Related to Animal-Rights and Environmental Terrorism

Given that there has been a spate of Federal actions enacted with a goal of deterring animal-rights and environmentally motivated terrorist attacks, their effectiveness should be assessed. However, to date, only a few studies have described trends in animal rights and environmental terrorism over time, even fewer have attempted to identify a deterrent effect in any of the measures taken, and none, to date, has examined potential displacement of crime or diffusion of benefits in relation to the measures. In 1993, the Department of Justice (DOJ) and the United States Department of Agriculture (USDA) collaborated to examine the trends in animal rights activity (“Report to Congress,” 1993). The collaborators commissioned the report in response to the growing number of animal rights and environmental attacks in the United States. While the investigators conducted no formal statistical analyses, they published a table showing a decrease in the number of instances of animal rights extremism from 1991 to 1992 and 1993. Furthermore, the authors stated that since the enactment of the AEPA in 1992, no one had been formally indicted under the auspices of the legislation. However, the authors avoided making an overt connection between the implementation of the law and the decrease in activity. In fact, they expressed concern that the inactivity early in the 1990s was reminiscent of an earlier spell of inactivity in the 1980s that preceded a spike in action, warning readers of this possibility. In short, the authors believed the low numbers were merely a deviation from the mean and not a decreasing trend.

attacks (results available upon request). Therefore, in accordance with the established theoretical construct, this study will proceed by assuming that each action aimed at only deterring terrorist actions.

Varriale-Carson (2014) more rigorously assessed the deterrent effects of a number of legal sanctions on acts of environmental and animal rights extremism. Most relevantly, the author examined the effects of legal sanctions, choosing to study the 1988 Anti-Drug Act, the AEPA, and the AETA. She created the Eco-Incidents Database (the same database used in this thesis), encompassing both incidents of terrorism and other illegal actions. In contrast to the current study, Varriale-Carson did not differentiate between terrorist groups and non-terrorist groups in her analyses. Using an interrupted time-series analysis, Varriale-Carson (2012) generally found no deterrent effect of legislative actions on group activities. In fact, she noted a steady decline in activity from 2001 to 2007, regardless of legal sanctioning intervention. She also ran a similar model disaggregating attacks by designated ideology (animal rights versus environmental) and found no substantively different results. The only significant result found in quarterly time-series analyses was that the AEPA was followed by an increase in terrorism and other destructive activities for the first quarter following initial implementation, in direct contrast to what deterrence and rational choice frameworks might predict.

However, Varriale-Carson (2012, 2014) also conducted several series hazard models and found results more consistent with the deterrence framework. She found that the AEPA was significantly related to a decrease in the hazard of another terrorist attack and the AETA was significantly related to a decrease in the hazard of an attack motivated by animal rights ideology. Therefore, through the whole study, support for a deterrent effect depended on analytic strategy.

A third study was a case study of *Operation Backfire* commissioned by the National Consortium for the Study of Terrorism and Responses to Terrorism (START)

(Deshpande and Ernst 2012). While the authors' primarily analyzed the counter-terrorism tactics employed to make the operation a success, they included an informal analysis of the trends of attacks, using *Operation Backfire*, operationalized as occurring at "the end of 2005" (Deshpande and Ernst 2012, pp.26) as an interruption in the time series. Using yearly Global Terrorism Database (GTD) data from 1987 to 2010, the authors arrive to a conclusion similar to that of Varriale-Carson (2014). While *Operation Backfire* evidenced a minor deterrent effect (based on descriptive data only), there was a clear downward trend in "eco-terrorist" attacks in the United States since their peak around 2001. Therefore, the decline started years before the operation took place. The authors speculate that this trend may have been due to the collapse of the Family in 2001 after an inter-group disagreement over an attack at the University of Washington. However, this study used only GTD data, and therefore subjected its results to the GTD's methodological concerns, which this thesis will address subsequently. Furthermore, the authors failed to implement controls to mitigate such concerns. Finally, the data were not de-trended in any way, so the authors' conclusions were purely based on a rote examination of the yearly trend. To date, no study has used a more comprehensive database, which draws incidents from several different sources, to study the impact of Operation Backfire.

Regardless, extant studies that have attempted to parse apart the effects of various actions aimed at deterring animal-rights and environmental terrorists are flawed. Of the three listed studies, only Varriale-Carson (2014) attempted to conduct a rigorous statistical test for evidence of a deterrence effect, which is particularly important because it controlled for other possible explanations. Second, previous studies examining

counterterrorism deterrent measures have neglected to test for possible crime displacement or diffusion of benefits. Finally, I know of no study to date that specifically looked at the decision in the SHAC-7 prosecution as a potential legal deterrent, a classic case of possible general deterrence.

Hypotheses

The intent of the current study is to go beyond typical examinations that only estimate deterrence effects of policy in a terrorism context. This thesis aims to estimate a potential crime displacement or diffusion of benefits effect that results from policies and actions targeting animal rights and environmental terrorists. The policies and actions include *Operation Backfire*, the indictment of the SHAC-7, and the implementation of the AETA. This thesis tests the effect of these government actions on monthly counts of terrorist and non-terrorist law-breaking actions. The hypotheses, presented under the criminological concepts they test, are as follows:

Deterrence

H_{1a}: Terrorist incidents will decrease after the *Animal Enterprise Terrorism Act* (AETA).

H_{1b}: Terrorist incidents will decrease after *Operation Backfire*.

H_{1c}: Terrorist incidents will decrease after indictment of the SHAC-7.

Displacement of Crime

H_{2a}: Non-terrorist actions by terrorist groups will increase after implementation of the *Animal Enterprise Terrorism Act* (AETA).

H_{2b}: Non-terrorist actions by terrorist groups will increase after *Operation Backfire*.

H_{2c}: Non-terrorist actions by terrorist groups will increase after implementation of the *Animal Enterprise Terrorism Act (AETA)*.

Diffusion of Benefits

H_{3a}: Non-terrorist actions by non-terrorist groups will decrease after implementation of the *Animal Enterprise Terrorism Act (AETA)*.

H_{3b}: Non-terrorist actions by non-terrorist groups will decrease after *Operation Backfire*.

H_{3c}: Non-terrorist actions by non-terrorist groups will decrease after the indictment of the SHAC-7.

Chapter 5: Data and Methods

Data

This analysis uses monthly counts of events taken from the Eco-Incidents Database (EID) (Varriale-Carson et al. 2012). The database accounts for both terrorist activity and non-violent criminal acts committed by animal-rights and environmentally motivated terrorist and non-terrorist groups from 1970 through 2007 limited exclusively to the United States. However, since only two events occurred between 1970 and 1977, the current study will use data from 1977 to 2007 to limit the number of zeros contained in each dependent variable. The EID is populated with incidents from the Global Terrorism Database (GTD) and is supplemented by additional open-source catalogs. Key variables in the database include exact dates of the attacks (when known), the group that perpetrated the attack (when known), location of the attack, and an event summary. Based on the event summary, I added a dichotomous variable that coded each incident as either “terrorism” or “non-terrorism” according to the FBI’s definition of terrorism, which is detailed below. Second, *groups* were also coded to be terrorist groups if they have committed at least one terrorist attack in the database and non-terrorist groups if they have not³. Because so much of the database relies on the GTD, a fuller discussion of that database is also warranted.

³ Individual perpetrators were not specifically addressed either in the database or in this decision-making process. Nearly all of the incident summaries in the EID that suggest that only one person perpetrated the incident are paired with a group name, which I deferred to. One incident, committed by an individual named Fran Trutt in November, 1998, was coded as a terrorist incident (which means that Trutt was coded as a terrorist group). Essentially, individual perpetrators, acting outside of an affiliation with a larger group are a non-entity in this dataset.

Global Terrorism Database

The GTD is an open-source incident-level database that has amassed information on individual terrorist attacks around the world from 1970 to 2013. The GTD uses a comparatively broad and inclusive definition of terrorism: “the threatened or actual use of illegal force and violence to attain a political, economic, religious or social goal through fear, coercion or intimidation” (LaFree and Dugan 2007, p. 184). For an incident to be included in the dataset, it must meet three overarching criterion (National Consortium for the Study of Terrorism and Responses to Terrorism 2013):

1. The incident must be an intentional, conscious calculation on the part of the perpetrator.
2. The incident must be violent or entail the threat of violence.
3. The perpetrators of the attack must be sub-national actors.

Additionally, an incident must meet at least two out of the following three sub-criteria:

1. The act must be aimed at attaining a political, economic, religious, or social goal. Economic goals do not include actions undertaken exclusively to obtain monetary profit.
2. The act must include the intention to coerce, intimidate, or convey a message to a larger audience outside of the immediate victims.
3. The act must be outside the parameters of legitimate warfare activities, as set by International Humanitarian Law.

The GTD’s use of these criteria is critical to the current set of analyses, as the second overarching criterion of the GTD requires an incident to be violent or entail the threat of violence. This rule, then, excludes non-violent law-breaking actions as an act of

terrorism, even by the broad guidelines of the GTD. It is essential to note that the GTD's definition of terrorism is not universally accepted and, in fact, there are many different definitions of terrorism

It is important to note that the EID, by relying so heavily on the GTD for terrorist incidents, has three main weaknesses in its incident pool. First, the GTD's first requirement is that an included incident be intentional. The internal codebook notes that intentionality encapsulates the entirety of the incident, such that an attacker has to be "out the door" and beginning the kinetic motion of an attack to be included (START 2013). As such, attacks that are foiled by authorities, planned but not carried out, or are prematurely carried out (such as a bomb that explodes during assembly) are excluded from the GTD⁴. It is unclear whether or not the FBI definition would call such incidents terrorism; however, a read of the incident summaries in the EID indicates that such a tenuous situation was not included in the database at all. Second, not all incidents in the EID have an ascribed group. In fact, of the 1068 incidents, 243 do not have a group name, making it impossible to assess whether the perpetrator was a terrorist or non-terrorist group. Dugan (2011b) also stated that media sources may mistakenly attribute an attack to a specific group, or different sources may report conflicting perpetrator information. In order to connect a perpetrator group with an incident, the GTD requires that a perpetrator group be named within the text of the open-source article itself. As further noted by the codebook, this does not necessary entail any sort of legal culpability. However, as perpetrator group is critical to this examination, analyses will only consider

⁴ To clarify, some foiled attacks are included in the GTD that do accord with the "out the door" principal. For instance, a perpetrator aiming to bomb an animal testing facility who physically leaves his house and is arrested enroute to the facility would be included in the GTD. The foiled attacks that do not get included in the database are those that do not begin their kinetic implementation.

the 825 incidents with group names. Consequently, the dependent variable will necessarily suffer from measurement error, particularly in examining non-terrorist acts, for which perpetrator group is essential. However, there is no particular reason to believe that a missing group name is correlated with any of the important variables included in subsequent analyses. Therefore, while there may be additional measurement error in the dependent variables, it is unlikely that the results are biased. Third, the EID suffers from typical weaknesses characteristic of open-source databases (Dugan 2011b). A reliance on news sources might bias the database toward more sensational acts of terrorism that are more likely to come to the media's attention. Furthermore, the EID can only capture those incidents that sources report, subjecting the data to any number of biases. A roadside bomb that is safely defused, a fire that is quickly quashed, or a perpetrator who authorities detain on the way to an attack is less likely to receive media attention because there was no notable outcome.

The GTD can be effectively broken down into four collection periods (see Dugan 2011b for a full discussion of the differences between each period). The four distinct periods introduce another source of potential measurement error in the GTD. Different contractors collected the data found in the GTD for different spans of years⁵. Furthermore, some collectors collected incidents retrospectively and others collected incidents prospectively. Therefore, it is difficult to disentangle what percentage of fluctuations in attacks is due to a legitimate change in terrorism and what percentage is due to the data collection method. The span of this study, from 1977 to 2007, only

⁵ From 1970 to 1997, the GTD (although it was not called the GTD until START began to edit it) was collected at Pinkerton Global Intelligence Services, after which it was transferred to START. The 1998 to 2007 data was collected retroactively by the Center for Terrorism and Intelligence Studies (CETIS) beginning in 2006. In spring, 2008 the Institute for the Study of Violent Groups (ISVG) began collecting data through 2012. Finally, in spring, 2012 the START center began in-house data collection.

overlaps the first two collection periods. As such, in this study's analyses, I will use a dummy variable to control for the different collection periods.

As noted earlier, the GTD data can only address the hypotheses related to terrorism. The second required inclusion criterion stipulates that the act must use, or threaten to use, illegal force or violence. Non-violent law-breaking actions such as spray-painting a wall, marching with pickets, releasing caged animals, hanging a banner on the façade of a building, or locking arms outside a biomedical facility do not meet the threshold of violence. Therefore, the EID requires other sources of data to capture non-terrorist incidents over time. The main source of data for non-terrorist incidents was the Foundation for Biomedical Research (FBR), which includes incidents from open-source data and personal communiques provided by animal rights and environmental terrorist groups. Per Varriale-Carson et al. (2012), all incidents obtained from the FBR were cross-checked against GTD cases to prevent double counting. Varriale-Carson et al. (2012) also provides a fuller description of the remaining, more ancillary sources that populate the EID. The EID relied exclusively on open-source data. Therefore, given that much of the data was collected retrospectively, fewer sources collected information on actions in earlier decades than in later decades. As such, even though analyses will control for the difference in the number of available sources, there may be other sources of measurement error associated with drawing from fewer media outlets.

Furthermore, the Foundation for Biomedical Research (FBR) is not an impartial party in the animal-rights and environmental movement, as it advocated for passage of the AETA. Similarly, some of the data sources included events based on group communiques that claimed attacks. It is common, certainly in the case of other terrorist

groups like the Taliban, for groups to claim an attack when they did not perpetrate it, presumably as a propaganda tactic (Foxley, 2007). While the EID aims to mitigate this concern by attempting to triangulate group claims with additional sources, it remains an issue.

Given that the EID relies on open-source data, it is likely that the cases missed by the database are minor, non-terrorist, incidents. As such, the latter two sets of hypotheses are most likely to be impacted by this form of missing data. The dataset is likely to underreport the number of non-terrorist incidents, no matter whether they were committed by terrorist groups or non-terrorist groups. However, beyond controlling for the number of available sources, there is no reason to think that the missingness of these minor non-terrorist incidents would have any differential impact over time. Essentially, there is no reason to think more cases would be missed after the policy interventions. Therefore, while there will again be a degree of measurement error in the dependent variable, there is no plausible reason to think that it will impact results.

Variables

Dependent Variable

The study uses monthly time-series data in order to evaluate the effect of government actions on subsequent terrorist attacks and criminal activities. The dependent variable is the monthly number of incidents. For the first hypothesis, the dependent variable is the number of terrorist attacks in a month committed by animal-rights and environmental terrorist groups. For the second hypothesis, the dependent variable is the number of criminal actions performed by terrorist groups. For the last

hypothesis, the dependent variable is the number of criminal actions performed by non-terrorist groups.

Independent Variables

Assigning an exact date to certain government actions is challenging. While the impact of SHAC-7 and *Operation Backfire* can be reasoned to have begun at a specific time, the actions are expected to have had an effect that extends beyond that singular point in time. However, it is difficult to determine theoretically how long the effects should last. Following the decision made by LaFree, Dugan, and Korte (2009), *Operation Backfire* and SHAC-7 are operationalized as occurring for a year, and then verified with sensitivity tests in Appendix A. The task force that made the arrests was initially created in 2004, but the arrests did not start until December 7, 2005. Therefore, in subsequent discussion and analysis, I will consider *Operation Backfire* as existing from December 2005 to November 2006. Similarly, the indictment of the SHAC-7 began on May 26, 2004. Therefore, this intervention will be operationalized as existing from June 2004 until May 2005. Finally, President George W. Bush signed the AETA into law on November 27, 2006. In accordance, it will be operationalized as starting in December 2006. A depiction of the trend line for each dependent variable, by year, is portrayed in Figure 1. A narrower depiction of the last 10 years trend line for each dependent variable, with the imposed interventions, is provided in Figure 2. An advantage of these operationalizations is that none of the independent variables overlap, which improves the likelihood that analyses will portray uncombined effects.

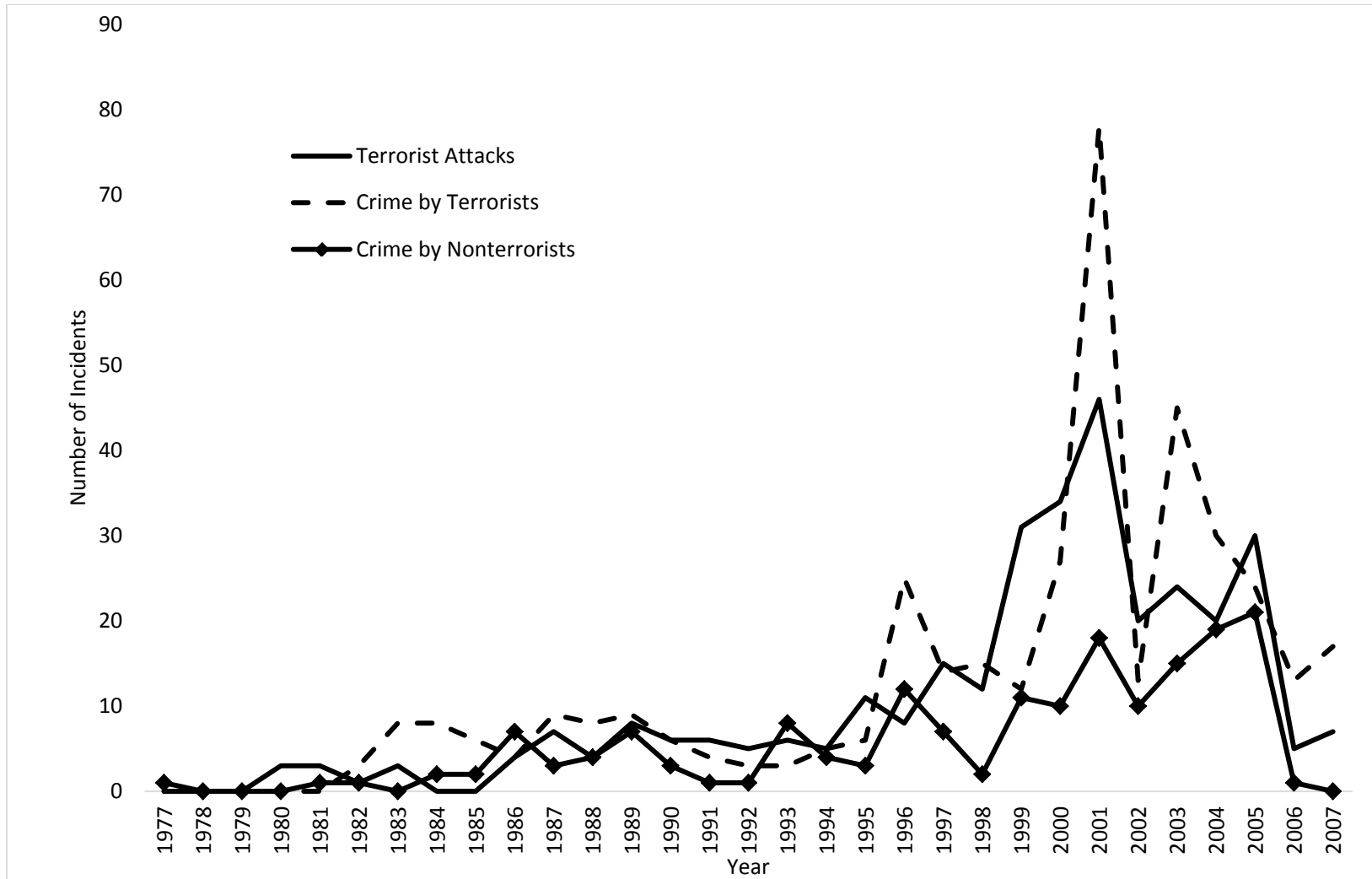


Figure 1. Number of Incidents, By Year from 1977 to 2007

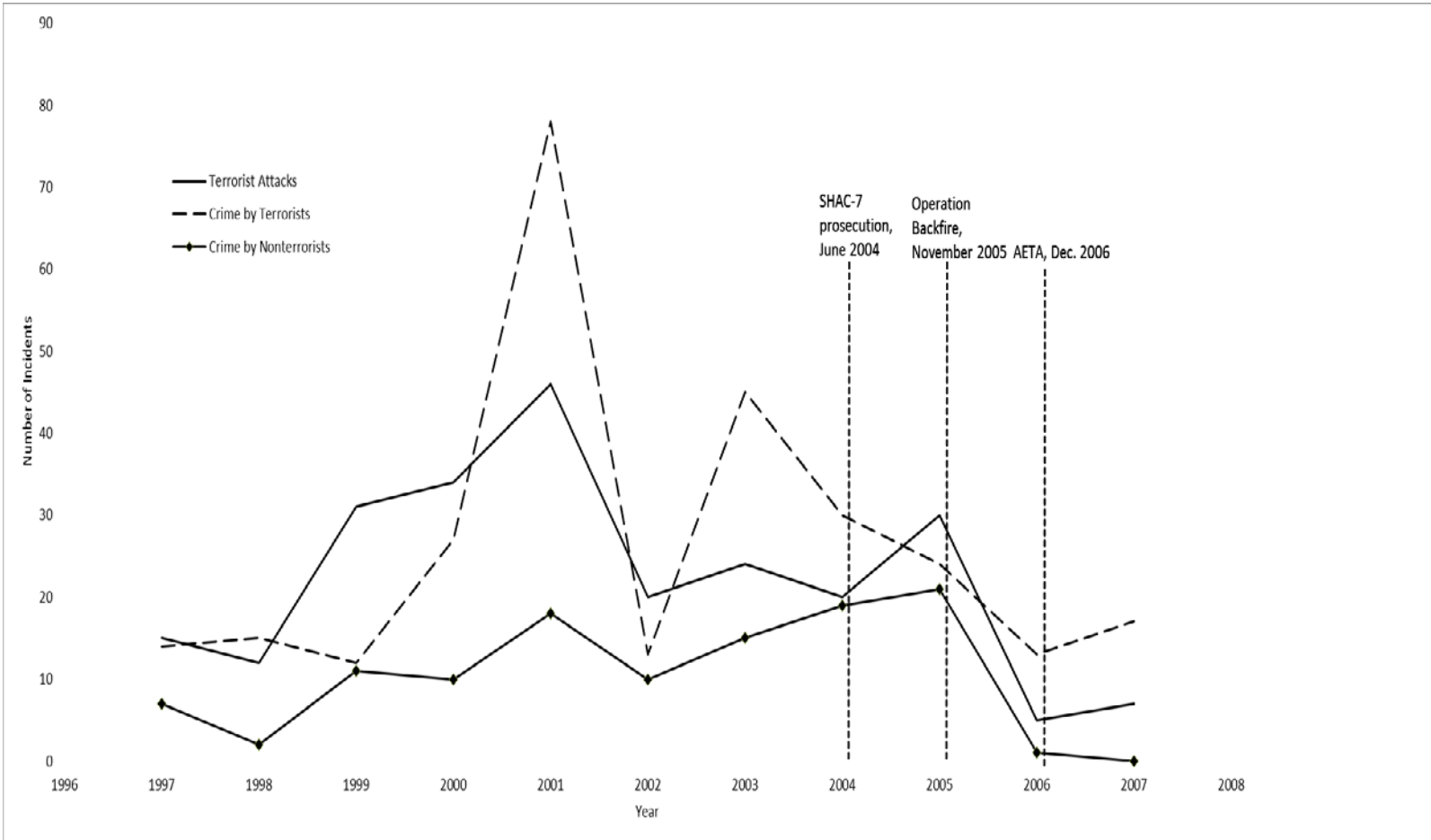


Figure 2. Number of Incidents, By Year 1997-2007 with Intervention

Control Variables

I include a dummy variable equal to 1 during the 1998-2007 CETIS GTD collection period and equal to 0 at all other times.⁶ I also control for the number of sources used to populate the dataset during each decade of data collection, following Varriale-Carson (2014). Given the expansion of internet capabilities, there are an increasing number of available news sources as time progresses. The variable equals the number of sources the EID used per decade: two sources in the 1970s, 10 sources in the 1980s and 1990s, and 12 sources in the 2000s. Another variable, *crime rate*, uses the FBI's Uniform Crime Report (UCR) to control for the yearly national violent crime rate, following Varriale-Carson (2014). A final set of three variables are used to control for possible effects of the surrounding political environment. One variable, *election*, is marked as one during a November in an election year (every even year), and is marked as zero otherwise. A second, *lagged_election*, is marked as one for the three months prior to the election month (i.e. August, September, and October for that year). This variable would account for decisions made by animal rights and environmental groups to undertake greater or fewer attacks with an aim at bringing more attention to their cause. The third variable, *Percentage Congress Republican*, measures the percentage of representatives in all of Congress that are members of the Republican Party. Given that Congressional elections occurred every two years and that there is relatively little

⁶ The GTD data for 1993 was lost when Pinkerton, the previous collector, gave the extant dataset to START (see LaFree and Dugan 2007 for a fuller explanation). If the GTD were the only supplier of terrorist incidents, then I would have omitted the year 1993 from the analysis looking at terrorist attacks. However, there were five total terrorist incidents in the EID for the year 1993. Therefore, I ran an analysis using the deterrent model that included a dummy variable for the year 1993, to represent the GTD's missingness. The GTD's missingness would not affect the other two models because the GTD is, by definition, unrelated to non-terrorism. The GTD1993 variable was non-significant in the supplemental analysis, did little to affect the model's r-squared value, and did not impact the main effects of the three interventions. Therefore, for the sake of parsimony, the main analyses do not include this variable.

fluctuation in party alignment between each election, the monthly percentage does not change in between elections.

Methodology

Given that the main dependent variables are count variables, it is reasonable to use either a Poisson model or negative binomial model. In deciding between the two, it is necessary to consider the nature of the dependent variable's distribution. Due to the potential over-dispersion of the dependent variable, it is more appropriate to use the negative binomial model, which is an extension of the Poisson model that keeps the same mean structure but frees the model's variance to operate independently of the Poisson model's mean (λ). Essentially, the negative binomial structure adds a parameter to the model to better account for a larger variance. The nature of the negative binomial model allows it to be estimated using a maximum likelihood function⁷.

Time-series data are not collected randomly and therefore the values are typically dependent on previous and future values in the time-series. As such, the model needs to be manipulated in several ways. First, analyses will lag each independent variable by one month in order to maintain causal ordering between their implementation and the outcome variable. Second, dependent variable lags are also included in each model until the next successive lag is not significant. Thus, every model includes the dependent variable lagged by at least one period. The dependent variable lags are important because their omission fails to account for correlation in the error terms. If such correlation is unaddressed, the standard errors in regression analyses will be artificially deflated. This increases the potential for a Type I error, where results may seem significant when they

⁷ An autoregressive Poisson model would also be well-suited to this application. Sensitivity models in Appendix A replicate the analyses using autoregressive Poisson models.

are, in fact, not. Finally, each model will also include, at least, the monthly count as a control variable for any linear trend. The higher orders of monthly count (squared, cubed, etc.) will also be tested in case the trends are nonlinear. In the model testing for displacement of crime, measures of the current month squared and the current month cubed were included and in the model testing for diffusion of benefits, a measure of the current month squared was included. These models also control for the quadratic nature of their trends. Finally, Dickey-Fuller tests checking for unit roots found no evidence of a unit root for any of the dependent variables.

In total, this study uses three models to test the stated hypotheses. Before designating each model's equation, I also tested for multicollinearity. Intuitively, multicollinearity would seem to be a genuine issue, as several variables are invariant over one or two year periods. The variables that are least variant in this manner are the violent crime rate, the number of sources, and the percent of Congress that is Republican. As such, I performed additional analyses removing each of these three variables one at a time to observe how the models' coefficients and standard errors were affected. In all cases, the omission of the variable impacted coefficients to a far larger degree than standard errors, which would evidence omitted variable bias. Finally, each of the three variables' utility to the model is based on theoretical merit, which further justifies their inclusion. The first model tests the first hypothesis, and uses the monthly number of terrorist attacks as the dependent variable and can be represented as the following:

$$TI_t = \alpha + \beta_1(AETA_{t-1}) + \beta_2(SHAC_{t-1}) + \beta_3(BACKFIRE_{t-1}) + \beta_4(\mathbf{Controls}) + \beta_5(TI_{t-1}) \dots \beta_k(TI_{t-k}) + \epsilon$$

where TI represents the monthly count of terrorist incidents, α is a constant, $\beta_4(\mathbf{Controls})$ is the vector of control variables, and β_5 through β_k represent the coefficient for variables measuring the lagged values of the dependent variable. If β_1 , β_2 , and β_3 are significant and negative, they will provide evidence in support of deterrence.

The second model, which tests the second hypothesis, uses the monthly number of non-violent law-breaking actions by terrorist groups as the dependent variable and can be represented as the following:

$$TNTI_t = \alpha + \beta_1(AETA_{t-1}) + \beta_2(SHAC_{t-1}) + \beta_3(BACKFIRE_{t-1}) + \beta_4(\mathbf{Controls}) + \beta_5(TNTI_{t-1}) \dots \beta_k(TNTI_{t-k}) + \epsilon$$

where $TNTI$ represents the monthly count of non-terrorist incidents by terrorist groups, α is a constant, $\beta_4(\mathbf{Controls})$ is the vector of control variables, and β_5 through β_k represent the coefficient for variables measuring the lagged values of the dependent variable. If β_1 , β_2 , and β_3 are significant and positive, they will provide evidence in support of displacement of crime.

The third model will use the monthly number of non-terrorist attacks by non-terrorist groups as the dependent variable and can be represented as the following:

$$NTNTI_t = \alpha + \beta_1(AETA_{t-1}) + \beta_2(SHAC_{t-1}) + \beta_3(BACKFIRE_{t-1}) + \beta_4(\mathbf{Controls}) + \beta_5(NTNTI_{t-1}) \dots \beta_k(NTNTI_{t-k}) + \epsilon$$

where $NTNTI$ represents the monthly count of non-terrorist incidents by non-terrorist groups, α is a constant, $\beta_4(\mathbf{Controls})$ is the vector of control variables, and β_5 through β_k represent the coefficient for variables measuring the lagged values of the dependent variable. Like the first model, if β_1 , β_2 , and β_3 are significant and negative, they will provide evidence in support of diffusion of benefits.

Chapter 6: Results and Analysis

In total, there are 324 terrorist incidents, 395 crimes committed by terrorist groups, and 174 crimes committed by non-terrorist groups. The frequency distributions of each dependent variable are depicted in figure 3.

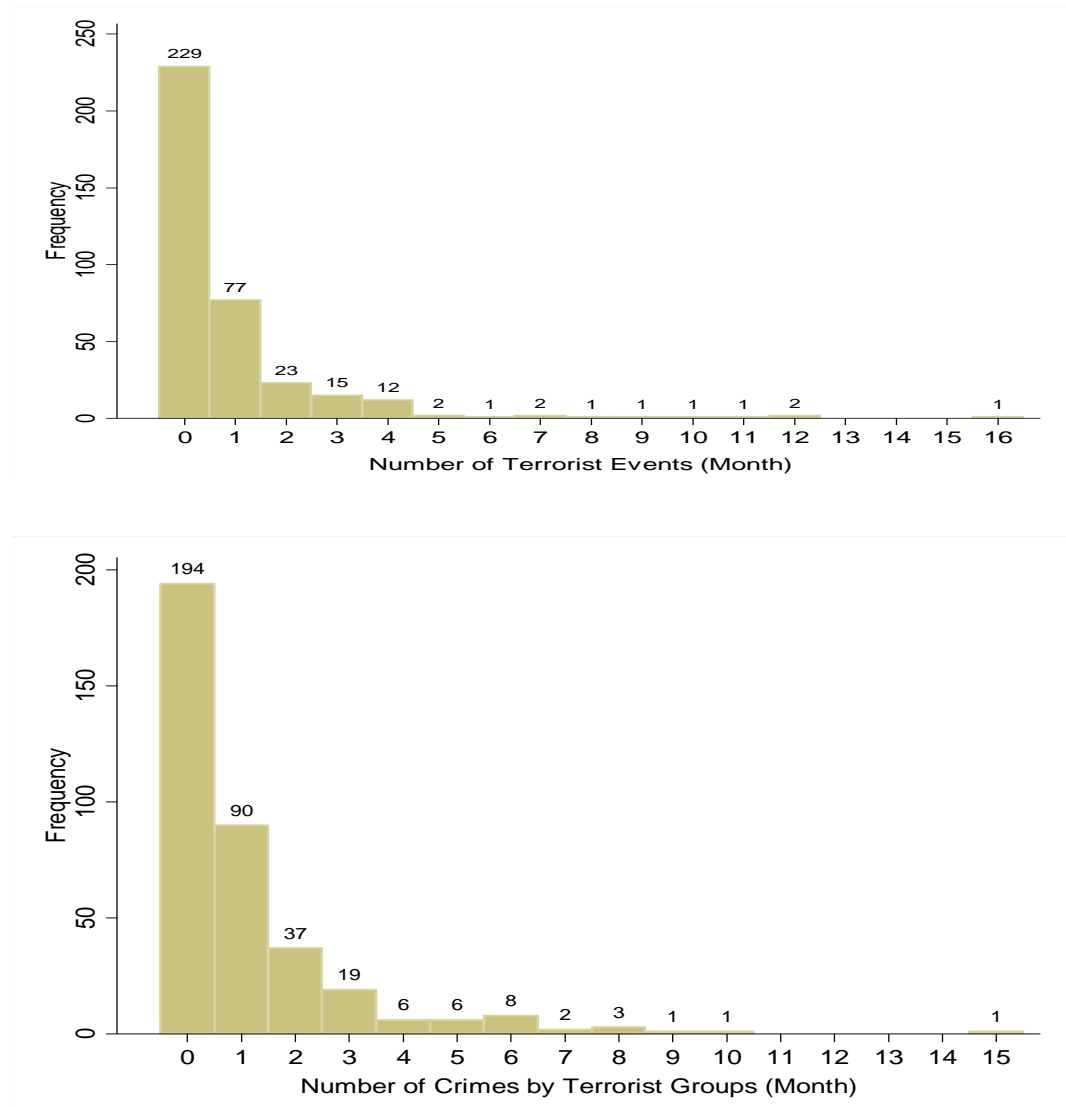


Figure 3. Frequency distribution of count of monthly incidents, separated by dependent variable

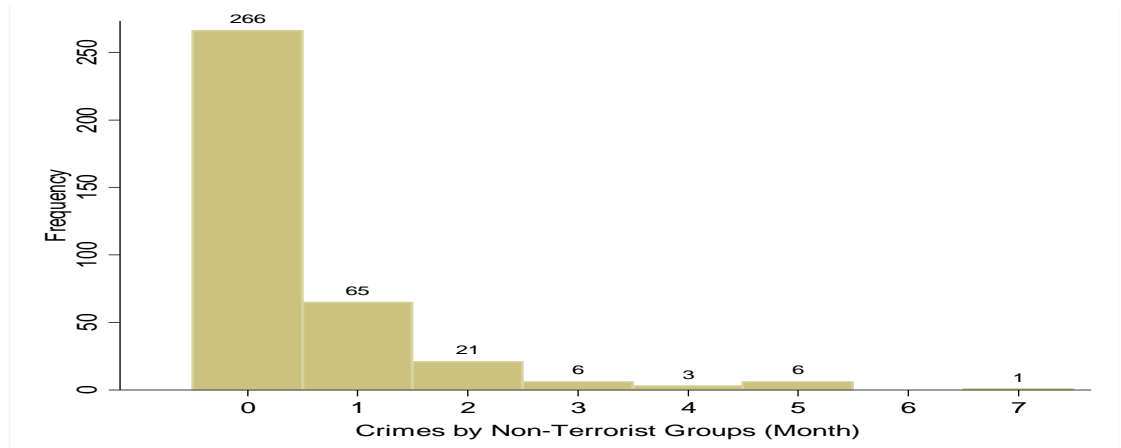


Figure 3. Frequency distribution of count of monthly incidents, separated by dependent variable

(continued)

As the frequency histograms show, the data do not follow a normal distribution. Furthermore, the negative binomial model appears to be a reasonable choice given that the majority of months for each dependent variable (62% for terrorism, 53% for crime by terrorist groups, and 72% for crime by non-terrorist groups) had zero attacks. Descriptive statistics for each variable, including all three dependent variables, are provided in table 3. The average number of terrorist attacks in a month was 0.88, the average number of non-terrorist attacks by terrorist groups was 1.07, and the average number of non-terrorist attacks by non-terrorist groups was 0.47. The first analysis tested for a deterrence effect, using the number of terrorist events per month as the dependent variable. For this regression, no order of the lagged dependent variable achieved significance ($p=.48$ for the first lag). The results of this analysis are presented in table 4⁸. For the main effects of each variable, the incident rate ratios (IRRs) are presented alongside the regression results to provide a more intuitive understanding of each independent variable's impact, although it does not account for the standard error. IRRs can be calculated by

⁸ The alpha parameter estimate is significant in the model (and will be for all subsequent models), meaning that there is enough evidence to reject the suitability of a basic Poisson model in analyzing these data.

Table 3- Descriptive statistics for variables included in the models

Variable (n=368)	Mean	Std. Dev.	Min	Max
Dependent Variables				
Terrorist Events	0.88	1.89	0	16
Other Crimes by Terrorist Groups	1.07	1.82	0	15
Crimes by Non-Terrorist Groups	0.47	1.00	0	7
Policy Intervention Variables				
AETA	0.04	0.19	0	1
SHAC	0.12	0.32	0	1
<i>Operation Backfire</i>	0.07	0.25	0	1
Controls				
Election	0.04	0.20	0	1
Election at 3 month lag	0.12	0.33	0	1
UCR violent crime rate	583.13	92.47	465.50	758.20
Percentage Congress Republican	45.40	6.14	33.83	53.46
Congressional Power	0.91	0.86	0	2
GTD1	0.33	0.47	0	1
Number of Sources	9.83	2.57	2	12

exponentiating each beta coefficient. The results show that all three main policy or intervention variables are associated with fewer acts of terrorism in the succeeding month. Of the three, *Operation Backfire* appears to have the strongest relationship, with a coefficient of -2.05. The IRRs more intuitively quantify the results. After the AETA, the rate of terrorist incidents was 0.22 the rate of terrorism before the intervention. Similarly, the IRRs of SHAC-7 (0.39) and *Operation Backfire* (0.13) demonstrate the stark difference in the rate of attacks after these interventions. Taken alone, these results support the deterrent hypothesis (hypothesis 1), with each government action achieving the intended goal of decreasing domestic terrorism. However, in order to comprehend the full picture, a measurement of the impact on non-terrorist actions is required.

The second analysis tests the effect of the government actions on the monthly count of non-violent law breaking by terrorist groups. For this regression, the first two

Table 4- Predictors of the monthly number of terrorist attacks, using a negative binomial regression

Variable	Coefficient (Standard Error)	Incident Rate Ratios (IRR)
Policy Intervention Variables		
AETA	-1.50 (0.65)**	0.22
SHAC	-0.93 (0.45)**	0.39
<i>Operation Backfire</i>	-2.05 (0.59)***	0.13
Controls		
Election	0.04 (0.43)	1.04
Election at 3 month lag	-0.36 (0.29)	0.70
UCR violent crime rate	0.00 (0.00)	1.00
% Congress Republican	0.05 (0.03)	1.05
GTD1	0.84 (0.50)*	2.32
Sources	0.26 (0.14)**	1.29
Current Month	0.00 (0.00)	-
Terrorist Events- Lag 1	0.01 (0.04)	1.01
Constant	-8.48 (3.19)***	-
Alpha	1.00 (0.20)***	-

***=p<.01, **=p<.05, *=p<.10 (policy intervention variables use one-tailed tests, rest use two-tailed tests)
N=368, Pseudo R-squared=.140

lags of the dependent variable put into the model were significant. When the third lag was added to the model, it rendered the second lag insignificant and was insignificant itself. This suggests that a one-month lag exerts the strongest effect, but, even beyond that, there seems to be a gradually cumulative effect of past months. For this analysis and the following analysis, the GTD control variable will not be in the model because the set of non-terrorist incidents, by definition, should not include any incidents from the GTD. Table 5 presents the results for the second analysis. The results of this analysis continue to provide support that the three policies' impacts did not extend beyond the intended

purview. None of the three main policy variables was significant, failing to provide evidence for a displacement of terrorist group activities to non-terrorism crime.

The final analysis tests the effect of the government actions on the monthly count of crimes committed by non-terrorist groups. Not even the first lag of the dependent variable was significant (p=.48). The results of this analysis are presented in table 6.

Table 5-Predictors of the monthly number of non-terrorist attacks by terrorist groups, using a negative binomial regression

Variable	Coefficient (Standard Error)	Incident Rate Ratios (IRR)
Policy Intervention Variables		
AETA	0.31 (0.57)	1.36
SHAC	0.21 (0.32)	1.23
<i>Operation Backfire</i>	-0.29 (0.49)	0.75
Controls		
Election	-0.43 (0.38)	0.65
Election at 3 month lag	0.09 (0.20)	1.09
UCR violent crime rate	-0.01 (0.00)***	0.99
% Congress Republican	0.05 (0.03)	1.05
Sources	0.32 (0.17)*	1.37
Current Month	0.09 (0.03)***	-
Current Month-Squared	-0.00 (0.00)***	-
Current Month-Cubed	0.00 (0.00)**	-
Terrorist Crime Lag 1	0.09 (0.03)***	1.09
Terrorist Crime Lag 2	0.05 (0.03)	1.05
Terrorist Crime Lag 3	0.04 (0.03)	1.04
Constant	-7.12 (3.59)**	-
Alpha	0.30 (0.09)***	-

***=p<.01, **=p<.05, *=p<.10 (policy intervention variables use one-tailed tests, rest use two-tailed tests)
N=368, Pseudo R-squared=.200

Table 6- Predictors of the monthly number of non-terrorist attacks by non-terrorist groups, using a negative binomial regression

Variable	Coefficient (Standard Error)	Incident Rate Ratios (IRR)
Policy Intervention Variables		
AETA	---	---
SHAC	0.59 (0.42)	1.80
<i>Operation Backfire</i>	-2.17 (1.12)**	0.11
Controls		
Election	-0.88 (0.66)	0.41
Election at 3 month lag	-0.24 (0.33)	0.79
UCR violent crime rate	-0.00 (0.00)	1.00
% Congress Republican	0.01 (0.04)	1.01
Sources	0.29 (0.20)	1.34
Current Month	0.03 (0.01)**	-
Current Month Squared	-0.00 (0.00)*	-
Non-Terrorist Crime Lag	0.06 (0.09)	1.06
Constant	-5.91 (3.81)	-
Alpha	0.73 (0.25)***	-

***=p<.01, **=p<.05, *=p<.10 (policy intervention variables use one-tailed tests, rest use two-tailed tests)
N=368, Pseudo R-squared=.151

and highlight the importance in examining the effects of a policy that extend beyond its original scope. First, there are no results provided for the AETA variable because this dependent variable could not empirically determine the effect of AETA. Given that the AETA was operationalized as occurring in December 2006, there were only 13 months of data that occurred when AETA was in effect. In this time, there were no actions by non-terrorist groups recorded in the dataset. Therefore, the model could not numerically measure AETA's effect. However, the finding that no incidents were recorded after AETA suggests that a diffusion of benefits did occur. The coefficient for *Operation Backfire* ($\beta=-2.17$) was statistically significant and in the expected direction ($p<.01$).

This means that after *Operation Backfire*, the activities of non-violent groups significantly decreased. This is a finding that supports a diffusion of benefits hypothesis, as stipulated by hypothesis 3b. Finally, like the second analysis, SHAC-7 had no significant impact on the rate of non-terrorist actions by non-terrorist groups. The results from the three analyses support the effectiveness of SHAC-7 as a purely deterrent measure that did not residually impact other crimes.

Chapter 7: Discussion

All three key government actions had an effect that one could consider evidentiary support for deterrence. *Operation Backfire*'s strong support is in line with findings from Perkoski and Chenoweth (2010) who found that discriminate deterrent policies, such as individual arrests, had the strongest deterrent impact. It is important to note that one should interpret these results with caution, and as the estimate of an average impact.

The second and third sets of results provided no support for a displacement of activity from terrorist actions to non-terrorist actions and mixed support for a diffusion of benefits. In the second model, none of the coefficients corresponding to the implemented policies was significant, suggesting that terrorist groups' non-terrorism actions did not increase after implementation. In the third model, *Operation Backfire* elicited fewer non-terrorist crimes by non-terrorist groups, which supports a diffusion of benefits hypothesis. Similarly, the implementation of the AETA provides evidence in favor of a diffusion of crime-control benefits. While the law did not appear to impact non-terrorist activity by terrorist groups, it appears to affect non-terrorist groups, although this conclusion could not be verified by the regression results. Further exploration of the impact of AETA, with data that extends beyond the end of 2007, would provide an empirical result to quantify the nature of the decline in activity that this study appears to illuminate.

It is difficult to pinpoint exactly why terrorist groups do not simply switch tactics to avoid harsher penalties after laws are passed. Aside from an incapacitation effect, which will be addressed shortly, the soundest explanation of these findings relies on the nature by which displacement and diffusion of benefits are conceptualized. Typically,

diffusion of benefits occurs when groups are unaware of whether the law applies to their behavior. Displacement makes more sense when groups have a full understanding of a policy's purview and adapt their behavior to avoid detection and punishment. In the current context, it is difficult to argue that terrorist groups were more aware of each action's scope than non-terrorist groups. This idea is strengthened when considering that both terrorist and non-terrorist animal-rights and environmental groups spawn from the same communities. As such, although the evidence I present in favor of a diffusion of benefits is drawn from non-terrorist groups, I can speculate that the scope of government actions was not any clearer to terrorist groups than to non-terrorist groups. There is no theoretical reason to guide why terrorist groups should subsequently be any more inclined to increase their actions (as would evidence a displacement of crime) than non-terrorist groups. While the non-terrorist groups were most vocal in their outrage and apprehension regarding the passing of the AETA, the same uncertainties that are cited above can be posited as analogous to uncertainties felt in light of *Operation Backfire* and the indictment of the SHAC-7.

Before making strong conclusions, it is imperative to acknowledge that the dataset has limitations. First, the data only includes incidents through the end of 2007, which limits the inferences one can make about the effect of each action after implementation. The third analysis could not compute a coefficient for AETA because there were literally no relevant incidents that occurred after the intervention. However, I believe this weakness is somewhat mitigated by the use of months as the unit of analysis. There were still 13 months of data after the final intervention and several more after *Operation Backfire*, which had the strongest effect in the deterrence and diffusion of benefits

models. As such, the lack of non-terrorist acts after AETA seems more likely to be a real drop-off rather than one resulting from too few units of analysis after the intervention.

One should also caution against drawing any definitive conclusions from the findings. While I have framed the research question to test a deterrence paradigm, the relationship may be more complicated and recursive than I have presented. It is very plausible that the trend in terror attacks, for instance, impacted when each of the policies was implemented, which would then, in turn, impact levels of terrorism. This is a problem of endogeneity that I cannot resolve by empirically controlling for linear and quadratic data trends in regression analyses. As such, I acknowledge that the relationship between the policies and each of the dependent variables is not as simple as I have framed it in this thesis. Another potential hesitation is that there are other plausible explanations for the apparent relationships found in the analyses. For example, a decrease in terrorism after *Operation Backfire*, while supportive of a deterrence hypothesis, may indicate a very different reality. The decrease in terrorism may actually be due to incapacitation. Conclusions from the analysis would be limited if the main perpetrators of terrorism are not committing terrorism because they have no opportunity to do so from prison, rather than because the laws have deterred them. Given that *Operation Backfire* specifically targeted members of the Family, incapacitation would only be an issue if the Family committed many events in the database before Operation Backfire. However, the Family only committed two attacks in the database, casting doubt on incapacitation as an explanation. Even so, the point is well taken that no definitive causal conclusions can be made from this data and, while evidence may

support certain effects, no reason can be decisively given for the relationships found in the analyses.

A third potential weakness is that I had to make somewhat subjective determinations in determining the starting and ending points of the policy intervention, which may have introduced error into the estimations. It was especially difficult to determine what the endpoint of the SHAC-7 case and *Operation Backfire* were. Further, as noted by Dugan (2011a), a disadvantage to a modeling decision where the unit of analysis is a length of time rather than a specific event is the inability to distinguish temporal spacing within each unit of analysis. A month with five terrorist attacks will look the same as all other months with five terrorist attacks regardless of the clustering and spacing characterizing the attacks. To clarify, five attacks that occur at the beginning of the month will appear the same as five attacks that occur in equally spaced intervals throughout the month. For example, in the analyses, AETA was operationalized as beginning in December 2006. Given the monthly unit of analysis, AETA could not be specified as beginning on any specific date. If there were ten terrorist attacks in December 2006, it would be impossible to tell if all ten attacks happened right before the intervention, after the intervention, or both before and after the intervention. If all ten attacks occurred before AETA, the policy may have had a genuine impact, but all that would be discernible from the data was that 10 attacks occurred in the month of AETA's implementation, thus downplaying its immediate impact (see Dugan, 2011a: fig. 1 for clarification). However, I did not feel this issue was detrimental in this study because each policy intervention could be operationalized as beginning and ending closely in time to either the end or beginning of a month. Therefore, a count of attacks or crimes in a

month in which a policy intervention was operationalized as starting in would truly represent the impact of the policy in that month.

A final important shortcoming for these findings is that the results are not easily generalizable. For instance, while *Operation Backfire*, a joint task force operation, was significantly related with fewer acts of terrorism and fewer criminal acts by non-terrorists in the animal-rights and environmental community, it does not necessarily follow that all joint task force operations will be effective in any scenario. Dynamics may shift completely given different countries, different groups, different ideologies, or different types of actions. Therefore, it is imprudent to conclude from this study that certain types of actions will unfailingly result in certain effects and make policy decisions accordingly. Furthermore, by making the choice to analyze at the group level, I implicitly assume that the whole group reacts in the same way. For example, deterrence can only be interpreted as deterrence at a group level. As such, while I can note that terrorist groups committed fewer actions after Operation Backfire, I cannot make any conclusive statements about the activities of specific groups, such as ALF or ELF, or the individuals composing those groups.

While the results are not necessarily generalizable, they contribute to an important conclusion. First, in order to progress toward a confluence of research between criminologists and those who study terrorism within some other discipline, it is critical to share terminology when endeavoring toward the same goal. Evaluating a counter-terrorism policy's effectiveness post-hoc should ostensibly require the same diligence and critical measurement of variegated outcomes. Many studies in criminological literature appreciate the requirement for measuring displacement and diffusion of benefits when

evaluating if a given policy was truly effective, net of its potential deterrent effect (see Weisburd et al 2006; Green 1995; Hamilton-Smith and Tilley 2002; Bowers and Johnson 2003; Weisburd et al. 2004; Skinns 1998 for several examples). Though some studies of terrorism policy have searched for, and found statistical evidence of, a substitution effect (Enders and Sandler 1993; Enders and Sandler 2004), little previous research has made the effort toward using such terminology to bridge the gap with criminological literature. The same can be said about measuring a diffusion of benefits (although see Hsu and Apel 2015). Furthermore, prior researchers in this area study transnational terrorism and displacement of targets. To this author's knowledge, the current study is the first that examined displacement and diffusion of benefits in the context of United States' domestic terrorism.

This study may also be germane to policy makers on the front end of the process. It is crucial that those with the power to influence interventions be fully cognizant of all the relevant actors to whom a potential policy stands to impact, either directly or residually. The term "diffusion of benefits" can be misleading; in the current study, the notion that non-terrorist activists are unsure regarding whether or not their acts may be construed as acts of terrorism is not necessarily a positive outcome. A fuller understanding before implementation, at the least, may prepare policy makers for the possibility of unintended consequences.

Future expansion of these findings can foreseeably follow three lines of research. First, it would be useful to re-analyze past counter-terrorism policies with a new eye toward examining crime displacement and diffusion of benefits effects that researchers may have ignored the first time. A larger pool of research in this vein will help to gain a

fuller understanding of what types of policy do and do not properly deter without having harmful side effects. The second line of future exploration would further research on non-repressive measures of deterrence. Dugan and Chenoweth (2012)'s study of the conflict between Israel and Palestine found evidence that conciliatory government actions, rather than punitive or repressive actions, were more likely to reduce future terrorist incidents. The authors' future research using the Government Actions in Terror Environments (GATE) data to evaluate effectiveness in many different countries promises to reconsider the best strategy to prevent terrorist attacks. Finally, and most generally, this study has highlighted the need to create a stronger paradigm that unites concepts from criminological literature and literature on terrorism. In addition to the rational choice framework used here, several more traditionally criminological theories have been mapped onto terrorism research (LaFree and Bersani 2014; Freilich et al. 2014; Agnew 2010; Black 2004). In light of the shallow pool of research that currently exists, cross-discipline theory application and adaption is a fruitful future endeavor.

Appendix A: Sensitivity Analyses

I have also conducted several sensitivity analyses that will test the above findings' robustness. The first uses autoregressive Poisson (ARP) as an alternative to the negative binomial regression to test the three models. The results for each of the three models, obtained from this alternative analysis, are shown in table 7, table 8, and table 9. The largest difference in modeling is that the ARP model in table 8 was an AR(4), accounting for the previous four terms of the dependent variable, one more than in table 5. The substantive results for all three models using each method (table 4 vs. table 7, table 5 vs. table 8, and table 6 vs. table 9) are nearly identical, showing the robustness of results across model type.

Table 7-Predictors of the monthly number of terrorist attacks, using autoregressive Poisson

Variable	Coefficient (Standard Error)	Incident Rate Ratios (IRR)
Policy Intervention Variables		
AETA	-1.48 (0.61)***	0.23
SHAC	-0.98 (0.42)**	0.38
<i>Operation Backfire</i>	-2.29 (0.72)***	0.10
Controls		
Election	0.09 (0.39)	1.09
Election at 3 month lag	-0.39 (0.29)	0.52
UCR violent crime rate	0.00 (0.00)	1.00
% Congress Republican	0.05 (0.03)	1.05
GTD1	0.88 (0.45)*	2.41
Sources	0.24 (0.10)**	1.27
Current Month	0.00 (0.00)	-
Terrorism Lag 1	-0.01 (0.05)	0.99
Constant	-11.26 (2.78)***	-

***=p<.01, **=p<.05, *=p<.10 (policy intervention variables use one-tailed tests, rest use two-tailed tests)
N=368, R-squared=.323

Table 8- Predictors of the monthly number of non-terrorist attacks by terrorist groups, using autoregressive Poisson

Variable	Coefficient (Standard Error)	Incident Rate Ratios (IRR)
Policy Intervention Variables		
AETA	0.40 (0.47)	1.49
SHAC	0.15 (0.27)	1.23
<i>Operation Backfire</i>	-0.38 (0.44)	0.68
Controls		
Election	-0.49 (0.38)	0.61
Election at 3 month lag	-0.08 (0.19)	0.92
UCR violent crime rate	-0.01 (0.00)***	1.00
% Congress Republican	0.02 (0.03)	1.02
Sources	0.51 (0.14)***	1.67
Current Month	0.03 (0.01)***	-
Current Month Squared	-0.00 (0.00)***	-
Terrorist Crime Lag 1	0.14 (0.05)***	1.15
Terrorist Crime Lag 2	0.13 (0.05)***	1.14
Terrorist Crime Lag 3	0.10 (0.05)**	1.11
Terrorist Crime Lag 4	-0.02 (0.05)	0.98
Constant	-5.65 (2.90)*	-

***=p<.01, **=p<.05, *=p<.10 (Policy Intervention variables use one-tailed tests, rest use two-tailed tests)
N=368, R-squared=.339

Table 9-Predictors of the monthly number of non-terrorist attacks by non-terrorist groups, using autoregressive Poisson

Variable	Coefficient (Standard Error)	Incident Rate Ratios (IRR)
Policy Intervention Variables		
AETA	---	---
SHAC	0.63 (0.28)	1.88
<i>Operation Backfire</i>	-2.80 (1.19)**	0.06
Controls		
Election	-1.09 (0.69)	0.34
Election at 3 month lag	-0.50 (0.32)	0.61
UCR violent crime rate	0.00 (0.00)	1.00
% Congress Republican	0.03 (0.03)	1.03
Sources	0.22 (0.13)*	1.25
Current Month	0.01 (0.00)**	-
Non-Terrorist Crime Lag	0.07 (0.05)	1.07
Constant	-6.14 (2.54)**	-

***=p<.01, **=p<.05, *=p<.10 (Policy Intervention variables use one-tailed tests, rest use two-tailed tests)
 Monthly Data (n=368), R-squared=.192

Following the example of Varriale-Carson (2014), I also ran analyses examining six-month and 18-month existence periods for each of the policies. In these manipulations, the start date of the interventions remained the same; only the end dates were changed. When using a six-month end date, I manipulated all three government interventions, while for the 18 month end date I could only manipulate the SHAC-7 and *Operation Backfire*, as there are only 13 total months after AETA. The results for the second and third model were substantively the same for all end date variations, but the deterrent model differed slightly across all variations. Only in the yearlong model were the coefficients on all three interventions significant; in the other two models, only *Operation Backfire* remained significant. However, the yearlong model is advantageous for two reasons, which may partially explain the findings in the other two manipulations.

First, the 18-month model has a lot of overlap in dates each dummy variable is active, which may vitiate the individual impact each action may have had. Second, the six-month model may not account for enough time for each intervention to impact results. While the coefficients did not decrease substantially in each model, the standard errors were inflated. A six-month end date is also conceptually problematic, especially when the SHAC-7 intervention, although operationalized as the indictment, can be reasonably assumed to have lasted longer than six months. The one-year end date therefore makes the most sense conceptually and empirically, as the interventions last for a long enough time to be properly measured, but short enough to not overlap with each other and potentially confound results. However, given the results of the sensitivity analyses, it is clear that the results pertaining to AETA and SHAC-7 in the model measuring evidence of deterrence need to be considered with abundant caution.

References

- Agnew, R. (2010). A general strain theory of terrorism. *Theoretical Criminology*,14(2), 131-153.
- Agroterrorism Prevention Act of 2001. 107 U.S.C. § 1775.
- Andenaes, J. (1974). *Punishment and deterrence*. Ann Arbor, MI: University of Michigan Press.
- Animal Enterprise Protection Act of 1992. 102 U.S.C. § 346.
- Animal Enterprise Terrorism Act of 2006, 18 U.S.C. § 43.
- Animal Rights: Activism vs. Criminality: Hearing Before the Committee on the Judiciary United States Senate, 108th Cong. 78 (2004) (testimony of John E. Lewis)*
- Barr, R., & Pease, K. (1990). Crime placement, displacement, and deflection. *Crime and justice*, 277-318.
- Beccaria C. 1764 (1986). *Essay on Crimes and Punishments*. Transl. D Young. Indianapolis, IN: Hackett (From Italian)
- Bentham, J. (1970). *An introduction to the principles of morals and legislation*. London: The Athlone Press.
- Best, S., & Nocella, A. J. (Eds.). (2004). *Terrorists or freedom fighters?: Reflections on the liberation of animals*. New York, NY: Lantern Books.
- Black, D. (2004). Terrorism as social control. *Terrorism and counter-terrorism: Criminological perspectives*, 9-18.
- Blum v. Holder*, No. CR 11-12229-JLT (D. Or. July 29, 2013).

- Bowers, K. J., & Johnson, S. D. (2003). Measuring the geographical displacement and diffusion of benefit effects of crime prevention activity. *Journal of Quantitative Criminology*, 19(3), 275-301.
- Braga, A. A., & Weisburd, D. L. (2014). Must we settle for less rigorous evaluations in large area-based crime prevention programs? Lessons from a Campbell review of focused deterrence. *Journal of Experimental Criminology*, 10(4), 573-597.
- Brandt, P. T. and J. T. Williams (2007). *Multiple Time Series Models*. Thousand Oaks: Sage.
- Brandt, P. T., & Sandler, T. (2010). What do transnational terrorists target? Has it changed? Are we safer? *Journal of Conflict Resolution*, 54(2), 214-236.
- Carson, Jennifer V. (2010). The criminal conduct of radical environmental and animal rights groups: A rational choice perspective. PhD dissertation, University of Maryland.
- Carson, J. V., LaFree, G., & Dugan, L. (2012). Terrorist and non-terrorist criminal attacks by radical environmental and animal rights groups in the United States, 1970–2007. *Terrorism and Political Violence*, 24(2), 295-319.
- Carson, J. V. (2014). Counterterrorism and Radical Eco-Groups: A Context for Exploring the Series Hazard Model. *Journal of Quantitative Criminology*, 30(3), 485-504.
- Chaiken, J., M.W. Lawless, and K.A. Stevenson (1974). The Impact of Police Activity on Subway Crime. *Urban Analysis* 3:173-205.
- Christian, N. (2000, June 4). Detroit Defends Get-Tough Stance. *The New York Times*. Retrieved from <http://www.nytimes.com>.

- Clarke, R. V., & Cornish, D. B. (1985). Modeling Offenders' Decisions: A Framework for Research and Policy. *Crime and Justice*, 147-185.
- Clarke, R. V., & Eck, J. E. (2005). Crime analysis for problem solvers. *Washington, DC: Center for Problem Oriented Policing*.
- Clarke, R. V., & Mayhew, P. (1988). The British gas suicide story and its criminological implications. *Crime and justice*, 79-116.
- Clarke, R. V. G., & Newman, G. R. (2006). *Outsmarting the terrorists*. Westport, CT: Praeger Security International.
- Clarke, R. V., & Weisburd, D. (1994). Diffusion of crime control benefits: Observations on the reverse of displacement. *Crime prevention studies*, 2, 165-184.
- Cornish, D. B., & Clarke, R. V. (1987). Understanding Crime Displacement: An Application of Rational Choice Theory. *Criminology*, 25(4), 933-948.
- Cronin, John. *Redefining Terrorism to Protect Animal Torture*. Retrieved March 11, 2014, from <http://earthdesk.blogs.pace.edu/2013/11/02/redefining-terrorism-to-protect-animal-torture-pt-1/>.
- Deshpande N. & Ernst, H. (2012). Countering Eco-Terrorism in the United States: The Case of 'Operation Backfire.' *Final Report to the Science & Technology Directorate, U.S. Department of Homeland Security*.
- Di Tella, R., & Schargrodsky, E. (2004). Do police reduce crime? Estimates using the allocation of police forces after a terrorist attack. *The American Economic Review*, 94(1), 115-133.
- Draca, M., Machin, S., & Witt, R. (2008). Panic on the Streets of London: Police, Crime and the July 2005 Terror Attacks. *Crime, Institutions, and Policies*.

- Dugan, L. (2010). Estimating effects over time for single and multiple units. In *Handbook of quantitative criminology* (pp. 741-763). Springer New York.
- Dugan, L. (2011a). The series hazard model: an alternative to time series for event data. *Journal of Quantitative Criminology*, 27(3), 379-402.
- Dugan, L. (2011b). The Making of the Global Terrorism Database and Its Applicability to Studying the Life Cycles of Terrorist. *The Sage Handbook of Criminological Research Methods*, 175-197.
- Dugan, L., LaFree, G., & Piquero A.R. (2005). Testing a rational choice model of airline hijackings. *Criminology* 43:1031–66.
- Dugan, L., & Chenoweth, E. (2012). Moving Beyond Deterrence: The Effectiveness of Raising the Expected Utility of Abstaining from Terrorism in Israel. *American Sociological Review*, 77(4), 597-624.
- Eck, J.P. (1993). "The Threat of Crime Displacement." *Criminal Justice Abstracts* 25:527-546.
- Enders, Walter, & Sandler, T. (1993). The effectiveness of antiterrorism policies: A vector-autoregression-intervention analysis. *American Political Science Review* 87: 829–844.
- Enders, W., & Sandler, T. (2000). Is transnational terrorism becoming more threatening? A time-series investigation. *Journal of Conflict Resolution*, 44(3): 307-332.
- Enders, Walter and Sandler, Todd. 2004. "What do we know about the substitution effect in transnational terrorism?" In *Research on Terrorism: Trends, Achievements and Failures*, Edited by: Silke, Andrew. pp. 119–137. London: Frank Cass.

- Forrester, D., Chatterton, M., Pease, K., & Brown, R. (1988). *The Kirkholt burglary prevention project, Rochdale*. London: Home Office.
- Foxley, T. (2007). The Taliban's propaganda activities: How well is the Afghan insurgency communicating and what is it saying? *SIPRI Project Paper*: 18-19.
- Freilich, J. D., Adamczyk, A., Chermak, S. M., Boyd, K. A., & Parkin, W. S. Investigating the Applicability of Macro-Level Criminology Theory to Terrorism: A County-Level Analysis. *Journal of Quantitative Criminology*, 1-29.
- Gibbs, J. P. (1975). *Crime, punishment, and deterrence*. New York: Elsevier Publishing.
- Gibbs, J.P. (1986) Deterrence Theory and Research. In Gary B. Melton (ed.) *The Law as a Behavioral Instrument: Nebraska Symposium on Motivation*. Lincoln, NE: University of Nebraska.
- Green, L. (1995). Cleaning up drug hot spots in Oakland, California: The displacement and diffusion effects. *Justice Quarterly*, 12(4), 737-754.
- Guerette, R. T., & Bowers, K. J. (2009). Assessing the extent of crime displacement and diffusion of benefits: a review of situational crime prevention evaluations*. *Criminology*, 47(4), 1331-1368.
- Hamilton-Smith, N. (2002). Anticipated consequences: developing a strategy for the targeted measurement of displacement and diffusion of benefits. *Crime prevention studies*, 14: 11-52.
- Hamm, M. S. (2007). *Terrorism as crime: from Oklahoma City to Al-Qaeda and beyond*. NYU Press. Hamm, M. S. (2007). *Terrorism as crime: from Oklahoma City to Al-Qaeda and beyond*. New York, NY: NYU Press.

- Harris, S. (2007, July 13). The Terrorism Enhancement: An obscure law stretches the definition of terrorism, and metes out severe punishments. *The National Journal*.
- Hesseling, R. (1994). Displacement: A review of the empirical literature. *Crime prevention studies*, 3, 197-230.
- Hobbes, T. (1928). *Leviathan, or the matter, form and power of a commonwealth ecclesiastical and civil*. New Haven, CT: Yale University Press.
- Holt, T. J., Blevins, K. R., & Kuhns, J. B. (2008). Examining the displacement practices of johns with on-line data. *Journal of Criminal Justice*, 36(6), 522-528.
- Hsu, Henda Y. and Robert Apel. (2015). A Situational Model of Displacement and Diffusion Following the Introduction of Airport Metal Detectors. *Terrorism and Political Violence*, 27(1), 29-52.
- Johnson, D. E. (2007). Cages, clinics, and consequences: The chilling problems of controlling special-interest extremism. *Or. L. Rev.*, 86, 249-293.
- Johnson, S. D., Guerette, R. T., & Bowers, K. J. (2012). Crime displacement and diffusion of benefits. *The Oxford handbook of crime prevention*, 337-351.
- Kuipers, D. (2011). Lawsuit challenges animal enterprise terror law as unconstitutional. *Los Angeles Times*.
- LaFree, G., & Dugan, L. (2007). Introducing the global terrorism database. *Terrorism and Political Violence*, 19(2), 181-204.
- LaFree, G., & Dugan, L. (2009). Research on terrorism and countering terrorism. *Crime and Justice*, 38(1), 413-477.

- LaFree, G., Dugan, L., & Korte, R. (2009). The impact of British counterterrorist strategies on political violence in Northern Ireland: comparing deterrence and backlash models. *Criminology*, 47(1), 17-45.
- LaFree, G., & Bersani, B. E. (2014). County-Level Correlates of Terrorist Attacks in the United States. *Criminology & Public Policy*, 13(3), 455-481.
- Lateef, A.B. 1974. Helicopter patrol in law enforcement: An evaluation. *Journal of Police Science and Administration* 2: 62-65.
- Liddick, D. (2006). *Eco-terrorism: Radical environmental and animal liberation movements*. Greenwood Publishing Group: Westport, CT.
- Lindsay, B., & McGillis, D. (1986). *Citywide community crime prevention: An assessment of the Seattle program*. In: D.P. Rosenbaum (ed.). *Community Crime Prevention: Does it Work?* Beverly Hills, CA.
- Long, D. (2004). *Ecoterrorism*. New York: Facts on File.
- Lovitz, D. (2007). Animal Lovers and Tree Huggers are the New Cold-Blooded Criminals: Examining the Flaws of Ecoterrorism Bills. *Journal of Animal Law*, 3-79.
- Mayhew, P., Clarke, R. V., & Elliott, D. (1989). Motorcycle theft, helmet legislation and displacement. *The Howard Journal of Criminal Justice*, 28(1), 1-8.
- McCoy, K. E. (2007). Subverting Justice: An Indictment of the Animal Enterprise Terrorism Act. *Journal of Animal Law*, 14, 53-70.
- Midlarsky, M. I., Crenshaw, M., & Yoshida, F. (1980). Why violence spreads: The contagion of international terrorism. *International Studies Quarterly*, 262-298.

- Miethe, T. D. (1991). Citizen-based crime control activity and victimization risks: An examination of displacement and free-rider effects. *Criminology*, 29(3), 419-439.
- National Consortium for the Study of Terrorism and Responses to Terrorism (START). (2013). Global Terrorism Database [Data file]. Retrieved from <http://www.start.umd.edu/gtd>
- O'Neill, M. (2007). A critical analysis of the EU legal provisions on terrorism. *Terrorism and Political Violence*, 20(1), 26-48.
- Pannekoek, J. (2014). Animal Activism and the Ethics of Terrorism. *Res Cogitans*, 5(1), 178-192.
- Parker, A. (2009). Beyond AETA: How Corporate-Crafted Legislation Brands Activists as Terrorists. *National Lawyers Guild*, 1-14.
- Paternoster, R., Saltzman, L. E., Waldo, G. P., & Chiricos, T. G. (1983). Perceived Risk and Social Control: Do Sanctions Really Deter? *Law and Society Review*, 457-479.
- Perkoski, Evan, and Erica Chenoweth. 2010. "The Effectiveness of Counterterrorism in Spain: A New Approach." Paper prepared for the *Annual Meeting of the International Studies Association*, New Orleans, March 15–17.
- Potter, W. (n.d.) Analysis of the Animal Enterprise Terrorism Act (AETA). Retrieved from <http://www.greenisthenewred.com/blog/aeta-analysis-109th/>.
- Potter, W. (2006, May 4). Green is the New Red: How the Bush Administration is Using Terror Laws to Prosecute Nonviolent Environmental Activists. Retrieved from <http://www.counterpunch.org/2006/05/04/green-is-the-new-red/>.

- Poyner, B. (1988). Video cameras and bus vandalism. *Journal of Security Administration*, 11(2), 44-51.
- Press, S.J. (1971) *Some Effects of an Increase in Police Manpower in the 20th Precinct of New York*. New York: New York City RAND Institute.
- Ratcliffe, Jerry H., and Toni Makkai. 2004. Diffusion of benefits: Evaluating a policing operation. *Trends & Issues in Crime and Criminal Justice* 278:1-6.
- Repetto, T. A. (1976). Crime prevention and the displacement phenomenon. *Crime & Delinquency*, 22(2), 166-177.
- Representative Israel (NY). "Animal Enterprise Terrorism Act." 109th Congress (2006).
- Skinns, D. (1998). Crime reduction, diffusion and displacement: Evaluating the effectiveness of CCTV. *Surveillance, closed circuit television and social control*, 175-188.
- Stafford, M. C., & Warr, M. (1993). A reconceptualization of general and specific deterrence. *Journal of Research in Crime and Delinquency*, 30(2), 123-135.
- Tyrpak, S. (1975). Newark High-Impact Anti-Crime Program: Street Lighting Project Interim Evaluation Report. *Newark, NJ: Office of Criminal Justice Planning*.
- United States v. Buddenburg*, No. CR 09-002663-RMSW (D. Or. March 12, 2009).
- United States v. Thurston*, No. CR 06-60069-01-AA (D. Or. May 21, 2007).
- United States Department of Justice and United States Department of Agriculture (1993). Report to Congress on the extent and effects of domestic and international terrorism in animal enterprises. *The Physiologist*, 36(6), 207, 247-59.

- Vijlbrief, M. F. (2012). Looking for displacement effects: exploring the case of ecstasy and amphetamine in the Netherlands. *Trends in Organized Crime*, 15(2-3), 198-214.
- Violent and Repeat Juvenile Offender Accountability and Rehabilitation Act of 1999. 106 U.S.C. § 254.
- Wang, C., & Bier, V. M. (2011). Target-hardening decisions based on uncertain multiattribute terrorist utility. *Decision Analysis*, 8(4), 286-302.
- Weisburd, D., Bushway, S., Lum, C., & Yang, S. M. (2004). Trajectories of crime at places: a longitudinal study of street segments in the city of Seattle. *Criminology*, 42(2), 283-322.
- Weisburd, D., Wyckoff, L. A., Ready, J., Eck, J. E., Hinkle, J. C., & Gajewski, F. (2006). Does crime just move around the corner? A controlled study of spatial displacement and diffusion of crime control benefits*. *Criminology*, 44(3), 549-592.
- Weisburd, D., Hinkle, J. C., Famega, C., & Ready, J. (2011). The possible “backfire” effects of hot spots policing: an experimental assessment of impacts on legitimacy, fear and collective efficacy. *Journal of Experimental Criminology*, 7(4), 297-320.
- Williams, K. R., & Hawkins, R. (1986). Perceptual research on general deterrence: A critical review. *Law and Society Review*, 545-572.