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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

INFORMATION-GENERATED EFFECTS

by

Stephen R. Gibbs

December 2010

Thesis Advisor:
Second Reader:

Hy Rothstein
Michael Freeman

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INFORMATION-GENERATED EFFECTS

Stephen R. Gibbs
Major, United States Army
B.S., Excelsior University, 2002

Submitted in partial fulfillment of the
requirements for the degree of

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**NAVAL POSTGRADUATE SCHOOL
December 2010**

Author: Stephen R. Gibbs

Approved by: Hy Rothstein
Thesis Advisor

Michael Freeman
Second Reader

Gordon H. McCormick
Chairman, Department of Defense Analysis

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ABSTRACT

This thesis researches three types of information-generated effects that are often observed in police operations: 1) anticipatory effects, 2) diffusion effects, and 3) residual effects. These information-generated effects depict the fact that criminal activity often decreases before a new police operation starts, decreases outside the geographical areas where the police operations are occurring, and regularly remains lower for an extended period of time after an operation has concluded. These disruptions in criminal activity are thought to occur because of an increase in the perceptions of risk and uncertainty in response to information about changes in enforcement presence and activities.

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LIST OF ACRONYMS AND ABBREVIATIONS

CIED	Counter Improvised Explosive Device
CNO	Computer Network Operations
EW	Electronic Warfare
F2F	Face-to-Face
FinCen	Financial Enforcement Network
IED	Improvised Explosive Device
IO	Information Operations
JIOPH	Joint Information Operations Planning Handbook
MILDEC	Military Deception
MISO	Military Information Support Operations
MOAB	Massive Ordnance Air Blast Bomb
OPSEC	Operations Security
PSYOP	Psychological Operations
T3	Target, Tip, Target

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I. INTRODUCTION

This research examines the extent to which Information Operations (IO) can be used to disrupt insurgent violence and crime. This topic arises from the observation that a reduction in violence and crime often occurs before the onset of police crackdowns, and that this disruption in criminal activity continues for an extended period of time after the operations have concluded. This reduction in crime can also transpire outside the geographical boundaries of where operations are occurring or where no physical security measures, have, or will be implemented.

Recognizing that these effects happen provides an opportunity to maximize the effectiveness of other counterinsurgency measures. It can be surmised that an offender or an insurgent assumes that counterinsurgency measures have already been implemented, or that the measures are still ongoing, and therefore, makes the decision not to commit an act of violence at that time or place. It appears that an insurgent's perception of circumstance or risk may be central to the decision-making process.

According to Clarke, Smith, and Pease, "if perception is indeed central, a change in crime rates will coincide with changed perception rather than changed practice, when these are not coincident in time."¹ Similarly, a reduction in insurgent activity is the result of a perceptual change when it does not coincide in time or space with a kinetic operation or other change in practice, which leads to several questions that have important implications to counterinsurgency operations.

¹Martha J. Smith, Ronald V. Clarke, and Ken Pease, "Anticipatory Benefits in Crime Prevention," *Crime Prevention Studies* 13 (2002): 80.

A. RESEARCH QUESTIONS

The primary research question this thesis seeks to answer is, “can IO disrupt insurgent activity and increase the deterrent effect of kinetic operations and other security measures?” In addition, this research also addresses the following questions. Can violence be reduced by disseminating information about counterinsurgency operations and other physical security measures that will not, or have yet to be implemented? More importantly, can IO achieve a decrease in insurgent violence and crime as a standalone operation? Insofar as IO can be used to deter violence and crime, how much effect can be achieved *without the* reinforcement of physical security measures or kinetic operations? If these questions can be answered affirmatively, then generating these effects could redefine the way MISO seeks to support a commander’s objectives.

B. HYPOTHESIS

IO can be used to affect an insurgent’s perception of expected risk, certainty about expected risk, and anticipated rewards to achieve information-generated effects.

C. METHODOLOGY

The methodology used to explore this subject is to reevaluate research from criminology that has studied information-generated effects in police operations from a military perspective. Research within criminology was selected because of the similarity between law enforcement in a high crime area and steady state counterinsurgency operations.

Material selected as empirical data for this research consists of published reports observing for information-generated effects and measures actual changes in crime rates. Based upon these criteria, three studies were selected for examination. Together, these studies evaluated over 232-crime deterrence initiatives with sufficient detail to analyze for information-generated effects.

This analysis first looks to demonstrate the occurrence of information-generated effects (anticipatory, diffusion, and residual effects) in police operations. The second objective is to show a correlation between publicizing certain aspects about police operations and a reduction in crime. Third, theorize that these effects can be achieved through IO and other oscillatory military operations.

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II. INFORMATION-GENERATED EFFECTS

A. INFORMATION-GENERATED EFFECTS

Joint Publication 3-13 “Information Operations” describes IO “...as the integrated employment of electronic warfare (EW), computer network operations (CNO), psychological operations (PSYOP), military deception (MILDEC), and operations security (OPSEC), in concert with specified supporting and related capabilities, to influence, disrupt, corrupt, or usurp adversarial human and automated decision making while protecting our own.”²

From this definition, the primary purpose or mission of IO is to influence the decisions, and ultimately, the behavior of a specified target audience. An IO effect then is primarily a change in behavior. The Joint Information Operations Planning Handbook (JIOPH) says, “an effect itself is a clearly defined outcome or modification to a behavior that you want to achieve on a specific target or audience.”³ It is important at this point to differentiate information-generated effects from effects occurring as a direct result of an action. Information-generated effects and action-based effects are inextricably linked; both seek to influence changes in behavior, but the changes result from different causal variables. Therefore, information-generated effects must be defined differently, and analyzed separately.

The JIOPH defines an effect as the physical and/or behavioral state of a system that results from an action, a set of actions, or another effect. An effect according to the JIOPH is the result, outcome, or consequence of an *action*, as well as a change to a condition, behavior, or degree of freedom.⁴

² Joint Publication 3-13: Information Operations, [http://www.dtic.mil/doctrine/new_pubs/jp3_13.pdf#search="3-13."](http://www.dtic.mil/doctrine/new_pubs/jp3_13.pdf#search=)

³ Joint Force Staff College (U.S.), *Information Warfare Division, Joint Information Operations Planning Handbook* (Norfolk, VA: Joint Forces Staff College, 2009), 4.3.22.

⁴ *Ibid.*, 4.3.2.

B. DEFINING INFORMATION-GENERATED EFFECTS

Information-generated effects result from a change in *perception* in response to information. These effects should be defined by, planned for, and evaluated upon the principal that perception is central when a change in behavior does not coincide in time or space with an action or some other change in practice.

Therefore, an information-generated effect can be defined as a change in the physical and/or behavioral state of a system resulting from a response to information when the change in behavior does not coincide in time or space with an action or some other change in practice. An information-generated effect is further defined as a significant change in the physical and/or behavioral state of a system that cannot be solely attributed to an action or other change in practice.

Three types of information-generated effects exist in which perception is considered a causal variable in achieving a change in behavior: 1) anticipatory effects, 2) diffusion effects, and 3) residual effects.

1. Anticipatory Effects

An anticipatory effect is a term coined within criminology referring to a change in the behavior of a target audience that occurs too early for it to be attributed to an operation, countermeasure, action or other change in practice that has occurred. Anticipatory effects are thought to occur because a target audience perceives that an operation, countermeasure, or other change in practice has actually started, or that the change in practice is imminent. Therefore, a change in behavior occurs before an operation or change in practice actually begins.

Anticipatory effects amount to *prima facie* evidence that a change in behavior is an information-generated effect resulting from a change in perception since the execution of an action, planned operation, or any other change in practice was not a necessary condition to achieve a change in behavior.

Anticipatory effects can be described using the common bomb versus leaflet analogy. Suppose an enemy defensive line exists consisting of three geographically separated hardened positions. The friendly commander's objective is to influence the enemy to abandon the positions or reposition forces away from bunkers to be able to overrun the positions with minimal casualties. To achieve this objective, one Massive Ordnance Air Blast Bomb (MOAB), and an unlimited number of leaflets printed with messages are available that can be used to communicate with and influence the defenders.

An example of anticipatory effects occurs when the enemy either abandons or partially abandons one or more of the positions after leaflets are dropped threatening the use of the MOAB bomb. This repositioning of enemy forces is an anticipatory effect because it occurs before any action or change in practice happens. This amounts to prima facie evidence of an information-generated effect because dropping the MOAB is not necessary to achieve the desired behavioral change.

Empirically, evidence of anticipatory effects can be found in similar situations within criminology. Anticipatory effects are often observed prior to the onset of police crackdowns and other crime prevention initiatives. A crackdown is a sudden increase in officer presence, sanctions, and threats of apprehension either for specific offenses or all offenses in specific places.⁵ A crackdown can be compared to a military troop surge or a short-term operation that targets a specific type of enemy behavior or seeks to control a specified geographical area completely.

⁵ Lawrence W. Sherman, "Police Crackdowns: Initial and Residual Deterrence," *Crime and Justice* 12 (1990): 1–48.

In a study of anticipatory effects related to crime prevention initiatives, researchers examined 210 cases studies, and 52 of these reports were detailed enough to observe for anticipatory effects. Of the 52 cases, 22 showed evidence of anticipatory effects.⁶

The study identified several possible reasons for anticipatory effects, but focused on what was referred to as the publicity/disinformation effect. In other words, information-generated effects occur as a reaction to information or disinformation about changes in police presence or activities.

2. Diffusion Effects

Diffusion effects are changes in behavior that occur outside the geographical areas where actions have occurred, beyond the target set that is the subject of control, or beyond the activities that are the focus of initial action.⁷ Diffusion effects are also defined by a statistically significant change in behavior from a target audience that cannot be solely attributed to an action or other change in practice. Diffusion may occur because the target audience is likely to be aware that an operation, action or other change in practice is occurring, but they are uncertain about the target or the boundaries of where the operations are happening. Consequently, the target audience changes its behavior.

Diffusion effects can also be described using the leaflet and bomb analogy. Using the same scenario of three hardened bunkers, and after initially achieving anticipatory effects, the commander orders the single MOAB bomb to be dropped on the middle defensive position. The defenders sustain 50 percent casualties and the bunker is heavily damaged. At the same time, a leaflet drop is conducted over all three bunkers advising the remaining defenders to abandon their positions or face similar consequences.

⁶ Martha J. Smith, Ronald V. Clarke, and Ken Pease, "Anticipatory Benefits in Crime Prevention," 71–88.

⁷ *Ibid.*, 12.

Any repositioning of enemy forces from bunkers not actually bombed is a diffusion effect since the change in behavior is happening outside the geographical area of where the bombing occurred. The defenders in the bunkers to the right and left were not directly affected by the MOAB bomb; they have only heard about it, by word of mouth, or from reading one of the friendly commander's leaflets. The diffusion effect occurs in response to both the planned and unplanned dissemination of information about the middle position that was bombed.

Diffusion effects are evidence that a change in behavior is, in part, an information-generated effect. This assertion is based upon the principle that perception is greater than or equal to action in motivating human behavior when a change occurs in the behavior of a target audience not directly affected by an action or other change in practice. Diffusion effects are different from anticipatory and residual effects in that they occur at the same time as an ongoing operation. Diffusion effects are spatial; they occur beyond places that operations are occurring. Regardless of the exact causal variable, diffusion effects do happen, and an attempt to exploit them should be made to increase the effectiveness of U.S. actions and interventions.

Consider the following analogy that also illustrates diffusion effects. A two-week troop surge supported by a Military Information Support Operations (MISO) campaign is conducted in a specific geographical area. During the surge, five insurgents are killed or captured. Insurgent attacks decrease 80 percent from 100 attacks during the month prior to the troop surge, to 20 attacks during the month after the troop surge. This is a statistically significant decrease in attacks that cannot be solely attributed to the incapacitation of the five insurgents.

The troop surge has a strong claim to being the independent variable that resulted in the decrease in insurgent attacks. However, the troop surge only directly affected the five insurgents killed or captured. The troop surge also

indirectly affected members of the insurgent population who *heard* about it in one way or another. This may or may not account for the statistically significant drop in attacks outside of those that could have been reasonably conducted by the five incapacitated insurgents.

In studying the effects of publicity in crime prevention schemes, Johnson and Bowers state that operations and countermeasures seldom occur in the absence of publicity, be it formal or informal. They suggest that many insurgents become aware of countermeasures even before implementation begins, and that their perceptions of risk may be changed even if they are not interdicted by an operation themselves.⁸

Emanuel Barthe shows how information can be used to increase the effectiveness of counterinsurgency operations and other physical security measures. Select information is disseminated that attracts the attention of a target audience and increases its awareness of specific counterinsurgency operations and other security measures occurring in circumscribed areas, which is the means being used to generate information effects.

Surely, a symbiotic relationship exists between kinetic-effects and information-generated effects. An appropriate mix of actions must be taken and information disseminated to maximize both types of effects. Figure 1 illustrates the effect of operations and security measures on insurgent violence in the absence of a MISO campaign. While the interventions do deter a segment of the insurgent population, many insurgents remain unaffected. According to Barthe,

⁸ Shane D. Johnson and Kate Bowers, Home Office. Research, Development and Statistics Directorate, *Reducing Burglary Initiative the Role of Publicity in Crime Prevention* (London: Home Office, Research, Development and Statistics Directorate, 2003).

this partly occurs because the deterrent effect is limited to those insurgents who have either heard about the interventions or who have been directly affected by them.⁹

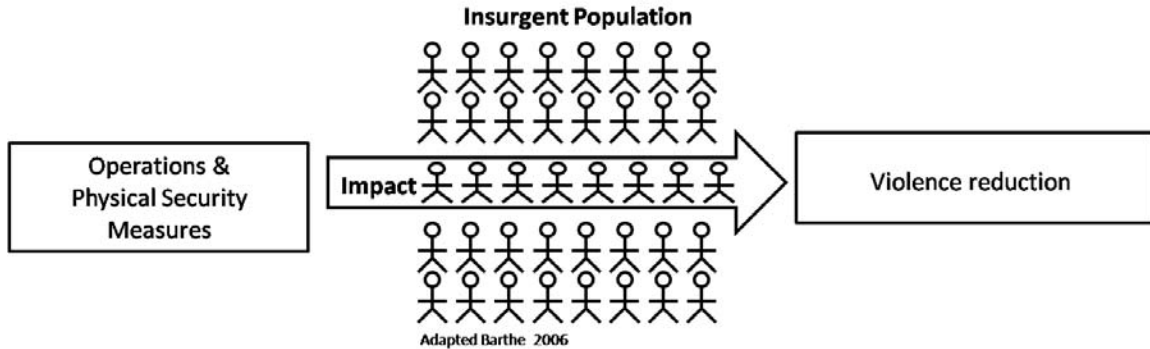


Figure 1. Effect of Operations and Security Measures on Insurgent Violence in the Absence of Military Information Support¹⁰

Figure 2 shows how a military information support operations campaign can increase the effectiveness of the same operations and security measures by publicizing or disseminating select information about the interventions to increase the insurgent's perception of risk, and the latter's uncertainty about those risks. Through a MISO campaign, a larger segment of the insurgent population becomes aware of the increased risks, which results in a further decrease in violence and other criminal activity.

⁹ Emmanuel Barthe and United States Department of Justice, Office of Community Oriented Policing Services, "Crime Prevention Publicity Campaigns," *U.S. Dept. of Justice, Office of Community Oriented Policing Services*, 2.

¹⁰ Ibid.

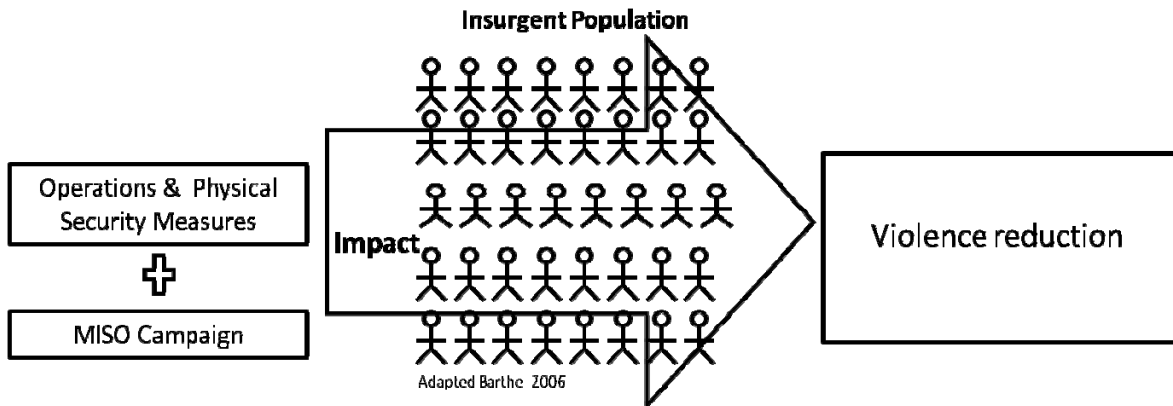


Figure 2. How a Supporting MISO Campaign Can Increase the Effectiveness of the Same Operations and Security Measures¹¹

3. Residual Effects

The final information-generated effect to be discussed is the residual effect, which occurs when a change in behavior continues for an extended period of time after an action has been taken, or when the continued behavioral change can no longer be solely attributed to the action. Residual effects may happen, in part, because the target audience believes that “something” is still going on, or that something similar is likely to take place again, such as the dropping of another MOAB bomb.

Returning to the leaflet and bomb analogy, assume that no more MOAB bombs are available to be dropped on the defenders who still remain in the defensive positions. Another leaflet drop is conducted warning that anyone who refuses to abandon their positions are likely to be killed in the next attack, and this time the attack is to come without warning. If the enemy commander further repositions forces, or if soldiers break ranks and flee, this can be considered a residual effect.

¹¹ Emmanuel Barthe and United States Department of Justice, Office of Community Oriented Policing Services, "Crime Prevention Publicity Campaigns," 2.

Residual effects are more clearly observed after crackdowns, troop surges, or other oscillatory actions. Often after a crackdown, crime and other nefarious activities remain lower even after the enforcement action has been concluded. These residual effects often decay over time, but “lag” time occurs before the activities return to their original levels. Many criminologists argue that this lag time might be increased by disseminating information about police or security force actions happening in circumscribed areas.

Lawrence Sherman, who conducted a study of initial and residual deterrence related to police crackdowns, found evidence of residual effects. Sherman recommended oscillatory enforcement strategies where the onsets are highly publicized and the back-offs are conducted with little or no publicity.¹² Sherman and other criminologists argue that publicity or information plays some role in achieving these effects because the effects do not coincide in time or space with the actions or interventions implemented.

C. SUMMATION

This chapter defined three types of information-generated effects and has differentiated these effects from action-based effects. Distinguishing between the three types of information-generated effects and the principles that define them are fundamental considerations in planning information operations. These distinctions between the types of effects imply that the information used to achieve the effects and the timing of its dissemination may be different. The same principles that define information-generated effects can also be used to identify measures of effectiveness for some information operations. Perception is central when the effect is not coincident in time or space with an action. Therefore, effects that occur beyond the time and space of an action have a stronger claim to being information generated.

¹² Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence,” 1–48.

Anticipatory effects demonstrate that taking an action is not always a necessary condition to achieving a behavioral change from a target audience. Recognizing that a physical and/or behavioral state of a system can be changed, at times, without taking any action suggests that some operations can be based explicitly on preparation, anticipation, publicity, IO, and military information support operations.

III. THEORETICAL PERSPECTIVES

To understand how information can change the behavior of a target audience, it is important to consider the following theoretical perspectives or concepts: the rational choice perspective, the interdependency of insurgent decision making, and the proportional relationship between risk and certainty.

These theoretical perspectives have important considerations for strategy, as well as for achieving information effects; therefore, both aspects are analyzed. This section focuses on how these theories influence the behavior of target audience, such as insurgents, and how disseminating information about security force actions occurring in circumscribed places can reduce insurgent violence and crime.

A. HYPOTHESIS

IO can be used to affect an insurgent's perception of expected risk, certainty about expected risk, and anticipated rewards to achieve information-generated effects.

B. RATIONAL CHOICE PERSPECTIVE

The rational choice perspective states that an insurgent makes a decision about whether to commit an attack based upon a balance between the anticipated rewards and the perceived efforts and risks involved in the act, and if, in the insurgent's opinion, a sufficient reason exists for committing the attack. The theory also posits that an insurgent continually revises perceptions of effort, risk, and rewards based upon experiences rather than assuming them to be constant over time. Therefore, information that disrupts an insurgent's perception of risk, effort, and reward in relation to the act can affect the decision about taking action.

C. DECISION INTERDEPENDENCY AMONG POTENTIAL CRIMINALS AND INSURGENTS

Decision interdependency among potential criminals and insurgents refers to the observations that reinforcing peer-group decision interdependency makes high crime rates higher and low crime rates lower. For example, a person speeds on the highway when many other people are speeding. People riot when many other people are rioting. People persecute minorities when other people are doing the same. This thesis posits that a potential insurgent is also more likely to support or participate in an insurgency when perceiving that many others are also supporting and participating. This argument also applies to the decision to commit specific types of insurgent violence, such as emplacing improvised explosive devices and suicide bombings.¹³

Reinforcing decision interdependency leads to self-sustaining increasing or decreasing patterns of violence once a certain level of activity is reached. Benjamini and Maital emphasized that a connection exists between a person's subjective probability of being detected when committing a criminal act and the perception of how many other people are engaging in the same behavior.¹⁴

Decision interdependency amongst insurgents says that when many people are supporting an insurgency that most other potential insurgents should also support it, and when the perception is that the majority of potential insurgents are supporting the state, then most others do likewise.

The effects of decision interdependence also have important implications for strategy. This suggests it is necessary to get a critical mass or a high percentage of the population to submit to the authority of the state before it is possible to generate momentum towards achieving a stable environment. This

¹³ Avinash K. Dixit and Barry Nalebuff, *Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life* (New York: Norton, 1991).

¹⁴ Cyrus Chu, "Oscillatory vs. Stationary Enforcement of Law," *International Review of Law and Economics* 3, no. 13 (1993): 303.

critical mass premise is often referred to as tipping point. To achieve a desired change in behavior it is often necessary to “tip” it by suppressing or compelling it until reaching a self sustaining rate of activity.

The policy implication is that rotating troop surges, crackdowns against specific activities, and short periods of intense counterinsurgency operations are more effective than the same total effort applied at less intensity over a longer period.

D. THE PROPORTIONAL RELATIONSHIP BETWEEN RISK AND UNCERTAINTY

Disseminating information that a security force is taking specific types of actions in circumscribed places can achieve effects because the information disrupts the certainty of a criminal or an insurgent’s perception of risk.

Lawrence Sherman, in a study of initial and residual deterrence, argues that when a stable probability of detection exists throughout the year, an insurgent can be reasonably certain about their perception of risk. However, if information is received of an increase in risk, even if only temporary or intermittently, then the potential insurgent may substantially overestimate said risk just to be safe.¹⁵

Richard Heuer, in discussing the cognitive factors in deception and counter deception, states that overestimating probabilities results from a cognitive human bias known as the “availability rule.” The availability rule states that estimating probabilities is often based on how easily it is possible to retrieve relative instances of a similar type of event, and the frequency of these events

¹⁵ Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence,” 1–48.

easily recalled. Information, it can be argued, makes thoughts of risk more available, easier to retrieve, and easier to recall, which then causes an offender to overestimate the perception of risk.¹⁶

Sherman also suggests oscillatory enforcement practices that onset with much publicity and back-off with little or no publicity, are more effective than a steady state strategy. The distinction between risk and certainty is important because oscillatory tactics, such as crackdowns or surges, may increase uncertainty just as much as they increase actual risk. This rise in uncertainty about the current level of risk then increases the perceived level of risk beyond its normal overestimations.¹⁷

Cyrus Chu, an economist at the National Taiwan University, mathematically justifies a similar concept in an article entitled “Oscillatory vs. Stationary Enforcement of Law.” Chu’s research demonstrates, “under some parametric specifications, it will be shown that every stationary (or constant) enforcement policy can be dominated by some oscillatory ones, and this result provides a possible justification for oscillatory law enforcement on the part of the government.”¹⁸ Although Chu’s research did not focus on politically motivated crime, his analysis can be easily applied to the study of insurgency and terrorism.

Assume that it takes the same number of security forces to create an actual interdiction rate of 20 percent during normal Counter Improvised Explosive Device (CIED) operations as it does to vary the risk between 0 and 40 percent. Sherman argues that it is more effective to choose the variable option because it can keep the perceived risk twice as high as the security force can impose through a constant level of operations.¹⁹

¹⁶ Richards J. Heuer and Center for the Study of Intelligence (U.S.), *Psychology of Intelligence Analysis* (Washington, D.C.: Center for the Study of Intelligence, Central Intelligence Agency, 1999).

¹⁷ Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence,” 1–48.

¹⁸ Cyrus Chu, “Oscillatory vs. Stationary Enforcement of Law,” 303.

¹⁹ *Ibid.*

This concept can be shown graphically. Figure 3 shows the hypothetical differences between an insurgent's perception of risk resulting from an oscillatory CIED strategy of surging and crackdowns (the curved line), and the average actual risk from a constant level of CIED operations (horizontal line). The model shows the actual risk from an oscillatory strategy varying from 0 to 40 percent at any given time represented along the curved line. The model assumes that the insurgent perceives the level of risk to remain constant with the actual risk that coincides with the peaks of the oscillations in operations, which occurs because oscillation in operations increases uncertainty, and thus, makes it difficult to estimate the risk between the peaks accurately. Therefore, the level of perceived risk remains elevated. Disseminating information about counterinsurgency operations occurring in circumscribed areas also disrupts an insurgent's certainty about the estimation of risk, which similarly leads to a further overestimation of risk resulting in a reduction in insurgent activity.

Oscillatory Security Force Operations Model (Surges & Crackdowns)

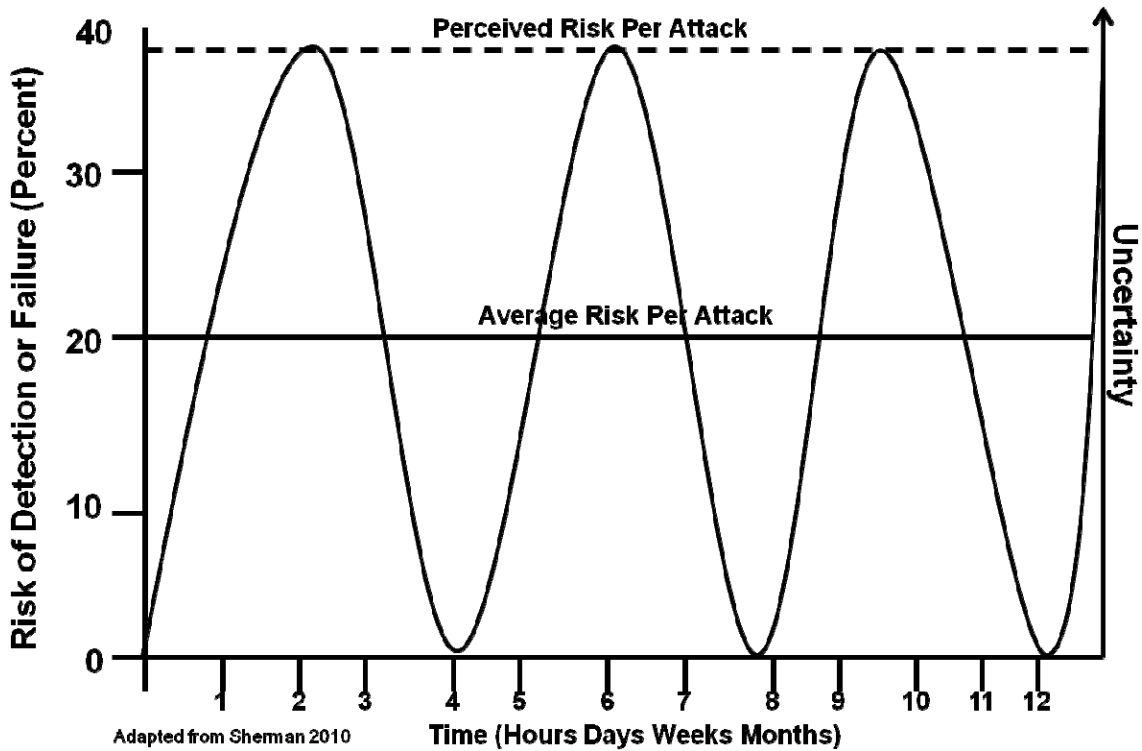


Figure 3. Oscillatory Security Force Operations Model²⁰

To illustrate how this hypothetical model might work in practice, imagine that a religious charity wants to provide financial support to a known terrorist group. The religious charity knows that the U.S. Treasury Department’s Financial Enforcement Network (FinCen) has only the resources to audit or investigate five percent of the suspicious financial transactions made by religious charities, and empirically-generated indicators trigger these investigations.

Now suppose that FinCen begins to select audit targets at random. These random audits (with replacement) are stratified by religious affiliation so that half of the charities are audited unpredictably on average of once every 10 years.

²⁰ Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence.”

The suspect charity would probably find this more deterring than a low constant possibility of an audit based upon a computer-generated tipoff, and this strategy costs FinCen nothing in terms of additional resources. Sherman argues that if this approach is highly publicized through mass media and actual audit contacts, it may result in fewer convictions for providing material support, but can result in a lower overall level of terrorist financing.²¹ The same logic can be applied to counterinsurgency tactics.

Perhaps an insurgent would be less likely to emplace Improvised Explosive Device (IEDs) if it were publicized that hunter sniper teams would be hidden randomly along 50 percent of the main supply routes one out of every 10 nights. It would be also possible that insurgents would receive less support from the population if it were publicized that anyone convicted of doing so, on one out of every five days, would receive a life sentence and forfeit all their assets to the state.

E. DECAYING EFFECTS AND DECAYING IMPLEMENTATION

These theoretical principles also imply that oscillation is necessary to minimize decaying effects and implementation. Decay refers to a gradual decline from initial changes. Empirically, it is difficult to maintain a crackdown or surge effectively over a long period of time. Over time, an offender population begins to make more and more accurate risk assessments and becomes more certain of those assessments. As more criminals or insurgents begin to reengage in nefarious activities, it becomes safer and more rewarding for others to do so, and the activity level begins to rise.

Sherman and the availability rule suggest that the initial heightened perceptions of risk decay slowly, even after enforcement activity returns to the initial level,²² which implies that surges and crackdowns should be of short

²¹ Lawrence Sherman, "Police Crackdowns: Initial and Residual Deterrence," 1–48.

²² Ibid.

duration and randomly shifted from area to area alternating between different target sets to exploit the naturally occurring residual effects. More simply stated, short-term operations often achieve the same effects as a long-term operation because of residual effects and the way operations have a propensity to decay over time.

F. THEORETICAL CONCLUSIONS

The rational choice perspective, the interdependency of insurgent decision making, and the concepts of risk and certainty, imply that insurgents continually revise their perceptions of risk, certainty about expected risk, and anticipated rewards based upon their experiences, and their perceptions of what other people are doing rather than assuming them to be constant over time. Information that disrupts an insurgent's perception of risk, effort and reward in relation to an act affects decisions about taking that action.

Operationally, under similar parameters, it can be shown that some oscillatory approaches are more effective than the same total effort applied at less intensity over a longer period of time, and this provides a possible justification for an oscillatory counterinsurgency strategy. This strategy should include focused operations against different insurgent activities and troop surges of short duration randomly shifted from area to area alternating between different target sets.

Disseminating select information about operations and physical security measures in circumscribed areas affects an insurgent's perception of expected risk, certainty about expected risk, and anticipated rewards. Information Operations, therefore, can increase the effectiveness of counterinsurgency operations and physical security measures, and at times, reduces insurgent activities as a standalone operation.

IV. AN EVALUATION OF INFORMATION-GENERATED EFFECTS

This chapter seeks to achieve three things. First, this analysis looks to demonstrate the occurrence of information-generated effects (anticipatory, diffusion, and residual effects) in police operations. The second objective is to show a correlation between publicizing certain aspects about police operations and a reduction in crime. Third, theorize that these effects can be achieved through IO and other oscillatory military operations.

Testing whether information operations, and in particular MISO can influence the behavior of an insurgent and obtain information-generated effects, is difficult because little formal research exists on these subjects within the military. Most evaluations to date have consisted of MISO operators informally attempting to identify quantifiable measures of effectiveness in relation to their specific programs that show: 1) the target audience's awareness of a MISO campaign, 2) if after exposure to a MISO message a target audience changed its attitude about the subject, and 3) claimed or actual desired behavioral changes from the target audience.

This deficit in formal research within the military can be partially overcome by reevaluating research from criminology that has studied the effects of publicity and information-generated effects in police operations. Material selected as empirical data for this research consists of published reports observing for information-generated effects and measures actual changes in crime rates.

Based upon these criteria, three studies were selected for examination. Together, these studies evaluated over 232 crime deterrence initiatives detailed enough to analyze for information-generated effects.

A. ANTICIPATORY, DIFFUSION, AND RESIDUAL EFFECTS

This section summarizes the results of three studies that show the occurrence of anticipatory, diffusion, and residual effects in police operations. The first study is entitled *Anticipatory Benefits in Crime Prevention*, which evaluated 52 case studies for anticipatory effects. The second study is entitled, *Does Crime Just Move Around the Corner?* This study evaluated the results of a controlled study of spatial displacement and diffusion of crime control effects. The third study is entitled, *Police Crackdowns: Initial and Residual Deterrence*. This research examined 18 case studies of police crackdowns in detail, and observed for multiple types of effects.

In the anticipatory effects study, researchers identified 52 cases detailed enough to seek anticipatory effects, and then grouped them into studies that demonstrated anticipatory effects and those that did not. A pre-initiative decrease in crime rates was considered evidence of anticipatory effects.²³

The study that asks if crime just moves around the corner is a controlled study of spatial diffusion and displacement of crime control effects. The study was conducted by Weisburd et al. with the help of the Jersey City Police Department. The Jersey City Police conducted an intensive crackdown in an area of the city with a substantial amount of street level drug crime and disorder. Two neighboring areas were selected as “catchment areas” to assess immediate spatial displacement or diffusion. Intensive police interventions were applied to the target site but not applied to the catchment areas. More than 6,000 20-minute social observations were conducted in the target and catchment areas during the study period. This data is supplemented by interviews and ethnographic field observations.²⁴

²³ Martha J. Smith, Ronald V. Clarke, and Ken Pease, "Anticipatory Benefits in Crime Prevention," *Crime Prevention Studies* 13 (2002): 74.

²⁴ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ* (Washington, D.C.: Police Foundation, 2004), 552.

In studying residual and initial effects of crackdowns, Sherman produced a chart that shows four different types of effects coming from short-term and long-term crackdowns. The four effects notated in the chart are initial, displacement, decay, and residual effects. The occurrence of residual effects is of primary importance to this research because it is an information-generated effect as defined earlier in this thesis. Initial effects in the cited study of crackdowns are not the same as anticipatory effects because they coincide with start of the crackdown itself. However, the results are interesting and the chart will be included in its entirety as similar patterns can occur during similar types of counterinsurgency operations.

Sherman also discusses the effects that publicity or media threats may have on achieving initial and residual effects. In at least one case (an area crackdown in Georgetown) aided by massive amounts of publicity, crime rates remained lower for a long period of time after the crackdown had ended. These residual effects can be attributed in part to a public perception that the crackdown was still ongoing after it had been concluded. A survey conducted a month after the crackdown ended showed that 55 percent of the respondents thought that the initiative was still in force with no back-off. One hundred percent of the respondents thought that the area was less crowded, 92 percent thought it was safer, and 80 percent thought there was less crime. These types of results caused Sherman to speculate that crackdowns should onset with much publicity, and back-off with little publicity being careful not to “exhaust the bluff through overuse.”²⁵

B. RESEARCH RESULTS ANTICIPATORY EFFECTS

An anticipatory effect is a change in behavior that occurs too early for it to be attributed to an operation. Smith et al. sought anticipatory effects by examining 142 crime deterrence initiatives that occurred at 211 different

²⁵ Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence,” 11.

locations. Out of these 142 initiatives, only 52 were sufficiently detailed to observe of anticipatory effects. This suggests that most police operations are not conducted to observe for effect onset.

Of the 52 sufficiently detailed evaluations, 22 of them showed prima facie evidence of anticipatory effects. This equates to approximately 40 percent of the studies reviewed showing anticipatory effects, which indicates anticipatory effects may be a common occurrence. According to Smith et al., “crude as this trawl is, it suggests that anticipatory benefits are not a rare phenomena, and that, as a minimum, evaluation studies should contain enough information to allow these effects to show themselves.”²⁶

Table 1 lists seven case studies where the original researchers identified anticipatory effects and provided a putative causal mechanism for them. Two of the cases are particularly interesting when considering how MISO may generate anticipatory effects.

Smith et al. notes that in Barclay et al. (1997), while studying the effects of security cycle patrols on parking lot crime, that publicizing the initiative was followed by a reduction in crime “before foot was ever laid to pedal.” The offset of the initiative was not immediately followed by an increase in crime, an example of a residual effect.²⁷

In Ross 1973, studying the effect of legislation on compulsory testing of blood alcohol levels of drivers, showed a reduction in the number of charges for failing to stop at an accident after breath test legislation was reported in the media. This case is often cited in other research as a publicity effect because the media reports a decrease in citations occurred in 1965, but the law did not take effect until 1967. A further reduction in citations happened after the law was actually implemented in 1967. This pre-implementation decrease in citations, at

²⁶ Martha J. Smith, Ronald V. Clarke, and Ken Pease, “Anticipatory Benefits in Crime Prevention,” 5.

²⁷ Ibid., 74.

first look, appears to be a publicity-generated anticipatory effect. Researchers surmised that potential offenders may have thought that the law had taken effect when it was originally reported in the media two years before its actual implementation.

Published Evaluation of Crime Deterrence Initiatives with Recorded Anticipatory Effects				
Study	Location	Intervention	Anticipatory Effects	Possible Explanation
Armitage et al. (1999)	Burnley, Lancashire, UK	CCTV system	Vehicle crime and other property crime – March 1995	First camera became operational in April 1995. Publicity associated with planned camera installation.
Barclay et al. (1996)	Vancouver, Canada	Bike patrol	Vehicle thefts – late March 1995.	Publicity campaign began March 11, 1995. Bike patrol implemented on April 1, 1995. Offenders unsure when bike patrol began.
Brown (1995)	Newcastle-upon-Tyne, UK	CCTV system	Burglary – Dec. 1992 Criminal damage & other theft – Jan. 1993	Cameras installed in Nov. 1992. Cameras fully operational in March 1993. Offenders may have thought cameras were working as soon as they were installed.
Poyner et al. (1986)	Pepys Estate, Lewisham, London, UK	Physical improvement and clean-up	Thefts of cars – Oct. 1981 Thefts from cars – July 1982	Consultation on Estate began in Sept. 1981. Action Plan agreed June 1982. Offenders may have altered their offending patterns due to uncertainty over changes to Estate.
Ross (1973)	Great Britain	Legislation on compulsory testing of blood alcohol levels of drivers	Failing to stop after an accident-dropped in 1965, remained stable in 1966 and dropped again in 1967	Proposed legislation on compulsory testing of blood alcohol levels presented in Dec. 1965. Law became effective in Oct. 1967. Drivers may have thought that the law had gone into effect when the legislation was discussed in 1965.

Published Evaluation of Crime Deterrence Initiatives with Recorded Anticipatory Effects				
Study	Location	Intervention	Anticipatory Effects	Possible Explanation
Squires (1998b)	Burgess Hill, Sussex, UK	CCTV system	Criminal damage – Jan. 1997 Shoplifting & All crime – Feb. 1997	CCTV operational April 1997. "All crime" drop attributed to the visibility of the CCTV installation work. Sharp pre-operational drop in shop-lifting attributed to other policing factors (not CCTV).
Tilley and Hopkins (1998)	Belgrave, Leicester, UK	Tailored alarm or detection measurer or security advice	Non-domestic burglary dropped in fourth quarter 1995	Princess Anne announced initiative designed to assist small businesses in third quarter 1995. The initiative began during second quarter 1996. Offenders may have thought initiative began when announced.

Table 1. Published Evaluation of Crime Deterrence Initiatives with Recorded Anticipatory Effects

Smith et al. identified several reasons that anticipatory effects may occur. Several of these possible explanations appear to be exploitable by a counter insurgent or an IO planner. These exploitable explanations include the following.

- (1) *Creeping implementation*, where some elements of a program are put in place before an official start date
- (2) *Preparation-disruption effects*, where surveillance is a by-product of installation of crime-reductive hardware, such as street lighting or fencing
- (3) *Preparation-training effects*, where planning, population surveys, etc. render officers or soldiers better equipped personally to understand and reduce local criminal or insurgent activity
- (4) *Motivation of officers or soldiers involved to make an initiative a success*, which translates itself into better performance in advance of the initiative itself
- (5) *Preparation-anticipation effects*, where equipment is deemed by motivated offenders or insurgents to be operational before it is

- (6) *Publicity/disinformation effects*, whereby covert measures are presumed to exist as a result of publicity or hearsay²⁸

Publicity and disinformation effects have the most profound implications for information operations. Although the design of most studies makes it difficult to determine the cause of anticipatory effects conclusively, some studies show a correlation between a decrease in crime rates and publicity.

C. RESEARCH RESULTS DIFFUSION EFFECTS

Diffusion effects are changes in behavior that occur outside the geographical areas where operations are occurring, beyond the target set of an operation, or beyond the activities, which are the focus of initial actions.

Weisburd et al., with the help of the Jersey City Police, conducted an intense crackdown in a high crime area of Jersey City. Weisburd et al. observed for diffusion and spatial displacement effects of drug crimes by establishing two concentric catchment areas outside the target area of the crackdown. No police interventions were conducted in the catchment areas except emergency calls for service.

The catchment areas were set up to determine if crime deterred in the crackdown area would simply displace (move around the corner), or alternatively, would the crime reduction benefit from the crackdown area diffuse into the concentric catchment areas.

Street level drug crime was targeted in the crackdown area. Drug crime was targeted because it generates income for the perpetrators. Researchers assumed that drug dealers would feel strong pressure to continue their criminal activities in spite of an increase in police interventions.²⁹

²⁸ Martha J. Smith, Ronald V. Clarke, and Ken Pease, "Anticipatory Benefits in Crime Prevention," 78.

²⁹ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ*, 558.

The crackdown area contained two major drug markets, and was located in a densely populated urban neighborhood. Half of the 96 buildings in the target area were three-story structures with a business on the ground floor and apartment units on the upper floors, and many of the other buildings consisted of multifamily dwellings. The area also contained a large number of vacant lots, abandoned buildings, and exhibited signs of physical decay, such as burned out buildings, graffiti, broken glass, and drug paraphernalia. Figure 4 shows the map of the drug crime target site and the two concentric catchment areas.

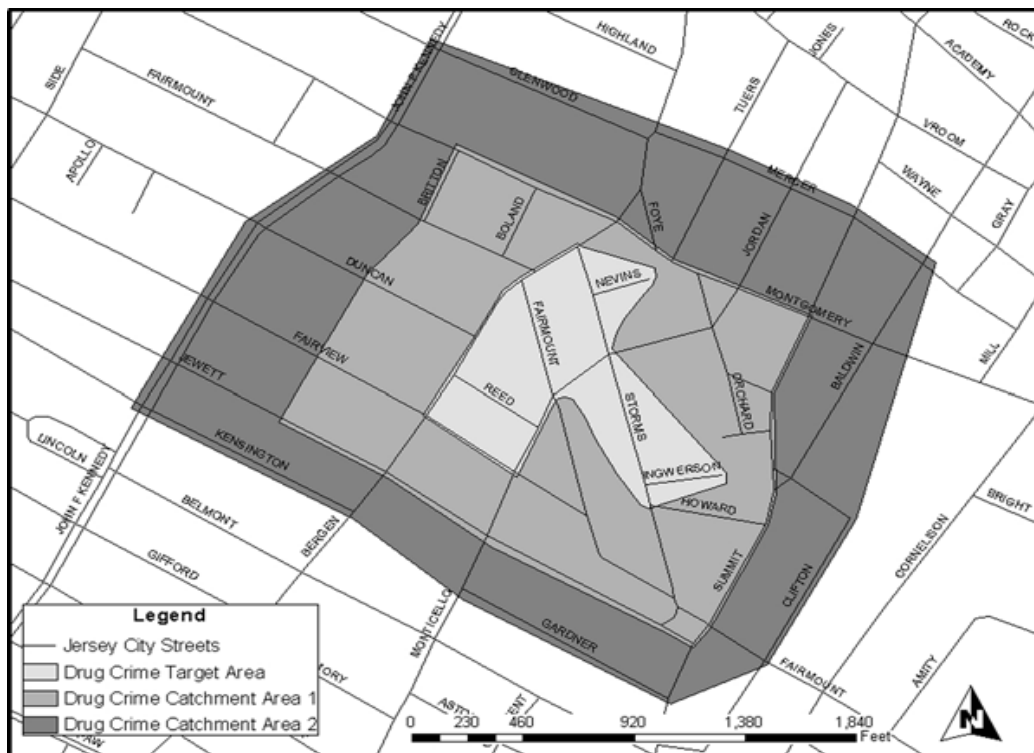


Figure 4. Map of Drug Crime Target Site and Catchment Areas³⁰

Researchers measured the effects of the police operations through social observations using street segments as the unit of analysis. Drug crime is more accurately measured through observational methods, because it often occurs on

³⁰ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ* 560.

the street in plain view. Weisburd et al. explain that social observation has a rich tradition in criminology although it is seldom used because of the considerable expense involved.³¹

Observers recorded drug-related events in a code book on their assigned street segments from one street corner to the next. Nine waves of social observation were conducted in the drug crime target site: one before, six during, and two after the police operation. Each wave was conducted over a 7-day period with each observation lasting 20 minutes. Fifty-two were scheduled in a day and 364 in a wave. Researchers completed a total of 3,063 observations in the drug crime site.³²

Researchers also conducted 6,129 observations in the catchment areas over a 9-month period to measure possible spatial displacement and diffusion effects. Observers recorded activity on one street segment in each catchment area every hour between noon and midnight, and observed a randomly selected second street segment in each catchment area every hour between 4:00 p.m. and 10:00 p.m. because these hours represented the highest hours of activity.³³

Weisburd et al. combined three types of observations of drug-related behavior to assess possible displacement and diffusion of drug activity from the drug crime site: soliciting for a drug sale, involvement in a drug transaction, and observed use of drugs. Using this measure, researchers measured a large reduction in observed drug-related behavior in the first month of the operation, this disruption continues throughout the operation, and through a two-month observed residual period (see Figure 5).

³¹ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ*, 562.

³² *Ibid.*, 563.

³³ *Ibid.*

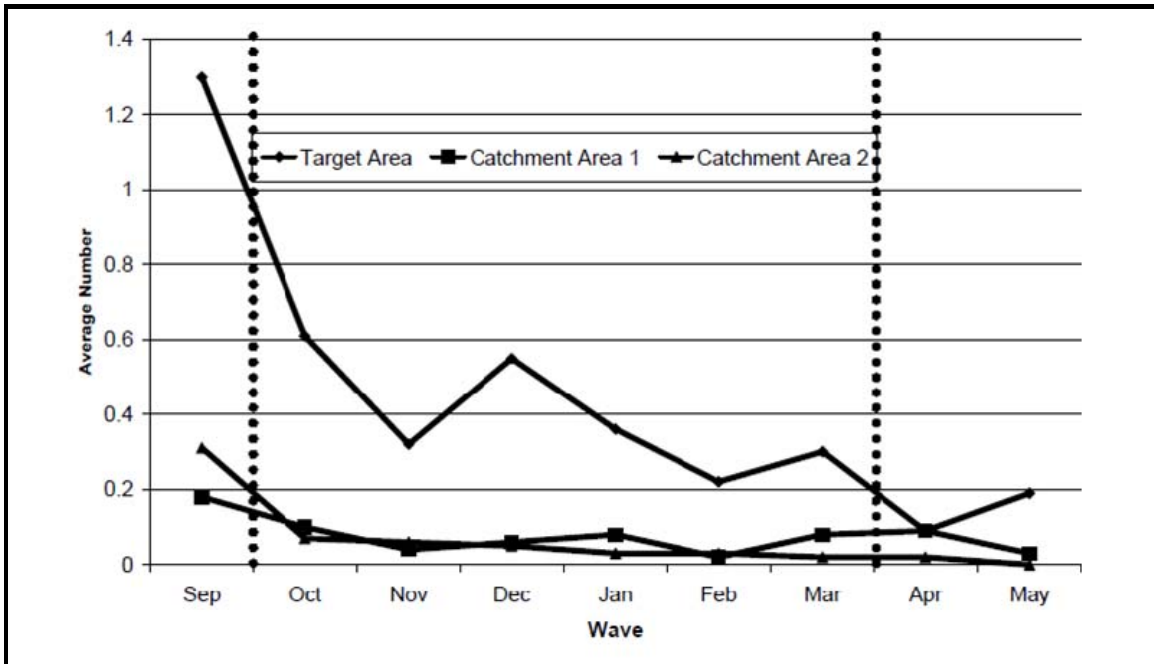


Figure 5. Observed Drug Activities³⁴

Figure 5 demonstrates that diffusion effects can occur as there is a decrease in drug activity in the catchment areas similar to the decrease within the drug crime target area. Weisburd also suggests that displacement of drug activity does not occur from the target area into the catchment areas.

The evidence of diffusion is also reinforced by a decrease in the number of observed incidents of disorder in both the target and catchment areas as shown in Figure 6.

³⁴ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ*, 573.

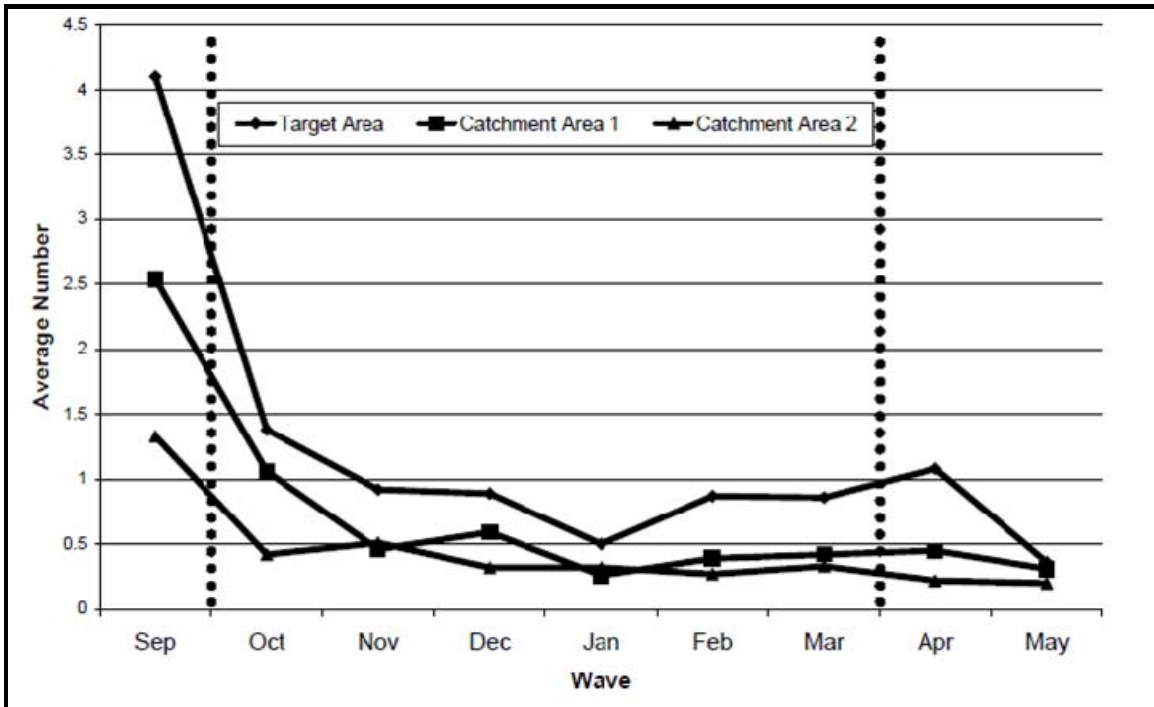


Figure 6. Observed Incidents of Disorder³⁵

It is easy to understand why a decrease of drug activity occurs within the target area, but why crime also decreased in the catchment areas is not as intuitive. Weisburd et al. explains that crime does not just move around the corner because the criminal, like the insurgent, has to balance the effort, risk, and opportunities with the benefits gained from criminal activities.

Weisburd's explanation is supported by several interviews conducted with drug dealers arrested during the police operation. These interviews suggest that spatial movement of crime sites, or target sites for an insurgent, involves substantial effort and risk for offenders.³⁶

³⁵ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ*, 575.

³⁶ *Ibid.*, 577.

Many of the offenders interviewed complained about the time and effort it would take to reestablish their activities to other areas in response to police operations. One arrestee from the target site explained that “the money won’t be the same” and that “it takes time to build up customers.” Offenders also cited risk as another reason that they could not just move around the corner to evade a crackdown. Another arrestee explained this in plain words, “you really can’t deal in areas that you aren’t living in, it ain’t your turf. That’s how people get themselves killed.”³⁷

Diffusion effects can be achieved during military operations for the same reasons. An insurgent will face the same constraints of increased effort and risk when moving operations to evade the counterinsurgent. The insurgent would also have to start from scratch in someone else’s turf, and this substantially increases the risk of getting captured or killed. IO can be used to increase these perceptions of effort and risk to extend diffusion effects into larger geographical areas, and to lengthen the periods of time before the effects decay.

The factors of increased effort and risk required to spatially displace criminal activities suggest that diffusion effects, when they occur, will coincide with the start of a police or military operation. Displacement, if it occurs, will be delayed until the criminal or insurgent can overcome the difficulties in reestablishing themselves in a new operational area.

D. RESEARCH RESULTS RESIDUAL EFFECTS

As stated earlier, Sherman evaluated 18 police crackdowns and observed for the occurrence of four types of effects, which were initial deterrence, crime displacement, decay, and residual effects.

Initial deterrence refers to the effect on crime rates immediately after the onset of a crackdown, and residual deterrence is the continued deterrent effect

³⁷ David Weisburd, Police Foundation (U.S.), and National Institute of Justice (U.S.), *Does Crime Just Move Around the Corner?: A Study of Displacement and Diffusion in Jersey City, NJ*, 578.

after the crackdown has been concluded or backed-off. Decay is the amount of time it takes for the crime rate to return to normal levels, and displacement refers to the hypothesis that crime prevented in one area simply moves and occurs in an adjacent area.

Sherman defines a crackdown as a, “sudden increases in officer presence, sanctions, and threats of apprehension either for specific offenses or for all offenses in specific places.”³⁸ Sherman further defines crackdowns as being of short or long term. A short term is defined as a crackdown of six months or less.

Sherman also posits that police crackdowns have three tactical elements: presence, sanctions, and media threats. *Presence* refers to an increase in enforcement personnel and equipment in a geographical area or in particular situations. Increased presence can be accomplished by surging troops and equipment into an area (which communicates a visible threat) or through IO that increases an insurgent’s uncertainty about the risk of facing an encounter with the security force. *Sanctions* refer to any coercive COIN imposition on an insurgent or potential insurgent, such as stopping cars and pedestrians for identification checks, establishing traffic control check points, and cordon and search operations, and so on. *Media threats* are “announced intentions to increase sanctioning certainty.” Media threats are publicized through newspapers, radio announcements, posters and billboards, etc.

The combinations of these tactical elements vary in implementation. An area crackdown, surge, or saturation operation emphasizes presence, while an offense specific crackdown, such as a counter IED operation, emphasizes sanctions. The use of a media campaign in conjunction with other elements of a crackdown is often constrained by budgetary concerns in civilian police operations. IO itself can be considered a tactical element of a military operation.

³⁸ Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence,” 1.

Military Information Operations have the capability to announce intentions, influence perceptions, deceive, and deny information. This tactical element of a crackdown, media threats or IO, is more exploitable in military operations.

Table 2 shows that out of 18 case studies of crackdowns, 15 appeared to demonstrate initial deterrent effects, which began to decay after a short period, sometimes despite the fact that the crackdown is still ongoing. However, five studies with post crackdown data showed residual deterrence well after the crackdowns ended. The residual deterrent effects lasted in two cases for a longer period than the crackdown itself.³⁹

Sherman states that the most important and expected conclusion from the table is that most crackdowns produce initial deterrence. Five of the short-term crackdowns produced residual effects with no decay; while seven of 10 long-term crackdowns that produced initial deterrence also experienced decay. This short-term residual effect and long-term decay pattern suggests that the onset or the anticipation of a crackdown has the most deterrent effect on a potential criminal or an insurgent.

Sherman argues that although it cannot be determined if the decay cases would have shown residual effects if the crackdowns had been stopped sooner, it is possible “to speculate that the rebounding crime rates would have looked very similar without continued expenditure of police resources.”⁴⁰ Sherman’s findings of initial decay and residual deterrence suggest that crackdowns and surges are more effective when limited in duration and rotated across different targets.⁴¹

³⁹ Lawrence Sherman, “Police Crackdowns: Initial and Residual Deterrence.”

⁴⁰ Ibid., 36.

⁴¹ Ibid.

Effects of Crackdowns by Time Length				
Site	Initial Deterrence	Crime Displacement	Decay	Residual Effect
Short-Term efforts:				
New Zealand 1	Yes	No	No	Yes
New Zealand 2	Yes	No	No	Yes
Cheshire 1	No	Not observed	Not observed	Not observed
Cheshire 2	Yes	No	No	Yes
Georgetown	Yes (Parking)	Not observed	No	Yes
San Diego Field interrogations	Yes	Not observed	No	Yes
Long Term Efforts:				
Lynn, MA	Yes	No	Yes	No
Lawrence, MA	No	Not Observed	Not Observed	Yes
Washington, D.C.(Clean Sweep)	Local not city wide	Local not City Wide	Not Observed	Yes
Washington D.C. (Hanover Place)	Yes	Yes	No	No
Washington D.C. (Muslims)	Yes	Yes	No	No
New York City (Lower East Side)	Yes	Yes	Yes	No
New York City (20 th Precinct)	Yes	Yes	Yes	No
New York City (Subways)	Yes	Not Observed	Yes	No
Residential RECAP	Yes	Not Observed	Yes	No
English DWI Law	Yes	No	Yes	No
French DWI Law	Yes	No	Yes	No
London Prostitution	Yes	No	No	NO

Table 2. Effects of Crackdowns by Time Length

E. SUMMATION AND CONCLUSIONS

Smith et al.'s study of anticipatory effects and Sherman's study of police crackdowns both offer publicity and disinformation as a possible reason for the occurrence of information-generated effects. Although publicity effects were not studied explicitly by Sherman, he proffers what he refers to as "media threats" to be one of three tactical elements of a police crackdown.

The information disseminated to achieve anticipatory, diffusion, and residual effects should disrupt the certainty of a criminal or insurgent's perception of risk in relation to the acts to be deterred. The timing of dissemination should coincide in time and space with the specific effect an IO planner is attempting to achieve.

Information-generated effects can be achieved. All of the cited studies in this thesis demonstrated the occurrence of information-generated effects (anticipatory, diffusion, or residual). In the studies of anticipatory effects and deterrent effects of police crackdowns, these effects were observed in approximately 40 percent of the cases that contained sufficient data to measure for the effects.

These information-generated effects were not planned for as part of any of the evaluated crime deterrent schemes. The effects occurred incidental to the operations, and researchers observed that the disruption in criminal activity was not coincident in time with the actual operations. Thus, information-generated effects are a common phenomenon, and if planned for, can be maximized through some optimal mix of oscillatory strategies and Information operations.

V. STRATEGY AND RECOMMENDATIONS

This final chapter briefly discusses strategy and policy implications. The observations presented in this thesis provide strong evidence of a correlation between publicizing certain information about police operations and a decrease in crime rates. The evidence also shows the occurrence of anticipatory, diffusion, and residual effects in conjunction with oscillatory police operations. This thesis argues that these are information-generated effects caused by a change in offender perceptions in response to information received about a change in enforcement presence and practices. This argument is supported by the fact that the decrease in crime rates did not always coincide in time or space with the police operations themselves.

Based upon these observations, it is advisable to exploit the benefits of oscillatory operations and to plan for all three types of information-generated effects: anticipatory, diffusion, and residual effects. Operations should be planned in such a way to collect sufficient information to measure for these effects. To capitalize on the benefits of oscillatory operations and information-generated effects this research proposes an effective way of targeting resources may be to employ a Target, Tip, Target (T3) tactic to maximize the benefits of oscillation, and a Bull's Eye resource and IO targeting cycle to achieve anticipatory, diffusion, and residual effects.

A. TARGET, TIP, TARGET (T3) OSCILLATION TACTIC

The proportional relationship between risk and uncertainty suggests that oscillatory operations are more effective than the same total effort applied at less intensity over a longer period time. The interdependence of insurgent decision making implies that to achieve a desired change in behavior, it is often necessary

to “tip” it by suppressing or compelling the behavior until reaching a self-sustaining rate of activity. A target, tip, target oscillation tactic may provide a practical way to operationalize these theoretical perspectives.

1. Target—an activity to increase or decrease through amplification in presence, sanctions, and information operations
2. Tip—the activity by suppressing or compelling (encouraging or discouraging) the behavior until a self-sustaining rate of increasing or decreasing activity is reached. Exploit the residual effect.
3. Target—a different activity or an activity in a different geographical area. Re-target previous activities and areas as effects decay.

B. A BULL’S EYE STRATEGY FOR IMPLEMENTATION

IO can be used to achieve information-generated effects, and to enhance the impact of other military operations. It may also be used, at times, to achieve information-generated effects as a stand-alone operation, as suggested in the study of anticipatory effects.

A “Bull’s Eye resource and IO targeting strategy” could be used to achieve information-generated effects and to maximize the effectiveness IO in support of other military operations. Johnson and Bowers originally proffered the Bull’s Eye strategy as an effective means for achieving diffusion effects in crime deterrent initiatives.⁴² The Bull’s Eye strategy is being adapted in this thesis to suggest a methodology for maximizing the effects of military operations through diffusion, and for using IO to achieve anticipatory and residual effects before and after a COIN initiative.

Figure 7 shows how “the Bull’s Eye strategy” divides an operational area into concentric zones. Physical and IO resources are then allocated separately into every other zone with the intent to achieve diffusion effects. IO is also

⁴² Shane D. Johnson and Kate Bowers, "Opportunity is in the Eye of the Beholder: The Role of Publicity in Crime Prevention," *Criminology & Public Policy* 2, no. 3 (2003): 518.

conducted prior to the onset and after the offset of the COIN initiative to keep the perceptions of risk and uncertainty high to achieve anticipatory and residual effects.

Bull's-eye Resource and IO Targeting Cycle

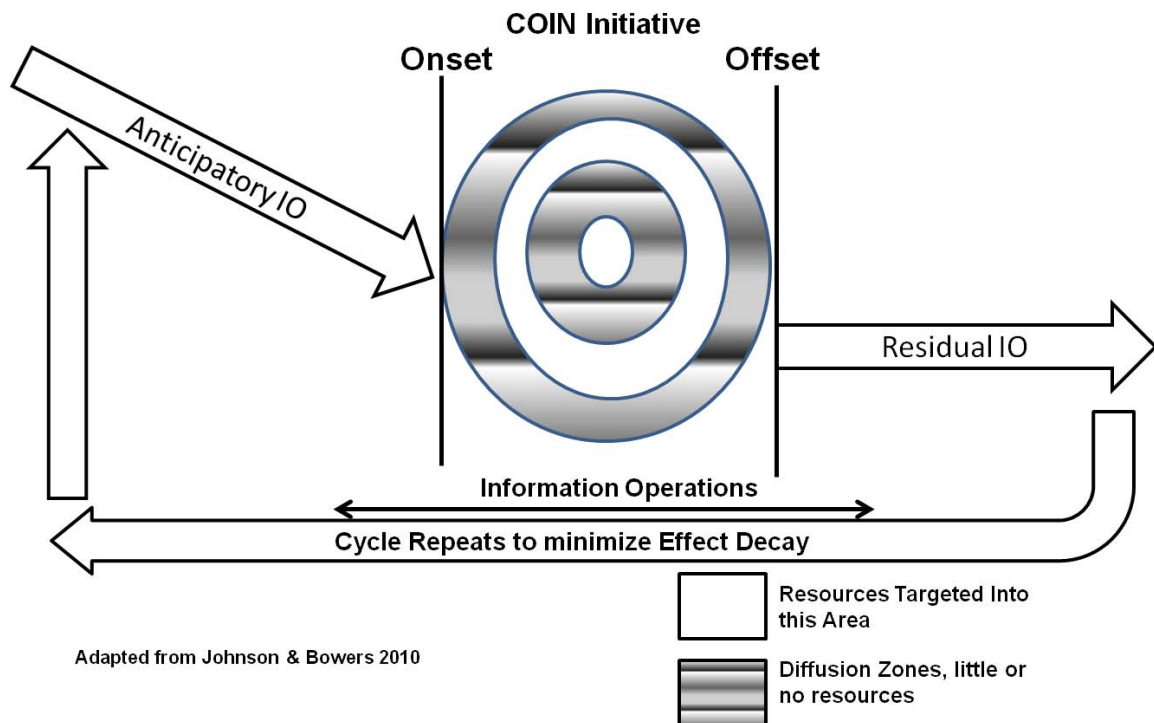


Figure 7. The Bull's Eye Resource and MISO Targeting Cycle⁴³

The Bull's Eye resource and IO targeting strategy can be enhanced by disseminating messages across the entire operational area to promote the perception of elevated risk. The disseminated messages should increase uncertainty by not giving specific information about exactly which areas are being targeted or when the operations are occurring.

⁴³ Shane D. Johnson and Kate Bowers, "Opportunity is in the Eye of the Beholder: The Role of Publicity in Crime Prevention," 519.

The intent of this ambiguous messaging is that as the awareness of counterinsurgency operations increases, uncertainty as to the exact location and timing of these operations also increases, which results in an overestimation of the risks or effort involved in engaging in nefarious activities. This overestimation of risk leads to a reduction in insurgent activities as attacks and other violent acts are either deterred or delayed. The Bull's Eye targeting cycle will repeat itself as the residual effects begin to decay.

Effects occurring prior to the onset of an operation should be considered in conjunction with effects transpiring in adjacent geographical areas, and the effects that happen after an operation has been completed. In the same manner that anticipatory effects can occur prior to the onset of an operation, residual effects can ensue after an operation has been concluded.

Smith et al. argue that anticipatory effects presume a counterinsurgency operation has already started, and residual effects lead an insurgent to assume that the operation is continuing. It is, therefore, possible to speculate on a standalone IO operation in which an insurgent's false perceptions generate anticipatory effects, and the reduction in insurgent activity is sustained to achieve residual effects after the perceptual operation would have realistically ended. According to Smith et al., "this post (perceptual) crackdown period can be used to consolidate effects achieved."⁴⁴

⁴⁴ Martha J. Smith, Ronald V. Clarke, and Ken Pease, "Anticipatory Benefits in Crime Prevention," 83.

LIST OF REFERENCES

- Barthe, Emmanuel and United States. Department of Justice. Office of Community Oriented Policing Services. "Crime Prevention Publicity Campaigns." *U.S. Dept. of Justice, Office of Community Oriented Policing Services*.
- Chu, C. Y. Cyrus. "Oscillatory vs. Stationary Enforcement of Law." *International Review of Law and Economics* 3, no. 13 (1993): 303.
- Dixit, Avinash K. and Barry Nalebuff. *Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life*. New York: Norton, 1991.
- Heuer, Richards J. and Center for the Study of Intelligence (U.S.). *Psychology of Intelligence Analysis*. Washington, D.C.: Center for the Study of Intelligence, Central Intelligence Agency, 1999.
- Johnson, Shane D., and Kate J. Bowers. "Opportunity is in the Eye of the Beholder: The Role of Publicity in Crime Prevention." *Criminology & Public Policy* 2, no. 3 (2003): 497–524.
- . Home Office. Research, Development and Statistics Directorate. *Reducing Burglary Initiative the Role of Publicity in Crime Prevention*. London: Home Office. Research, Development, and Statistics Directorate, 2003.
- Joint Force Staff College (U.S.). *Information Warfare Division. Joint Information Operations Planning Handbook*. Norfolk, VA: Joint Forces Staff College, 2009.
- Joint Publication 3-13: Information Operations. Accessed July 21, 2010. [http://www.dtic.mil/doctrine/new_pubs/jp3_13.pdf#search="3-13](http://www.dtic.mil/doctrine/new_pubs/jp3_13.pdf#search=).
- Poyner, Barry. *What Works in Crime Prevention: An Overview of Evaluations*. Barry Poyner Research Consultancy, 1988.
- Riley, D., and Patricia Mayhew. *Crime Prevention Publicity: An Assessment*. London: H.M.S.O., 1980.
- Sherman, Lawrence W. "Police Crackdowns: Initial and Residual Deterrence." *Crime and Justice* 12 (1990): 1–48.

Smith, M. J., R. V. Clarke, and K. Pease. "Anticipatory Benefits in Crime Prevention." *Crime Prevention Studies* 13 (2002): 71–88.

Weisburd, David. Police Foundation (U.S.), and National Institute of Justice (U.S.). *Does Crime Just Move Around the Corner? : A Study of Displacement and Diffusion in Jersey City, NJ*. Washington, D.C.: Police Foundation, 2004.

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