

AN INVESTIGATION OF THE PHILOSOPHICAL CHANGES  
OF THE ABU SAYYAF GROUP USING  
GEOSPATIAL ANALYSIS

by

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## ABSTRACT

Political scientists believe that the Abu Sayyaf Group's (ASG) penchant for accumulating funds through hostage ransoming and other criminal activity has caused the organization to drift away from its Islamic foundations to become bandits. This research explores this claim by applying geospatial analysis to ASG terrorist activity to evaluate if ASG attack data are congruent with original political objectives or more suited to profit-driven criminal patterns of activity.

Four research objectives are used that explore if attack data display an operational shift. The first three compare data distribution to map overlays of economic level, ethnicity and religion to identify where attack majorities occur. This identifies if the ASG is prone to attacking areas populated by their constituency. The fourth objective examines the history of the ASG by comparing it to terrorist ideological transformation theory. The results of these objectives are combined in the decision rule to evaluate if ASG data supports the claims of a philosophical shift. Applied methods include spatio-temporal analysis and geostatistics (hot spot analysis and mean center progression).

Results of analysis indicate that the majority of ASG attacks occur in a trivariate convergence area of map overlays. Temporal analysis shows that attacks localized and peaked around the Constituency Overlay in accordance with benchmarks for a terror-to-crime shift. It is concluded that the majority of ASG attacks are driven towards crime due to a high frequency of moneymaking attacks within areas of constituency. Based on the

decision rule, the patterns of attack data indicate that ASG operations have been more inclined towards criminal goals since the death of their founder, Abdurajak Janjalani.

For Vincent; age quod agis.

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## CHAPTER 1

### INTRODUCTION

In 2007, the Abu Sayyaf Group (ASG) was labeled as the smallest, but deadliest Muslim terrorist organization in the Philippines by the Reuters news agency (Mogato, 2007). Since their start in 1992, their operations against the Filipino state have claimed many lives and struck fear into the predominantly Catholic population. They have drawn no moral lines in the pursuit of their goals and have openly admitted to being responsible for numerous bombings, kidnappings and executions. Political science scholars believe that the ASG's propensity for accumulating funds through hostage ransoming and other criminal activity has caused the organization to drift away from its radical Islamic foundations and become nothing more than a gang of bandits (Abuza, 2008; Tan, 2007). This research explores this claim by applying geographic and temporal analysis to ASG terrorist activity from 1994 to 2008. Specifically, this research will utilize spatial overlay methods and map analysis to determine whether the body of ASG attack data is congruent with the political objectives put forth by the group at their inception, or more suited to criminal patterns of activity that epitomize monetary gains as the highest objective.

### Research Objectives

Previous scholarly literature involving the ASG has focused on the historical aspects of past operations (Tan, 2007) along with the qualitative analysis of the ASG's ideology and leadership (Chalk, Rabasa, Rosenau & Piggott, 2009). In addition, Ressa (2003) and other authors have written narrative depictions of the ASG's savagery in hopes of vilifying them. There has been little geographic scholarship analyzing the broad trending of ASG's attack patterns, let alone whether they indicate a transformation from politically-driven terrorism to for-profit crime. This is a disturbing state as geographic researchers use spatial analysis to provide insight into human objectives and behavior (Bailey & Gatrell, 1995).

It is the intent of this project to apply geospatial analytical methods to the body of ASG attack data to discern whether or not the attack history supports previously stated claims of the group's divergence from its ideological foundations to for-profit criminal goals. However, while the expected results are that the analyses support a shift in organizational goals, it is an open question whether the change has occurred and whether the data act as a definitive indicator for the ASG's change in operations. To address these issues, the project uses geospatial analysis to identify the spatial and temporal patterns that emerge when ASG attack data is converted to a map. Furthermore, it identifies if these patterns indicate whether ASG operations are more inclined towards ideological or criminal goals.

This thesis has established four objectives that, when evaluated, will answer if ASG attack data can substantiate claims that the group has shifted its operational goals from political change to criminal profiteering. Objectives 1, 2 and 3 examine if

geographic data can be used to corroborate the terror-to-crime transformation by analyzing its manifestation according to the group's base of community support. Their purposes are to compare the attack data to overlays of economic level, ethnic composition and religion to identify where the majority of attacks occur. This will identify if the ASG is prone to conducting attacks in areas predominantly populated by their constituency, which are the poor, Muslim Tausugs of the southern Philippines. The fourth objective will examine the historical timeline of the ASG to see if qualitative analyses can support that a terror-to-crime transformation has occurred. This is done by comparing the historical timeline of the ASG to Dishman's (2001) theory on the ideological transformation of terrorist groups. The results of these objectives are then combined and measured in the decision rule to evaluate whether ASG attack data supports the more popular claims of a philosophical shift.

**Objective 1: Determine the economic level of the areas where the majority of ASG attacks occur.**

The southern third of the Philippines has historically been one of the poorest regions of the country. It is wrought with a decaying infrastructure that is sometimes unable to provide even the basic water and sanitation services to the population. This poverty has often been a source of contention among the Moro people of the south and their "better off" Christian Filipino countrymen of Luzon and the Visayas islands (Bauzon, 1991). The contempt towards their impoverished condition has even bled into the modern Islamic extremist movements of the southern Philippines and has been identified by armed groups as one of the reasons for their insurgency. Economic level analysis is conducted by comparing a layer of Filipino provinces with greater than 50%

poverty against the distribution of ASG attacks to see where the majority of attacks occur.

**Objective 2: Determine the ethnic composition of the areas where the majority of ASG attacks occur.**

The ethnic ties that bind the people of archipelagic Southeast Asia are often stronger than the religious ties in their communities. These ties date back to the ethno-linguistic divides that existed well before the coming of Islam and the concepts of a nation-state. The ASG was established by Abdurajak Janjalani as being a champion for the Tausug ethnic group of the Sulu archipelago. Ethnic composition analysis is conducted by comparing a layer of Tausug ethnic distribution against the distribution of ASG attacks to see where the majority of attacks occur. Should a majority of ASG attacks manifest within the Tausug ethnic area, then it may indicate a compromise of that value.

**Objective 3: Determine the religious dominance of the areas where the majority of ASG attacks occur.**

The ASG is, first and foremost, a religious extremist movement. Its foundations are rooted in the Muslim Moro wars that have persisted in their homeland since the first arrival of the Spanish conquistadors and its modern terror tactics were passed down from the mujahedeen struggle during the Soviet occupation of Afghanistan (Klemp, 2006). It is logical that the religious dominance of areas where the ASG have conducted their attacks be analyzed to see if Muslim primacy is a deterrent to ASG activity. As religiosity in the Philippines is predominantly divided into either Christian or Muslim, religious analysis is conducted by comparing a layer of the Autonomous Region of Muslim

Mindanao (ARMM) against the distribution of ASG attacks to see where the majority of attacks occur.

**Objective 4: Determine if ASG attack history indicates a shift from political terrorism to for-profit crime between 1994 and 2008.**

Dishman (2001) uses a checklist for identifying the benchmarks that a terrorist group must experience before “mutating” into a criminal organization. In order, he states that a terrorist group must:

1. Experience changing circumstances that forces it to dedicate a significant amount of its energy to profit-driven criminal acts.
2. Experience a higher quality of group sustainability (spending capital and member income) after engaging in profit-driven criminal acts.
3. Demonstrate an unwillingness to seek a negotiated settlement for the sake of prolonging the very struggle that affords it criminal revenue.

Dishman’s transformation checklist provides a road map that outlines a terrorist group’s metamorphosis from an Islamic extremist movement to a criminal organization. In order to match this with the other objectives, the project examines the ASG’s historical timeline to identify when and where the group met these benchmarks and the results that occurred afterward.

This analysis will also examine if the theory matches up to the important roles played by the ideological founder of the ASG, Abdurajak Janjalani, and the period after his death when the group was controlled by his brother, Khadafi. Political scientific literature states that these two individuals were moral compasses for the ASG; so much that Abdurajak’s death and Khadafi’s ascension steers the group towards crime rather than political terror (Tan, 2007).

Objectives one, two and three are meant to be compared to the conclusion of the fourth objective by studying the distribution of ASG attack data with three hypotheses that test how the pattern of attacks correlate to areal distributions of economic level, ethnicity and religion. These hypotheses are tested by using map analysis to determine if the ASG had developed a tendency to target members of its constituency rather than its political enemies. A clearer definition of the hypotheses and the techniques for their evaluation are provided in the research design chapter of this thesis.

### Significance of Research

Conducting the research required to analyze these data is valuable in many ways. First, this research acts as a case that can either support or deny Dishman's 2001 framework. This is an important academic and practical issue with many terrorist groups as this research will provide an analytical approach for their investigation. This substantiates the role of geospatial analysis to support the comprehensive evaluation of violent extremists.

Second, the methodology of this analysis can be applied outside of the political extremist realm and into other "shadowed" sectors of endeavor that have a large dataset of criminal activity. This means that the activities of pirates, smugglers, drug traffickers and slavers can be analyzed to better understand how they operate.

Third, this research engages in an empirical and geographical analysis of an Islamic extremist organization that has received little quantitative scholarship. As aforementioned, the extent of ASG scholarship is limited to qualitative analyses based on

political and historical observation. This research contributes to the body of knowledge for the ASG.

Finally, this line of inquiry will benefit state policymakers by giving them information on how (and when) to best deploy military, intelligence and law enforcement assets to contain and confront these entities in their areas of operations. As non-developed states are often the source of activities like the ones engaged by the ASG, understanding the spatial indicators of the terror-to-crime transformation can aid in the delivery of propaganda campaigns with the goal of depleting public support and potential safe havens. This is due to the fact that indigenous populations will turn against entities that pursue profit over a religious or philosophical ideology.

#### Study Area

The study area for this research is the southern third of the Philippine archipelago, composing of the large island of Mindanao and the island chains of Basilan, Sulu and Tawi-Tawi (Figure 1.1). This area has been selected due to the high concentration of Abu Sayyaf activity in the past. Furthermore, it is the area often targeted for operations against the ASG by the Philippine National Police (PNP) and most recently, a combined effort by the Armed Forces of the Philippines (AFP) and the US Army (Kingsbury, 2005).

Understanding the human geography of the study area is a key concept for understanding the conclusions of this project. Current popular sentiments and cultural conditions are the result of a 300-year period of conflict known as the Moro Wars (Bauzon, 1991). During these conflicts, the Muslims of the southern Philippines were forced to defend their values and way of life against Spanish conquistadors, American

imperialists, Japanese invaders and even their own fellow Christian Filipinos (Bauzon, 1991). Each of these conflicts led to a defeat, with every chapter yielding a piece of the once extensive Islamic empire of Southeast Asia until all that was left for the “Moro” people, the indigenous Muslims of the southern Philippines, were the islands of Mindanao and the Sulu archipelago. Even though the fighting has been over for some time, the consequences of prolonged warfare are still evident today in the violent tactics often used by the ASG.

The southern Philippines is one of the poorest regions in the whole country. According to the Philippine National Statistical Coordination Board (2006), nearly 50% of families within this region are living in poverty. Insufficient governmental support, rampant corruption and a dying tourism industry have accelerated the effects of three centuries of war and defeat. And while the major population centers do display indicators of modernity and development, the urban and rural poor populations far outnumber other economic classes. It is from these rural populations that the ASG gains its base of support and personnel. Many recruits join the ASG out of necessity due to operatives often being rewarded with a share of spoils obtained from an operation (ICPVTR, 2007).

The study area is ethnically divided between the mainland Maranao and the Tausug who populate Basilan and the Sulu archipelago. While the Moro Wars forced these two ethnic groups to work together, ethno-linguistic divides have always existed between these and other Filipino ethnic groups (Abinales & Amoroso, 2005). It was not until the widespread acceptance of Islam that ethnic friction would be laid to rest, but the region still suffers from at least a mild ethnic division. The majority of ASG members have been identified as Tausugs (Klempp, 2006).

Politically, the current government of the Philippines is relatively stable in comparison to other developing states. Its independence in 1946 from the United States endeared Filipino lawmakers into modeling their new government after an American model, with similar structural subdivisions and electoral processes. The domestic political history of the Philippines is rife with corruption and unrest. This is evident in the southern parts of the state where numerous ethno-Islamic movements have sprouted in succession with hopes of being the “magic bullet” that frees Moro Filipinos from Manila and establishes an independent Muslim state.

The current situation for Muslims in the southern Philippines is one of relative stability. There exists an Autonomous Region of Muslim Mindanao (ARMM), an entity that while still subject to the laws of the state, conducts itself as a separate, provincial unit that chooses its own political administration and jurisprudence (Hedman and Sidel, 2000). It was proposed by the once militantly-motivated Moro National Liberation Front (MNLF) in exchange for the group’s disarmament and disbanding of a large portion of its militia. Established in 1996, the ARMM is composed of large areas of western Mindanao, Basilan and the Sulu archipelago (Abuza, 2003). These are the same areas that act as safe havens for the ASG (Chalk et al., 2009).

### Thesis Organization

This thesis is divided into five chapters. Chapter 1 establishes the research objectives and details the study area and significance of this project. The second chapter is the literature review that was conducted for topic research and familiarization. It discusses the relevant literature covering the conceptual definitions of the research and

the transformation of political extremist groups into for-profit criminal organizations. This will establish the theoretical foundations used by this project. The third chapter discusses the research design of this project. Specifically, the chapter covers the research methodology, success criteria and data sources of this master's thesis. Chapter 4 details and discusses the results of the analysis conducted in the design chapter. This will be done by addressing each research objective and the decision rule in order. Finally, Chapter 5 will provide a conclusion to the project and discuss potential improvements to the methodology and what further lines of inquiry may be followed to improve upon the use of geographic data for ASG and other terrorist studies.

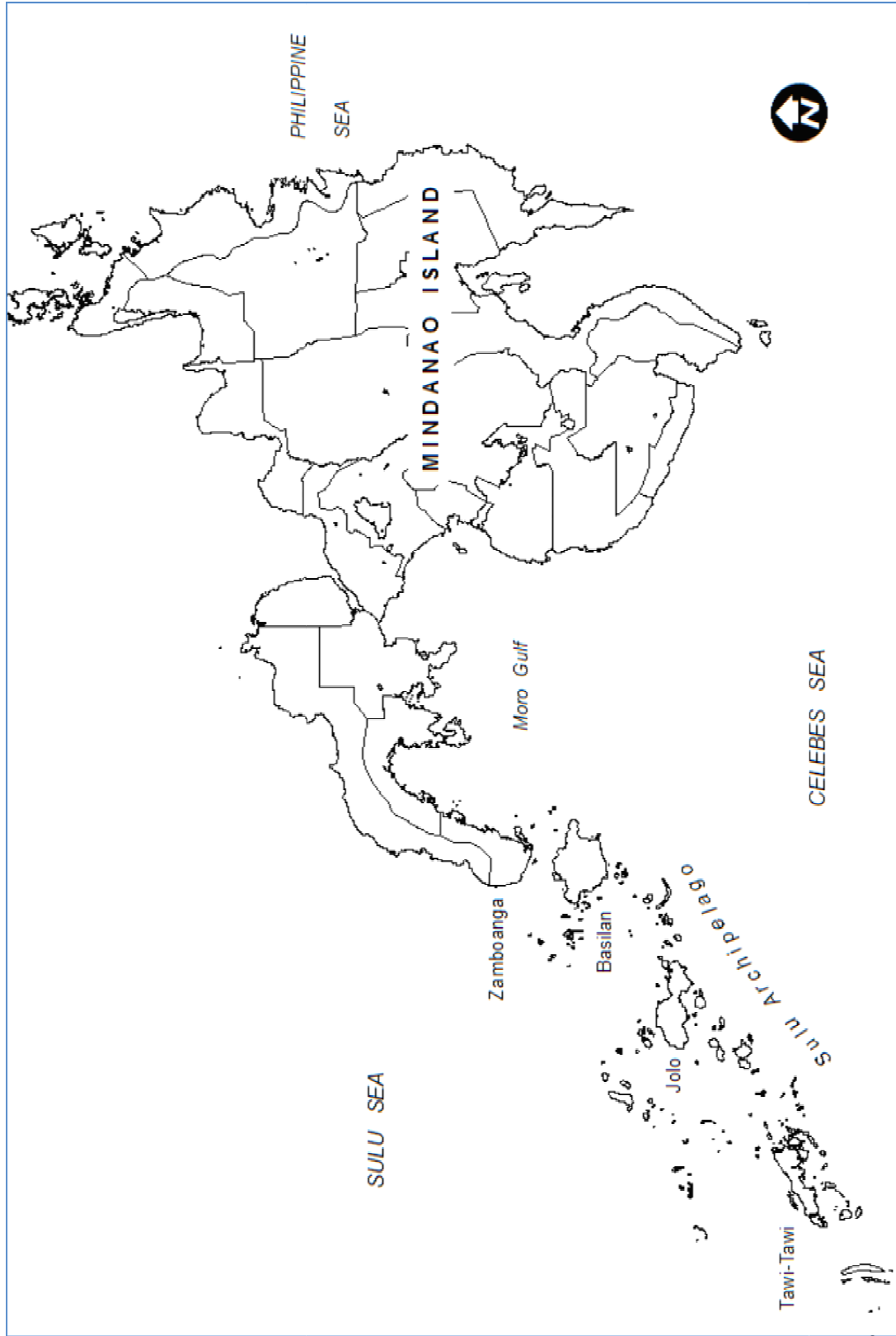


Figure 1.1: The area of the Southern Philippines

## CHAPTER 2

### LITERATURE REVIEW

#### Definition of Terrorism

Many definitions exist that either over-generalize terrorism by including rebellions, revolutions, uprisings and insurgencies as part of the concept, or conversely, excessively limit the concept by tying it down to one region, reason or religion. Terrorism is a very specific concept that can be related to many causes. This research adopts Hoffman's (1998) definition of terrorism in that it is a deliberate creation and exploitation of fear through violence or the threat of violence in the pursuit of political change.

According to Krueger (2007), terrorism does not occur in a vacuum. It is a tactic often engaged by people who feel disenfranchised and marginalized by either their government or a greater social hierarchy. As such, people who engage in terrorism do not always fit the stereotypes often spread by popular media. They are not always poor, uneducated or part of a specific ethnicity or religion. And they are certainly not all "crazy" (Hoffman, 1998). Many terrorist masterminds have often been wealthy, educated members of the upper class who have chosen to use their influence as a means to achieve political change (Krueger, 2007). The greatest example of this type of terrorist is Osama bin Laden, the privileged son of a millionaire who studied at the famed King Abdulaziz University before becoming involved with Al Qaeda (Gunaratna, 2002). In addition, Krueger (2007) has identified that many low-level operatives of terrorist organizations

tend to be middle-class, employed and able-bodied people who have chosen to risk or sacrifice their lives for a chance at lasting political change. In both the lower and upper echelons of terrorism, there exists similar factors in that they are frustrated with the current status quo, have a drive for lasting political change and lack the resources to affect this change through conventional means. Thus through process of elimination, terror becomes the most applicable and effective path and terrorists are those who employ this tactic for political goals.

### Definition of Crime

As this project deals with the possible organizational mutation of the ASG from political terrorism to for-profit crime, a definition for crime and criminal is necessary to conduct this research. As with terrorism, an abundance of definitions exists for crime. Crime can be viewed as the intentional (or unintentional) breach of the law regardless of the cause and it may be seen as maliciously driven activities pursued by evil intent. But for the purposes of this research, Crime will be defined as the engagement in illicit, and sometimes violent, activities for the purpose of generating profit and/or influence for a group or individual (Lyman & Potter, 2004).

Criminals are the groups or individuals who engage in illicit activities for the purpose of generating profit or influence. Like terrorists, criminals also use violence. But unlike terrorists, criminals engage in illegal and violent acts primarily out of selfish and personal motivations like material gains (Hoffman, 1998 & Sanderson, 2004). Demographically speaking, criminals come from all economic and social classes. This differs from terrorists, whom much of the literature states are often educated and

economically well-off. The reason for this is that lower-income people tend to place their need for material resources above any religious or ideological goals (Krueger, 2007).

Another great difference between criminals and terrorists is that criminals are distinctly nonideological and are not interested in changing the status quo in which they thrive (Finckenauer, 2007). Terrorists are driven by ideology and have been known to resort to diplomacy and negotiation if it brings them closer to their goals. This is evident in the disarming and disbanding of El Salvador's Farabundo Martí National Liberation Front (FMLN) in 1992 (Jones & Libicki, 2008) and the disarmament of the Philippine's Moro National Liberation Front (MNLF) after the establishment of the ARMM (Hedman & Sidel, 2000).

### The Terror-to-Crime Transformation

As mentioned in the introduction, Dishman (2001) provides the clearest checklist by which to judge if a terrorist organization has moved away from its ideological goals towards a more profit-driven schema. He states that an organization transforms only after it has experienced changing circumstances that forces them to engage in increased criminal activity for fundraising, a higher quality of group sustainability after engaging in profit-driven criminal acts and an unwillingness to seek a negotiated settlement for the sake of prolonging the very struggle that affords it criminal revenue (Dishman, 2001). His work is supported and cited by other scholars who develop the concept of terrorist groups increasing their involvement in criminal activity. Wang (2010) builds upon Dishman's checklist by outlining how easy it is for terrorist groups to engage in criminal

activity due to the inherent similarities between terrorist and criminal organizations. He presents these similarities in a 10 point list:

1. Both are generally rational actors
2. Both use extreme violence and the threat of reprisals
3. Both use kidnappings, assassinations, and extortion
4. Both operate secretly, though at times publicly in friendly territory
5. Both defy the state and the rule of law (except when there is state sponsorship)
6. For a member to leave either group is rare and often fatal
7. Both present an asymmetrical threat to the United States and “friendly” nations
8. Both can have “interchangeable” recruitment pools
9. Both are highly adaptable, innovative and resilient
10. Both have back-up leaders and foot soldiers

Sanderson (2004) utilizes Dishman’s conclusions to expound further on the blurring lines between terror and crime. His research deals with how the constricting of terrorist financial support by counterterrorism efforts are forcing terror organizations to enter into criminal activity to maintain operational funding. He tips his hat to Dishman’s work by stating that it is “A very useful work on the ‘transformation’ issue completed in the pre-September 11 timeframe” (Sanderson, 2004).

The ASG is not the only terrorist group to possibly undergo a terror-to-crime transformation in its operational history. Scholars have noted that some terrorist organizations have chosen to move away from their original ideological goals due to the success of their criminal endeavors (O’Loughlin & Witmer, 2011).

In analyzing the literature, the most notorious of these groups is the Colombian FARC. Makarenko (2004) states that the FARC deepened its involvement in narcotics trafficking following the 1990 death of the group's ideological leader, Jacobo Arenas. The group escalated its participation from guarding coca fields and laboratories to acting as middle-men between the farmers and cocaine exporters. According to the US State Department, the FARC is one of the top 10 terrorist organizations with ties to the drug trade (Thachuk, 2008). The benchmarks of transformation can be applied to its history in that they experienced changing circumstances with Arenas' death, their increased involvement in narcotics trafficking demonstrated a higher rate of success and sustainability and as they are nearing 50 years of operation, they hope to prolong the conditions in which they operate because of the lucrative income.

Another group who scholars believe has undergone the terror-to-crime transformation is the United Wa State Army (UWSA) of Myanmar (Dishman 2001). They have deep ties to the production of opium and heroin in the famed Golden Triangle of Myanmar, Laos and Thailand. Originally the military arm of the Communist Party of Burma (CPB), the UWSA succeeded in "liberating" the Wa hills of northern Myanmar and effectively took over opium production for the area. This secured a fruitful method for sustainment and a ready source of revenue. The benchmarks of transformation can be applied to UWSA's history in that their changing circumstances came in the form of a cease fire agreement with the (then) Burmese national government for neither side to attack the other. As they held the richest opium fields in the country, the UWSA did not pursue its goal of a communist Burma, instead choosing to maintain the very lucrative status quo afforded to them by the government (Lintner, 2000).

What is not mentioned in any other work other than Dishman is the complete abandonment of ideological goals in lieu of a life of crime. Instead, scholars like Makarenko (2004) explain that terror tactics and criminal activities exist along a continuum rather than in an either/or set up. Her conclusions that crime and terror exist along the same path are true to a point. But they rest on the assumption that the terrorist organization is still driven towards a political goal. And as Tan (2007) demonstrates with the ASG, the potential for ideological abandonment is always a possibility. Nonetheless, the literature supports the idea that no “either/or” condition can exist when dealing with terrorism and crime.

#### The Abu Sayyaf Group

The organization of the ASG was a product of two important factors. The first is the historical background and behavior of the militant Moro movement. The foundation of the ASG can be traced back to the earliest attempts by Filipino Muslims to organize for the goal of governance over a separate sovereign entity. When the Philippines gained their independence in 1946, a renewed effort was initiated by the Moro people to vie for autonomy (Bauzon, 1991). It started through diplomatic channels and political participation at first. However, the predominantly Catholic central parliament in Manila saw little gain in releasing the Moro. This was when the freedom effort turned violent. This was also when the freedom effort began a vicious pattern of splintering due to member frustration. With every organizational division, the newer progeny emerged as more aggressive, ambitious and radicalized than its group of origin.

The history of modern Islamic separatism in the Philippines began with the Muslim Independence Movement (MIM) of 1968 (Bauzon, 1991). Their goal was to advocate and pursue the complete secession of Mindanao and Sulu from the Filipino state. As their efforts became hindered by defeat or perceived inaction however, the organization splintered into smaller and more radical bands of armed resisters looking to accomplish what their parent organization could not. From these splinter bands, the MNLF gained prominence over the other groups and eventually outlived the MIM itself (Abuza, 2003). As with the MIM, many Moro separatists had great hopes for the MNLF. Just as before, elements within the organization could not agree on the methods used to attain their goal. Many saw the establishment of the ARMM as an unequal compromise between the Muslim resistance and Christian Filipino regime. Frustrations rose once again and some members within the MNLF decided to splinter away from their mother organization to form the ASG in 1991 (Singh, 2007).

The second factors important to the history of the ASG are the group's first two leaders, the Brothers Janjalani. The founder of the ASG was a former MNLF operative named Abdurajak Abubakr Janjalani. Abdurajak, who was once a school teacher, trained in a Mujahedeen outpost in Afghanistan where he aided the local Pashtuns in their fight against the soviet occupation. When the Soviets withdrew in 1989, he returned to Zamboanga City where he taught in a number of madrassas (Islamic schools) on the topic of Islamic jurisprudence (ICPVTR, 2007).

As the MNLF began to step away from their separatist goal in lieu of autonomy in 1989, Abdurajak became disheartened by what he viewed was defeatism and compromise. He gathered his most loyal followers (including his brothers Khadafi and

Hector) and established a camp in the jungles of Basilan in 1991. From here, he reconnected with his old Mujahedeen cohort and began to buy weapons and facilitate training for his men with the expectation of pushing the Moro struggle forward through violent means.

In 1992, the ASG began a campaign of terror attacks (Abuza, 2005). Bombings, kidnappings, murder; the ASG's earlier operations always made a political statement to the ruling Christian majority. The operational peak of Abdurajak's leadership came in 1995, when ASG operatives assaulted the town of Ipil, killing 57 and razing the entire town center (Ramakrishna and Tan, 2003). Then in December of 1998, an attempted arrest turned into a fierce gun battle between ASG operatives and the Filipino national police. During the fighting, Abdurajak Janjalani was shot and killed (Singh, 2007). When news of his brother's death reached Khadafi, he took over the duties of leadership for the group.

Under Khadafi's guidance, the ASG engaged in more criminal fundraising operations, increasing their funding and becoming more proficient in explosive implementation and coastal raiding. It was during Khadafi's leadership that the group broke into the international spotlight with the kidnapping of the American journalist, Jeffrey Schilling (ICPVTR, 2007). For nearly 10 years, Khadafi's ASG were able to keep an operational pace of one to two attacks per month. During this time, the ASG shifted the majority of its operations to criminal activities. Hostage ransom, narcotics trafficking, extortion; the income gained from these activities gradually eroded the goals set by Abdurajak at the group's founding. Then just like his brother, Khadafi Janjalani was shot dead during an army raid in the autumn of 2006 (Singh, 2007).

Khadafi's death marked a watershed moment for the ASG. From the outside, the group's change in leadership appeared seamless as it transferred to the next in line. But history shows that there was something missing in the months following his death. The number of operations dropped sharply along with the number of successful sorties. The political message of the ASG went silent as the Filipino military increased its operations in the south in an attempt to shut the group down. The military nearly succeeded. In the end, the combined operations of the PNP and the AFP had whittled the support base of the ASG from several thousand to less than 200 (Chalk et al., 2009).

#### Geographic Analysis and Behavior

Bailey and Gatrell (1995) state that an essential requirement for any analysis of geographic data is to be able to "see" how the points are distributed across a two dimensional plane. For spatial data, like the ASG attack distribution, this means plotting the individual points across a map. When the attack data are laid atop the landmasses of the Philippine archipelago, visual patterns emerge that give clues to the ASG's behavior. There could be groupings of points or "clusters" that may indicate how frequent a location is targeted. Clusters may vary according to attack type to indicate how the ASG approaches operations in a certain part of the study area. For example, if there are a greater amount of kidnappings on the island of Basilan in comparison to the island of Jolo or Tawi-Tawi, this may be an indicator of an ASG safe haven on Basilan due to the group's ability to effectively capture and secure hostages. Conversely, a high frequency of bombings over all other types of attacks in Davao Del Sur may indicate the edges of the ASG's operational area due to the ease in which a bomb may be delivered and

remotely detonated by a single operative without the need of safe houses and “getaway” routes. In both instances, the data are visualized on a map and allowed to “speak” for itself, potentially revealing clues as to agent behavior (Bailey & Gatrell, 1995).

Cartographic texts describe data analysis through visualization as “data exploration.” Data exploration seeks four major purposes in geovisualization (Slocum, McMaster, Kessler & Howard, 2009):

1. Identify the spatial pattern for a single attribute at one point in time.
2. Compare spatial patterns for two or more attributes at one point in time.
3. Identify how the spatial pattern of a single attribute changes over time.
4. Compare the spatial patterns of two or more attributes to see how they covary over time.

Purposes 3 and 4 are the focus of this research project. The patterns of ASG attack data, compared over time, allow clues to arise depicting when and how their behavior changed from political terror to crime. Time and location are the keys to identifying this change.

Along with the computer visualization of ASG attack data, the use of geographic statistical methods adds strength to conclusions made by data exploration. This is due to the mathematical approaches of statistics that create analyses that, while small in scale, are empirically robust (Rogerson, 2006). Scholars argue that conclusions based solely on map analyses are incomplete without some quantitative testing (Bailey & Gatrell, 1995; Rogerson, 2006). This is why this research project conducts statistical tests in addition to cartographic examination when addressing the research objectives.

The use of computer-assisted geographic analysis is not uncommon in the field of criminology. Wilson (2007) states that the use of computers in map analysis has created a stronger bond between criminological theory and spatial analysis by being able to synthesize hundreds of individual incidents into holistic patterns that give clues to criminal motives and behaviors. Computers act as a vehicle for fast processing of large datasets. Mean center, clustering analysis, kernel density, all types of statistical analyses that can be applied to point phenomena have been utilized to study crime for both descriptive and normative goals.

A particular approach accessible only by GIS is the use of map animation. In this method, events are posted on a map chronologically to display when and where they occur in regards to the entire dataset. Through this method, overall patterns of activity can be discerned that demonstrate how behaviors increase, decrease and migrate across a space (Brunsdon, Corcoran & Higgs, 2007). As this method has been used to analyze drug sales, assaults and car thefts, the same methods were repurposed to analyze ASG attack data. The animation sequentially displayed when and where the attacks occurred and displayed how attack patterns manifested in comparison to Dishman's (2001) benchmarks. The only differences between crime and terrorism analyses are the study areas and activities, both abstract in the geospatial processes of a computer.

## CHAPTER 3

### RESEARCH DESIGN

Meeting the objectives of this research project serves to answer whether or not the spatial and temporal patterns of ASG attack data demonstrate a difference in organizational goals between political terror and crime. This chapter details the components of the research to achieve the objectives put forth in the introduction. The decision rule of the project is discussed, as are the preprocessing and sources of data. An overall plan of the research is displayed in Figure 3.1. The research first examines the attack data and its distribution according to poverty, ethnicity and religion respectively. This is done through the evaluation of three hypotheses, each of which is assigned to its own objective:

- **Objective #1:** H1 (*Poverty*): The distribution of ASG attack data indicates that a majority of attacks have occurred in areas where 50% of the population or greater are living below the poverty line.
- **Objective #2:** H2 (*Ethnicity*): The distribution of ASG attack data indicates that a majority of attacks have occurred in the ethnically homogeneous areas populated by the Tausug.
- **Objective #3:** H3 (*Religion*): The distribution of ASG attack data indicates that a majority of attacks have occurred in areas largely populated and administered by Muslims.

After the evaluation of these hypotheses, objective four is substantiated by first examining the historical development of the ASG and linking important events in its timeline to Dishman's terror-to-crime transformation theory. These benchmarks and the

outcomes of the aforementioned hypotheses are then applied to the decision rule for final analysis and evaluation. The results should indicate that geographic data supports claims that the ASG has undergone a transformation from political violence to for-profit crime.

### Analytical Procedures Conducted on Dataset

The objectives of this project require a combination of empirical, quantitative and qualitative analyses. The empirical and quantitative measures will be used to meet objectives one, two and three. Their purposes are to explore whether geographic data manifests in areas populated by poor, Muslim Tausugs, thus examining if the ASG prefers to select targets within the areas of their constituency. The qualitative measures are meant to meet objective four. Its purpose is to define a logical link between the behavior of the ASG and the motives behind their actions. The overall methodological flow of this project is described in Figure 3.2, in which empirical, quantitative and qualitative analyses are conducted in parallel before being combined for the decision rule.

Objectives 1, 2 and 3 take the body of ASG attack data and examine it in a spatial context to determine if the majority of attacks have been targeted in constituent areas. In other words, areas composed of poor, Muslim Tausugs; the same demographic makeup of the average ASG operative according to Klempp (2006) and Chalk et al. (2009). The purposes of Objectives 1 through 3 are to determine if the geographic patterns of attack data support allegations of a shift in the ASG's organizational goals from political terror to for-profit crime. These objectives are written into three testable hypotheses that, when evaluated and applied to the CO decision rule, display how the ASG's operational goals have shifted since their inception.

**Objective #1: Determine the economic level of the areas where the majority of ASG attacks occur.**

- **H1 (*Poverty*): The distribution of ASG attack data indicates that a majority of attacks have occurred in areas where 50% of the population or greater are living below the poverty line.**

In a group profile delivered by the International Center for Political Violence and Terrorism (ICPVTR) in 2007, the ASG is identified as having the operational goal of ridding Mindanao and the Sulu archipelago of all Christian influence in order to return the wealth “stolen” by Western influences to the indigenous people of this area. Should the majority of attacks occur within highly impoverished areas, it may be concluded that the ASG is not targeting highly affluent western entities and is instead pursuing targets of opportunity.

H1 is tested by map analysis. For the map analysis, a map of the Philippines is constructed using a base layer of Filipino provinces and plotted with a point distribution of ASG attacks from 1994-2008. As previously noted, the mapped attacks are armed assaults, bombings and hostage takings. The areal overlay displaying the provinces in the study area with greater than 50% of the population living in poverty will be matched over the base provincial boundaries and compared to the pattern of ASG attack data. It is expected that the majority of attack data will occur in these areas of extreme poverty. All map analysis, cartography and statistics will be performed using the ArcGIS 9.3 software package (ESRI, 2009).

**Objective #2: Determine the ethnic composition of the areas where the majority of ASG attacks occur.**

- **H2 (*Ethnicity*): The distribution of ASG attack data indicates that a majority of attacks have occurred in the ethnically homogeneous areas populated by the Tausug.**

The same ICPVTR (2007) profile describes the ASG as having goals that are “ethnocentric,” meaning that the group’s overall objectives are meant to benefit a single constituent ethnicity. For the ASG, this ethnic group is the Tausug, which encompasses the majority of people in the island provinces of Basilan, Sulu and Tawi-Tawi (Stark, 2003). This is a logical conclusion in that the majority of ASG members are also Tausugs (Klempf, 2006). Should the majority of attacks occur in areas dominated by the Tausug, it may be concluded that the ASG is willing to endanger (or target) members of its ethnic constituency in order to achieve its fundraising goals.

Like H1, H2 is tested by map analysis. The map of the Philippines contains the same base layer of Filipino provinces and plotted ASG armed assaults, bombings and hostage takings from 1994-2008. The areal overlay displaying the provinces in the study area with a majority of the population being of Tausug ethnicity will be matched over the base provincial boundaries and compared to the pattern of ASG attack data. It is expected that the majority of attack data will occur in these areas of Tausug majority.

**Objective #3: Determine the religious dominance of the areas where the majority of ASG attacks occur.**

- **H3 (*Religion*): The distribution of ASG attack data indicates that a majority of attacks have occurred in areas largely populated and administered by Muslims.**

The ASG is based upon a foundation of violent Islamic extremism. Abdurajak Janjalani, the first leader of the ASG, stated that the group was founded to establish an independent Islamic state composed of the island regions of Mindanao, Basilan, Sulu and Tawi-Tawi for the moral betterment of Filipino Muslims (ICPVTR, 2007). Should a large majority of attacks occur within areas largely populated by Muslims, it may be concluded

that the ASG is willing to compromise its foundational mores in order to collect revenue from extortion and kidnapping for ransom.

H3 is tested with map analysis. The map of the Philippines contains the same base layer of Filipino provinces and plotted ASG armed assaults, bombings and hostage takings from 1994-2008. The areal overlay displaying the political boundaries of the Autonomous Region of Muslim Mindanao (ARMM) is matched over the base provincial boundaries and compared to the pattern of ASG attack data. It is expected that the majority of attack data will occur in these areas of Muslim authority.

**Objective #4: Determine if ASG attack history indicates a shift from political terrorism to for-profit crime between 1994 and 2008.**

The fourth objective is met by linking the operational history of the ASG to the three terror-to-crime transformation benchmarks detailed in the introduction. Each benchmark is matched to a known event in the ASG's history to demonstrate how, according to Dishman (2001), the events built upon each other to lure the ASG away from its original religious separatist goals. Case studies involving the terror-to-crime transformations of other organizations are explored in the Literature Review to show how these benchmarks have occurred in other areas. These are the transformation benchmarks regarding the operational histories of the FARC and the UWSA.

Along with the qualitative analysis and matching benchmarks to events in the ASG timeline, a rough temporal examination of the ASG attack data is conducted to see if attack frequency increase according to changes in their leadership. ASG attacks are plotted across a timeline to examine when the highest frequencies of events occur, regardless of their location. This analysis is conducted to define which ASG leader, Abdurajak or Khadafi, propagated the highest number of attacks and when. This analysis

is useful to achieving objective four because previous ASG scholars (Abuza 2003; Ressa 2003; Tan 2007) have posited that Abdurajak's death is responsible for the ASG's shift into crime. If that is the case, then an increased frequency of attacks after Khadafi's ascension will strengthen the claim of Abdurajak's death as Dishman's first benchmark for the ASG. Charts are created for all attack types using ArcGIS.

### The Decision Rule

The question of whether or not the ASG attack data indicates ideological or criminal goals is hard to answer. This is because quantitative data are more often than not, an indicator of "Where's" and "When's," rather than "Why's." The decision rule for this research utilizes three conditions that, if satisfied, conclude that the geographic data of ASG attacks support previous scholarly claims of a terror-to-crime transformation.

These conditions are:

- 1. 50% or greater of ASG attacks will occur in the "Constituency Overlay," an area made up of the overlapping provinces within the poverty, Tausug and religion overlays.**
- 2. The operational peaks in the ASG timeline are focused within the CO.**
- 3. The operational peaks in attack data will coincide with Dishman's benchmarks for the ASG.**

### Definition of the Constituency Overlay

The first through third objectives of this research are to determine the distribution of attacks according to economic, ethnic and religious variables. These objectives are in place to establish an area that, according to the ASG, offers the maximum concentration

of their constituency. This is best represented by a Venn diagram depicting the convergence of the poverty, Tausug and religious variables (Figure 3.3).

This trivariate convergence zone, or Constituency Overlay (CO), holds twofold importance for the decision rule of this research. First, it is logically the least possible area of political terror operations for the ASG because the majority of people living within are the support base that the group depends on for political success (Hoffman, 1998). In other words, what political value is there for a marketplace bombing that mostly victimizes a terrorist group's constituency? Second, previous scholarship on organized crime states that criminals are more likely to function within home communities because of the high levels of fear and influence that they can exert on the local population (Lyman & Potter, 2004). This allows criminals to operate more freely (and sometimes openly) in home communities.

Because the CO is the least logical area for political terror and a potential haven for criminals, it acts as an expression for ASG attack data. Should an attack be located within the CO, it is categorized as an act of crime, rather than political terror. If an attack occurs outside of the constituency overlay, this research presumes that the effort was made for a political gain instead of a criminal one. The number of overall attacks occurring within the CO is measured along with their frequency over time to substantiate how the ASG pattern distributes across the area. Should a majority of all attacks (greater than 50%) lie within the CO and spatio-temporal quantitative analysis links the group's operational peaks to the same area, then this research concludes that the ASG has engaged in criminal activity within their constituent areas. Temporally, ASG attack patterns in the CO are analyzed to identify any operational peaks in the dataset timeline.

Should these temporal peaks coincide with the ASG terror-to-crime transformation benchmarks discussed in Objective 4, then this research will rule that ASG operations are more inclined towards criminal goals rather than political ones.

### Spatial Statistical Testing on the CO

The two statistical tests used on the CO are mean center progression and Getis-Ord hot spot analysis. The purpose of the mean center calculation is to determine the average “x, y” coordinate of a point distribution across a plane. Thus, depending on where and how a point distribution clusters determines where the average manifests. Mean center measurements are applied to each attack type and timeframe to create a map that “tracks” how the distribution of events have progress across time. Should the mean centers of a particular type of attack appear close to the constituency overlay, then it provides statistical strength to the map analysis and helps answer the research question of whether or not attack patterns indicate if the ASG attack history is more inclined towards ideological or criminal goals. Keep in mind that the dataset, while only covering 1994-2008, also includes attacks that have occurred on the islands of Luzon, Palawan and Samar, outside of the study area. This is to demonstrate that the dataset is complete and no incidents have been omitted.

Hot spot rendering displays the clustering of events within the study area. This method calculates the Getis-Ord  $G_i^*$  statistic and then applies a cold-to-hot type of rendering to the output Z scores (ESRI, 2009). It was selected for its focus on the terrain rather than the individual events. This test works by looking at each province within the context of neighboring provinces. To be a statistically significant hot spot, a province will

have a high number of attacks and be surrounded by other provinces with high values as well. The local sum for a province and its neighbors is compared proportionally to the sum of all provinces. When the local sum differs greatly from the expected local sum (and that difference is too large to be the result of random chance), a statistically significant Z score results (ESRI, 2009). The resultant Z score indicates where features with either high or low values cluster spatially. Dividing it across time will display patterns in attacks and show when and where attacks are frequent and how spread out they are across the study area. Looking at hot spots across time provides an additional perspective for questions of both space and leadership as it can add insight to the ASG's past operational goals. In other words, concentrated hot spots over the CO can strengthen the claim that ASG operations are directed toward criminal profits. The timeframes in which they occur indicate under whose command the ASG was during that period.

### Data Preparation and Preprocessing

The data collected for this research require some preprocessing in preparation for analysis. The ASG attack data are compiled as a large list and digitized into point shapefiles in ArcGIS. Four shapefiles are created that encompass the entire spatial distribution of attack data:

1. An "All Attacks" shapefile that plots every attack as a single event, regardless of type.
2. An "Armed Assaults" shapefile that plots only the events in which the primary method of attack are melee and small arms.
3. A "Bombings" shapefile that plots only the events in which the primary method of attack are explosive or incendiary weapons.

4. A “Hostage Takings” shapefile that plots only the events in which the primary goal of attackers is the kidnapping of a victim.

Each of the attacks in the dataset can be categorized into one of these three attack types. In the event where an attack utilizes a combination of all three methods, then a stepped classification schema is used to ensure that an attack can only be entered into one category and not counted twice. The steps ascend in levels of magnitude, where armed assaults are the lowest rung, bombings in the middle and hostage takings at the top. Thus, a 3/20/1998 attack by the ASG in Abungabung listed as a combined bombing, armed assault and hostage taking by the Global Terrorism Database (2010) is categorized only as a hostage taking because that is the ultimate goal of the perpetrators.

#### Creation of the Overlays

The economic, ethnic and religious overlays are created using the Philippine provinces as the base units of analysis. Using data sources as guides, three ArcGIS polygon shapefiles are created to symbolize the research variables:

1. **Poverty Overlay (PO):** Provinces with greater than or equal to 50% of the population living below the poverty line (Figure 3.4).
2. **Tausug Overlay (TO):** Provinces with Tausug ethnic majority (Figure 3.5).
3. **Religion Overlay (RO):** Provinces within the political boundaries of the ARMM (Figure 3.6).

The maximum extent of these overlays is comprised of the study area boundaries. In addition, the constituency overlay polygon shapefile is created using the provinces that fall within all three of the aforementioned overlays. It consists of the provinces of Basilan, Sulu and Tawi-Tawi (Figure 3.7).

### Temporal Division of Data

Preparation of the data for temporal and statistical analysis consists of dividing the dataset into individual timeframes in order to examine the spatiotemporal progression of events into overlay areas. As the dataset timeline spans from 2/18/1994 until 12/28/2008, seven 2-year timeframes were created using February 18<sup>th</sup> as the cut-off date. An eighth timeframe is made to include the 10 months and 8 days, which do not fall into the 2-year intervals. The timeframes (TF) are categorized using the military phonetic alphabet. This practice helps to prevent confusion between similar sounding letters, such as "D" and "E", and reduces the amount of text necessary for timeframe labeling on maps and charts. The timeframes for this research project are:

- TF Alpha: 2/18/1994 – 2/18/1996
- TF Bravo: 2/19/1996 – 2/18/1998
- TF Charlie: 2/19/1998 – 2/18/2000
- TF Delta: 2/19/2000 – 2/18/2002
- TF Echo: 2/19/2002 – 2/18/2004
- TF Foxtrot: 2/19/2004 – 2/18/2006
- TF Golf: 2/19/2006 – 2/18/2008
- TF Hotel: 2/19/2008 – 12/28/2008

A 2-year timeframe interval is used to reduce the difficulty of accounting for 15 timeframes and to prevent from having timeframes with only one attack in it. This facilitates the use of geospatial statistics in measuring and displaying mean centers. With the timeframes divided, additional ArcGIS point shapefiles are created for each timeframe (by attack type) to display where events are spatially distributed according to

time. This allows for a detailed “event-centric” analysis of progression through statistical methods. Additionally, polygon shapefiles are created for the study area to display how many events occur in each province according to time. This organization of data facilitates an “area-centric” approach to the analysis of ASG attacks.

### Data Sources

The ASG attack data were obtained from the Global Terrorism Database (GTD) maintained by the National Consortium for the Study of Terrorism and the Responses to Terrorism (START) and the University of Maryland (2010). It contains an itemized account of each kidnapping incident, bombing and shootout perpetrated by the ASG from 1994 until 2008. The items included in each entry hold information pertaining to the date, location, attack method, hostages captured, injuries, fatalities and target type for each kidnapping. START collects their data from open source materials such as news feeds, existing datasets from private intelligence firms, legal documents, books and journals. Data on each attack are corroborated through different sources to the best of START’s abilities before being added to the GTD (START, 2010).

The sources of overlay data vary by individual topic. The data for the poverty shapefile were collected from a choropleth map distributed by the Philippine National Statistical Coordination Board (NSCB, 2006). The data for the ethnicity shapefile was collected from 2000 census data distributed by the Filipino government. Finally, the data for the political borders of the ARMM were collected from information distributed by the ARMM regional government (ARMM, 2010).

The data layers utilized in the ArcGIS analysis come from two sources. The shapefiles for the Philippines were acquired from the Naga City Mapserver Portal, which is a GIS data clearinghouse maintained by the Naga City government in the Philippines. The shapefile for world countries was obtained from the Environmental Research Systems Institute (ESRI) of Redlands, California.

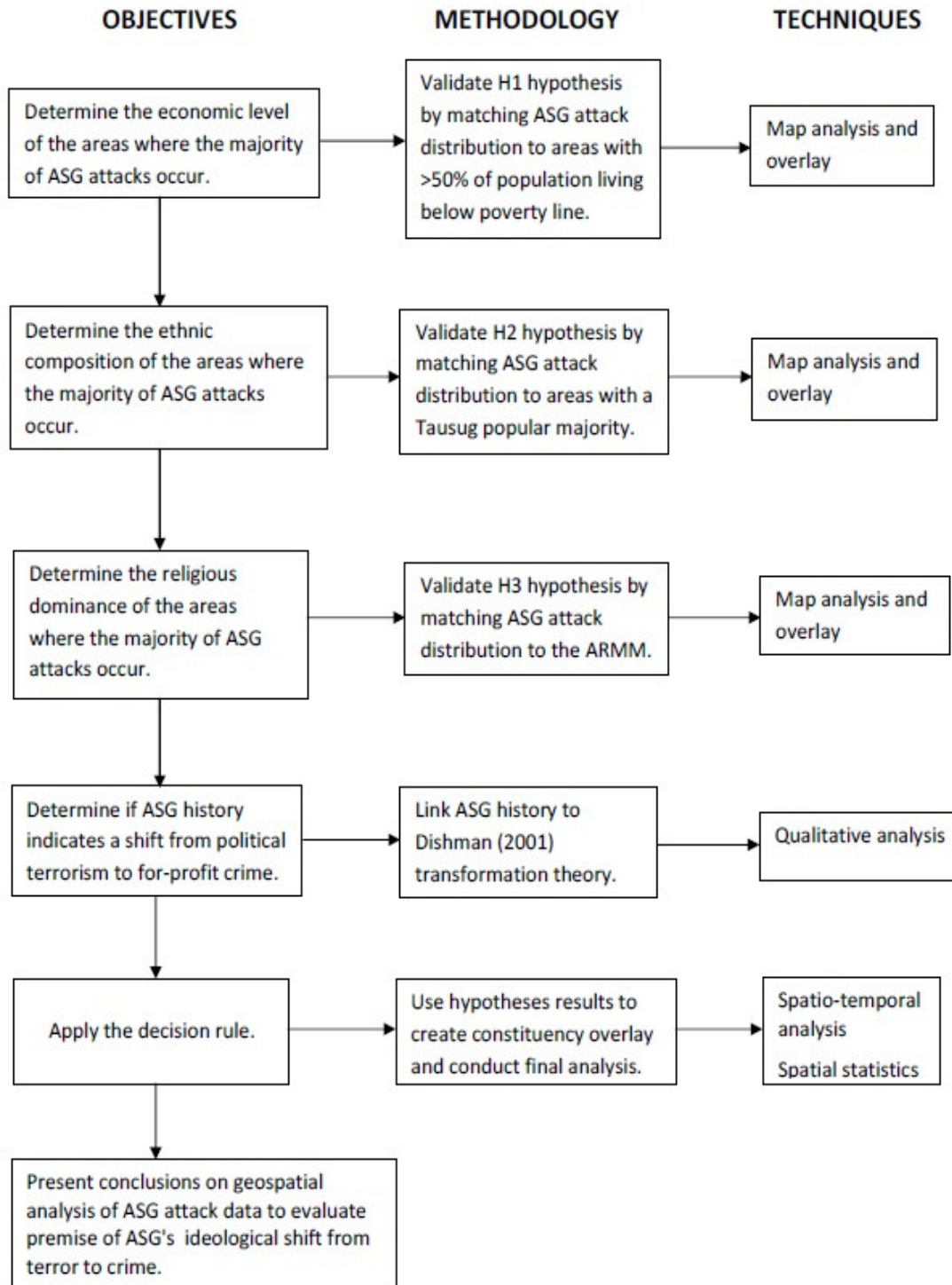


Figure 3.1: Research Flowchart

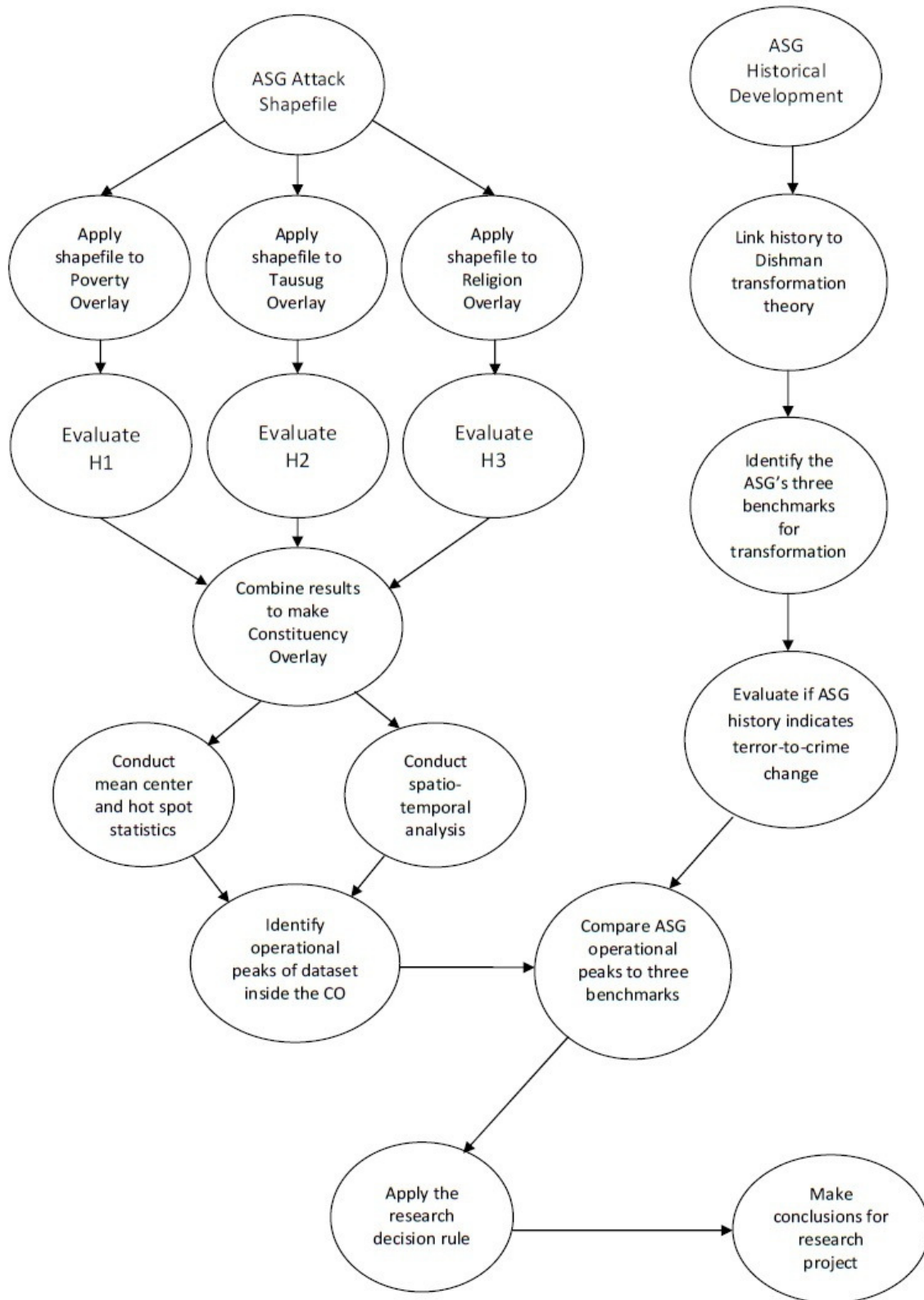
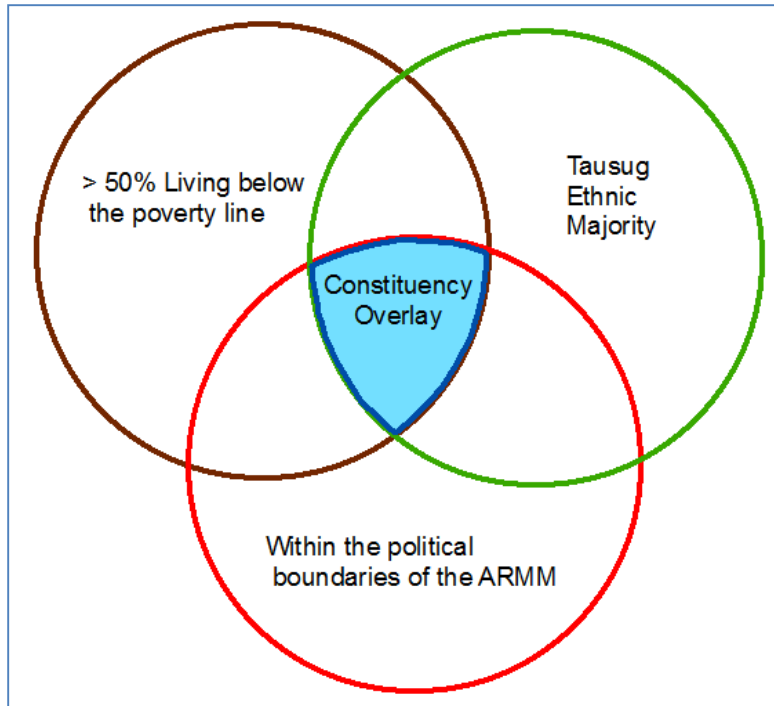
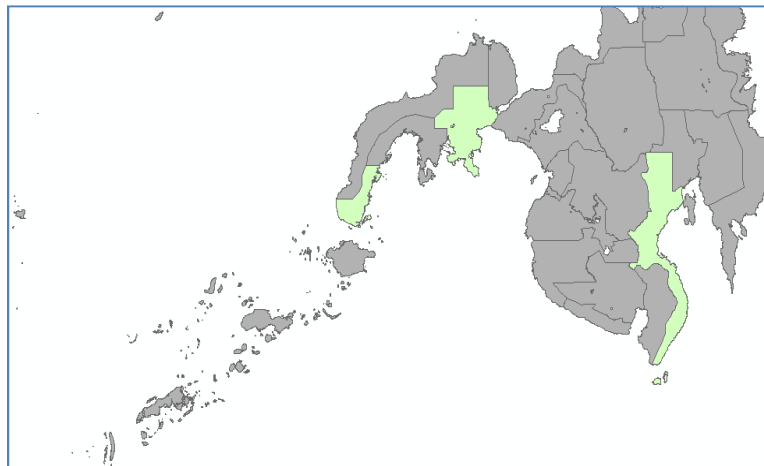


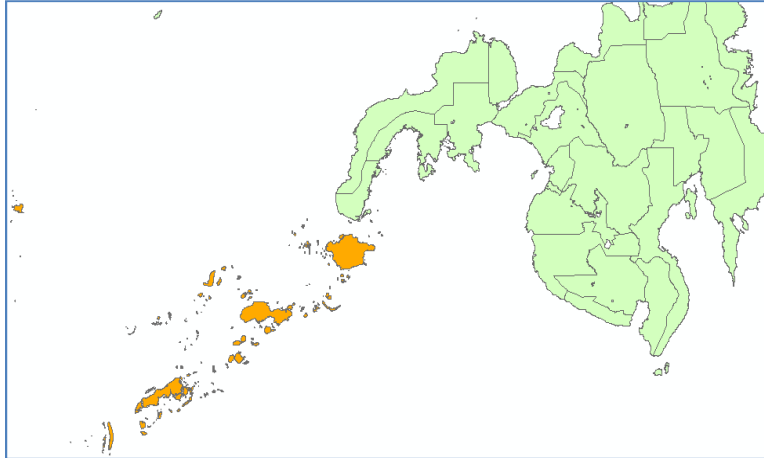
Figure 3.2: Methodological Flowchart



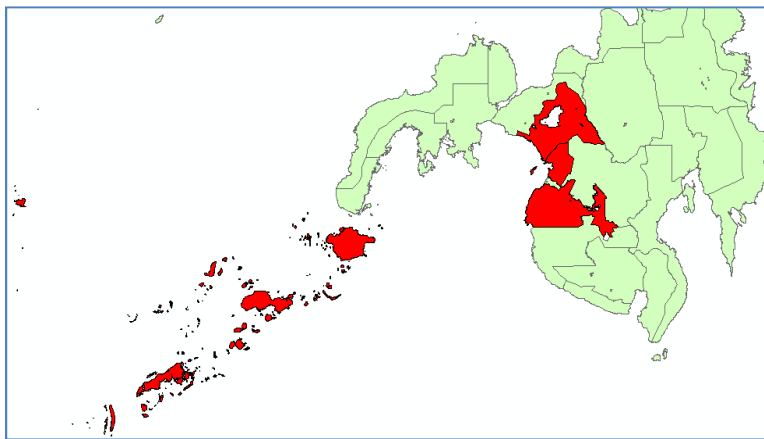
*Figure 3.3: Constituency overlay properties*



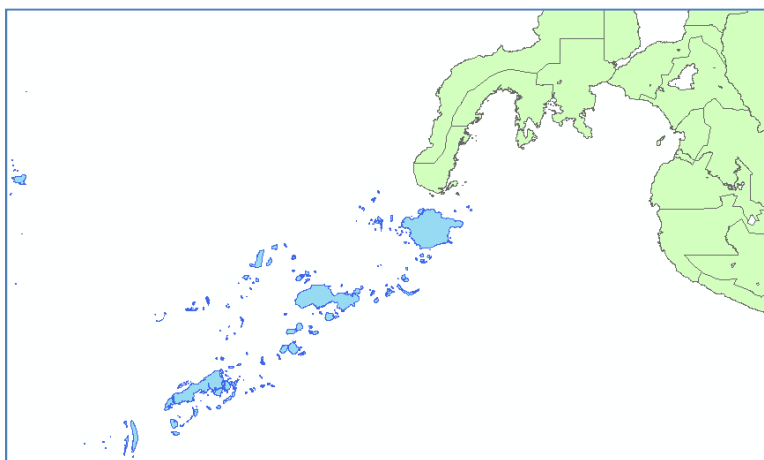
*Figure 3.4: Areas with 50% or more of population below poverty line (colored in grey).*



*Figure 3.5: Areas of Tausug ethnic majority (colored in orange).*



*Figure 3.6: The political boundaries of the ARMM (colored in red).*



*Figure 3.7: The areas of the Constituency Overlay (colored in blue).*

## CHAPTER 4

### RESULTS AND ANALYSIS

This chapter details the results of the aforementioned methods and discusses the reasons for their manifestation. In addition, an examination of how the results address the overall research goals (detailed in the introduction) is conducted by applying them to the project decision rule. For the sake of organization, this chapter offers the results and discussion of each objective in numerical order before addressing the decision rule.

#### Results of Research Objectives

**Objective #1: Determine the economic level of the areas where the majority of ASG attacks occur.**

As explained in the research design section, meeting the goal of objective one is dependent on the validation of the H1 hypothesis. A null hypothesis (H0) was created to test the results of the analysis. Both are listed as:

- *H1 (Poverty): The distribution of ASG attack data indicates that a majority of attacks have occurred in areas where 50% of the population or greater are living below the poverty line.*
- *H0 (Poverty): The distribution of ASG attack data indicates that a majority of attacks have not occurred in areas where 50% of the population or greater are living below the poverty line.*

To test the null hypothesis, the attack shapefiles are intersected with the Poverty Overlay (PO) to distinguish an overall pattern. The gross distribution of events can be seen in

Figure 4.1, where bombings are symbolized as yellow circles, hostage takings are purple triangles and armed assaults are red dots.

It may seem intuitive that the numbers of events within the poverty overlay are the majority of the dataset. However, the two-dimensionality of this figure does not display how events “stack” upon themselves in areas outside of the overlay; specifically, in the cities of Zamboanga and Davao. It is necessary for the map analysis to conduct empirical measurements in order to pinpoint exact values. These are the results:

- Of 143 individual events, 103 occur within the PO. This amounts to 71% of the entire attack dataset.
- Of 69 bombings, 32 are in the PO.
- Of 25 armed assaults, 22 are in the PO.
- Of 49 hostage takings, 42 are in the PO.

“Majority” is defined as being greater than half. As such, the results of this quantitative analysis support the rejection of the null hypothesis. H1 is accepted and objective one is determined; the majority of ASG attacks occur in areas where greater than or equal to 50% of the population are living below the poverty line.

Questions arise as to why the numbers of events differ by attack type. Why is there a greater frequency of armed assaults and hostage-takings with the PO as opposed to bombings? Perhaps the “poor” do not merit the use of expensive weapon systems like explosives. More often than not, bullying and strong-arm tactics tend to be a more cost effective method of achieving the same result, community cooperation through fear (Finckenauer, 2007). This claim is supported by the high frequency of armed assaults in the PO.

As for the high frequency of hostage-takings, impoverished areas are perfect sources for hostages as police presence is low and ASG operatives can seize foreign nationals who are in the Philippines for humanitarian reasons. These targets are less likely to have support or resort to violence. They tend to receive a higher ransom for their release. Poorer societies are not without their own “elites.” Local business owners, village officials and religious figures are often the source of ransom targets of opportunity for the ASG (Chalk et al., 2009).

The prevalence of ASG attacks in poorer areas of the Philippines is, by itself, not a suitable indicator of a terror-to-crime transformation. Poor areas are a place where ASG operatives can openly operate with little risk for retribution. This comes as a combination of community support (both negative and positive) and the remoteness of their location.

**Objective #2: Determine the ethnic composition of the areas where the majority of ASG attacks occur.**

As with objective one, meeting the goal of objective two is dependent on the validation of the H2 hypothesis. A null hypothesis (H0) was created to test the results of the analysis. Both are listed as:

- *H2 (Ethnicity): The distribution of ASG attack data indicates that a majority of attacks have occurred in the ethnically homogeneous areas populated by the Tausug.*
- *H0 (Ethnicity): The distribution of ASG attack data indicates that a majority of attacks have not occurred in the ethnically homogeneous areas populated by the Tausug.*

To test the null hypothesis, the attack shapefiles are intersected with the Tausug Overlay (TO) to distinguish an overall pattern. The gross distribution of events can be seen in Figure 4.2, where bombings are symbolized as yellow circles, hostage takings are purple triangles and armed assaults are red dots.

Unlike poverty, the layering of attacks over the TO does not give the intuitive impression that the numbers of events within the overlay are the majority of the dataset. It is necessary for the map analysis to conduct some empirical measurements in order to pinpoint exact values. These are the results:

- Of 143 individual events, 79 occur within the TO. This amounts to 55% of the entire attack dataset.
- Of 69 bombings, 24 are in the TO.
- Of 25 armed assaults, 22 are in the TO.
- Of 49 hostage takings, 33 are in the TO.

With “majority” defined as being greater than half, the results of this quantitative analysis support the rejection of the null hypothesis. H2 is accepted and objective two is determined; the majority of ASG attacks occur in the ethnically homogeneous areas populated by the Tausug.

As with Objective 1, the number of events within the TO differ according to attack type. Bombings are significantly less due to the linear pattern of events occurring on Pan-Philippine Hwy (AH26) between Cotabato City and General Santos City on the main island of Mindanao. Target information from the GTD (START, 2010) indicates that this pattern is mostly targeted towards private citizens and businesses. Nonetheless, the larger use of explosives outside of the TO is more in accordance with political terrorism than crime.

The large occurrence of armed assaults within the TO may be an indication of the ASG conducting attacks on local authorities. Some are, but according to the GTD (START, 2010) target summary, the majority of these targets are private citizens and

businesses. Temporal examinations display that the majority of assaults occur during Khadafi's reign as the ASG leader.

Foreigners are certainly targets of the hostage takings that occur in the TO. They are not the majority. Nineteen individual events are identified by the GTD (START, 2010) as having been targeted at "private citizens." That is 60% of all hostage takings (32) within the TO. Of these 19 attacks on the citizenry, 4 occur under the leadership of Abdurajak. The remaining civilian events occur during Khadafi's tenure and are clustered around TF's Delta and Hotel. These peaks of attacks indicate an economic rather than an ethnocentric reason for the kidnappings.

The Tausug ethnic loyalty of the ASG is one of the foundations embedded by Abdurajak. The large amount of attacks targeted within Tausug areas is either an indication of careful targeting or violence geared towards other than pro-ethnic goals. An escalation occurs after Abdurajak's death, indicating that organizational goals changed to pursue more violent activities in areas of ethnic constituency.

**Objective #3: Determine the religious dominance of the areas where the majority of ASG attacks occur.**

Meeting the goal of objective three is dependent on the validation of the H3 hypothesis. A null hypothesis (H0) was created to test the results of the analysis. Both are listed as:

- *H3 (Religion): The distribution of ASG attack data indicates that a majority of attacks have occurred in areas largely populated and administered by Muslims.*
- *H0 (Religion): The distribution of ASG attack data indicates that a majority of attacks have not occurred in areas largely populated and administered by Muslims.*

To test the null hypothesis, the attack shapefiles are intersected with the Religion Overlay (RO) to distinguish an overall pattern. The gross distribution of events can be seen in Figure 4.3, where bombings are symbolized as yellow circles, hostage takings are purple triangles and armed assaults are red dots.

The RO allows for the provinces of Lanao Del Sur and Maguindanao to be included in the analysis along with any events occurring within their borders. The empirical measurements conducted on the map analysis collected these results:

- Of 143 individual events, 82 occur within the RO. This amounts to 57% of the entire attack dataset.
- Of 69 bombings, 24 are in the RO.
- Of 25 armed assaults, 22 are in the RO.
- Of 49 hostage takings, 36 are in the RO.

With “majority” defined as being greater than half, the results of this quantitative analysis support the rejection of the null hypothesis. H3 is accepted and objective three is determined; the majority of ASG attacks occur in areas largely populated and administered by Muslims.

Little has changed in the analysis of attack distribution between the TO and the RO. The addition of the Lanao Del Sur and Maguindanao provinces add five more events to the map analysis, yet the overall patterns remain the same. A lower frequency of bombings within the ARMM says that explosives are better suited to distant targets. While this may just be a preference in the attack type based on operational capacity, it may also support the claim that bombings do not make as much money as armed attacks or kidnappings. For the purposes of this research, bombings outside of the RO are considered acts of political terrorism. The numbers for armed assaults are uniform across

all objectives because the assaults are clustered in the provinces of Basilan, Sulu and Tawi-Tawi, known constituency areas for the ASG. Seventy three percent of all hostage takings take place within the ARMM. Checks on target type display that the victims are chosen primarily for ransom value, but there is little concern given to their religious ties.

As with Tausug ethnocentricity, Islam is a large foundation of the ASG's political goals. Pursuing targets within these regions would do more to attract the attention of the federal government, heralding the deployment of troops and police assets into the ASG's backyard.

**Objective #4: Determine if ASG attack history indicates a shift from political terrorism to for-profit crime between 1994 and 2008.**

The fourth objective is met by conducting a qualitative assessment of ASG history to determine what events in the timeline match Dishman's (2001) three-point checklist:

- 1. The ASG must have experienced changing circumstances that forced it to dedicate a significant amount of its energy to profit-driven criminal acts.*

As discussed in the literature review, Abdurajak is the accepted ideological father of the ASG. His strong religious beliefs combine with his guerilla experiences in Afghanistan to create a leader that stayed focused on political goals. This is marked by the infrequent, yet politically-driven attacks that occurring during his tenure as the ASG's leader. The same social capital he accrued with the mujahedeen fighters allowed him to keep in contact with his Afghan cohort long after the soviet struggle and eventually establish ideological and logistical ties to Al Qaeda. This meant that money, supplies and training went to the ASG at regular intervals during his reign. Very little for-profit criminal acts were required to keep the group running.

Upon Abdurajak's death, command of the group transferred to his brother, Khadafi Janjalani, who along with other ASG subcommanders, immediately increased the amount of profit-driven criminal acts engaged by the group (Singh, 2007). The reason for this is that the logistical links held with Al Qaeda slowly eroded after Abdurajak's death, until finally the international terrorist organization no longer chose to support the ASG. Certainly, the cessation of supplies and training occurred over a span of time and have other contributing factors. The threshold moment for the inevitable cutoff started with Abdurajak's death according to Abuza (2003) and Rogers (2004). Therefore, the changing circumstance in the ASG's timeline is the death of its founder, Abdurajak Janjalani in December of 1998.

2. *The ASG must have experienced a higher quality of group sustainability (spending capital and member income) after engaging in profit-driven criminal acts.*

Under Khadafi's leadership, the ASG became better paid, trained and equipped as they utilized the funds acquired from criminal activities to reinvigorate their operations (Chalk et al., 2009). This in turn led to increased incidents of extortion and kidnapping for ransom as the group attempted to bolster its war chest (ICPVTR, 2007). Group recruitment was at an all-time high and temporal analysis indicates a higher frequency of hostage takings (Figure 4.4) and armed assaults (Figure 4.5) during the tenure of Khadafi Janjalani.

These increases in hostage taking and armed assault frequencies are indicative of an organization that is accruing capital for continued operations (Gunaratna, 2003). What is most interesting about this trend is that even with the additional funds and personnel, the number of politically-oriented attacks decrease during the post-Abdurajak period

(Chalk et al., 2009). Where did the money go? Scholars believe that it was into the pockets of the ASG membership (Ressa, 2003).

3. *The ASG must demonstrate an unwillingness to seek a negotiated settlement for the sake of prolonging the very struggle that affords it criminal revenue.*

Since Abdurajak's death, the ASG has been unwilling to negotiate a settlement with the Filipino government. Even in light of the Muslim "victories" incurred for the Moro cause, such as the establishment of the ARMM and the transformation of the Moro National Liberation Front (MNLF) into a legitimate political authority (Hedman and Sidel, 2000), the ASG retains its goal of establishing a separate sovereign Muslim state in the southern Philippines. It has never once come to the negotiation table, even when its membership numbers were reported to be around 200 (Chalk et al., 2009). To this day the ASG continues to operate in the Sulu Archipelago unwilling to compromise with the government, yet still conducting few (if any) attacks with their foundational separatist goals at the forefront.

In conducting the hot spot analysis for this project, a pattern emerges indicating an increased localization of attacks within the provinces of Basilan and Sulu during the early years of Khadafi's reign of leadership. The research timeframe for this period is TF Delta, and the data indicate that ASG attacks center directly onto the Constituency Overlay for all attack types (Figure 4.6). In fact, many of these are targeted in the lower-income areas of society. Data sources (START, 2010) claim that the victims are politically low-value targets such as aid workers (hostage takings) and rank-and-file police officers and locals (bombings and armed assaults). According to criminology scholars, the pattern of deadlier events is indicative of retaliatory attacks against local businesses and officials who do not cooperate in racketeering or extortion schemes

(Finckenaue, 2007). This pattern peaks again at the end of the timeline and shows no chance of voluntarily waning (Abuza, 2008).

Using Dishman's (2001) transformation theory, the data indicate that a terror-to-crime shift in the operational goals of the ASG did occur. Temporal analyses display concentrations of criminal revenue activity after the death of Abdurajak that are localized inside of the CO. However while this research establishes an argument for transformation and lends it empirical support, identifying the exact moment of transformation is difficult because both criminal and terrorist actors must deal in illicit activities to upkeep their operations. Illegal activities may generate funding for both types of organizations, but it is the destination of illegally generated funds that is the strongest measure on whether armed groups are participating in political terrorism or crime.

#### Results of Temporal Analysis

The temporal analysis of this research is geared toward a better understanding of how events distribute across time (frequency and location) in direct reference to the constituency overlay. As previously mentioned, the CO should be the least likely area for attacks to occur as it is the zone most likely to contain the highest concentration of popular political support. In analyzing the ebb and flow of attacks into the CO, patterns emerge that give clues to the ASG's operational focus. Specifically, where they chose to attack, how frequently they chose to attack and the areas that their attacks were concentrated.

The first step in the temporal analysis is to divide the 143 events in the data set by timeframe with GIS methods, then organize the results into tabular data (Table 4.1) and a chart (Figure 4.7) for visualization.

This display suggests an operational peak during the dates of TF Delta (2/19/2000 – 2/18/2002) and another smaller spike in the remainder months of TF Hotel (2/19/2008 – 12/28/2008). The next step is to divide the 79 events that appear within the CO by timeframe and then organize the results into tabular data (Table 4.2) and a chart (Figure 4.8) for visualization and comparison.

While the individual attack patterns vary, the “All Attacks” line is nearly identical to its counterpart on the dataset chart. There are two operational peaks, TF Delta and TF Hotel. For reference, Abdurajak perished in the early part of TF Charlie, indicating that the remainder of Charlie and (later) Delta are during the time when Khadafi assumed control of the ASG and ramped up their number of sorties. In correlating these two charts, it is concluded that the increase in operations occurred mostly in the CO, the ASG’s political backyard. According to this research, this is an indicator for criminality.

To serve as a check for this claim, the 64 events located outside of the CO are arranged by timeframe and then organized into tabular data (Table 4.3) and a chart (Figure 4.9) for visualization and comparison. Should the operational peaks and troughs be similar to the earlier charts, then the similarities can be dismissed as an overall operational trend rather than a geo-specific pattern.

The figure representing attacks outside of the CO has little similarity to the CO dataset and charts. It contains one peak for TF Echo that is closely mirrored by the bombings line. This difference in appearance eliminates the chance of an overall

operational trend and displays that the increase in operations during TF Delta and TF Hotel are geographically dependent on the CO. While only one of the temporal analyses conducted for this research, the chart comparison does give strength to a terror-to-crime transformation for the ASG.

As the CO encompasses all three of the foundational overlays for this research, only one analysis of mean center progression is conducted with it as the reference area. Mean center measurements are plotted for each timeframe to observe what migrations of activity occur during the ASG timeline and how they compare to chart trending (Figure 4.10).

The results of the mean center progression provide additional insight into the operational history of the ASG. Points Alpha, Bravo and Charlie (Abdurajak's Reign) are distributed across the Basilan Strait in indication of the ASG's sporadic operations on both Mindanao and Basilan provinces during the early stages of the group. Points Echo, Foxtrot and Golf are noticeably drifting away from Basilan in reaction to the joint US-PH military crackdown initiated in 2002 and sustained until 2007 (ICPVTR, 2007). As for TF Delta and TF Hotel, these points are located within the CO, demonstrating a link between the periods of peak operational efficiency and the areas of their primary political support.

Switching from the "event-centric" focus of mean center analysis to a more "area-centric" approach, the Getis – Ord hot spot analysis produced results that are in congruence with mean center and chart visualizations. As with mean center, only one series of hot spots is generated with the CO as the reference area. This is because the poverty, Tausug and religion overlays all converge over the CO. To perform the analysis,

provinces within the study area are assigned values based on the number of attacks that occur within their boundaries. Afterwards, hot spot rendering is generated through ArcGIS to produce this series of images.

#### **Timeframe Alpha: 2/18/1994 – 2/18/1996**

Figure 4.11 displays the hot spot output for TF Alpha. During this period, the ASG was in its foundational stages, engaging in some political attacks and building its base of community support and capital (ICPVTR, 2007). The operational hot spots consist of the island provinces of Basilan and Sulu and the Mindanao province of Zamboanga Sibugay. In contrast, the easternmost two-thirds of Mindanao island is displayed as a cold spot with the province of Bukidnon appearing as the coldest (less than two standard deviations away from the mean). This timeframe encompasses 13 attacks total: 1 armed assault, 4 bombings and 8 hostage takings.

#### **Timeframe Bravo: 2/19/1996 – 2/18/1998**

Figure 4.12 displays the hot spot output for TF Bravo. During this period, the ASG was falling into its operational pace, engaging in predominantly political attacks and fewer hostage takings. The hottest spot is the province of Zamboanga Sibugay on Mindanao. But note that the operational frequency spreads out (between one to two standard deviations) across Basilan, Sulu and all three provinces of the Zamboanga peninsula. As with TF Alpha, the easternmost two-thirds of Mindanao Island are displayed as cold spots, but Bukidnon is no longer the coldest. This timeframe encompasses 11 attacks total: 3 armed assaults, 7 bombings and 1 hostage taking.

**Timeframe Charlie: 2/19/1998 – 2/18/2000**

Figure 4.13 displays the hot spot output for TF Charlie. This is a threshold period for the ASG as Abdurajak is slain in a gun battle on 12/18/1998 and his brother, Khadafi, takes over the group and begins his operational ramp-up (Chalk et al., 2009). The operational hot spots consist of the island provinces of Basilan and Sulu and the Mindanao province of Zamboanga Sibugay. Again, the easternmost two-thirds of Mindanao Island are displayed as cold spots. However the eastern provinces of Davao Oriental, Compostela Valley and Davao del Norte have shifted from cold to neutral colors. This timeframe encompasses 21 attacks total: 2 armed assaults, 10 bombings and 9 hostage takings.

**Timeframe Delta: 2/19/2000 – 2/18/2002**

Figure 4.14 displays the hot spot output for TF Delta. Khadafi has complete control of the ASG and the benefits of criminal activities like kidnap-for-ransom, extortion and racketeering are becoming evident to members. Group recruitment is at an all time high. This is an operational peak in the dataset. The hot spots all but withdraw from Mindanao and become focused on Basilan and Sulu provinces. Zamboanga Sibugay and Tawi-Tawi provinces are the next hottest within one to two standard deviations. With the exception of Zamboanga Sibugay, Mindanao goes cold until TF Hotel. This timeframe encompasses 31 attacks total: 8 armed assaults, 12 bombings and 11 hostage takings.

**Timeframe Echo: 2/19/2002 – 2/18/2004**

Figure 4.15 displays the hot spot output for TF Echo. During this period, Khadafi scaled back the ASG's ransoming practices in reaction to Operation Balikatan, a joint US-Philippine military operation aimed at undoing the ASG (ICPVTR, 2007). The operational hot spots drop to within one to two standard deviations in the CO due to the group spreading out to avoid capture. This timeframe encompasses 20 attacks total: 4 armed assaults, 12 bombings and 4 hostage takings.

**Timeframe Foxtrot: 2/19/2004 – 2/18/2006**

Figure 4.16 displays the hot spot output for TF Foxtrot. The ASG has escaped the wrath of Balikatan and are slowly reassembling in the Tausug provinces. Operational hot spots spike to greater than two standard deviations in Basilan, Sulu and Tawi-Tawi. The remainder of the study area is cold. This timeframe encompasses 17 attacks total: 4 armed assaults, 12 bombings and 1 hostage taking.

**Timeframe Golf: 2/19/2006 – 2/18/2008**

Figure 4.17 displays the hot spot output for TF Golf. During this period, the AFP launched Oplan Ultimatum, another massive military offensive against the ASG. This proved a threshold event for the ASG, as Philippine counterterrorism efforts eventually cornered and killed Khadafi Janjalani on 9/4/2006. As with TF Foxtrot, the operational hot spots remain greater than two standard deviations in Basilan, Sulu and Tawi-Tawi. The remainder of the study area is cold; even the normally-active Zamboanga peninsula

drops to between one and two standard deviations less than the mean. This timeframe encompasses 12 attacks total: 3 armed assaults, 6 bombings and 3 hostage takings.

### **Timeframe Hotel: 2/19/2008 – 12/28/2008**

Figure 4.18 displays the hot spot output for TF Hotel. Encompassing only 10 months and 9 days, TF Hotel is an operational peak for this dataset as it has the third highest number of attacks. The operational hot spots remain greater than two standard deviations in Basilan, Sulu and Tawi-Tawi. But now the study area shows a “warming” of the Zamboanga peninsula and Zamboanga Sibugay measuring between one and two standard deviations greater than the mean. This timeframe encompasses 18 attacks total: 0 armed assaults, 7 bombings and 11 hostage takings.

The results of hot spot analysis display timeframes Alpha and Charlie as having provinces with a frequency of events greater than two standard deviations both inside and outside of the CO. In addition, TF Bravo, while displaying a frequency of attacks between one and two standard deviations within the CO, has a concentration of greater than two outside of the CO in the province of Zamboanga Sibugay. When Abdurajak perishes and Khadafi assumes command, the hot spots become centralized on the CO, never moving off the Sulu Archipelago but only “cooling off” slightly during TF Echo; the period of time when the military crackdown was at full strength.

### **The Decision Ruling**

The results of these analyses culminate in the testing of the decision rule. Objectives 1 through 3 establish the use of the CO as an accurate areal measure. With this

overlay in place, the final analysis can be conducted in preparation for bringing this research project to a conclusion. As mentioned in the research design, the decision rule is made up of three parts:

- 1. 50% or greater of ASG attacks will occur in the “Constituency Overlay,” an area made up of the overlapping provinces within the poverty, Tausug and religion overlays.**
- 2. The operational peaks in the ASG timeline are focused within the CO.**
- 3. The operational peaks in attack data will coincide with Dishman’s benchmarks for the ASG.**

For Part One of the decision rule, overlay analysis displays that 79 of 143 individual events occur within the CO. This amounts to 55% of the entire attack dataset. These results display that the major part of ASG attacks have occurred within the CO.

In regards to Part Two, the chart (Figure 4.7) created during the temporal analysis section of this research indicates TF’s Delta and Hotel as the periods of peak operation for the ASG. This research supports that these operational peaks are directly related to the CO because chart visualization (Figure 4.8), mean center progression (Figure 4.10) and hot spot rendering (Figure 4.14 and Figure 4.18) all display TFs Delta and Hotel as being focused on the provinces within the CO and not outside of it.

The final part of the decision rule matches the empirical distribution of ASG peaks to the ASG’s manifestation of Dishman's (2001) terror-to-crime transformation benchmarks. Explained in the results for objective four, the first benchmark (changing circumstance) for the ASG is the death of Abdurajak Janjalani in TF Charlie. This is a threshold moment, as attacks nearly double after Khadafi’s ascent in the latter parts of TF Charlie and then TF Delta (Figure 4.7).

The second benchmark (higher quality sustainability) is quantitatively displayed by the increase in hostage takings and armed assaults (Figures 4.4 and 4.5) by the ASG following Abdurajak's death. These armed assaults and hostage-takings are revenue generating operations and their steady increases in TFs Charlie, Delta and Hotel demonstrate a grab for money and the increased personnel necessary to accomplish these tasks.

The final benchmark (unwillingness to negotiate) is evident through qualitative analysis of the years of operation since the ascension of Khadafi and since his death in September 2006. The ASG have made little demands, other than ransoms. They continue to engage in small funding operations in the wake of the ARMM's establishment, government negotiations with the MILF and almost constant military and police pressure. Commanders of the ASG have changed more than three times since the death of Khadafi, but the group's modus operandi remains the same (Cox, 2009). The greater evidence to the group's loss of extremist credibility is the criticism it has received from other Moro liberation organizations (Abuza, 2003). The trend is that all the ASG does is take for themselves, never giving back to its core constituency or the Moro cause.

The results of this research meet the three points of the decision rule. As such, it is concluded that the majority of ASG attacks are driven towards crime due to the attack history's tendency towards a high frequency of moneymaking attacks within the areas of constituency. This is demonstrated during the times of peak operational efficiency (TF Delta). For when the ASG had the initiative and capability; the leadership chose to focus its attacks on the community of popular support rather than projecting its power outside of the CO.

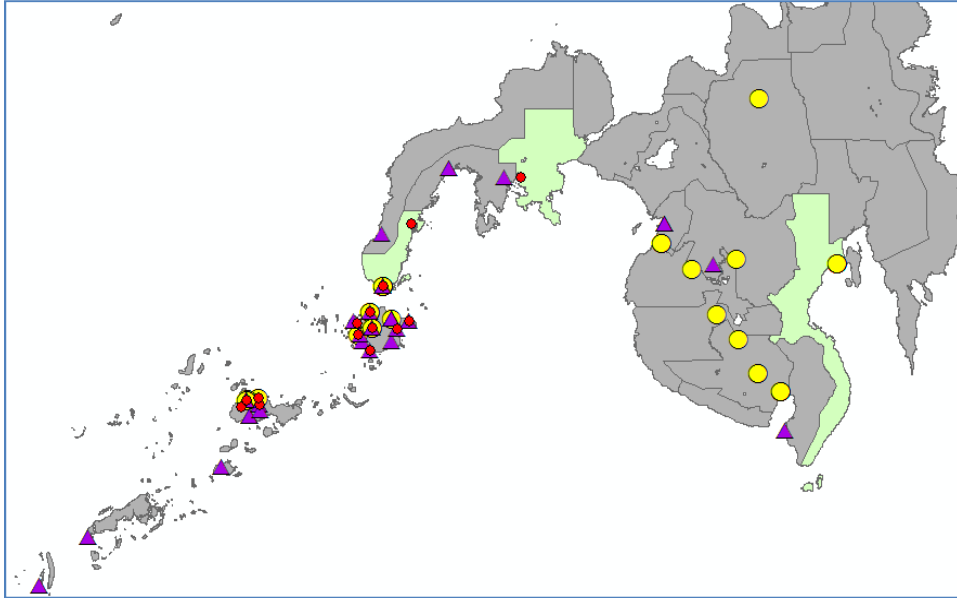


Figure 4.1: Comparison of attacks and the poverty overlay.

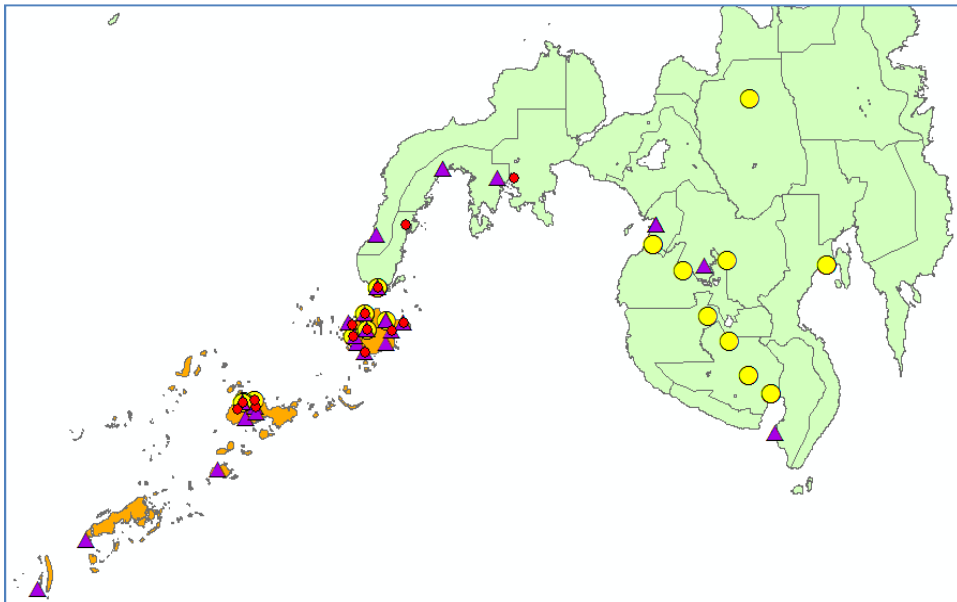


Figure 4.2: Comparison of attacks and the Tausug overlay.

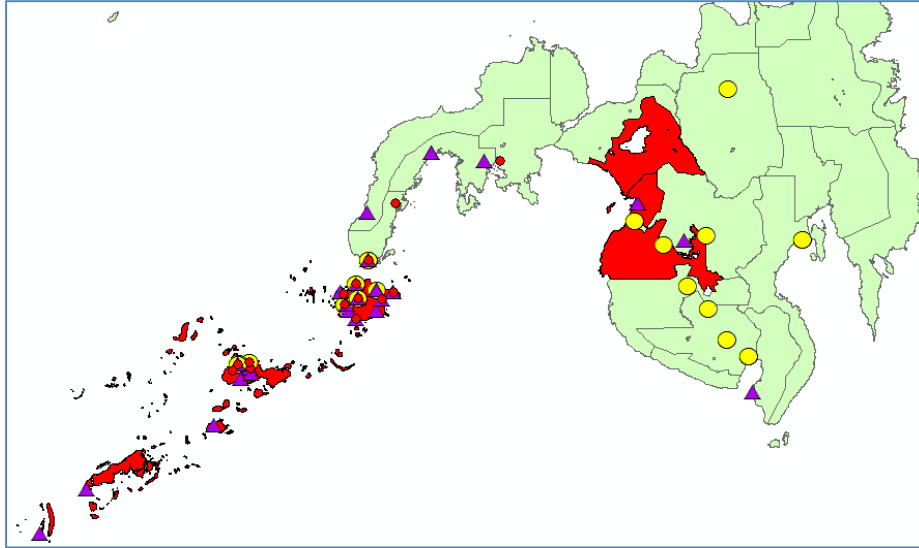


Figure 4.3: Comparison of attacks and the religion overlay.

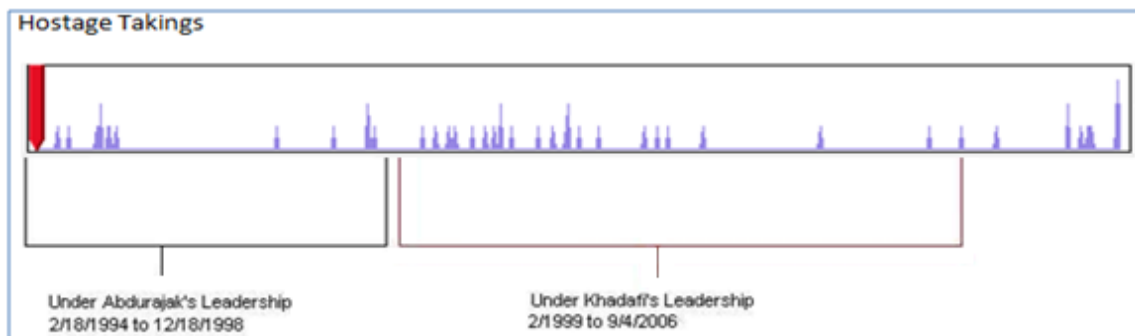


Figure 4.4: A temporal display of hostage takings according to ASG Leadership.



Figure 4.5: A temporal display of armed assaults according to ASG Leadership.

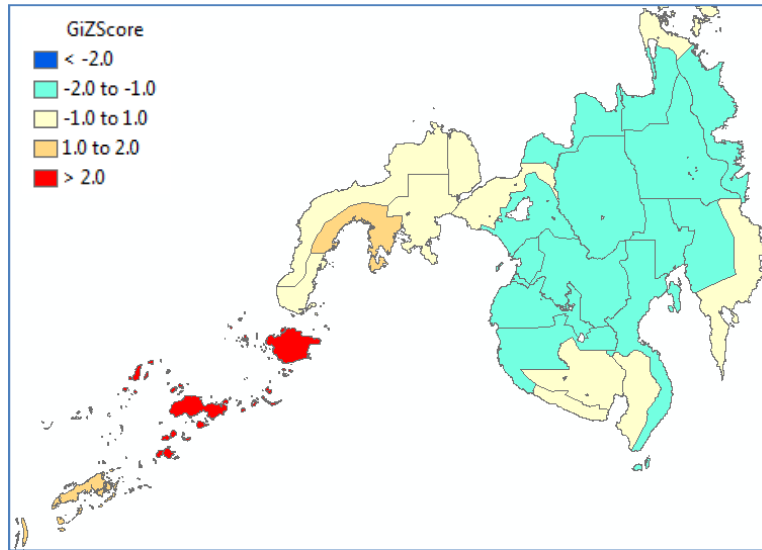


Figure 4.6: Hot Spot analysis output for all attack types in TF Delta.

Table 4.1: Distribution of Events by Timeframe (Dataset)

TF	Dates	All Attacks	Bombings	Armed Assaults	Hostage Takings
Alpha	2/18/1994 – 2/18/1996	13	4	1	8
Bravo	2/19/1996 – 2/18/1998	11	7	3	1
Charlie	2/19/1998 – 2/18/2000	21	10	2	9
Delta	2/19/2000 – 2/18/2002	31	12	8	11
Echo	2/19/2002 – 2/18/2004	20	12	4	4
Foxtrot	2/19/2004 – 2/18/2006	17	12	4	1
Golf	2/19/2006 – 2/18/2008	12	6	3	3
Hotel	2/19/2008 – 12/28/2008	18	7	0	11

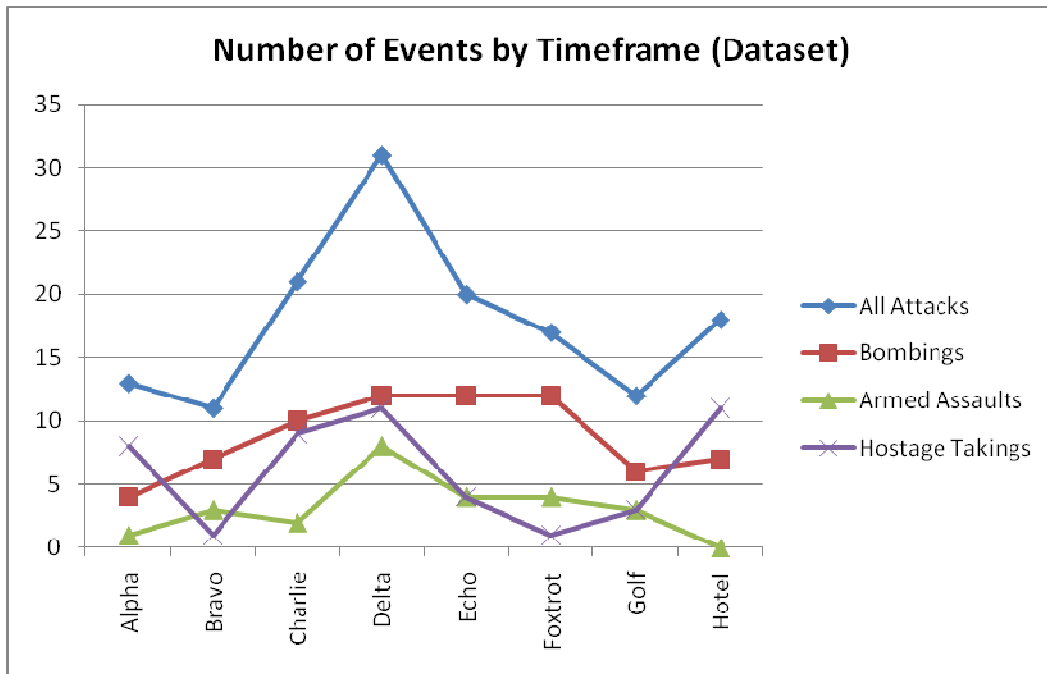


Figure 4.7: Attack frequency chart for entire dataset.

Table 4.2: Distribution of Events by Timeframe (CO)

TF	Dates	All Attacks	Bombings	Armed Assaults	Hostage Takings
Alpha	2/18/1994 – 2/18/1996	6	1	0	5
Bravo	2/19/1996 – 2/18/1998	5	2	3	0
Charlie	2/19/1998 – 2/18/2000	14	6	2	6
Delta	2/19/2000 – 2/18/2002	20	6	7	7
Echo	2/19/2002 – 2/18/2004	7	0	3	4
Foxtrot	2/19/2004 – 2/18/2006	7	3	4	0
Golf	2/19/2006 – 2/18/2008	7	2	3	2
Hotel	2/19/2008 – 12/28/2008	13	4	0	9

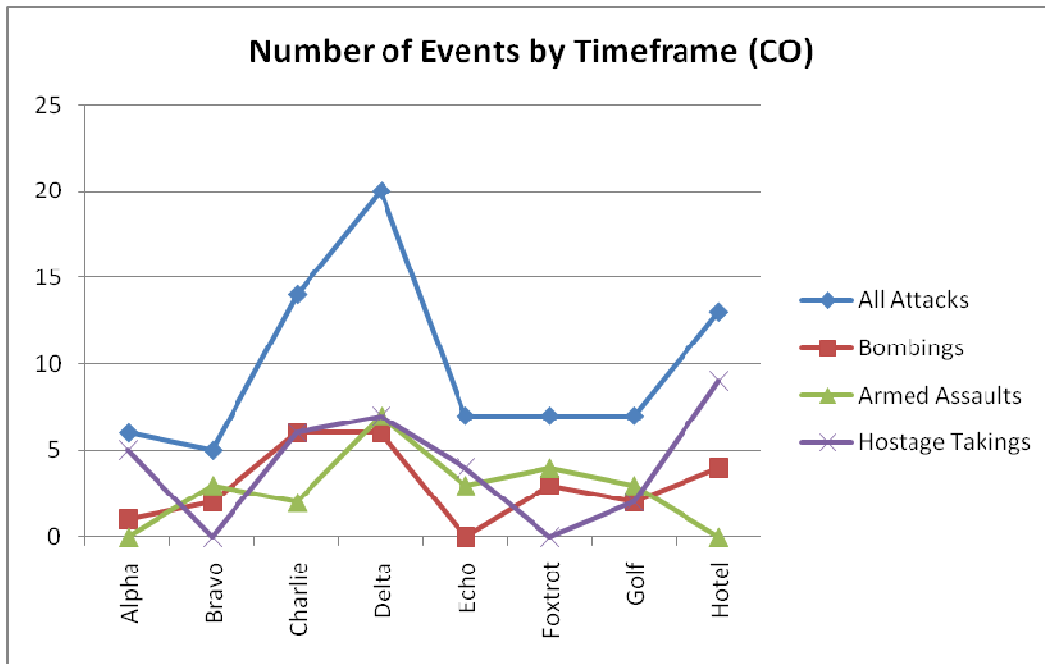


Figure 4.8: Attack frequency chart for events occurring within the CO.

Table 4.3: Distribution of Events by Timeframe (Outside of CO)

TF	Dates	All Attacks	Bombings	Armed Assaults	Hostage Takings
Alpha	2/18/1994 – 2/18/1996	7	3	1	3
Bravo	2/19/1996 – 2/18/1998	6	5	0	1
Charlie	2/19/1998 – 2/18/2000	7	4	0	3
Delta	2/19/2000 – 2/18/2002	11	6	1	4
Echo	2/19/2002 – 2/18/2004	13	12	1	0
Foxtrot	2/19/2004 – 2/18/2006	10	9	0	1
Golf	2/19/2006 – 2/18/2008	5	4	0	1
Hotel	2/19/2008 – 12/28/2008	5	3	0	2

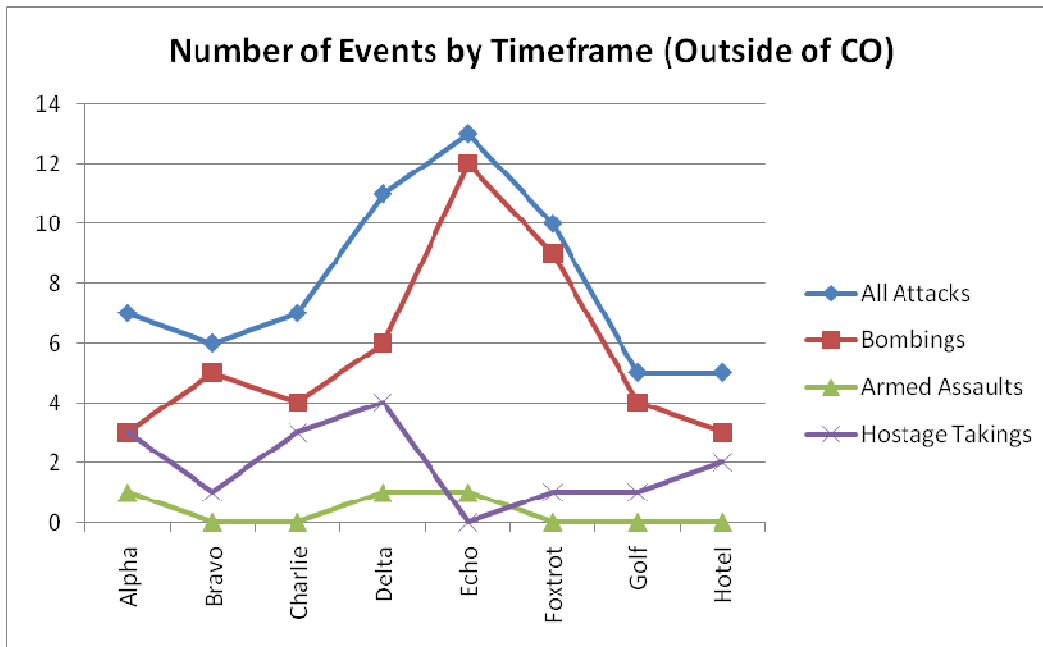


Figure 4.9: Attack frequency chart for events occurring outside of the CO.



Figure 4.10: Attack mean center progression by timeframe and its relation to the CO.

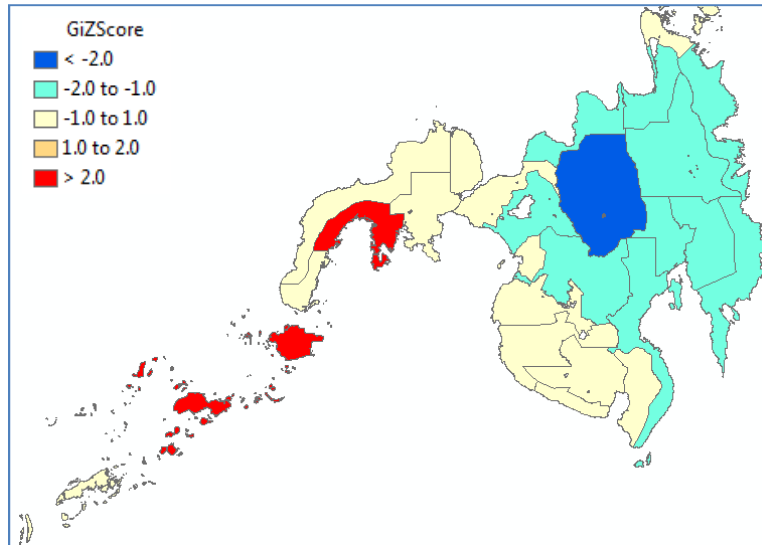


Figure 4.11: Hot Spot analysis output for all attack types in TF Alpha.

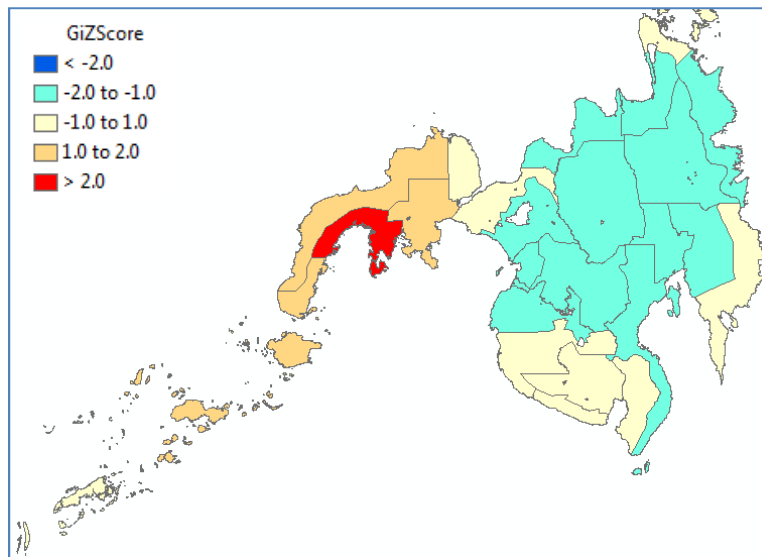


Figure 4.12: Hot Spot analysis output for all attack types in TF Bravo.

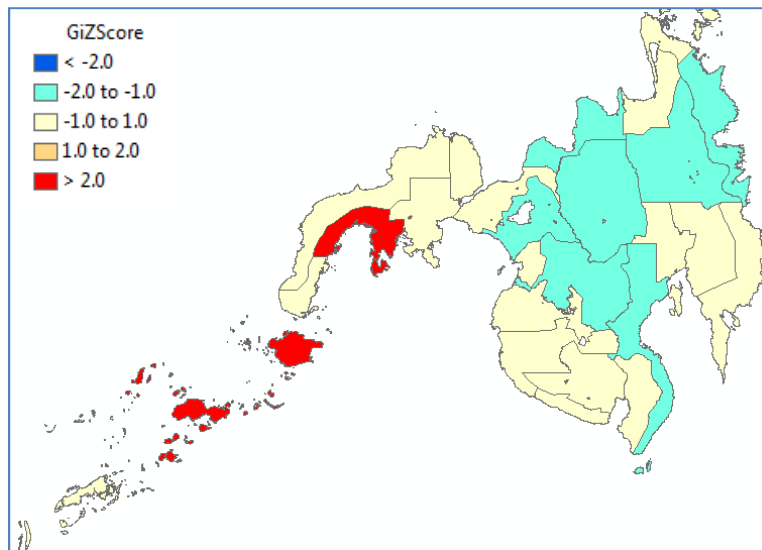


Figure 4.13: Hot Spot analysis output for all attack types in TF Charlie.

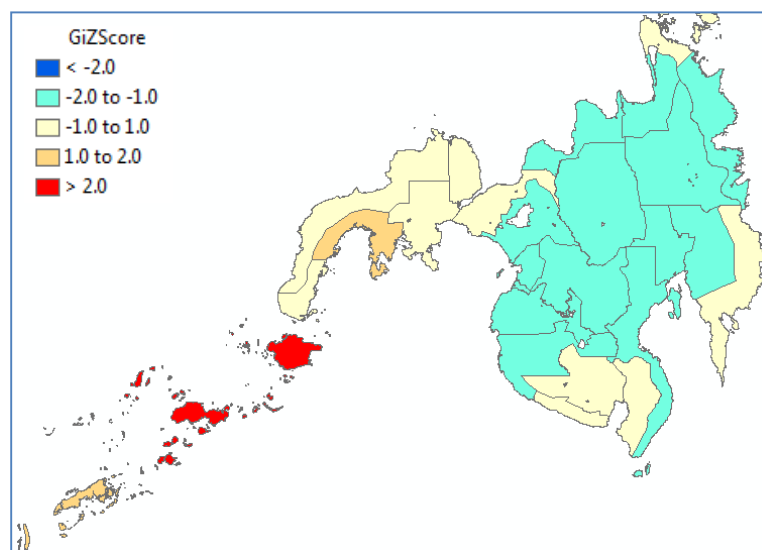


Figure 4.14: Hot Spot analysis output for all attack types in TF Delta.

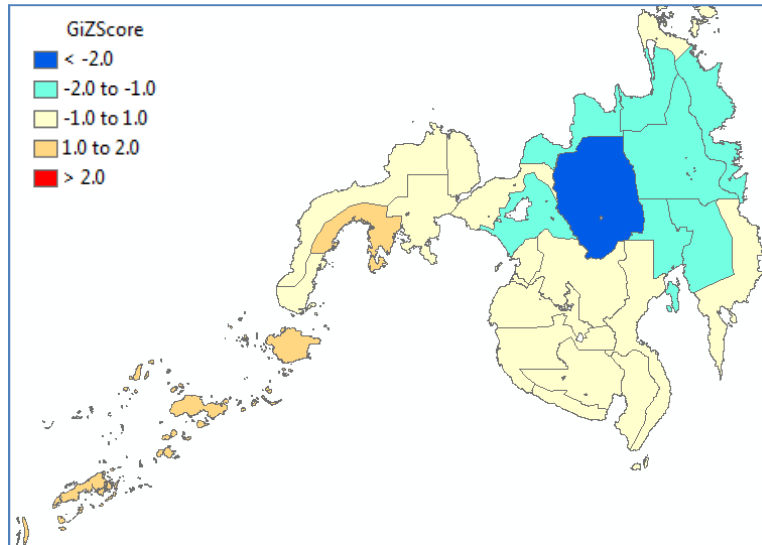


Figure 4.15: Hot Spot analysis output for all attack types in TF Echo.

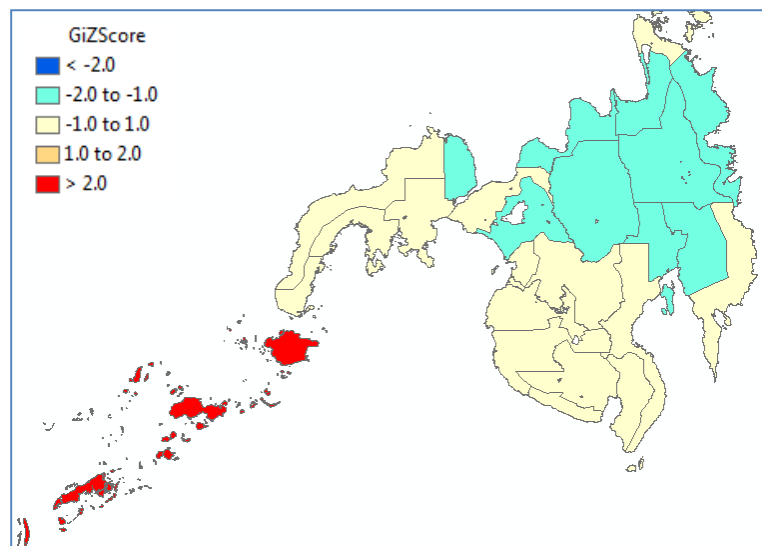


Figure 4.16: Hot Spot analysis output for all attack types in TF Foxtrot.

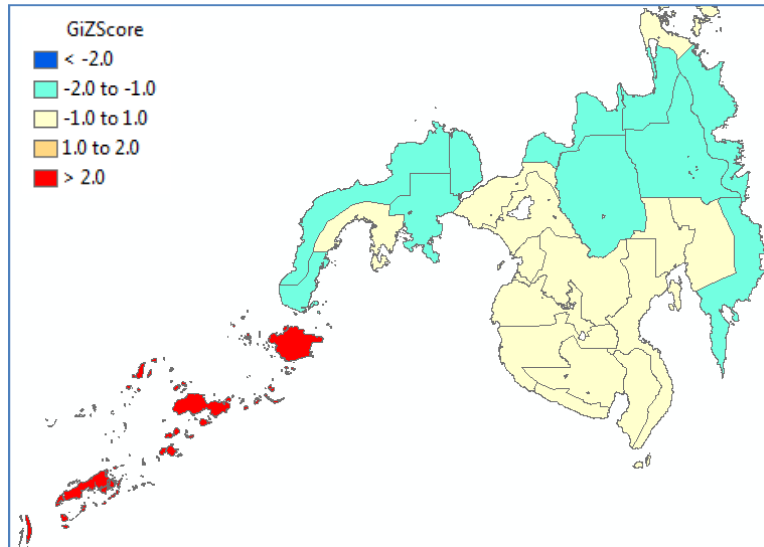


Figure 4.17: Hot Spot analysis output for all attack types in TF Golf.

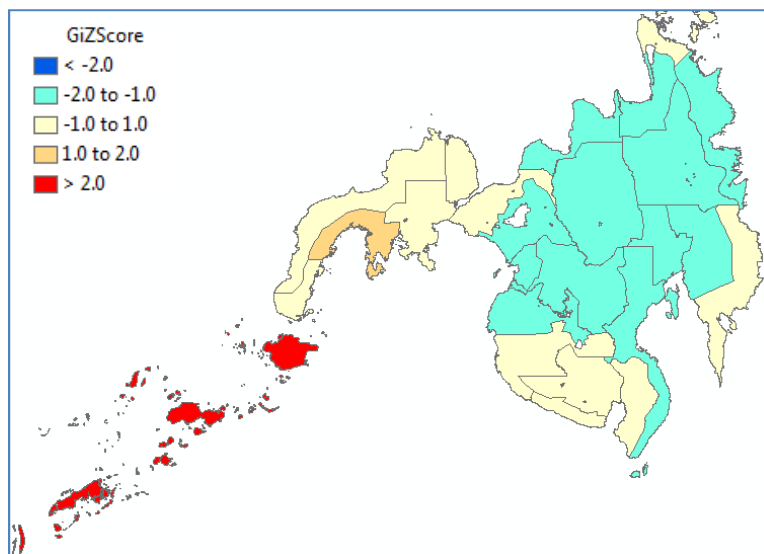


Figure 4.18: Hot Spot analysis output for all attack types in TF Hotel.

## CHAPTER 5

### RESEARCH CONCLUSIONS

Based on the criteria of the decision rule, the patterns of ASG attack data indicate that ASG operations have been more inclined towards criminal goals rather than ideological goals. This analysis of the ASG's attacks legitimizes the positions of the Philippine government and terrorist scholars like Abuza (2008), Ressa (2003) and Tan (2007) and their claims that the group has undergone a terror-to-crime transformation and now only participates in banditry. Research objective 4 and its link to Dishman's transformation theory serves as the theoretical indicator that the ASG transformation has occurred. The spatial and temporal analyses included provide an empirical and quantitative foundation to this qualitative link. The methods are inseparable.

#### Implications of Research

The results of this research carry certain implications that are applicable to both the scholarly community and counterterrorism policymaking. The first scholarly implication is that this research is able to link political scientific qualitative analysis with the empirical and quantitative methods available through a GIS. While political science is no stranger to the use of mapping for analysis, the utilization of computer-generated geospatial analysis for substate actor data strengthens qualitative conclusions by accounting for the factors of time, location and distribution. When quantitative geospatial

methods are applied to attack data, organizational goals and any changes they undergo can be isolated, identified and modeled for possible prediction.

The second scholarly implication to this research is that it validates and strengthens the Dishman terror-to-crime transformation theory by adding another armed extremist faction to its analytical lens. The ASG can now stand alongside the FARC, FMLN and UWSA as a political terrorist organization whose drift from political violence to crime has been authenticated by Dishman (2001). This success of the theory will eventually foster additional research of other terrorist organizations.

The final scholarly implication of this research is that it adds to the body of ASG literature. Even with the setbacks the group has incurred in the past, the ASG has proven to be a hardy and resilient entity, even if just in name. Now in its 17<sup>th</sup> year, the ASG continues its routine of hostage taking, extortion and racketeering in Basilan, Sulu and Tawi-Tawi. If the attacks that have taken place after the extent of this dataset were to be added to this research, newer and more-refined conclusions can be made regarding the group's motivations and legitimacy.

As to the policymaking implications, this research is capable of aiding Filipino government officials by giving them strong quantitative evidence on how the ASG operates and their organizational goals. This information is invaluable to anti-ASG propaganda campaigns as it allows them combine numbers and empirical figures with reports, narratives and interviews to create a whole body of information that, if targeted correctly, can undercut popular support.

Another policy implication to this research is that it can add a geographic component to ASG counterterrorism planning. The geospatial analysis of past and present

ASG areas of operation can give clues on the potential locations of strongholds, targets and sources of criminal income. This empowers military and public safety officials by granting additional insight on how to better direct aggressive measures like patrols and checkpoints and constructive initiatives like community outreach. In addition, when the modeling and analysis of this research is combined with ongoing intelligence efforts, it can aid authorities with the identification of activity trends, changes in group dynamics and the anticipation of attacks.

The final policy implication for this research is that the methods of this project can be applied to any violent political substate actor whose ties to a political ideology or agenda are suspect. It is not dependent on any particular location and its methodologies are universally applicable provided that there is attack data and a documented history of the organization. So whether it is an ethno-separatist movement in the mountains of Turkey or a religious militia in the US, this research methodology has the potential to aid counterterrorism efforts by examining for any shifts in goals or philosophy.

### Secondary Research Conclusions

Several spatial and temporal patterns emerge from the analysis of this dataset that for all intents and purposes; serve as secondary conclusions to this project. In regards to spatial patterns, the majority of ASG attacks occur in the southern third of the Philippines due to the increased likelihood of safe havens in Basilan, Sulu and Tawi-Tawi provinces. Also, a majority of all ASG attacks occur in the Constituency Overlay, where the poverty, Tausug and ARMM layers overlap. Of the three different attack types, armed assaults occur the most within the CO. Bombings are the rarest.

In regards to the analysis across time, Khadafi's ASG conducted more attacks than Abdurajak's ASG overall. Eighty-six attacks for Khadafi compared to thirty one attacks for Abdurajak, over twice as many (twenty-seven attacks in the dataset occurred after Khadafi's death). Of all three attack types, the greatest operational increase of Khadafi's ASG is in kidnapping for ransom. In addition, attack intensities wane between TF Echo and TF Golf, probably due to a sustained US-Philippine crackdown against the ASG occurring at the time. The two time periods of ASG operational increase (TF Delta and TF Hotel) were most felt by the people living within the CO. Analysis of hot spots indicate that the provinces of Basilan, Sulu and Tawi-Tawi remained very active (greater than two standard deviations) for armed assaults and hostage takings during the post-Abdurajak time period of the data.

The fulcrum for the ASG terror-to-crime transformation is the death of Abdurajak Janjalani. Yet by itself, the attack data do not indicate whether the ASG is more inclined in either direction. If the only goals of this research had been to validate H1, H2 and H3, the resulting geographic analysis would not have been enough to determine that a transformation had occurred. Instead, target analysis and other qualitative examinations (like Objective 4) are necessary to understand the intent of a terrorist organization and determine if it is transforming into a criminal operation. The attack patterns of the ASG do not change drastically enough over time to indicate a transformation by geographic methods alone. There is always a shadow of doubt that exists in the data. Researchers can never be certain that the attacks are not politically driven without further information.

Analyzing the behavioral patterns of either criminals or political actors is not a new trend in geographic study. Techniques, methodologies and models are in place that

examine everything from political geostrategic maneuvering to car theft patterns. Yet why is it so difficult to blend these foci and examine when an organization shifts from political activities to crime?

For terrorism, the answer is because both terror and crime are intrinsically linked. While this research can establish an argument for transformation and lend it empirical support, identifying the transformation is not cut and dry because both criminal and terrorist actors must deal in illicit activities to upkeep their operations. Furthermore, the lines between crime and terror are blurring because of increased counterterrorism efforts and the operational diversification of criminal organizations. Strong counterterrorism initiatives tend to push terrorism organizations to crime. This is evident in case studies involving the FARC of Colombia and the United Wa Army of Myanmar (Dishman, 2001).

On the other hand, criminal organizations often attempt to gain influence in political arenas to facilitate illicit operations. Mafia members have been known to actively participating in Italian politics (Lyman & Potter, 2004) and there are incidents where the Japanese Yakuza have influenced Japanese government officials to ease their business operations (Finckenauer, 2007). Still, any foray of study into the blurred world of terror and crime is beneficial to scholarship as a whole because each effort builds upon the previous one until an accepted model for identifying the terror-to-crime change is established.

### Future Directions of Research

While the optimal analytical tool is still a ways off, there are some future paths to this research to be explored. They can be divided into two directions that examine either the Abu Sayyaf Group or the application of this methodology to another case study.

For the ASG route, a possibility exists to compare the results of this research to other empirical and qualitative studies on the ASG to identify any similarities or differences in the outcomes. Then a closer look at the methods can reveal what strengths and weaknesses both projects possess. A second possibility would be to conduct interviews of regional counterterrorism experts in the Philippines to explore the empirical methods they used to conduct their research. This would add some local analytical strength to these results and allow both bodies of scholarship to build upon each other.

For the case study route, the first step would be to identify two extremist organizations that were known to have undergone a terror-to-crime transformation. The Colombian FARC and the United Wa Army of Myanmar are well-suited for this task. The next step would be to apply this thesis' methodology to the attack data of these organizations to determine if similar conclusions can be made. This would strengthen the validity of this methodology and provide a clearer picture of the groups under examination. After that, an exploratory case study path could include the application of this methodology to a terrorist organization for which a terror-to-crime transformation is suspected.

### Transference of Methodology to Other Groups

This analysis is structured so that it may be applied to other groups for whom a terror-to-crime transformation is suspected. The methodology involving the concept of the CO and its connectivity to Dishman's benchmarks is uniformly applicable. What must be accounted for, however, are the variables and procedures needed to define the CO of the study area. The overlays used for this analysis, poverty, ethnicity and religion, may not be the best fit for other groups depending on the history of the region and the primary goals of terrorists. A thorough qualitative assessment of the terrorist group and the study area must be conducted in order to isolate the three areal variables that will combine to create the CO. Three or more variables should be the target for establishing the CO in that it creates a Venn diagram-like isolation of constituency areas and provides a more focused area for study.

Defining the variables that will compose the CO can be done through the examination of the target terrorist group's original goals. Nearly all terrorist groups establish some kind of goals or targets for political change (Hoffman, 1998). These goals can either be documented in some kind of manifesto or, as with the ASG, established through general consensus of the membership. This methodology, while effective in discerning the philosophical changes of the ASG, is not without its limitations. The methodology in this research is best used for analyzing terrorist organizations in the developing world. This is because the drive to change from a politically oriented organization into a profit-driven model is best accentuated in areas where abject poverty is rampant. The participants undergoing this change are motivated by avarice and an opportunity to quickly gain capital. This motive is not always evident in the developed

world as the standards of living are often more elevated and extremist operators are capable of maintaining their political objectives because their basic needs are already being met through either gainful employment or outside clandestine funding. The second limitation to this process is that the target terrorist group must have a large body of validated attack data to apply to the CO. If the dataset is too small, then the conclusions drawn from the analysis may be inaccurate or spurious. This hazard is most visible in conducting hot spot analysis as hot polygon values depend not only on the number of attacks within the unit of analysis, but in the neighboring units as well (ESRI, 2009).

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