2014

"…With Liberty and Justice Equitably and Efficiently Allocated for All"

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Abstract: The American pledge of allegiance and Constitution indicate that liberty and justice are provided for all citizens and that we are guaranteed equal protection under the law. Understanding the state of nature as Thomas Hobbes did, it is clear that liberty and justice are not efficiently allocated and there is no protection under law. Therefore, these ethical concepts are provided in civil society tangibly through civil services including policing. This essay views local police resources as an economic good, limited in its supply, in need of both equitable and efficient allocation. The ethical implications of inequitable or inefficient policing are potentially staggering, and so several policing strategies are analyzed in terms of costs and benefits, or trade-offs between liberties and justices. I maintain that empirical crime data is a necessary component of ethical policing as it tremendously enhances the efficiency with which police allocate liberty and justice. Furthermore, personal morality is an important aspect of ethical police work, considering there are social and local biases that must be avoided and values that must be prioritized.

The American pledge of allegiance ends with a clause which ensures that the United States is a nation "with liberty and justice for all." Further, the Fourteenth Amendment to the U.S. Constitution guarantees equal protection under the law to all persons. These things—liberty, justice, and equal protection—are ethical concepts, central to our Western political philosophy, but are not necessarily abstract intangibles. Under civil society, a system of laws, police, and courts is established to provide people with liberty, justice, and protection; however, there is a finite amount of resources available to provide each of these services. Economics refers to such goods as scarce—they cannot be infinitely available, and thus must be allocated somehow. But, allocation of scarce resources involves trade-offs between equitable and efficient allocation. This essay explores the concepts of liberty and justice as economic goods which must be equitably and efficiently allocated through civil services in order to provide equal protection. Firstly, why do we rely on society, as opposed to a state of nature, to provide these goods; subsequently, what might be expected of local police departments with finite resources in order to best provide these goods and how can crime data assist these efforts?

Appropriating excerpts of Thomas Hobbes's *Leviathan*, we can understand *liberty* as an ethical concept whereby "each man hath to use his own power as he will himself for the preservation of his own nature," characterized by "the absence of external impediments, which impediments may oft take away part of a man's power to do what he would" (Hobbes & Gaskin 1998). Hobbes notes that this liberty is a right of nature. That is, in the absence of any social contract or civil society, full and unadulterated liberty is equitably allocated to all human beings. However, Hobbes infamously characterizes this state of nature as chaotic, brutal, and destructive, deducing that force and fraud are the "two cardinal virtues" by which men would constantly take advantage of one another. The perpetual war envisioned in Hobbes's state of nature is due to an extremely inefficient, albeit equitable, allocation of liberty.

Regarding justice, Hobbes finds none in the state of nature. *Justice* being the "constant will of giving to every man his own" and the "keeping of valid covenants" is impossible in the state of nature wherein no covenants are necessarily valid. Hobbes indicates that because liberty is fully and equitably allocated to all persons in nature, "every man has a right to everything and consequently, no action can be unjust," for in a state of war "the notions of right and wrong, justice and injustice, have there no place" (Hobbes & Gaskin 1998). The inefficient allocation of liberty in the state of nature results in there being no allocation of justice; for where nobody has

surrendered any liberties to a common power through a social contract, there is no law and where there is no law, there is no justice. Thus, with a social contract and a civil society, comes the trade-off between liberties and justice and ideally a more efficient, yet still equitable, allocation of each.

It is assumed by several political philosophers that by living in a certain society, people at least tacitly consent to a social contract. This contract allows any and all people to withdraw from the warlike state of nature by trading some amount of their liberties in exchange for a system of laws which is able to provide some amount of justice. In American society for instance, people have surrendered their liberty to use other persons as means toward their own preservation. This prevents the chaos of the state of nature by outlawing murder, sexual assault, theft, and numerous additional crimes. Justice requires that people do not engage in these activities, as it would be a breach of the social contract. However, whether due to "psychopathic personalities, negligence…by victims, social and economic conditions, public toleration, [or] failure of law enforcement…to prevent crime," all civil societies struggle with criminal activity (Etchison 1974). Justice then must be preserved in several forms—lawmaking, police, courts, and prisons—each with their own ethical considerations including the liberties of lawbreakers. This paper will focus on the implications of equitable and efficient allocations of liberty and justice as they pertain to police departments specifically.

Police protection is what economics refers to as a common good. Common goods are non-excludable but rival, meaning that people do not have to pay to consume them (per se, as all persons contribute via taxes but none is expected to pay a fee when requesting police protection), yet one person's ability to consume it interferes with others' ability to consume it at the same time. There is great reason to explore how such a good should be distributed because the ethical implications of inequitably or inefficiently allocating police resources are staggering; and as with all else in economics, empirical data can and should assist in the decision-making process.

When a criminal breaks a law, they break the social contract and create an injustice. Police are employed to provide protection by keeping the number of injustices that occur to a minimum. Police resources, a common good, are efficiently used when injustice is minimal and are equitably used when injustice affects all people similarly. Local police departments must make careful decisions about how to enforce the law, keeping concerns of equal and efficient protection in mind. There are a few strategies police departments might use in order to efficiently

provide equal protection. This essay will not point to one method as the correct strategy, but will explore the equity and efficiency advantages of each.

We can first consider what a literally equitable allocation of police resources might look like, by area or population, and determine whether or not this method would be efficient in providing equal protection. If for example, Normal, Illinois's police department chose to patrol every square mile within city limits with one patrol car one time per hour, the Town of Normal could be said to be equally allocating police resources. However, crime is not consistent across area as is seen in Figure 2; typically rural areas are less crime-ridden than urban areas. For instance, police sub-beat 30 in the far southwest side of town recorded about eight crimes per year over the last ten years while sub-beat 41 close to the center of town recorded almost eight crimes per month during the same time. Police resources are therefore less efficiently spent when regularly patrolling the outskirts of town as opposed to more populated areas; and there is no equitable allocation of justice or protection to the town's people under this strategy.

Perhaps it is more efficient to equitably allocate police resources by population so that areas with high population density receive more resources than areas with low population density. While likely more efficient than an equitable allocation of resources by area, there are still potential problems with this strategy. Even within cities, some populations are more vulnerable to crime than others—some people reside in gated communities and others reside in gang territories. It would be inefficient in keeping crime rates low to provide the same amount of resources to each population and it would not provide the truly equal protection from crime that both populations are guaranteed. In order to ensure efficient policing and equal protection then, there must be a trade-off between what would be a literally equitable allocation of police resources and what proves to be a more efficient allocation of police resources and a more equitable allocation of justice.

Rather than focusing on equitably distributing police resources across area or population, it is more efficient in terms of reducing crime and providing justice to allocate more resources to crime-heavy areas. Crime data can play a large role in helping police departments to provide both ex-ante, or preventative, protection and ex-post, or reactionary, protection. There are distinct advantages and disadvantages to each strategy.

Assuming, as economics typically does, that people are rational actors with full information, an ex-ante allocation of police resources is intended to prevent crime before it

happens. For example, reporting a suspicious person to the police before a crime occurs is done so that police will be in the area, thereby reducing the likelihood that a would-be criminal is willing to carry out their crime. The theoretical justification of preventative policing is that people are less likely to commit a crime if they know police regularly visit the area; and if police regularly visit what is known to be a high-crime area, criminals are likely to notice and will commit fewer crimes there. To the south of the Town of Normal in Bloomington, Illinois the police department indicates that they "babysit" a specific park 70 percent of the time because it is typically a high-crime area and their presence can hopefully keep criminal activity there at a minimum. Unfortunately, it becomes difficult to prove the efficiency of ex-ante policing because its efficiency is determined by a lack of crimes, but correlating increased police presence with decreased crime rates would be a strong sign that ex-ante policing may have a real effect. The equity of ex-ante policing must be of ethical concern as well, though. If police departments give in to social biases and begin to profile specific races or neighborhoods, then they may begin to ignore injustice elsewhere and arguably even infringe on liberties of the profiled.

An ex-post allocation of police resources entails a police reaction to changing crime rates and must rely heavily on data. Local police departments can record patterns in criminal activity over long periods of time and more efficiently allocate their resources by understanding any trends or cycles found. The Town of Normal has recorded over 19,500 crimes over the last ten years, recording the type of offense and the month and location in which they occurred. From this they can find patterns such as those shown in Figures 3 and 4. Theft is, on average, more common in August than it is in any other month and is recorded at much lower rates during the winter months such as March. Battery, on the other hand, is recorded at very similar rates during the months of August and March. Therefore, it would be more efficient for Normal's police department to allocate resources so that they combat theft in August when it is most prevalent and combat battery in March when it is common and theft is less so. Notably, this method of policing is value-driven if police departments must decide that certain injustices are more deserving of police resources than others. For example, public acceptance of "white collar crime" might exempt them from justice while police continue to investigate and arrest perpetrators of "victimless" crimes such as illicit drug consumption. The equity of justice and protection in reactionary policing depends on police departments making ethical decisions. Crowley and

Larsen (2010) note that personal morality is a crucial component of ethical policing and it is critical for choices such as these.

However, as was noted, economics assumes even criminals are rational actors and will respond to police activity as such. Consequently, regardless of policing strategy, there arises a problem referred to as mobility or flow of crime. First documented by Smith (1976) in Rochester, New York, crime flow refers to the idea that criminals are not bound to a specific geographical location and will travel as necessary to find somewhere where they are more likely to get away with their crime. Smith and other researchers have uncovered this phenomenon through economic gravitational models which track the relationship between crime rates and distance. A gravitational model depends on the idea that a force between two objects decreases in magnitude as the distance between the two objects increases. When applied to crime, it is expected that high-crime regions will have an effect on neighboring areas, raising their crime rates, and that this effect diminishes in magnitude when examining areas further away.

Using the ten years of monthly data and the police sub-beat map made available online by the Normal Police Department, a gravitational model was constructed to determine how changing crime rates in any given sub-beat were correlated with changing crime rates in other parts of town. Distance between sub-beats was approximated as the distance between their geographical centers and crime was examined as the percentage change in crime divided by residential area of the sub-beat in order to correct for residential population and density. Results indicate that crime rates in thirteen of the police sub-beats have a statistically significant relationship with crime rates in at least one other sub-beat. Most of these relationships were positive, indicating crime rates move together in most areas; however eight negative relationships may inform the police department about movement of criminal activity between areas. To illustrate the phenomena and how police might allocate resources accordingly, results for sub-beat 11 are reported in Table 1 and Figure 5.

As shown, crime rates in sub-beat 11 are positively correlated with crime rates in sub-beats 21, 40, and 41 and are negatively correlated with crime rates in sub-beats 12 and 13. The coefficients indicate that if crime in sub-beat 21 to the east is reduced by 10 percent, crime in sub-beat 11 is predicted to decrease by 37 percent; but if crime in sub-beat 12 to the south is reduced by 10 percent, crime in sub-beat 11 is expected to increase by 72 percent. This is important information when allocating scarce police resources because of the potential

unintended consequences involved. If crime rates begin to rise in sub-beat 12, it is not efficient enough to only patrol sub-beat 12 with greater frequency, as that may only push criminals toward sub-beat 11 in greater numbers. It would be tremendously efficient reactionary and preventative policing to patrol both carefully and mitigate the mobility of crime between the two areas. These more complex findings from crime data can help police to provide the best protection possible, in terms of equity and efficiency, to populations all across town.

Police departments undoubtedly have a complicated task. The state of nature is inefficient in providing liberty and justice and so as a society we rely on police to supply these goods. Everyone is guaranteed equal protection, but police resources are scarce and not everyone can utilize them at the same time, meaning tough decisions must be made in order to allocate resources equitably and efficiently. These choices have very real ethical implications because misuse of police resources results in increased injustice and unequal protection. Every policing strategy will involve trade-offs between liberty and justice, equity and efficiency, and ethical concerns such as biases and prioritizing certain values must always remain in mind, but crime data should assist local police departments in understanding seasonal changes in crime and mobility of crime, allowing them to better allocate liberty and justice equitably and efficiently for all.

Appendix

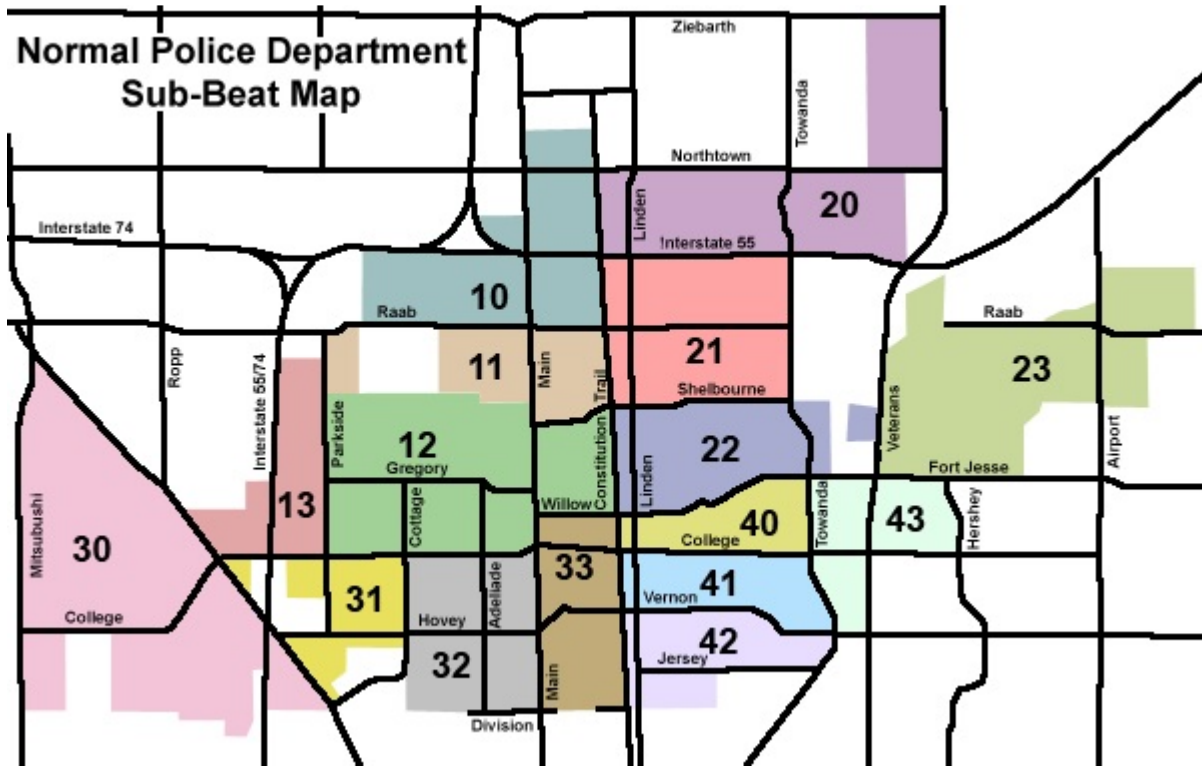*Figure 1:* *Normal Police Department Sub-Beat Map*

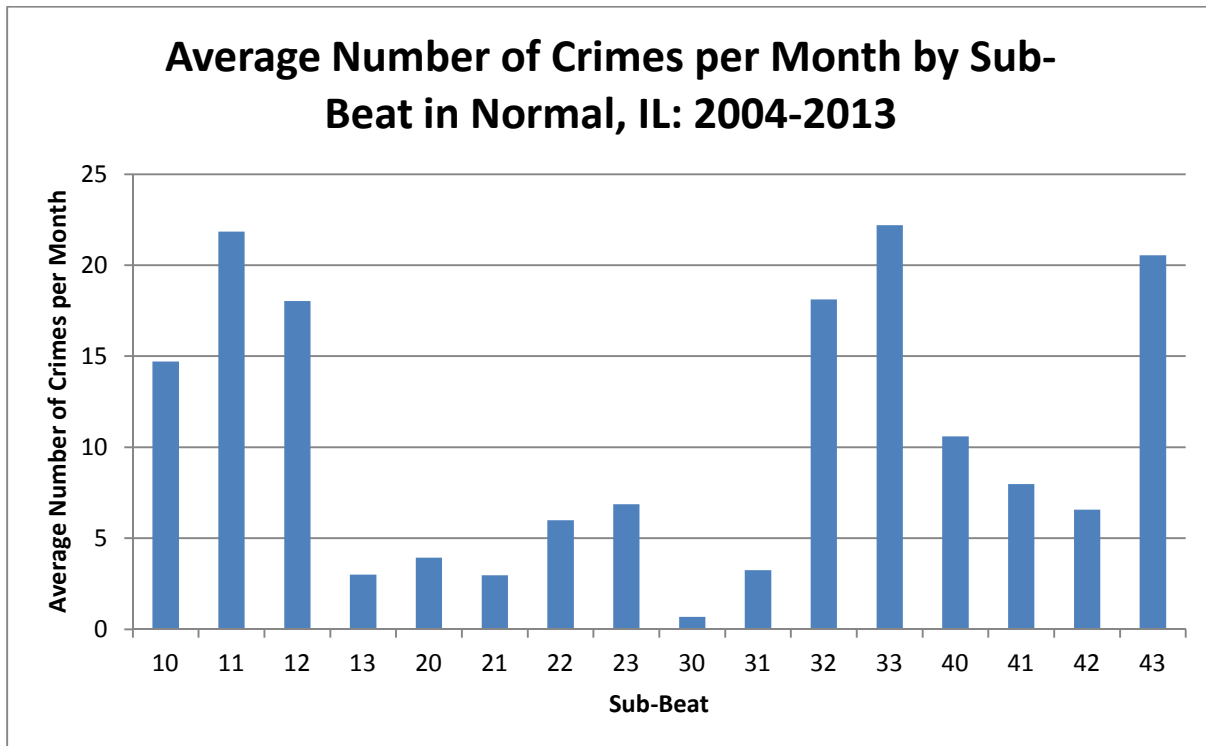*Figure 2*: *Average Number of Crimes per Month by Sub-Beat in Normal, IL: 2004-2013*

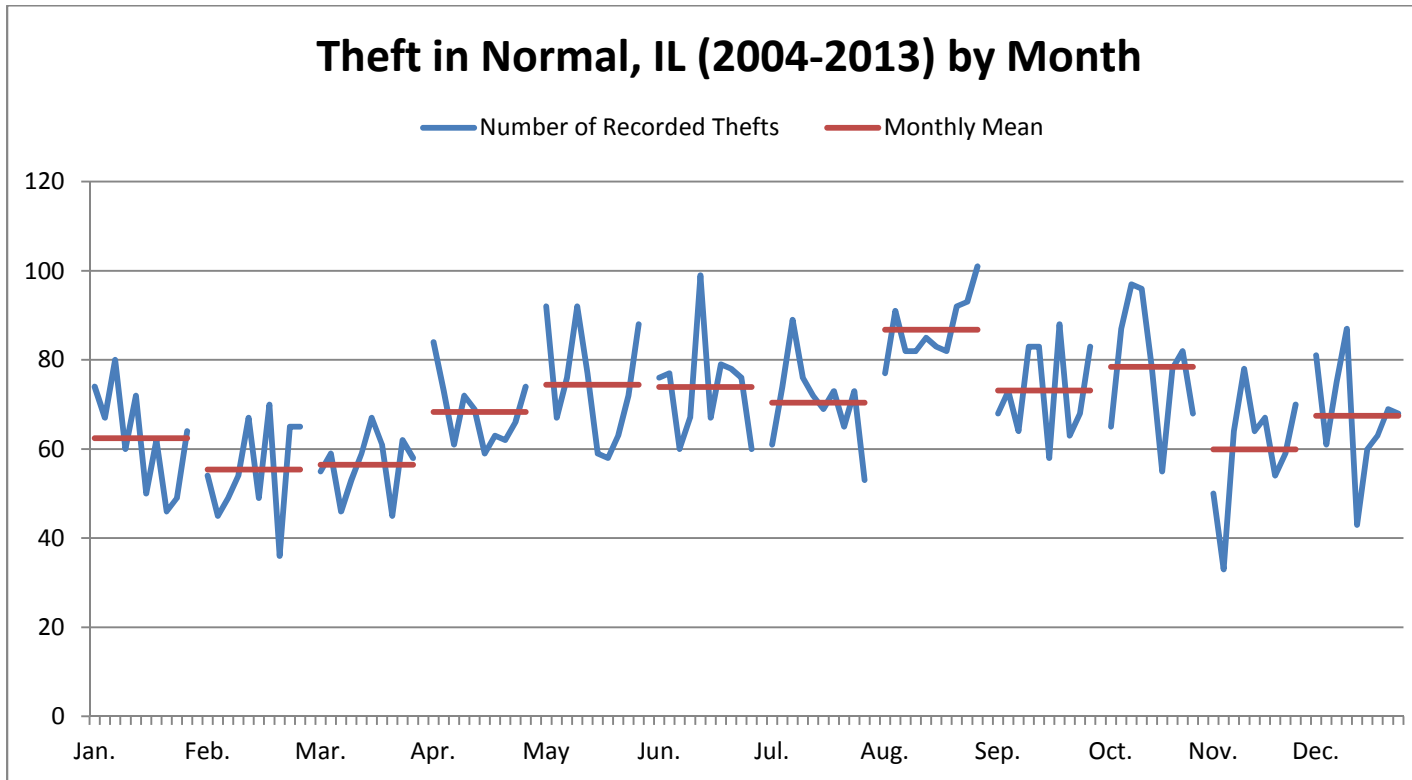*Figure 3*: *Theft in Normal, IL (2004-2013) by Month*

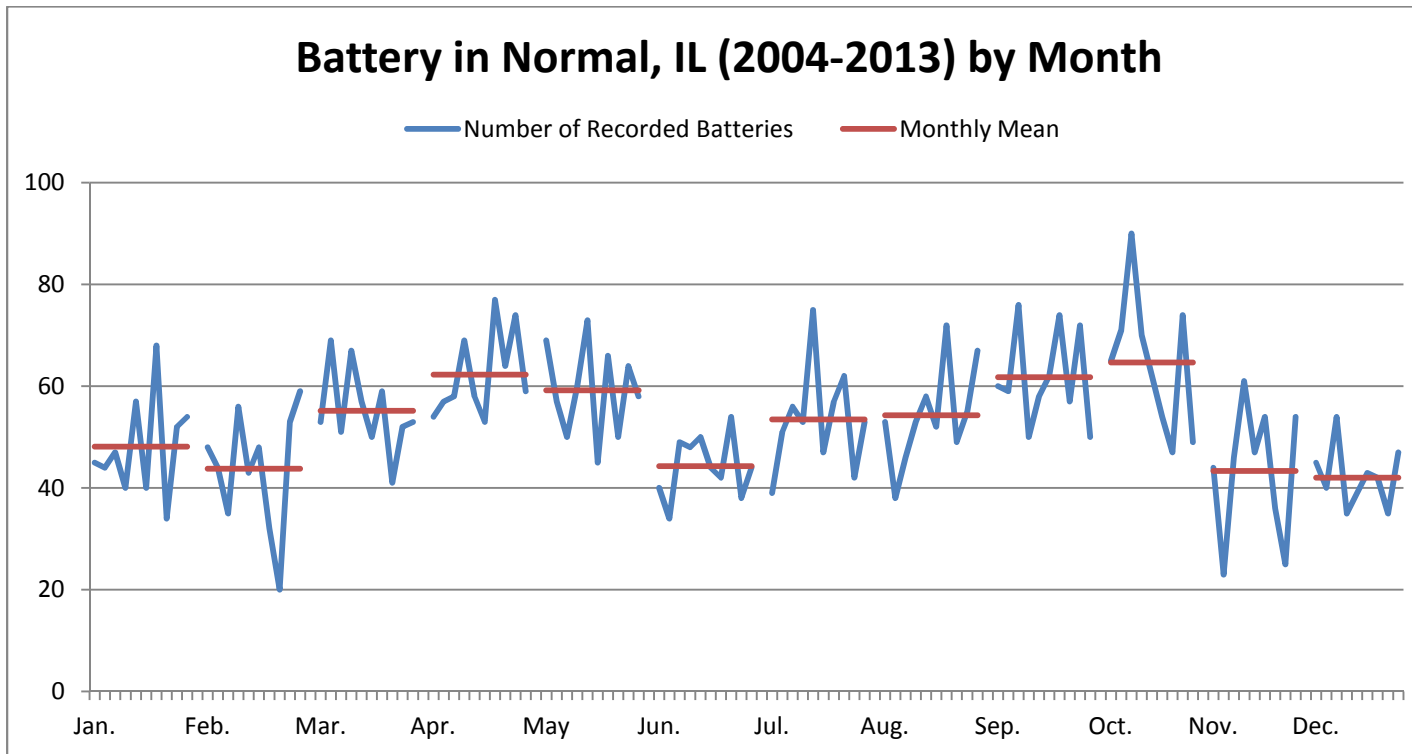*Figure 4*: *Battery in Normal, IL (2004-2013) by Month*

Table 1: *Gravitational Model Regression Results, Sub-Beat 11*

Dependent Variable: Sub-Beat 11 Crime Rates	N=47
Constant	0.0827
	(0.5582)
Sub-Beat 10	-0.0413
	(-0.7795)
Sub-Beat 12	-0.7172***
	(-2.8896)
Sub-Beat 13	-0.0596***
	(-2.6627)
Sub-Beat 20	-0.7250
	(-1.3156)
Sub-Beat 21	0.3691*
	(1.6730)
Sub-Beat 22	-0.0682
	(-0.4487)
Sub-Beat 23	0.2629
	(0.8150)
Sub-Beat 31	0.2312
	(1.0433)
Sub-Beat 32	-0.3100
	(-0.4458)
Sub-Beat 33	-0.0972
	(-0.1947)
Sub-Beat 40	0.4641**
	(2.4025)
Sub-Beat 41	1.1044***
	(3.8531)
Sub-Beat 42	-0.2602
	(-0.9035)
Sub-Beat 43	-0.0139
	(-0.0702)
Adjusted R-Squared	0.3000
F-Statistic	2.4080***

Significance at the 1% (***), 5% (**), and 10% (*) levels.
T-statistics in parentheses.

Figure 5: *Gravitational Model Regression Results, Sub-Beat 11*
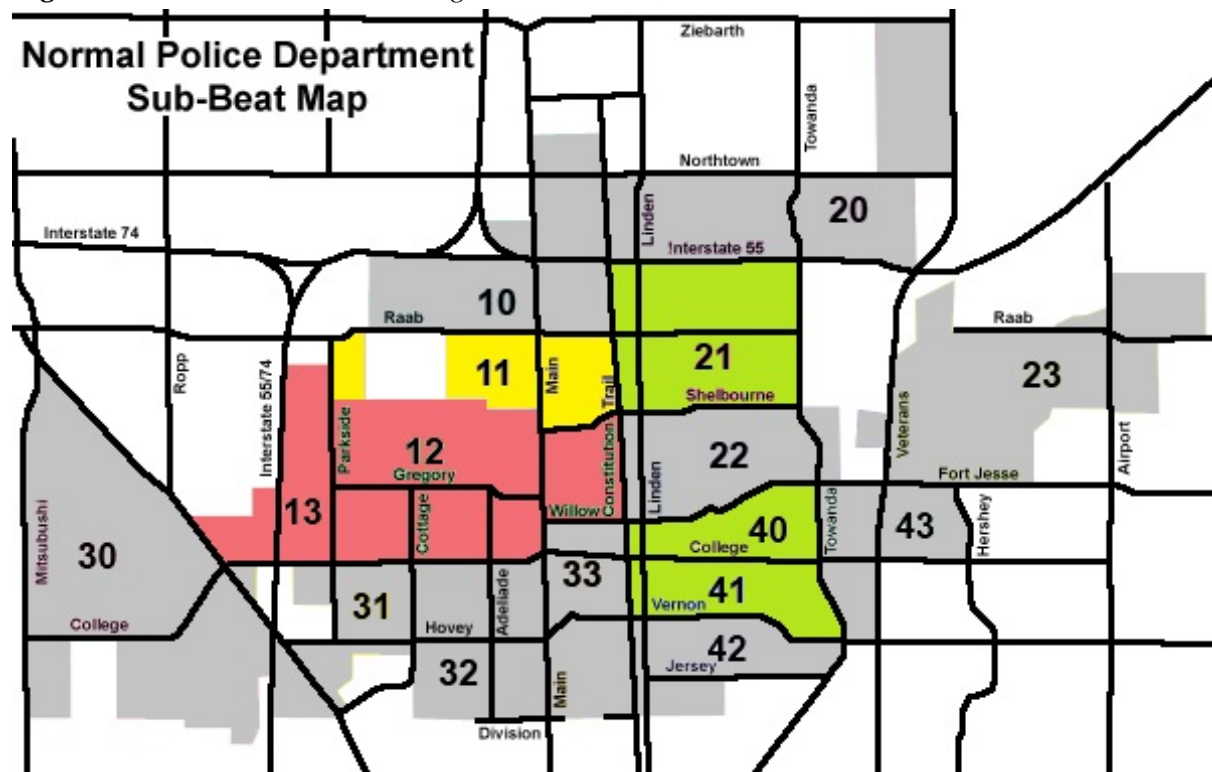
Dependent sub-beat in <mark>yellow</mark>. Statistically significant positive relationships in <mark>green</mark>. Statistically significant negative relationships in <mark>red</mark>.

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