

ABSTRACT

Title of Thesis: EXPLORING THE EFFECT OF INVESTMENTS IN SOCIAL SERVICES, EDUCATION AND PUBLIC SAFETY ON CRIME RATES: DO INVESTMENT DECISIONS MATTER?

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Data from the U.S. Census Bureau are used to test the relationship of local social services, public safety, and education expenditures, all as proportions of total local expenditures aggregated to the state level, with the property and crime rates for years 2007 through 2010. Previous literature and theory suggest that any significant relationships to crime would be inverse relationships. The initial results of this study indicate an unexpected significant positive relationship between the proportion of social services expenditures and the violent crime rate for years 2007 through 2010. The results also indicate a significant inverse relationship between proportion of public safety expenditures and the violent crime rate, but not for all years tested. Results should be viewed in the context of the limitations of the current study.

EXPLORING THE EFFECT OF INVESTMENTS IN SOCIAL SERVICES,
EDUCATION AND PUBLIC SAFETY ON CRIME RATES: DO INVESTMENT
DECISIONS MATTER?

by

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Chapter I. Introduction

Politics, criminal justice decisions and incarceration rates intertwine throughout history and can have far-reaching effects. For instance, violent crime and property crime consistently declined beginning in the mid 1990's (Bureau of Justice Statistics, Key Facts at a Glance: Property Crime Rates & Violent Crime Rates). Though crime rates decreased, incarceration rates skyrocketed (Center for Economic and Policy Research, 2010). The increase in incarceration and high corrections expenditures despite the corresponding decreases in violent and property crime is often attributed to past and current policy. One question to consider is whether or not the crime rate would have fallen more if investments were made in social services rather than incarceration.

The current economic crisis presents an opportunity for policy makers to create criminal justice policies that are cost effective, lower incarceration rates and reduce crime. Resources are scarce, and tough decisions are made at all levels of government in regards to where to invest funds. Officials need to know if the vast amount of money invested in public safety, education and social services are associated with decreases in crime rates. Much is known about how state and federal political decisions throughout history affected incarceration and crime rates. Much less is known about how policy decisions regarding investments in public safety, education and social services at the local level affect crime. For instance, are investment decisions affecting crime- reduction results? Where should policy makers invest their public safety dollars to achieve crime reduction?

The following study aims to add to the literature by addressing the gap in research in regard to budget decisions and the effects those have on crime rates. The information contained in this study will add to the literature on the topic by testing the connections between political resource investments and crime. It will test whether local investments aggregated at the state level in social services, public safety and education are associated with any decreases in crime, and will test if one investment has more of an effect on crime than the other. This study will also consider whether or not there are any lag effects regarding investments and the crime rates. Answering these questions can perhaps provide some guidance for policy makers in regards to the investment decisions of scarce resources. This thesis will explore if the following hypotheses are true:

H1: As social services expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H2: As public safety expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H3: As education expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H4: Investments in social services (as a proportion of total expenditures), will have the largest inverse relationship with crime rates than public safety and education expenditures (all as proportions of total expenditures)

H5: The effects of the investments in social services, public safety, or education (all as proportions of total expenditures) on violent/ property crime rates will increase over time.

These hypotheses will be answered using data from the Census Bureau and the Federal Bureau of Investigation. Specifically, the independent variable data are from the 2007 Census of Governments: Finance, Table 2, Local Government Finances by Type of Government and State: 2006 – 2007. Data for the dependent variables are from the Federal Bureau of Investigation's 2007, 2008, 2009 and 2010 Uniform Crime Reports, Table 5: Crime in the United States by State.

Chapter II. Criminal Justice Policy and Practice

Many of the investment decisions that affect states and localities are as a result of federal concern with crime that began almost 60 years ago. To that effect, it is important to understand the context in which state and local criminal justice investment decisions are being made and influenced by, and how investment decisions are not usually mutually exclusive to each level of government.

Brief History of the Crime Debate

Although it is difficult to have a direct impact on state or local crime rates through federal policy, there has been an attempt to affect crime rates through Federal legislation throughout the years. To understand the impacts of investments on crime rates, it is important to understand the political landscape in which decisions were made that bring us to the point where we are today.

Over the past 60 years the federal government increased its interest and role in crime control. While rehabilitative strategies that addressed social inequities were largely supported, a move towards more punitive crime control became a pervasive strategy for the federal government. The crime debate began to take place on the federal stage in the 1960s in response to the many social challenges of the decade. Politicians began to talk about crime as a national issue that the federal government should be involved in, and became highly politicized (Lipsey & Cullen, 2007). This was aided by Ronald Reagan's exaggerated tale of welfare fraud in which he coined the term "Welfare Queen" that received national attention and added to the debate regarding social services and crime (Krugman, 2007). Social movements such as civil rights and welfare rights pressured

politicians to consider the link between poverty, race and crime, and to act to combat crime (Walker, 1998). Some politicians saw these movements as examples of a rising need for the federal government to take a larger role in maintaining social control, rather than providing social support to reduce the amount of social inequity in the country (Beckett, 1997). President Johnson initiated both the Law Enforcement Assistance Act of 1965 and the Safe Streets Bill in 1967. This legislation exemplified the rising change in opinion on how best to address crime. The legislation supported law enforcement, rather than addressing structural and social conditions which in the past had typically been the preferred emphasis of government programs by non-conservatives (Zimring, 2007).

Due to Martinson's (1974) report that was interpreted as "nothing works" in regards to rehabilitating offenders, both conservative and liberal leaders began to support a clear move away from rehabilitative strategies. Approaches that move away from rehabilitative strategies enjoyed support from all sides; liberal politicians viewed these policies as not adequately addressing social inequities, while conservatives used this to even further their views of rehabilitative strategies as too weak on accounting for public safety concerns.

Conservatives in particular began to further their views that crime in part is a result of a dependence on welfare and other social programs (Simon, 2007). This view included a shift in thinking about the typical offender. Instead of once being seen as a victim of the neglect of society, the typical offender was now being viewed as a person who chooses to commit crimes and therefore deserves a harsh response (Ruth & Reitz,

2003). As the crime debate focused on issues of drug addiction and street crime, the debate increasingly focused on the poor and people of color. Poverty became criminalized, in a sense; many conservatives saw the drug problems and street crime that typically affected poorer communities as widespread personal failings. Crime was seen as a result of personal immorality rooted in individual choices as opposed to social conditions (Ruth & Reitz, 2003). This viewpoint was used as an attempt to justify reductions in welfare spending and to encourage the adoption of policies that support social control instead of social welfare (Beckett, 1997).

Public concern over crime grew, coupled with doubts that government was well-equipped to handle complex social issues (Zimring, 2007). Federal and state policy shifted away from social welfare and towards social control. Policies that use incapacitation to enhance public safety and deterrence became a main priority (Walker, 1998).

At the Federal level, there were several pieces of legislation signed into law that exemplified the moves away from rehabilitative policies and represented the increasing role the Federal government took with regard to public safety. In 1986, President Reagan signed the Anti- Drug Abuse Act into law. This legislation and the Federal Sentencing Guidelines of 1984 included harsh mandatory minimum sentences for certain drug offenses (Beckett & Sasson, 2004). Along with a shift in ideology and strategy came a shift in investments. Between 1980 and 1991, federal agencies responsible for drug treatment, prevention and education were reduced drastically while funding for law enforcement increased. By 1985, only 22 percent of funds allocated to the drug problem

went to drug treatment and prevention, while 78 percent went to law enforcement (Beckett, 1997). Funding for agencies that directly targeted drugs increased as well. Between 1980 and 1984, FBI antidrug funds increased from \$8 million to \$95 million. During this same time period, the budget for the Drug Enforcement Agency increased as well, from \$215 million to \$321 million (Beckett, 1997). The federal government also created grant programs to give money directly to localities to increase their law enforcement capacity; one of the best known of these grant programs is Community Oriented Policing Services (COPS). The Government Accountability Office (GAO) reviewed the effectiveness of the COPS program in increasing law enforcement capacity and decreasing crime. In 2005, a GAO report found that between 1994 and 2001, COPS grant expenditures accounted for an increase of approximately 3 percent. In roughly this same time period, the report found that the COPS grant funds contributed to a 1.3 percent decline in the overall crime rate and a 2.3 percent decline in the violent crime rate (Government Accountability Office, 2005).

The 1994 Crime Bill also added funds to punitive measures. Funds were made available to increase police forces and build additional prisons, but the funds were offered based on conditions. Money for state prison construction was dependent on states implementing “truth-in sentencing” policies, which required offenders to serve a larger portion of their sentences. In order to gain access to these funds, by 1994, 30 states had adopted these policies and the “three strikes” laws (Beckett, 1997). This bill marked an increase in federal spending and represented the larger role the federal government wanted to play in public safety. The original cost estimate of the bill was \$5.9 billion; the final estimated cost was \$30.2 billion (Beckett & Sasson, 2004). While the federal

government increased its investment in social control, it decreased its spending on social welfare programs.

These same frames continue to shape the debate over criminal justice practices, policies, programs and investments to date; “get tough” approaches to crime rise in popularity if crime is depicted as a result of criminal justice system leniency.

Alternatively, viewpoints shaped by the idea that crime is a result of poverty and other social woes will lead to investments and policies that address these factors. For example, to the extent that crime is seen as a consequence of lenience within the criminal justice system, policies that get tough with criminal offenders seem most appropriate. When crime is depicted as a consequence of poverty, unemployment, or inequality, it suggests the need for policies that address these social and economic conditions (Beckett & Sasson, 2004).

The view that crime has social causes and that some rehabilitative programs are effective has expansive academic support (Beckett, 1997). Despite this support, debates over criminal justice policies are less influenced by research than by political discourse (Beckett & Sasson, 2004). Political emphasis on certain approaches to crime is not a reaction to public concern and outcry over crime. These policies are most often driven from the top down:

Levels of public concern about crime and drug use are not consistently associated with the reported incidence of these social problems. Popular attitudes about crime and drugs have been shaped to an important extent by the definitional activities of political elites. These actors have drawn attention to crime and drug use and framed them as the consequence of insufficient punishment and control (Beckett, 1997).

The history of the political landscape regarding criminal justice decisions and emphases on investments in rehabilitative vs. punitive strategies throughout the years directly informs the current thesis. The criminal justice investment decisions today are often influenced by history and by politics, as decisions made at all levels of government are influenced by each other. The following section addresses the results of the decisions that have been made politically regarding strategies chosen for investing in criminal justice, and the result of the culmination of those decisions.

The Result of Investments in Crime

Just because crime rates decline does not mean that government actions create significant crime reductions (Zimring, 2007).

Most information regarding political decisions and the resulting criminal justice investments and outcomes come from the federal and state level. There are many reasons and aims for making investments in public safety, education and social services. One possible outcome of these investments, among many, is a reduction in crime. The purpose of this thesis is not to explore why certain policies are chosen as investments in public safety, education or social services, but rather what the results of those investments mean for crime rates. This thesis will explore if investments in social services, education or public safety are associated with reductions in crime.

It is important to note the population, incarceration rate and violent and property crime rate trends over the past 50 years. Over the past 50 years, the violent crime and property crime rates increased until around 1992, then started to decline; during this same period, the population of the United States steadily increased, while the incarceration rate

increased exponentially (Center for Economic and Policy Research, 2010). Even though the population rates have increased slightly, and property and violent crime rates started declining around 1992, the incarceration rate continued to skyrocket. This suggests that only a small part of the increase in incarceration can be explained by rising crime (Center for Economic and Policy Research, 2010).

Current estimates state that one out of every one-hundred adults is incarcerated in jail or prison in the United States (The PEW Center on the States, 2009). Additionally, one out of every thirty-one adults is involved in the corrections system through incarceration or some form of supervision (The PEW Center on the States, 2008). These figures are aggregate numbers, and do not capture how incarceration disproportionately affects minorities. While 1 in 106 white men ages 18 and over is incarcerated, 1 in 36 Hispanic men 18 and older is incarcerated, and 1 in 15 Black men over 18 is incarcerated (The PEW Center on the States, 2008). Most shocking, 1 in 9 Black men ages 20 – 34 is incarcerated (The PEW Center on the States). Minority women are also disproportionately incarcerated. While 1 out of 355 white women ages 35 to 39 is incarcerated, 1 in 297 Hispanic women and 1 in 100 Black women in the same age group is incarcerated (The PEW Center on the States, 2008).

The expansion of the criminal justice system is a result of decades of “get tough” policies and investments in strategies associated with deterrence and incapacitation theory. The policies that have contributed to the increase in incarceration include three-strikes laws, mandatory sentencing, laws that target non-violent offenders and low-level drug offenders. Policies that target drug crimes for additional incarceration time have

greatly contributed to the increase in prison and jail rates. As a result of targeting drug offenders, many prisons and jails house lots of people whose most serious crime is the possession or the sale of drugs (Beckett & Sasson, 2004). During the War on Drugs between 1979 and 1994, the percentage of state inmates convicted of nonviolent drug offenses increased from 6 percent to almost 30 percent. During this same time period, the percentage of federal inmates convicted of nonviolent drug crimes increased from 21 percent to 60 percent (Beckett, 1997).

The increase in incarceration naturally led to an increase in corrections expenditures. Between 1965 and 1993, crime control expenditures increased from \$4.6 billion to \$100 billion, and from .6 percent to 1.57 percent of the gross domestic product—an increase of 166 percent (Beckett, 1997). Local justice expenditures alone increased by 422 percent from 1982 to 2006 (Bureau of Justice Statistics, Key Facts at a Glance: Direct Expenditure by Level of Government, 1982- 2006).

The expansion of prisons and jails and criminal expenditures is not a result of a worsening crime problem (Beckett & Sasson, 2004). As was mentioned previously, the increase in incarceration and crime expenditures is estimated to be a result of policies associated with crime control and punitiveness. Although federal, state and local policies have moved to be more punitive in nature, there is still a lot of support for investing in social programs to increase public safety and decrease crime rates.

Throughout history, federal, state, and local governments have spent vast amounts of money for the purpose of reducing crime. Some strategies have been more rehabilitative, while others have been more punitive, but as demonstrated, these decisions

have far-reaching effects and implications. Despite all of these investments and although crime has continued to drop, there are still debates as to what approach is best.

There are several competing theories that have developed and manifested in investments in rehabilitative or punitive strategies that continue today. These theories, and research regarding their efficacy, can help parse out what investment decisions may reduce crime and which may not affect, or even increase, crime. Understanding which theories have guided policies, practice and investments and their effect on crime rates is vital for guiding the hypotheses of the current study. During these tough economic times, it is more important than ever to ensure smart and effective criminal justice investments that increase public safety. These theories also help inform what the results of the current study may be and assist with interpreting results and putting them in perspective.

Institutional anomie and deterrence are two theories that can inform criminal justice policy and practice for the purposes of reducing crime. Although strategies for crime reduction are aspects the theories can help inform, their reasoning for reaching crime reduction differ vastly between the two theories.

Decisions on investments at the federal, state and local levels are consistent with these theories. It is important to look at the impact these investments have had on budgets and crime rates in order to discuss which strategies work best for reducing crime and saving money.

Chapter III. Deterrence

Today, I ask every Governor, every mayor, and every county and city commissioner and councilman to examine the adequacy of their state and local law enforcement systems and to move promptly to support the policemen, the law enforcement officers, and the men who wage the war on crime day after day in all the streets and roads and alleys in America (Simon, 2007).

- President Lyndon Johnson

Deterrence theory is based mostly on classical criminological theory, which states that individuals choose to commit crimes. They engage in a rational decision-making process where they weigh the costs and benefits of pursuing their own interests and pleasures through criminal activity, and then decide to do so based upon the weighing of those costs and benefits (Cullen & Agnew, 2006). Therefore, if it is to someone's advantage to commit crime, they will do so. The best way to deter someone from committing crimes is to increase the cost of crime and decrease the benefits. Increasing the cost of crime can be accomplished through punishments that are swift, certain, and severe (Cullen & Agnew, 2006). By increasing the cost of crime, specific and general deterrence are thought to be accomplished. Specific deterrence is when the costs of committing crime will prevent people who have been punished from committing additional crimes (Paternoster, 2010). This can be accomplished through actual imprisonment, during which people who are incarcerated are unable to commit additional crimes, or through being swayed from committing additional crimes because of the punishment experienced. General deterrence is based upon dissuading people who have not yet offended from committing crimes by the fear of sanction threats (Paternoster, 2010).

Implications of deterrence theory are often viewed through incarceration and police. By investing to increase the number of police or employing policing strategies that target certain areas, it may increase the certainty of getting caught. Deterrence theory in part posits that if the certainty of getting caught increases, then people may be dissuaded from committing crime. Utilizing incarceration, on the other hand, might be viewed as a severe punishment that can deter people from committing crimes. Expanding the reach of incarceration can also be seen as increasing both specific and general deterrence. As such it is important to look at deterrence theory through the results of investments that have been made in incarceration and police.

Incarceration

In the 1970s and 1980s there was a huge shift in resources and strategies reflected in state budgets nationwide. Between 1976 and 1989, state budgets allocated to education decreased by 12 percent, and allocations to welfare programs declined by 41 percent, thereby decreasing funding for institutions that if strengthened might have a mitigating effect on the dominant economic institution. During roughly this same time period, average monthly welfare benefits shrank from \$714 to \$394. Investments in more correctional- focused expenditures *increased* during this time period. Between 1976 and 1989, state correctional expenditures increased by 95 percent (Beckett, 1997). In the past twenty years, the states' budget category of corrections has grown at a faster rate than every other spending category with the exception of Medicaid (The PEW Center on the States, 2010). In total, state spending on corrections increased 333 percent from 1988 to 2008 (National Association of State Budget Officers, 2009). On average, corrections is

the fifth- largest state budget category (The PEW Center on the States, 2008). Increases in state budgets for corrections may have affected levels of incarceration. Research suggests that increases in state resources to build additional prison beds accounts for approximately 30 percent of the increase in incarceration rates over the past 30 years (Spelman, 2009).

California also demonstrates states' shifting resources from rehabilitative strategies and social support investments to corrections- focused investments that might increase deterrence and therefore might decrease crime. In California, state spending on higher education *decreased* by about \$1 billion between 1985 and 2000. Spending on corrections *increased* by around \$3 billion during the same time period (American Society of Criminology, 2001).

However, while investments in punitive strategies were increasing, the crime rate decreased during the 1990s. Although an increase in imprisonment rates did have some impact on declining crime rates in the 1990s, most research has concluded that it was not the only contributing factor, and likely was not the most important factor (Vold, Bernard, and Snipes, 2002). Researchers attribute anywhere from 10 percent to 27 percent of the drop in the crime rates to the effect of increased incarceration (Zimring, 2007; Western, 2006). Paternoster (2010) notes that the literature mostly supports that the 90's crime drop may be attributable to an increase in imprisonment as well as longer sentences. However, Paternoster also notes that it is difficult to determine how much of the crime reduction is a result of imprisonment and incapacitation and how much a result of deterrence (Paternoster, 2010). Some research indicates that the deterrent effects of

imprisonment differ according to the type of offender sentenced. For example, imprisoning drug offenders did not have an effect on reducing crime, but incarcerating violent offenders did (Cohen & Canela- Cacho, 1994).

There is some research support that says increasing incarceration by 10 percent will achieve a two to four percent reduction in crime (Vera Institute of Justice, 2007). Although incarceration may reduce some crime and therefore have a deterrent effect, it is often not clear when and how incarceration will reduce crime (Lynch & Sabol, 2000; Nagin, 1998). The states of Texas and New York demonstrate this best. Texas increased rates of incarceration by 144 percent and experienced a simultaneous decrease in crime of 35 percent. New York increased its incarceration rate by only 24 percent and experienced a crime reduction of 43 percent. States nationwide experienced similar results; states that increased their state prison populations by an average of 13 percent experienced average crime reductions of 17 percent (Gainsborough & Mauer, 2000). Conversely, the largest drops in violent crime have been seen in states that have *reduced* incarceration rates (Justice Policy Institute, 2008).

Other research supports the idea that an increase in incarceration will reduce crime rates, but that this effect only exists up to a certain point. Liedka, Piehl and Useem (2006), using state level prison and reported crime data, found that once the incarceration rate reaches a certain point, additional increases in incarceration are associated with an *increase* in crime.

Even if incarceration reduces crime rates, it may not be a fiscally viable option. While there may be a reduction in crime associated with increases in state prison

populations, most research indicates that the reduction is not significant compared to the additional resources necessary for the incarceration of more people. Each state must analyze whether or not the cost of increasing incarcerated populations is worth the decrease in crime. For instance:

“California and Nebraska had very similar crime rates in 2003 of approximately 4,000 index offenses per 100,000 people in the population. To achieve a 2 to 4 percent reduction, California, with a prison population of 162,678 inmates, would have to incarcerate an additional 16,089 inmates. To achieve the same rate of reduction, Nebraska, with a prison population of 3,976, would have to incarcerate just 400 additional inmates. If the average cost to incarcerate an offender for one year is \$22,650, California would spend \$355 million *more* than Nebraska to achieve the same level of public safety. The cost incurred per unit of crime reduction, then, is substantially larger for California. Thus, an increase in incarceration in a state with an already large prison population may require a huge boost in actual prison populations that may be difficult to sustain economically (Vera Institute of Justice, 2007).”

Just like the federal and state prison levels, county jails have seen an increase in populations over the last few decades. What effect have high incarceration rates had at the local level? To begin with, more incarceration at the local level does not seem to indicate a lower crime rate. A study of New York counties tested whether or not those counties with higher imprisonment rates for felony convictions resulting in prison sentences experienced lower crime rates. Using trajectory modeling of county- level imprisonment, the authors found that counties that had heavier use of prison sentences actually experienced higher rates of violent crime, but not property crime (Schupp & Rivera, 2010). The authors caution against any definitive statements from these results, as the sample size was small. It does, however, lend some support to the idea that more incarceration does not definitely mean less crime.

A second study, by Kovandzic and Vieraitis (2006), at the county level also looked at whether or not fluctuations in the number of county residents sentenced to state prison would affect the violent and property crime rates of the county. The authors found that counties that relied most on imprisonment did not experience greater reductions in crime than those counties that relied less on imprisonment.

Police

Over the last thirty years, localities' corrections budgets have increased dramatically as the local incarceration rates increased. Some estimates show that local corrections budgets have increased three times as fast as education (U.S. Department of Education, 2008). Many of these corrections expenditures have gone towards local police. The question is whether or not these investments in police, and therefore more deterrence-based punitive strategies, have affected crime rates. One experiment considered this very question: the Kansas City Preventative Patrol experiment. This experiment wanted to determine the various effects of policing on crime rates. In order to test the effect, Kansas City was split up into three areas: one area received no preventative patrol, a second area increased police visibility, and a third area maintained the normal level of patrol. An analysis of the data found interesting results. The three areas experienced no significant differences in citizens' attitudes toward police service, citizens' fear of crime, police response time, or citizens' satisfaction with police time. The most telling outcome was that there was no significant difference in the level of crime across the three areas (Kelling, 1974). This study would indicate that investing in police to increase force size would not have a significant effect on crime.

More recent analyses of the Kansas City experiment have cast major doubt on the efficacy of the outcomes of this study. Many analysts who looked at this study more in depth after its release found that in actuality, there was most likely no difference in the amount of patrol presence in the three areas related to the experiment (Sherman, 2011). As there was no change in response to calls to service, patrol presence in the three areas was virtually left unchanged. This means that no test was actually conducted if between the three areas there was not actually a difference in patrol visibility (Sherman, 2011). Ultimately, the Kansas City Preventative Patrol Experiment's conclusions are not deemed very dependable.

Alternatively, a number of studies have found that jurisdictions with more police officers actually have more crime (Vold et al., 2002). As it is difficult to determine whether or not there are simply more police in high crime areas, it is difficult to determine a causal relationship.

There are aspects of deterrence theory that have garnered some more recent research support in regards to policing. In terms of increasing deterrence by police presence, Cloninger (1994) found that police presence increases the risk of being punished for crimes. Therefore, police presence in general may deter crime, especially violent crime. A 2011 study cautiously lends support to the practice of foot patrol in driving down crime in violent crime hotspot areas. Ratcliffe et al. (2011) found that violent crime hotspots that received 90 hours of Philadelphia, PA foot patrol officers for up to 90 hours per week experienced a reduction in violence of 90 offenses. The authors caution that the crime reduction in the area may not solely be due to foot patrol officers

targeting hotspots, but to other factors as well. Braga and Bond (2008) also conducted a randomized control trial to determine if focused policing strategies on areas of high crime could affect crime rates. The results support specific policing strategies in crime hot spots to reduce crime, but the authors again caution on the generalizability of the results.

Paternoster (2010) also cautions on definitive statements regarding the effects of various policing strategies on crime. One reason is because it is difficult to determine whether or not additional police matter more in decreasing crime, or if a decrease in crime is specifically attributable to a policing strategy (Paternoster, 2010). Another reason is because it is difficult to tell whether or not specific policing strategies and the targeting of hot spots result in crime displacement, which is an increase in crime in areas surrounding the places targeted by specific policing strategies. Recent research suggests that a more likely outcome of geographically targeted policing initiatives actually results in a 'diffusion of benefit' in the areas directly outside of the treatment area, suggesting that crime displacement may not be the typical outcome of policing strategies such as hot spots policing (Bowers, Johnson, Guerette, Summers & Poynton, 2011). Short, Brantingham, Bertozzi and Tita (2010) also note that in empirical tests of hot spots policing strategies that crime displacement is not frequently observed.

Conclusion

Research is mixed regarding the support for deterrence theory even though more recent research indicates that some deterrent- based strategies, such as incarceration and police, may reduce crime under certain circumstances. Although there is some research support for deterrence theory, it is important not to over- generalize. There is much that still needs to be discovered regarding when deterrence is most effective, how it is effective, and how this can translate into effective policy.

Chapter IV. Institutional Anomie

The get-tough policies that have resulted from this campaign are not supported by the findings of most sociological research, which suggest that severity of punishment does not have a significant deterrent effect and that welfare spending reduces rather than increases crime (Beckett & Sasson, 2004).

Strategies that most often support investing in social services to reduce crime can be formed in the context of institutional anomie theory. Institutional anomie theory is a macro-level explanation of crime. Although the theory was designed to explain “American exceptionalism” in the sense of accounting for America’s high rate of crime, particularly violent, predatory crime, it can be appealed to in the current account of why social welfare expenditures might be expected to be inversely related to crime. The focus of this theory is on the link between the central cultural components and major social institutions of which American society consist of, and observed crime patterns and rates (Rosenfeld & Messner, 2006).

Institutional anomie theory was born out of Merton’s anomie theory. Merton’s theory supposed that the high crime rate in the United States could be explained through our cultural desire to achieve the American Dream, i.e. monetary success. Merton hypothesized that there is a large emphasis on reaching monetary success in the United States, and that the goal of monetary success is more important than achieving it through legitimate means (Rosenfeld & Messner, 2006). This combined with the fact that America is also a class society with large segments of the population having limited access to legitimate mobility routes like education and a good job, are said to account for the high rates of serious crime in America compared with other Western societies.

Rosenfeld and Messner expanded Merton's anomie theory by hypothesizing that while the culture that puts an emphasis on the American Dream may lead to crime, it does so because there are limited structural opportunities for people to utilize legitimate means to achieve success, i.e. money (Kubrin, Stucky, & Krohn, 2009). In addition to culture and social structure, however, they add the notion that crime can also be affected by the institutional arrangements in America. That is, they argue that the crime producing effects of culture and structure can be mitigated by the effects of other social institutions, including parts of the welfare state. The economy, polity, family, and education are all social institutions that play a role in regulating behavior by providing structural opportunities for people to achieve success through legitimate means. The balance and interplay between these institutions is important for crime outcomes. In an integrated and presumably healthy society, these institutions are in balance in the sense that while economic roles and the achieving of economic goals are important, the roles and goals of the other institutions are deemed of equal importance. For example, while earning an income is important, parents are not expected to spend all their time at work or working but are to fulfill their roles as parents since the family is important. Similarly, the importance of education is seen in its own right as the accumulation of knowledge and wisdom. In the United States, however, the economic institution dominates (in part as a reflection of the dominance of economic themes in the culture) and permeates the other institutions. As such, the other non-economic institutions are devalued. The parental role is devalued with respect to the "bread winner" role and parents are expected to spend long amounts of time at work even if it means missed soccer games, PTA meetings, or other family functions. This devaluation of non-economic institutions means that their

abilities to regulate behavior are diminished, so social control is decreased and there is an increased likelihood of criminal activity (Kubrin et al, 2009). At the cultural level, the American Dream emphasizes and encourages a breakdown of traditional social controls due to the prominence of the goal of monetary success (Messner & Rosenfeld, 2001). At the institutional level, the economy is dominant in the balance of power between all of the institutions which promotes weak social control (Messner & Rosenfeld, 2001). The American culture and the organization of American institutions are intertwined and foster one another, and lead to a greater likelihood of crime than in places where the institutional balance of power does not favor the economy so heavily.

In other societies, however, the economy does not dominate other institutions as much, in fact, in these societies other institutions such as the state via social welfare spending, intentionally attempt to tame the demands of the economy by providing assistance to those in need. They argued (2001: 106-107) that “governmental efforts to ‘tame the market’ by providing guarantees of minimal levels of well-being are associated with comparatively low levels of serious crime.” The generosity of social-welfare states such as Norway, Sweden, and Denmark, for example, is argued to be one important reason for their lower rates of serious crime. Messner and Rosenfeld (2001) concluded that “the mechanism through which material rewards are distributed in capitalist societies – specifically, the extent to which market forces are moderated and counterbalanced by the welfare state – thus appears to be related to overall levels of the most serious of crime, criminal homicide”. While Messner and Rosenfeld were making a point about cross-national differences in crime due to the moderating effect of welfare expenditures the argument by analogy can be made that lower-level jurisdictions, such as states and

counties, within the U.S. can lower their crime rates by moderating the anomic effect of the dominance of the economy and a market mentality by increasing their social welfare expenditures.

Although institutional anomie theory is a newer theory, there have been a few attempts to test it. Tests of the theory have generally fallen into two categories: those that test the institutional dynamics portion of the theory, and those that test the cultural parts of the theory. For the institutional dynamics portion of the theory, there have been several tests.

Messner and Rosenfeld (1997) argued that where there are larger social safety nets such as healthcare, child care and unemployment insurance, these larger social safety nets protect against unemployment and therefore the homicide rates should be lower. Other researchers set out to look at the efficacy of this interpretation of the theory. Hannon and DeFronzo (1998) looked at welfare assistance to see if crime rates were affected by counterbalancing the effect of economic scarcity on crime. They looked at the effects through violent and property crime rates, using data from metropolitan areas. They interpreted their results as supportive of institutional anomie theory. They found that the relationship between how large a disadvantaged population was and the crime rates was mitigated in areas with higher levels of welfare assistance. In another test of social welfare policies and crime, Savolainen (2000) found that in countries with strong welfare states the economic disparity has less of an effect on homicide rates.

Pratt and Godsey (2003) also aimed to look at social welfare policies as a way to measure the efficacy of institutional anomie theory. They measured the strength of social

welfare policies by the percentage of the nation's gross domestic product spent on health care (Messner & Rosenfeld, 2006). Pratt and Godsey (2003) found that social welfare policies mitigate the effect of income inequality on homicide rates.

Maume and Lee (2003) also found support for institutional anomie theory by looking at counties in the U.S. Using measures of voter turnout, education and welfare expenditures, they found that noneconomic institutions can mitigate the criminogenic effects of a strong economic institution by reducing the effect of disparity on homicide rates.

It is important to note that in regards to the efficacy of the institutional part of institutional anomie theory that not all research results have been positive. Jensen (2002) was not able to replicate an effect on homicide rates based on the generosity and extensiveness of social welfare policies. Batton and Jensen (2002) too measured the effect of the generosity and extensiveness of social welfare policies on crime. They used a time-series analysis of homicide rates between the years of 1900 and 1997. This analysis produced mixed results: although they did find an effect of social welfare policies on homicide rates for the period of 1900 to 1945, they did not find any effects of social welfare policies on homicide rates for the period as a whole. The authors concluded that their results could mean that social welfare policies may have an effect on homicide rates under certain institutional circumstances.

Although not directly testing institutional anomie theory, other studies have shown that the individual tenants related to the theory may enjoy some support. There is evidence that this theoretical framework helps explain why investing in welfare can

actually decrease crime. The thought is that crime is reduced by providing welfare relief, which affords a legitimate avenue for people to meet culturally defined goals (Burek, 2005). In addition, by providing welfare relief it may mitigate the pressure of the economic institution combined with culturally defined goals by lessening the effects of a dominant economic institution. One study in particular found that higher welfare expenditures are associated with less crime (Hannon & DeFronzo, 1998). Several studies suggest that it is not just simply investing in social support such as welfare that decreases crime, but the amount of money put into the programs. For instance, higher levels of welfare assistance are also correlated with lower levels of crime (Hannon & DeFronzo, 1998). Cities with more generous welfare programs have been found to have lower levels of crime, including homicide (Hannon & DeFronzo, 1998). This is not the only study to find a link between welfare assistance and reductions in serious crime. In terms of serious offenses, several additional studies have found that as welfare relief increases, rates of serious offenses decrease (Burek, 2005). Besides a decrease in crime, there may also be another unanticipated benefit from receiving welfare: a decrease in substance abuse (Brown, Montoya, Dayton- Shotts, Carroll- Curtis, & Riley, 2004). These studies may lend support to institutional anomie theory through support of some of the research above that showed that places with more generous and extensive welfare programs helped mitigate economic factors that lead to high homicide rates.

While some researchers argue that there is an inverse relationship between welfare spending and crime, some suggest that there is no relationship at all (Worrall, 2005). Taking this idea a step further, it has also been suggested that social support such as welfare actually causes criminal behavior such as drug addiction and crime (Beckett,

1997). Some claim that welfare programs in particular have significantly contributed to past rising crime rates (Beckett, 1997). These studies can perhaps be seen as not lending support to institutional anomie theory.

Overall, the research for institutional anomie theory is limited at best. According to Messner and Rosenfeld (2006) of the eleven studies that have tested the institutional dynamic portion of institutional anomie theory, seven are generally supportive, three are mixed and one did not find support for the theory. In regards to testing the cultural dynamic portion of institutional anomie theory, the research is much more limited as well as less favorable (Messner & Rosenfeld, 2006).

There are several limitations to institutional anomie theory. As it is a newer theory, there have only been a few tests of its efficacy. In addition, it is a complex theory to test as it is difficult to decide what institutions to include, their relative strength and the interplay among them (Kubrin et al, 2009). Many of the studies in support of institutional anomie used homicide rates, leaving some speculation as to the effect of institutional anomie on property crime rates.

Another limitation is in regards to how the key concepts and propositions of institutional anomie theory have been measured so far. Even though the studies that have shown support for institutional anomie theory have used a variety of levels of units of analysis such as cities, metropolitan areas, counties, states, and nations, there is some debate as to whether these studies test the theory as intended originally (Kubrin et al, 2009). Although since the authors of institutional anomie theory themselves use examples at all levels of analyses to demonstrate initial positive results of the theory

(Messner & Rosenfeld, 2006), one might speculate that they do not take issue with testing institutional anomie on units of analysis at all levels, rather than just as tests between nations. This suggests that studies at all levels are useful to include in a review of the support for institutional anomie theory. The information as a whole puts the current study in context, while still recognizing that tests of institutional anomie theory that do not utilize the state as the unit of analysis may not be generalizable or applicable to the outcomes of the current study. All in all, although there is some early support for institutional dynamics of institutional anomie theory there are questions that remain.

After reviewing the research, it appears as though research is mixed with respect to both institutional anomie theory and deterrence theory. Deterrence theory does not generally enjoy overarching support. However, more recent research suggests that deterrent strategies such as imprisonment and policing may lower crime under certain circumstances. Institutional anomie theory enjoys some support, but much cannot be inferred at this time as this theory is new and the tests of it have been few. In addition, institutional anomie theory is difficult to test, and some wonder if any tests using units of analysis at levels other than comparing nations truly tests the efficacy of the theory.

This current thesis can lend itself to the literature of both deterrence and institutional anomie theory, and can begin to help address the gap in literature on local criminal justice investment decisions. Although, one must caution against the utility of this thesis contributing to literature regarding local spending, as the unit of analysis is states. As this study looks at local spending aggregate at the state level, one must be

cautious with interpreting the results. More will be discussed in the section on limitations.

As stated previously, the following study will address the following hypotheses using local data aggregated at the state level:

H1: As social services expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H2: As public safety expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H3: As education expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H4: Investments in social services (as a proportion of total expenditures), will have the largest inverse relationship with crime rates than public safety and education expenditures (all as proportions of total expenditures)

H5: The effects of the investments in social services, public safety, or education (all as proportions of total expenditures) on violent/ property crime rates will increase over time.

Chapter V. Methodology

Data

The data for this paper include local level spending in the United States aggregated at the state level. Therefore, there will be 51 observations for each variable, one for each state and the District of Columbia. Each observation represents all of the measured local spending within that state. Choosing one state and measuring local spending does not take into consideration the different policies and practices among states; the findings would not be generalizable to other states. By measuring all localities within each state, we can begin to see if there are any relationships between local investments aggregated to the state level and crime rates.

It is important to note that there is some ambiguity regarding local level spending aggregated to the state level, as the funding streams for local government programs are often mixed with state and federal funding. The money for local expenditures might include different funding streams, and might not be consistent from state to state.

The next step is to view the mean and standard deviation of each key variable. Please refer to Table 1 Mean and Standard Deviation of Key Variables.

Table 1. Mean and Standard Deviation of Key Variables

Variables	Mean	Standard Deviation
Percent High School Graduates	86.53	3.43
Percent Below Poverty	13.46	3.02
Percent Male ages 15-19	3.77	0.34
Percent NonWhite	24	13.88
Violent Crime Rate per 100,000 2007	427.2	230.01
Violent Crime Rate per 100,000 2008	419.48	224.47
Violent Crime Rate per 100,000 2009	400.93	207.02
Violent Crime Rate per 100,000 2010	384.5	195.32
Property Crime Rate per 100,000 2007	3197.71	773.26
Property Crime Rate per 100,000 2008	3133.46	742.85
Property Crime Rate per 100,000 2009	2976.04	672.83
Property Crime Rate per 100,000 2010	2894	641.51
Proportion Education Expenditures	0.39	0.09
Proportion Social Services	0.11	0.08
Proportion Public Safety	0.09	0.02

Measures

The focus of this paper is to determine if local investments aggregated at the state level in social services, public safety, and education are associated with crime rates. It is important to understand how expenditures are defined and measured.

Measuring Social Services, Public Safety and Education: Independent Variables

Expenditures are determined by adding local spending numbers as demonstrated in the 2007 Census of Governments: Finance, Table 2, Local Government Finances by Type of Government and State: 2006 – 2007. Local spending consists of county government, municipal government, township government, special district government amount, and school district amount all added together for each state.

The three main independent variables are Proportion Social Services, Proportion Public Safety, and Proportion Education, all originally in thousands of dollars of expenditures, and all presented as proportions of total local expenditures. These will measure investments in social services, public safety (including corrections), and education respectively. The Proportion Social Services variable is a measure comprised of the total local spending aggregated at the state level of public welfare (such as cash assistance payments, vendor payments, and other qualifying payments), hospitals, health, social insurance administration and veterans services, all in the thousands. These data come from the 2007 Census of Governments: Finance, more specifically, Table 2, Local Government Finances by Type of Government and State: 2006 – 2007.

The second main independent variable, Proportion Public Safety, comes from the same data source as Proportion Social Services. Proportion Public Safety is a measure of local spending aggregated at the state level on police protection, fire protection, corrections, protection inspection, and regulation, all in the thousands of dollars and presented as a proportion of the total local spending.

The third and final independent variable is Proportion Education. The data for this variable are also found in the 2007 Census of Governments: Finance. Proportion Education is a measure of local spending aggregated at the state level on higher, elementary, secondary and other education, also presented as a proportion of total local spending.

The U.S. Census Bureau conducts a Census of Governments every 5 years since 1957. The 2007 Census of Governments, where data for the three main independent variables originate, contains survey information from 50 states and 89,476 local governments (counties, municipalities, special districts and school districts) which includes the District of Columbia. The survey collects information on revenue, expenditure, debt and assets; for this paper, the focus remained on local expenditure data aggregated to the state level for social services, public safety, and education (U.S. Census Bureau, 2007).

Data are collected through mail canvassing, internet collection and central collection from state sources. A review of government accounting records for the 48 largest and most complex municipal and county governments is completed for obtaining data. In 28 states, data for local governments were consolidated by state agencies. Additional data for local governments were obtained via mail questionnaires (U.S. Census Bureau, 2007).

For the Census of Governments, data for years ending in numbers besides '2' or '7' are from sample surveys and are therefore subject to sampling error. Since the data for this project are from year 2007, sampling error discussions are not pertinent.

However, there are nonsampling errors to consider. Nonsampling errors can include inability to obtain data, inaccuracies in classification, response errors, misinterpretation of questions, mistakes in keying and coding, and coverage errors (U.S Census Bureau Finance Methodology, 2007). Nonsampling error can affect the results of this paper by providing an incomplete picture of the population as a whole, possibly negating the ability to generalize findings to the entire population (Bachman & Paternoster, 2004).

For the 2007 Census of Government Finance, the overall response rate was 81.2 percent. For local governments, the overall total unit response rate was 81.9 percent. The percentage of the total local estimates of expenditures reported ranged from 83.4 percent to 100 percent (U.S. Census Bureau Finance Methodology, 2007).

Measuring Crime Rates: Dependent Variables

The main dependent variables are property and violent crime rates per 100,000 people for the years of 2007, 2008, 2009 and 2010. The crime rate measurement is separated by property and violent crime. Data for both were collected from the Federal Bureau of Investigation's 2007 Uniform Crime Report, Table 5: Crime in the United States by State, 2007; Federal Bureau of Investigation's 2008 Uniform Crime Report, Table 5: Crime in the United States by State, 2008; the Federal Bureau of Investigation's 2009 Uniform Crime Report, Table 5: Crime in the United States by State, 2009; and from the Federal Bureau of Investigation's 2010 Uniform Crime Report, Table 5: Crime in the United States by State, 2010. Violent crime is composed of four offenses; murder and non-negligent manslaughter, forcible rape, robbery and aggravated assault (U.S. Department of Justice, Uniform Crime Report, Violent Crime, 2010). Property crime is

composed of the offenses of burglary, larceny- theft, motor vehicle theft, and arson (U.S. Department of Justice, Uniform Crime Report, Property Crime, 2010). The rates for both property and violent crime are calculated per 100,000 state inhabitants.

Table 5 of the UCR provides both the actual number of offenses reported and the estimated number of offenses in Metropolitan Statistical Areas, cities outside of metropolitan areas, nonmetropolitan counties, and the rate for each grouping, and the estimated population for each state. It is important that offenses known to law enforcement from nonmetropolitan counties are included in data as of the United States' 3,068 counties nearly two-thirds are designated as rural (National Association of Counties).

It is important to note that the property and violent crime rates are being looked at across several years. This is done in order to study if there is a lag in the effect of investments. Programs that may have been allocated additional funds in fiscal year 2006 to 2007 may increase the proportion of social services spending, for instance, but may not demonstrate an effect on the crime rate until several years later. With social services, public safety programs, and education there may not be an immediate effect of investments. To account for this, the study will use crime data from 2007 to 2010 in order to determine if a lag effect is present. Structuring the dependent variables this way allows this study to test if there is a relationship between the independent and dependent variables and if this relationship changes over time.

Independent Variables

Independent variables are those that are manipulated in order to measure the impact on the dependent variable. For the purposes of this study, the Total Local Social Services Expenditures, Total Local Public Safety Expenditures and Total Local Education Expenditures, presented as proportions of the total local expenditures aggregated to the state level, are the main independent variables.

It is important to note that especially for the independent variables measuring the proportion of public safety and social services expenditures that these variables contain components that cannot be disaggregated (please refer to Table 2). Better measures would be disaggregated to determine which, if any, specific social services or public safety components are related to crime. As is, the social service and public safety variables in particular may include components that are not related to crime.

All of the independent variables, their definitions, years, and data sources are in Table 2.

Table 2. Independent Variables

Variable	Definition	Year	Data Source
Total Local Social Services Expenditures as a proportion of total local expenditures	Is a measure of public welfare (cash assistance payments, vendor payments, other payments), hospitals, health, social insurance administration and veterans services. Variable amounts were in thousands.	2006-2007	2007 Census of Governments: Finance, Table 2. Local Government Finances by Type of Government and State: 2006 - 07
Total Local Public Safety Expenditures as a proportion of total local expenditures	Is a measure of police protection, fire protection, corrections, protection inspection and regulation. Variable amounts were in thousands.	2006-2007	2007 Census of Governments: Finance, Table 2. Local Government Finances by Type of Government and State: 2006 - 07
Total Local Education Expenditures as a proportion of total local expenditures	A measure of education services, which includes Education (Higher, elementary & secondary, and other). Variable amounts were in thousands.	2006-2007	2007 Census of Governments: Finance, Table 2. Local Government Finances by Type of Government and State: 2006 - 07.

Control Variables

Control variables are those that are used in order to measure the impact of the independent variable on the dependent variable. Control variables attempt to hold everything equal in order to test the true effects of the independent variable on the dependent variable, and control for any outside influences that may also be influencing changes in the dependent variable. As there are 51 total observations, four control variables were chosen. The control variables, their definitions, years, and data sources are in Table 3.

Table 3. Control Variables

Variable	Definition	Year	Data Source
Percent NonWhite	Percent NonWhite was calculated by subtracting the %White (a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicate their race as "White" or report entries such as Irish, German, Italian, Lebanese, Near Easterner, Arab, or Polish) from 100.	2010	US Census Bureau, State and County QuickFacts.
Percent High School Graduates	High School Graduates include people whose highest degree was a high school diploma or its equivalent, people who attended college or professional school, and persons who received a college, university, or professional degree. Persons who reported completing the 12th grade but not receiving a diploma are not high school graduates. These data include only persons 25 years old and over. The percentages are obtained by dividing the counts of graduates by the total number of persons 25 years old and over.	2006-2010	US Census Bureau, State and County QuickFacts.
Percent Below Poverty Level	Families and persons are classified as below poverty if their total family income or unrelated individual income was less than the poverty threshold specified for the applicable family size, age of householder, and number of related children under 18 present. The Census Bureau uses the federal government's official poverty definition.	2006-2010	US Census Bureau, State and County QuickFacts.
Percent Males ages 15 – 19 years old	The percent of males ages 15 to 19 per state.	2000	CensusScope, Age Distribution, 2000

These control variables were chosen using an empirical approach, selected due to their high correlation with both the independent and dependent variables¹. Controlling for variables highly correlated with the independent and dependent variables accounts for making false assumptions regarding the relationship between the independent and dependent variables.

With the control variables chosen, it is important to consider the advantages and limitations of using data from the U.S. Census Bureau and the FBI's Uniform Crime Reports for the independent and dependent variables, respectively.

U.S. Census Bureau Data

Data from the U.S. Census Bureau for this project come specifically from its Census of Governments, Finance. Data from the 2007 Census of Governments, Finance, are not from sample surveys and therefore are not subject to sampling error discussions. Census Bureau data is generally highly regarded, as its data collection policies and procedures are of high quality and meticulous pretesting occurs prior to data collection (Mosher, Miethe, & Phillips, 2002).

However, there are nonsampling errors to consider, such as the inability to obtain data, inaccuracies in classification, response errors, misinterpretation of questions, mistakes in keying and coding, and coverage errors. Rates of response differ across sociodemographic categories and across geographical regions. For instance, for the 2000

¹ As noted in Appendix A, there is a high correlation of .76 between the Percent High School Graduates and Percent Below Poverty variables, indicating a potential multicollinearity problem. After running analyses with one of these variables omitted, the coefficient and standard error for the remaining variable did not change considerably, so both variables were included in the models.

Census it is estimated that between 6.4 and 8.6 million people were not counted (Mosher et al., 2002). However, the Census also has the problem of over counting people; it is estimated that in the 2000 Census, approximately 4 million people were counted twice (Mosher et al., 2002). All of these nonsampling errors must leave one cautious when interpreting the findings of this current study, as any findings may not be generalizable to the entire population (Bachman & Paternoster, 2004).

The reliability and validity of Census Bureau data are also subject to question wording effects, question order effects, and response effects (Mosher et al., 2002). Questions might be worded in ways that are up for interpretation, or use words that are defined differently by different people. The ordering of questions can also have an effect on responses; putting a certain question first may influence responses to additional questions. Response effects also affect the reliability and validity of Census Bureau data. There may be issues of memory, respondents may not be completely truthful, and respondents may not have a general knowledge of the subject matter (Mosher et al., 2002).

While the Census of Governments, Finance, utilizes surveys, mail questionnaires, and government accounting records for data and therefore is subject to the validity and reliability questions posed above, Census Bureau data is generally considered very high quality and therefore is the best account of local spending on social services, education and public safety aggregated to the state level.

Uniform Crime Report

The International Chiefs of Police created a committee in 1927 to determine the possibility of collecting uniform crime reports across jurisdictions for comparative purposes. The Uniform Crime Reports (UCR) were born, and published for the first time in January of 1930. The UCR reflects the number of crimes reported to the police by the public. The Federal Bureau of Investigation of the U.S. Department of Justice took over the publication of the UCR in September of 1930 (Mosher et al., 2002).

There are many critiques of official crime data. In the beginning of UCR reporting, there were concerns regarding underreporting by police departments. Some police departments expressed concern that if numbers of reported crimes to police were high, the public would use the information to rate their effectiveness (Mosher et al., 2002). Numbers could also suffer from bad record keeping and a lack of understanding regarding the classification of reported crimes (Mosher et al., 2002). In addition, many crimes may not be reported to police, so the reported crimes may not represent all of the crime that is actually occurring in a particular area.

Self-report studies are another method of determining the number of crimes that occur, as they potentially include crimes both reported to police and not reported to police. However, this type of crime data collection is also subject to error. Not all people may be forthcoming about reporting incidences. In addition, there may be issues with instrument design and question wording and order when attempting to gather information (Mosher et al., 2002). All of these issues may affect the reliability and validity of self-report data.

The accuracy of police counts of reported crime is subject to some uncertainty. However, the UCR is widely accepted as one measure of crime, and one of the only measures that encompasses most of the United States (Mosher et al., 2002). Therefore, when needing a count of crime across as many jurisdictions as possible in the United States, as is needed for this particular paper, the UCR is useful.

Analysis

For this analysis, there are fifty- one observations for each variable; 50 states and the District of Columbia. It is important to note that the three main independent variables and the dependent variables are continuous variables. A total of thirty- two multiple regression analyses will be completed to determine if there are any significant relationships between the independent and dependent variables.

1. The first set of multiple regressions will test the relationship between social services spending and the crime rate separately for each year from 2007-2010.
2. The second set of multiple regressions will test the relationship between social services spending and the crime rate separately for each year from 2007-2010.
3. The third set of multiple regressions will test the relationship between public safety spending and the crime rates for each year from 2007-2010.

Another multiple regression analyses will test which independent variable has the largest effect on the crime rates for each year separately from 2007-2010. In order to do this, beta weights are calculated for the independent variables in order to convert all independent variables to a common scale to allow for comparison. In addition, only the

two strongest control variables, Percent Below Poverty and Percent NonWhite, are utilized for the regressions using beta weights. The final regression analyses will test whether or not there are any appearances of lag effects regarding the investments and the crime rates for years 2007, 2008, 2009 and 2010.

These regression analyses will determine if there are relationships between the proportion of local spending aggregated to the state level regarding social services, public safety, and education and the property and violent crime rates from 2007, 2008, 2009 and 2010.

It will also allow for testing which independent variable has the larger effect, therefore determining which investment may be associated with lower crime rates, if any.

Chapter VI. Results

When analyzing the data I used a directional hypothesis test since my hypothesis predicted a specific direction regarding the relationship between local educational, social services and public safety expenditures aggregated to the state level and property and crime rates for years 2007 through 2010. Since the sample size is small ($n=51$) there is a risk of having low power for my hypothesis tests. To address the risk of low power, I used an alpha level of .10. For each hypothesis test I will reject the null hypothesis if the p-value is less than or equal to .10.

Using an alpha of .10 for a directional test means that the risk of making a Type I error, i.e. rejecting a null hypothesis that is true, is increased compared to using a standard alpha of .05 or .01. It also indicates that the chances for making a Type II error, i.e. failing to reject a false null hypothesis, is minimized compared to using an alpha of .05 or .01. With the current data examining possible relationships between expenditures and crime levels, it is comfortable to assume a risk of rejecting a true null hypothesis 10 times out of 100. Given that the cost of making a Type I error in this situation is not grave, a higher alpha than is conventionally used is appropriate. In addition, when using a small sample, such as is the case with this study, the probability of a Type II error may be too high. By increasing the alpha, we are minimizing the chances of a Type II error.

An initial examination of the results can be gleaned from a series of simple, bivariate regressions (OLS) with property and violent crime rates from 2007 to 2010 regressed on each expenditure measure (educational, social service, and public safety).

Table 4. Bivariate Regression for Educational, Social Service, and Public Safety Expenditures on Property and Violent Crime Rates-2007-2010

	Property Crime							
	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
Education	-3961.26	1018.47	-3010.14*	1033.41	-2768.84*	933.46	-2603.98*	892.16
Social Services	2812.90*	1383.32	277.61*	1325.75	2351.22*	1207.59	2498.75*	1140
Public Safety	9391.73*	4825.65	7775.11*	4681.78	6612.81	4254.61	5211.62	4088.06
	Violent Crime							
	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
Education	-828.77	325.73	-793.86*	318.65	-719.47*	294.52	-664.73*	278.56
Social Services	1338.64*	383.45	1300.69*	374.62	1168.33*	347.68	1085.02*	329.19
Public Safety	1151.06	1473.32	1381.98	1440.52	1297.05	1328.10	1076.27	1255.77

Table 4 presents the bivariate results for the regressions of the proportion of local expenditures aggregated to the state level for education, social services, and public safety on the property and violent crime rates from 2007 to 2010. These regression analyses are used as baseline regressions to inform the analyses of the multivariate regressions with the control variables.

The results for the bivariate analysis for educational expenditures are as predicted. The proportion of education spending has a significant inverse relationship with property crime and violent crimes rates for years 2007 through 2010. The magnitudes of the regression coefficients are fairly comparable over the four year period which is not too surprising since the correlation in both property and violent crime rates over the years is high (in the .90s). An increase in the proportion of local expenditures aggregated to the state level for education of .01 reduces the property crime rate by about 3,000 per 100,000 population and the violent crime rate by about 700 per 100,000 population. These bivariate results suggest that the higher the proportion of local expenditures aggregated to the state level that are for education lower the property and violent crime rate for that state.

The results for social service expenditures do not support the conjecture from institutional anomie theory. For both property and violent crime, the bivariate regression coefficients for social service expenditures is statistically significant for every year, but the relationship is positive. This suggests that an increase in social service expenditures is related to an *increase* in both property and violent crime.

The results for public safety expenditures are more surprising. While all of the bivariate regression coefficients are positive, contrary to expectations, the results show that an increase in a state's aggregated local public safety expenditures is related to an *increase* in both property and violent crime. However, only two of these coefficients across the four year period are significantly different from zero (2007 and 2008, both for property crime).

These bivariate regressions are important to know as baseline data prior to running the multivariate regressions, as they inform the overall picture of any relationships between the independent variables and the dependent variables.

We now move to a discussion regarding the multivariate results. Thirty- two multiple regression models were created to test each independent variable with each year 2007 through 2010 of violent and property crime data, to test which independent variable has the largest effect on the crime data for each year 2007 to 2010, and to see if a lag effect exists. Using a directional hypothesis with an alpha of .10, several models indicate that the independent variables are significant, while several do not. To best describe the results of the data, it is best to refer back to the original hypotheses this thesis set out to address:

H1: As social services expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H2: As public safety expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H3: As education expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

H4: Investments in social services (as a proportion of total expenditures), will have the largest inverse relationship with crime rates than public safety and education expenditures (all as proportions of total expenditures)

H5: The effects of the investments in social services, public safety, or education (all as proportions of total expenditures) on violent/ property crime rates will increase over time.

H1: As social services expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

Property Crime

The Proportion of Social Services variable did not exhibit any significant relationships with the property crime rate for years 2007 through 2010. However, the control variables Percent NonWhite and Percent Below Poverty both exhibited positive significant relationships in each of the models testing the relationship between social services and property crime from years 2007 to 2010. Both of these control variables were significant at a .05 level throughout these models. The control variables Percent High School Graduates (with the exception of property crime in 2010) and Percent Male Ages 15 to 19 are not significant in any of these models testing the relationship between property crime and the proportion of social services spending.

Violent Crime

When observing the relationship between social services and violent crime, the Proportion Social Services variable is positively significant throughout all of the models testing its relationship to violent crime in years 2007 to 2010. In addition, all control variables are significant, with the exception of Percent High School Graduates, which was not significant in any model pertaining to measuring the relationship between proportion social services and the violent crime rate for years 2007 through 2010.

In each model testing Proportion Social Services to Violent Crime, the relationship is not an inverse one. Instead, each model indicates that as the Proportion of Social Services increases, so does the violent crime rate.

- For every .01 increase in the proportion of social services spending, there is an increase in violent crime by approximately 598 per 100,000 population in 2007. The variables in the model account for approximately 51 percent of the variability of the violent crime rate in 2007.
- For every .01 increase in the proportion of social services spending, there is an increase in violent crime by approximately 574 per 100,000 people in 2008. The variables in the model account for approximately 52 percent of the variability of the violent crime rate in 2008.
- For every .01 increase in the proportion of social services spending, there is an increase in violent crime by approximately 487 per 100,000 people in 2009. The

variables in the model account for approximately 51 percent of the variability of the violent crime rate in 2009.

- For every .01 increase in the proportion of social services spending, there is an increase in violent crime by about 409 per 100,000 people in 2010. The variables in the model account for approximately 49 percent of the variability of the violent crime rate in 2010.

Table 5. Regression Results for Property Crime and Proportion of Expenditures on Social Services – 2007-2010

	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
P Social Services	-168.29	1300.90	-8.76	1255.06	-353.67	1100.85	-169.77	1047.26
% Non-White	30.64*	7.34	24.63*	7.09	25.33*	6.22	23.33*	5.91
% HS Grad	45.45	45.57	26.84	43.97	31.89	38.57	47.12*	36.69
% Below Poverty	124.34*	51.94	118.68*	50.11	117.71*	43.95	129.07*	41.81
% Males 15-19	-5.99	287.88	-209.71	277.74	-40.23	243.62	-90.11	231.76
CONSTANT	-3101.20		-584.93		-1785.71		-3121.73	
R2	.44		.44		.47		.47	

*Coefficient significant at least at $p < .10$.

Table 6. Regression Results for Violent Crime and Proportion of Expenditures on Social Services – 2007-2010

	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
P Social Services	598.24*	361.43	574.57*	351.34	486.88*	327.63	409.43*	313.62
% Non-White	7.27*	2.04	7.16*	1.98	6.66*	1.85	6.43*	1.77
% HS Grad	5.82	12.66	6.90	12.31	7.35	11.48	12.54	10.99
% Below Poverty	24.80*	14.43	24.26*	14.03	23.64*	13.08	26.70*	12.52
% Males 15-19	-140.47*	79.98	-151.58*	77.75	-137.64*	72.50	-136.93*	69.40
CONSTANT	-118.80		-165.64		-245.77		-741.72	
R2	.51		.52		.51		.49	

*Coefficient significant at least at $p < .10$.

H2: As public safety expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

Property Crime

The Proportion of Public Safety expenditures variable was not significant in any of the models testing its relationship with the property crime rate for years 2007 through 2010. However, the control variables Percent NonWhite and Percent Below Poverty were both positively significant in each of the models testing the relationship between social services and property crime from years 2007 to 2010. Both of these control variables were significant at a .05 level throughout these models. The control variables Percent High School Graduates and Percent Male Ages 15 to 19 are not significant in any of these models with the exception of 2010, when Percent High School Graduates demonstrates a significant positive relationship with the property crime rate.

Violent Crime

When observing the relationship between public safety and violent crime, the Proportion Public Safety variable is significant in two of the models testing its relationship to violent crime in years 2007 to 2010. Proportion Public Safety was not found to be significantly related to the violent crime rate in 2007 and 2009. However, in 2008 and 2010, Proportion Public Safety is found to have a significant inverse relationship with violent crime.

In the 2008 model that indicates Proportion Public Safety is found to have a significant relationship with violent crime, the variables in this model account for

approximately 51 percent of the variability in the violent crime rate. The model indicates a significant relationship where as the proportion of public safety expenditures increases, the violent crime rate decreases. More specifically, for every .01 increase in the proportion of public safety spending, there is a decrease of 1742 violent crimes per 100,000 people in 2008.

In the 2010 model, there is a significant inverse relationship between the proportion of public safety spending and violent crime. Specifically, for every .01 increase in the proportion of public safety expenditures, there is a decrease of approximately 1473 violent crimes per 100,000 people in 2010.

For the models that do not show a significant relationship between the proportion of public safety spending and the violent crime rate for years 2007 and 2009, all of the control variables are significant with the exception of Percent High School Graduates.

Table 7: Regression Results for Property Crime and Proportion of Expenditures on Public Safety – 2007-2010

	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
P Public Safety	3194.04	4694.26	1629.05	4544.75	886.83	3994.44	131.16	3798.75
% Non-White	27.94*	7.81	23.38*	7.57	24.05*	6.65	22.94*	6.32
% HS Grad	48.54	43.54	29.30	42.16	29.27	37.05	45.40*	35.24
% Below Poverty	129.88*	48.43	122.80*	46.89	114.07*	41.21	126.55*	39.19
% Males 15-19	4.52	283.14	-206.98	274.13	-26.86	240.93	-84.13	229.13
CONSTANT	-3728.64		-983.08		-1648.77		-2982.40	
R2	.45		.44		.47		.47	

*Coefficient significant at least at $p < .10$.

Table 8: Regression Results for Violent Crime and Proportion of Expenditures on Public Safety – 2007-2010

	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
P Public Safety	-1514.01	1330.96	-1742.20*	1285.40	-1514.92	1195.76	-1472.51*	1137.65
% Non-White	9.44*	2.22	9.47*	2.14	8.64*	1.99	8.25*	1.89
% HS Grad	10.22	12.35	10.67	11.92	10.49	11.09	14.87*	10.55
% Below Poverty	30.92*	13.73	29.39*	13.26	27.88*	12.34	29.74*	11.74
% Males 15-19	-163.11*	80.28	-173.76*	77.53	-156.48*	72.12	-153.08*	68.62
CONSTANT	-346.96		-312.80		-360.81		-788.85	
R2	.50		.51		.50		.49	

*Coefficient significant at least at $p < .10$.

H3: As education expenditures increase (as a proportion of total expenditures), the violent and property crime rates decrease.

Property Crime

The Proportion of Education expenditures only exhibits a significant relationship with the property crime rate of 2007. In this model, the variables account for approximately 48 percent of the variability of the property crime rate for 2007. The model also indicates that as the proportion of education expenditures increases, the property crime rate decreases. Specifically, for every .01 increase in the proportion of education expenditures, there is a decrease of 2102 in the property crime rate for 2007. In this model, all of the control variables are significant with the exception of Percent High School Graduates.

The models that tested the relationship between the proportion of education expenditures and the property crime rate found no significant relationship for years 2008, 2009 and 2010. For these models, the control variables of Percent NonWhite and Percent Below Poverty remain significant, while Percent High School Graduates and Percent Males Ages 15 to 19 did not.

Violent Crime

The models that test the relationship between the proportion of education expenditures and the violent crime rate did not find any significant relationship for years 2007 through 2010. However, in each of these models the control variables Percent NonWhite, Percent Below Poverty, and Males Ages 15 to 19 remain significant, while

Percent High School Graduates does not in all but the model for violent crime rate in 2010.

In these models where there is no relationship indicated between the proportion of education expenditures and the violent crime rates for years 2007 to 2010, the remaining control variables account for approximately 48 percent of the variability in the violent crime rate.

Table 9. Regression Results for Property Crime and Proportion of Expenditures on Education – 2007-2010

	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
P Education	-2102.59*	1217.80	-1107.59	1201.66	-804.29	1058.38	-625.76	1008.12
% Non-White	19.82*	9.12	19.07*	9.00	20.69*	7.93	19.90*	7.55
% HS Grad	9.76	46.12	8.96	45.51	14.96	40.08	35.14	38.18
% Below Poverty	98.70*	47.47	106.52*	46.84	103.02*	41.26	119.42*	39.30
% Males 15-19	10.60	275.60	-203.70	271.95	-24.03	239.52	-81.10	228.15
CONSTANT	1336.03		1671.5		204.90		-1679.81	
R2	.48		.45		.48		.48	

*Coefficient significant at least at $p < .10$.

Table 10. Regression Results for Violent Crime and Proportion of Expenditures on Education – 2007-2010

	2007		2008		2009		2010	
	b	se	b	se	b	se	b	se
P Education	62.48	359.66	114.39	349.08	125.50	323.78	185.89	307.54
% Non-White	8.61*	2.69	8.73*	2.61	8.12*	2.42	8.07*	2.30
% HS Grad	13.61	13.62	15.25	13.22	14.89	12.26	20.17*	11.65
% Below Poverty	35.57*	14.02	35.19*	13.61	33.22*	12.62	35.62*	11.99
% Males 15-19	-161.16*	81.39	-171.74*	79.00	-154.86*	73.27	-151.83*	69.60
CONSTANT	-852.02		-980.22		-993.99		-1533.97	
R2	.48		.49		.48		.48	

*Coefficient significant at least at $p < .10$.

H4: Investments in social services (as a proportion of total expenditures), will have the largest inverse relationship with crime rates than public safety and education expenditures (all as proportions of total expenditures)

In order to test which independent variable might have the biggest effect on the dependent variables, beta weights were utilized in a multiple regression that included all three main independent variables and the two best control variables. From the correlation matrix, the two control variables that are most highly correlated with the independent variables and the dependent variables are Percent NonWhite and Percent Below Poverty. These two control variables were used in the models testing which independent had the biggest effect on the violent and property crime rates for years 2007 through 2010.

Property Crime

For property crime, the only model where any of the independent variables demonstrated a significant relationship was in 2007. For this model, only the Proportion Education variable was significant, indicating that it has the strongest effect on property crime rates in 2007 than the other two independent variables. This model indicates that for every .01 increase in the proportion of education expenditures, there is a decrease of 2459 per 100,000 people in property crime in 2007.

Another item to note from this model is that the variable with the largest Beta is Percent Below Poverty, indicating that this variable has the largest effect on the property crime rate in 2007 out of the variables in this model. The second largest effect is the variable of Percent NonWhite, followed by the Proportion Education variable.

For the other models that tested the relationships between the property crime rates of years 2008,2009 and 2010, none of the three main independent variables demonstrated any significant relationships. However, the Percent NonWhite and Percent Below Poverty variables were significant in all of these models, with Percent Below Poverty demonstrating the largest effect.

Violent Crime

When testing which independent variable has the largest effect on the violent crime rates for years 2007 through 2010, the only significant variable is Proportion Social Services expenditures.

- For every .01 increase in the proportion of social services spending, there is an increase of approximately 717 per 100,000 people in violent crime in 2007. The Proportion Social Services variable is the only main independent variable that is significant.
- For every .01 increase in the proportion of social services spending, there is an increase of approximately 698 per 100,000 people in violent crime in 2008. The Proportion Social Services variable is the only main independent variable that is significant.
- For every .01 increase in the proportion of social services spending, there is an increase of approximately 611 per 100,000 people in violent crime in 2009. The Proportion Social Services variable is the only main independent variable that is significant.

- For every .01 increase in the proportion of social services spending, there is an increase of approximately 561 per 100,000 people in violent crime in 2010. The Proportion Social Services variable is the only main independent variable that is significant.

For each of these models, the control variables of Percent NonWhite and Percent Below Poverty remain significant. Percent NonWhite has the highest Beta in each model, indicating that this variable has the largest effect out of the variables included in this model on the violent crime rate for years 2007 through 2010.

Table 11. Regression Results for Property Crime and Proportion of Expenditures on Education, Social Services and Public Safety – 2007-2010

	2007			2008			2009			2010		
	b	se	B	b	se	B	b	se	B	b	se	B
P Education	-2459.40*	1201.29	-.31	-1151.81	1196.55	-.15	-1190.42	1046.69	-.17	-1133.61	1006.24	-.17
P Social Services	-714.20	1361.59	-.07	-126.77	1356.22	-.01	-601.72	1186.36	-.07	-301.41	1140.51	-.04
P Public Safety	753.90	4768.20	.02	858.38	4749.40	.03	-658.04	4154.56	-.02	18.08	3994	-.05
% Non-White	18.03*	8.48	.32	19.66*	8.44	.37	19.85*	7.38	.41	90.73	7.10*	.39
% Below Poverty	97.83*	29.95	.38	97.41*	29.83	.40	94.59*	26.09	.43	94.59	25.08*	.43
CONSTANT	2423.13			1738.79			1818.83			1837.29		
R2	.49			.45			.48			.47		

*Coefficient significant at least at $p < .10$.

Table 12. Regression Results for Violent Crime and Proportion of Expenditures on Education, Social Services and Public Safety – 2007-2010

	2007			2008			2009			2010		
	b	se	B	b	se	B	b	se	B	b	se	B
P Education	211.61	354.81	.09	238.48	345.89	.10	217.67	322.15	.10	194.09	309.75	.09
P Social Services	717.87*	402.16	.24	698.85*	392.04	.24	611.49*	365.14	.23	560.71*	351.09	.22
P Public Safety	-662.05	1408.33	-.06	-899.41	1372.92	-.09	-793.08	1278.69	-.08	-908.57	1229.48	-.10
% Non-White	9.50*	2.50	.57	9.74*	2.44	.60	8.9*	2.27	.60	8.33*	2.19	.59
% Below Poverty	15.08*	8.85	.20	13.03*	8.62	.18	12.51*	8.03	.18	11.07*	7.72	.17
CONSTANT	-103.85			-76.75			-60.28			-18.51		
R2	.49			.49			.48			.46		

*Coefficient significant at least at $p < .10$.

H5: The effects of the investments in social services, public safety, or education (all as proportions of total expenditures) on violent/ property crime rates will increase over time.

In order to look at changes in effects of investments over time, we must concentrate on violent crime. This is because for property crime, the only significant relationship occurred in 2007 between the proportion of education spending and the property crime rate. For all other years and main independent variables, none of the relationships were significant.

A test of whether or not the effects of investments on the violent crime rate change over time can also not be identified through using the Proportion Education main independent variable. All models testing the relationship between the proportion of education expenditures and the violent crime rate for years 2007 through 2010 did not yield any significant relationships between the main independent variable and the dependent variable.

The main independent variable for the proportion of public safety expenditures can somewhat be utilized to determine any change in effect over time, as violent crime in 2008 and 2010 found a significant relationship with the public safety variable. The results do not indicate a lag effect from 2008 to 2010. A .01 increase in the proportion of public safety expenditures does not demonstrate more of a decrease in 2010 than it did in 2008.

To look more closely at a possible lag effect, we must look at Proportion Social Services, which has a significant relationship with violent crime for years 2007 through 2010. The coefficient for the Proportion Social Services variable decreases over time,

going from approximately 598 in 2007 to 409 in 2010. The data indicate that from 2007 to 2010, a .01 increase in the proportion of social services spending increases the violent crime rate less and less from 2007 to 2010. In addition, the p-value for the Proportion Social Services variable decreases over time as well, indicating that the significance of the relationship between the proportion of social services expenditures and the violent crime rate decreases from 2007 to 2010. By 2010, the p-value for Proportion Social Services is .099, indicating that the relationship between Proportion Social Services spending and the violent crime rate in 2010 is almost insignificant at a .10 level.

When using the model that tests all of the main independent variables together, the data share a similar story. The proportion of social services expenditures is the only main independent variable to demonstrate a significant relationship over time, and only with violent crime. The coefficient for Proportion of Social Services decreases from years 2007 to 2010. In 2007, the coefficient is 717, and by 2010 it is 560. The data indicate that a .01 increase in the proportion of social services spending increases the violent crime rate less and less from 2007 to 2010. In addition, the p-value and the Beta for Proportion Social Services decreases over time as well, indicating that the significance of the relationship between the violent crime rate for years 2007 through 2010 and the proportion of social services expenditures decreases over time.

Discussion

In sum, data from the statistical models indicate the following relationships:

Nonsignificant Relationships

- None of the main independent variables distributed significant relationships with the property crime rate for years 2007, 2008, 2009 and 2010, with the one exception noted below.
- The proportion of education spending was not found to have a significant relationship with the violent crime rate for years 2007,2008, 2009 and 2010.
- The proportion of public safety spending did not have a significant relationship with the violent crime rate for years 2007 and 2009.

Significant Relationships

- As the proportion of education spending increases, the property crime rate of 2007 decreases. Similarly, when measuring which independent variable has the strongest effect on property crime, only one main independent variable in one model is significant. As the proportion of education spending increases when all main independent variables are included, the property crime rate of 2007 decreases. The Proportion Education variable has the biggest effect on the property crime rate of 2007 compared to the other main independent variables.

- As the proportion of public safety expenditures increases, the violent crime rates of 2008 and 2010 decrease.
- As the proportion of social services expenditures increases, the violent crime rate for years 2007, 2008, 2009 and 2010 increases as well. Similarly, when measuring which independent variable has the strongest effect on violent crime, only one main independent variable is significant. As the proportion of social services spending increases when all main independent variables are included, the violent crime rates of 2007, 2008, 2009 and 2010 increase as well. The Proportion Social Services variable has the biggest effect on the violent crime rates in 2007 through 2010 compared to the other main independent variables. The significance of this relationship diminishes over time.

The data indicate that the proportion of social services spending and the proportion of public safety spending do not have any relationship with the property crime rates. The data also indicate that only for the year 2007 does the proportion of education expenditures have a significant inverse relationship with the property crime rate. The fact that this significant relationship with property crime was not sustained for the years 2008, 2009 and 2010 indicate that wholly, the relationship between property crime and the proportion of education spending is not strong. Overall, the main independent variables did not display significant relationships with the property crime rate for years 2007 through 2010.

Somewhat similarly, the data indicate that the proportion of education spending did not display significant relationships with the violent crime rate for years 2007 through 2010. The data for public safety and violent crime is a bit more mixed. There is a significant inverse relationship found between the proportion of public safety expenditures and the violent crime rate in 2008 and 2010. As the proportion of public safety spending and the violent crime rate have a significant inverse relationship for 2008 and 2010, we can look at these two models to see if there is any lag in the effect of the proportion of public safety spending on violent crime over time. The data indicate that there is no lag in the effect of the proportion of public safety expenditures on the violent crime rate over time. Instead, the effect of the proportion of public safety expenditures on the violent crime rate seems to diminish from 2008 to 2010 as the magnitude of the coefficient becomes smaller. However, since only two of the four models that test the relationship between the proportion of public safety and violent crime were found significant, there is not enough information to be confident in any lag or lack thereof.

Interestingly, the proportion of social services spending has a significant relationship with violent crime for years 2007 through 2010. The data show that this significant relationship is not an inverse one. Instead, as the proportion of social services increases, the violent crime rate for years 2007 through 2010 increases as well. This same holds true even when testing which main independent variable has the largest effect on violent crime. The proportion of social services spending is the only main independent variable to have a significant relationship with violent crime for all four years of the model.

As the proportion of social services expenditures is the only variable to display a significant relationship with violent crime for all four years included in the model, it is the only variable for which to reliably study in these models to see if there is any lag in the effect of the proportion of social services expenditures over time. The data indicate that there is no lag in the effect of the proportion of social services expenditures on the violent crime rate over time. Instead, the effect of the proportion of social services expenditures on the violent crime rate seems to diminish from 2007 to 2010.

The data indicate that two of the control variables have significant relationships with both property and violent crime rates for years 2007 through 2010, and that their relationships to the dependent variables are stronger than the main independent variables, as evidenced by the Beta testing. The Percent Below Poverty and Percent NonWhite variables may be the most significant variables that account for more of the variability in the property and violent crime rates of 2007 through 2010 than the main independent variables.

The data also indicate that the Percent High School Graduates is perhaps not the best control variable to use in these models. This variable remained insignificant in a large majority of the models, similar to the Percent Male Ages 15 to 19 which displayed insignificant relationships in some models, but not all.

Overall, the data in these models seem to indicate that there is a small amount of support that as the proportion of public safety expenditures increases, the violent crime rate may decrease, and as the proportion of education expenditures increases, the property crime decreases. However, the data also indicate that as the proportion of social services

spending increases, the violent crime rate increases as well. Most surprisingly, the data consistently show that the percent nonwhite and the percent below poverty have significant relationships with both property and violent crime rates for years 2007 through 2010, that these relationships are more significant than any of the three main independent variables, and that both the property and violent crime rates for years 2007 to 2010 increase as the percents of people who are nonwhite and below poverty increase.

It is most important to note that it is difficult to draw any sound conclusions given the data and the limitations of the current study. However, it is useful to move forward and discuss what effect these data have on the broader implications for theory and policy.

CHAPTER VII. CONCLUSIONS

Theory

The implications these data have for theory are numerous. For institutional anomie theory, these data indicate some support, but not much. By increasing the proportion of expenditures in education and public safety, one might argue that this thesis measures the strength of institutions by the proportion of total budget spending on particular areas. For the larger the proportion of education expenditures out of the total budget, one could argue the stronger the institution is. This same argument can be made for public safety, as well. However, since the strength of the institution is being measured by the proportion of total expenditures, one could argue that even though institutions may be considered 'stronger' as their proportion of the total budget increases, they are still gaining strength as a result of money, which then does not truly weaken the economic institution.

In addition, the fact that these data in these models demonstrate a significant relationship between the proportion of social services and the violent crime rate for years 2007 to 2010 that show that as the proportion of social services expenditures increases the violent crime rate also increases, does not bode well for institutional anomie theory. As the proportion of social services expenditures increases, in theory so does the strength of public welfare, as that is measured within the social services variable. If we measure the strength of the public welfare system in part by the amount of the proportion of total expenditures it is allotted, then according to institutional anomie theory, we might expect the crime rate to fall as the strength of the institution increases, i.e., the proportion of

local expenditures allotted to it increase. This was not the case; instead, the proportion of social services did not demonstrate a significant relationship with property crime, and instead, demonstrated a significant positive relationship with violent crime by suggesting an increase in the proportion of social services expenditures is associated with an increase in the violent crime rate as for years 2007 through 2010.

Institutional anomie theory was originally conceived in part as an explanation for the high violent crime rate in the United States (Messner & Rosenfeld, 2006). With this in mind, one might propose that to support the tenants of institutional anomie theory, the stronger the institutions of social services and education (measured here as proportions of total local expenditures aggregated to the state level) would demonstrate an inverse relationship with the violent crime rate, specifically. The data do not demonstrate this relationship. The education expenditures variable did not demonstrate a significant relationship with violent crime. The social services expenditures variable did demonstrate a significant relationship with violent crime, but not in the expected direction. These results do not demonstrate strong support for institutional anomie theory.

The public safety expenditures variable also lends some insight into possible support for institutional anomie theory. Institutional anomie theory might predict that by strengthening the institution of public safety the crime rate should decrease. These data show that for years 2008 and 2010, there is a significant relationship between the proportion of public safety expenditures aggregated to the state level and the violent crime rate. This result cautiously lends some support to institutional anomie theory; as

the institution of public safety got stronger through more proportion of expenditures, the violent crime rate decreased for years 2008 and 2010. However, it also again brings up the dichotomy of measuring the strength of the public safety institution through the proportion of expenditures. One has to consider if the strength of the economic institution is really mitigated by utilizing expenditures as the measure of the strength of other institutions. This also has larger considerations for how institutional anomie is tested, including how to test the strength of institutions as well as their relative strength related to each other.

With deterrence theory, one might expect that as the proportion of public safety spending increases, which for this variable means an increase in expenditures for corrections and police among other items, the property and crime rates will decrease. There were no significant relationships found between the proportion of public safety expenditures and the property crime rate for years 2007 through 2010. Significant relationships were found with regard to the proportion of public safety expenditures and crime in the expected direction, but only for violent crime in the years 2008 and 2010. In the models for years 2007 and 2009, the proportion of public safety expenditures did not have a significant relationship with violent crime. However, in the two models that were significant, the relationship took the expected direction. That is, as the proportion of public safety expenditures increase, the violent crime rate for 2008 and 2010 decreases, indicating initial mixed support for deterrence theory. As will be discussed in the Limitation section, these results could be affected by using aggregate variables. In addition, nonlinearities in the data were not explored. Addressing both of these

limitations in future research could lead to additional insights into the relationships but also have additional implications for theory as well.

Policy

The policy implications with regard to the data of the current study are mixed. The current data suggest that perhaps one way to lower the property rate is to invest in education. The current data also suggest that one way to lower the violent crime rate is to invest in public safety. However, since both of these conclusions are based on one or two significant models, respectively, the results are not overwhelming that these strategies would produce any real decreases in crime rates.

The data in this study suggest that increasing the proportion of social services expenditures could account in part for an increase in the violent crime rate. This indicates to jurisdictions that increasing the proportional investment in social services may not result in a lowered violent crime rate, but may actually be contributing to increases in the violent crime rate. This would discourage jurisdictions from increasing the proportion of social services expenditures.

As the data from the current models demonstrate, there does not appear to be a lag in the effect of the proportion of education, public safety, and social services over time. One might consider though that the lag time is more than four years. Even if a longer lag time were to show that investments might contribute to decreasing crime, it would be difficult to convince policy makers to invest in strategies that do not yield results for years to come.

The data need to be considered in the context of limitations, discussed more thoroughly in the following section. These data are not meant to indicate any causal relationships; causal relationships cannot be determined with these data. The results could mean that spending additional money on social services is a response to crime rates, rather than crime rates are somewhat of a response to the proportion of expenditures being spent on social services. The data might also not mean either of these conclusions. The conclusions, results and implications for theory and policy must be considered in light of the limitations of the current study.

Limitations and Future Research

There are many limitations to the current study that must be considered regarding the efficacy and generalizability of the data. To begin with, the data used for this study are cross-sectional data. Due to this, causal inferences cannot be made. For instance, the significant relationship between the proportion of social services spending and the violent crime rate for 2007 through 2010 does not demonstrate any causal relationship. The results could mean that spending additional money on social services is a response to prior crime rates, rather than crime rates are somewhat of a response to the proportion of expenditures being spent on social services. This simultaneity that expenditures are affecting crime and crime is affecting expenditures produces bias in the estimated effects of the relationship.

The independent variables themselves are cause for proceeding cautiously with interpreting the data outcomes in this study. The proportion of social services variable is a measure of public welfare, hospitals, health, social insurance administration, and

veterans' services expenditures. The proportion of public safety variable is a measure of police protection, fire protection, corrections, protection inspection and regulation. The components of these variables could not be siphoned off for individual testing in this study. As this study could not differentiate among the type of social services spending or public safety, it is impossible to tell if maybe some components of these variables are related to crime while others are not, further muddling the results. It should also be considered that the components of the main independent variables might be related to crime in different directions, which could lead to null results, another possible limitation of using aggregate variables.

In regards to the independent and control variables, the R-squared hovered around the 50 percent mark for most significant models. This means that although approximately half of the variability of the dependent variables could be explained by the variables in the models, half of the variability of the dependent variables remains unexplained. Considering the models do not utilize many control variables due to the low number of observations, this speaks well of the current model but still leaves half of the variability unaccounted for. Therefore, there may be other independent variables with higher Betas that have a stronger effect on the dependent variables than any of the variables included in the current model.

Another limitation of the current study is in regards to using data that may be affected by nonsampling error. Nonsampling error is especially important to consider in regards to the main independent variables, which all come from the Census of Governments: Finance, 2007. Nonsampling errors can include inability to obtain data,

inaccuracies in classification, response errors, misinterpretation of questions, mistakes in keying and coding, and coverage errors (U.S Census Bureau Finance Methodology, 2007). Nonsampling error may lead to an incomplete picture of the characteristics of the population as a whole; in the current study, an incomplete picture of the independent variables. With an incomplete picture, this paper is making inferences without knowing the full story. The error that comes from using data subject to nonsampling is that the findings of this paper may not be generalizable to the whole population (Bachman & Paternoster, 2004). The data collected for the study's results may also be inaccurate or incomplete, leading to less efficacy of the current results.

The results of the thesis must also be interpreted with caution due to the mixed nature of federal, state and local funding. This current thesis studied the effects of local spending aggregated to the state level on the property and crime rates. One must caution against the utility of this thesis contributing to literature regarding local spending, as the unit of analysis is states. As this study looks at local spending aggregate at the state level, the results should be interpreted cautiously.

As the expenditure data are local spending monies aggregated to the state level, this study will not exhibit any true local differences, just the differences between states. Localities often have more flexibility and freedom to implement different programs and policies than states. For instance if a county has a Sheriff that is very supportive of rehabilitation policies, that county may focus on programs and policies that are more rehabilitation focused rather than punitive. At the same time, a county could have a Sheriff and County Commissioner who believe in deterrence strategies. This may lead to

less investment in rehabilitative strategies. We cannot measure these differences between localities in this study as the local investments are aggregate to the state level. The difference between localities will not be represented here, as the results of their investment decisions are canceled out and undetectable when aggregated to the state level.

In addition, although they are often in silos, different levels of government most often do not function in complete isolation of each other. Federal and state policies can influence local decision making, and vice versa. Funding streams are also often ambiguous, as state and federal funding can often be part of local expenditures.

Future research should focus on local expenditures at the county or city level specifically, not aggregated to the state level, in order to parse out the differences between localities. Future research should also focus on the funding streams that go into localities, and should parse out the federal, state and local funding that goes into local expenditures for social services, public safety and education. When researching funding streams, it should also be taken into account that corrections often include social services spending in their budgets. The current study does not take into account that corrections spending can also include spending on social services. Future research should consider this. Some corrections spending includes strategies that are considered more rehabilitative, such as substance abuse and mental health management; case management; effective transitions back to the community; and court, pretrial and other diversion programs. There might be some spending in corrections within each locality that invests in more rehabilitative strategies that we cannot parse out with this data.

Future research should also disaggregate the variables of social spending, education and public safety to determine if individual components have an effect on the property and violent crime rates. Differentiating between the types of social services, education and public safety spending can create a clearer picture regarding which components have a relationship with crime, which do not, and which are strongest. Future research should also include longitudinal data for localities to inspect changes in spending and any subsequent changes in crime rates over time.

In addition, it would be beneficial for future research to explore possible nonlinearities in the data. For example, the proportion of public safety expenditures aggregated at the state level may have an inverse effect on crime up to a point, and then it declines. The current thesis did not address possible nonlinearities in the data, but future research should explore these possibilities.

Future research should also include additional components of social services, such as substance abuse and mental health programming, both of which have evidence-based programming that has been found to reduce recidivism. Connections to social services should also be measured. A locality may spend a large proportion of the budget on social services, specifically, for instance, substance abuse services, but the systems may not be set up to optimize connections to those services. Waiting lists might be long, the public or people expected to make some of the connections, such as probation officers, might not be aware of all of the treatment options available, etc. So while measuring the amount of money invested in social services is worthwhile, also noting the infrastructure that is responsible for actually making sure that people make connections to those

services should be included in future research. After all, if nobody is accessing available resources, will the amount of money invested in those resources really matter?

By accounting for different funding streams, concentrating on the local level spending, disaggregating the current variables, and adding variables that measure additional components of social services, education and public safety, a more complete study can take place to gain a better sense of the effects of local investments on property and violent crime rates. The current study lends some potential insight into the possible relationships between some proportions of local spending aggregated to the state level and crime, but more in-depth future research is necessary to make concrete conclusions.

Appendix A. Correlation Matrix

	% High School Graduates	% Below Poverty	% Male ages 15-19	Violent Crime Rate 2007	Property Crime Rate 2007	Violent Crime Rate 2008	Property Crime Rate 2008
% High School Graduates	1.0000						
% Below Poverty	-0.7591	1.0000					
% Male ages 15-19	0.1720	0.1039	1.0000				
Violent Crime Rate 2007	-0.3851	0.3856	-0.3280	1.0000			
Property Crime Rate 2007	-0.3675	0.4315	-0.1007	0.6869	1.0000		
Violent Crime Rate 2008	-0.3720	0.3698	-0.3479	0.9955	0.6631	1.0000	
Property Crime Rate 2008	-0.4281	0.4656	-0.1798	0.7320	0.9736	0.7167	1.0000
Violent Crime Rate 2009	-0.3681	0.3717	-0.3391	0.9911	0.6554	0.9966	0.7040
Property Crime Rate 2009	-0.4286	0.4891	-0.1092	0.7099	0.9677	0.6979	0.9811
Violent Crime Rate 2010	-0.3245	0.3592	-0.3291	0.9759	0.6057	0.9864	0.6541
Property Crime Rate 2010	-0.4004	0.5008	-0.1092	0.7187	0.9536	0.7079	0.9728
Proportion Education	-0.0463	-0.0414	0.1293	-0.3416	-0.4857	-0.3353	-0.3842
Proportion Social Services	-0.1379	0.3229	-0.1004	0.4463	0.2790	0.4443	0.2867
Proportion Public Safety	-0.1506	-0.0861	-0.2627	0.1487	0.2679	0.1358	0.2308
% NonWhite	-0.3670	0.1889	-0.3363	0.5991	0.5638	0.6031	0.5382

	Violent Crime Rate 2009	Property Crime Rate 2009	Violent Crime Rate 2010	Property Crime Rate 2010	Proportion Education	Proportion Social Services	Proportion Public Safety	% NonWhite
Violent Crime Rate 2009	1.0000							
Property Crime Rate 2009	0.6904	1.0000						
Violent Crime Rate 2010	0.9922	0.6426	1.0000					
Property Crime Rate 2010	0.6968	0.9857	0.6558	1.0000				
Proportion Education	-0.3295	-0.3902	-0.3227	-0.3848	1.0000			
Proportion Social Services	0.4328	0.2680	0.4260	0.2987	-0.4349	1.0000		
Proportion Public Safety	0.1382	0.2168	0.1215	0.1792	-0.3551	-0.1227	1.0000	
% NonWhite	0.5980	0.5574	0.5835	0.5372	-0.5918	0.3021	0.5054	1.0000

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