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# The Traits of Colleges and Universities that Influence Crime

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**THE TRAITS OF COLLEGES AND UNIVERSITIES THAT INFLUENCE  
CRIME**

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A Thesis  
Presented to  
the Graduate School of  
Clemson University

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts  
Economics

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## ABSTRACT

Crime on college and university campuses has been a growing problem in recent years. Schools desire to decrease crime, but often do not understand the best and most efficient way to do so. In this paper, we will attempt to understand which attributes are most influential by looking at features and crime rates for 492 different schools for which the FBI had released relevant crime data in 2006.

The data showed that many of the variables such as campus size, number of student organizations, school setting, school size, and many other topics, had a noticeable relationship with the total crime. These relationships were difficult to interpret. The variables in question are all interconnected such that it was difficult to separate and understand their effects; a problem found in many other related studies done prior. Even when an obvious relationship with crime was determined, in most cases it is an aspect for which the school can make little or no change.

The findings here can help to explain to a school why their method attempting to decrease crime may not be providing the results expected. These can also provide a prospective student a better set of information for which school will be the safest. Looking at a large set of information instead of isolating a few variables gives a much more well-rounded view on school crime.

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## CHAPTER I

### INTRODUCTION

There exist many variables that could affect how much crime takes place on a college campus. A criminal thinks of it as a game of chance. Is the risk worth the reward? If there was absolutely no chance that there would ever be a punishment for committing a crime, then a lot of people, if not everyone, would do it. If, however, there was a 100% chance that there will be a consequence, then very few people would commit it. Following this pattern, whether a student commits a crime on campus will depend on how likely they think they are of getting caught.

A criminal will look at many variables before deciding whether the risk is worth the potential reward. The risk of getting caught is influenced by how populated the area is, how large the area is, how likely it is that there will be law enforcement, which is the most important. Comparing this to the reward, for example, how much fun they have, or whether they get physical property, will decide whether the action is carried out. There is also the factor of whether there is something better, or that they hold in higher value, for which to use their time, than the crime.

Colleges and universities have these statistics in a very measureable format. The campus area is designated, with the population, and a separate police force. Schools also offer many opportunities for entertainment and adventures, for which to use time, such as organizations, which are easily measured.

## CHAPTER II

### RELATED STUDIES

There has already been research done on crime; why it exists, what causes it to exist, and how it has an effect on colleges. We will look at what has been concluded in previous studies, and then compare it to our findings in this study.

Hope Corman and Naci Mocan (2005) studied the changes of crime in New York City, comparing it to both the stricter crime punishments set by Mayor Giuliani and the economic growth that was taking place at the time- the 1990s. Giuliani's idea behind having stricter punishments was the "broken window" effect. If a passerby saw that the window of a store was broken, they would conclude that the place was run down and valueless, so going inside and stealing would not cause any harm. Giuliani felt that this was being accepted as true, so people were starting to break windows so they could "acceptably" steal later on.

The mayor decided that the best way to fix the crime problem was to put harsher punishments on these small crimes, so that fewer people could get to the larger crimes. Corman's and Mocan's study holds equal the number of police and the number of felony arrests, and looks at the number of misdemeanor arrests. Their findings were that with these harsher punishments, the number of misdemeanor arrests increased as the number of felony arrests was held constant.

However, a flaw found in this data was the source of the increase in misdemeanors. Giuliani had hired more police with the intention and main goal of being



harsh to those committing a misdemeanor. It could therefore be that since they were looking for it, they found more in proportion to the number of felonies. Therefore, the idea of this broken window effect may not be present- the number of felonies did not decrease because the number of misdemeanors increased, but instead the number of misdemeanors increased and the number of felonies stayed the same.

The study also found that those with a lower income, and therefore lower standard of living, were more likely to commit a crime. Holding this general pattern, Corman and Mocan suggest that there could have been an effect of the overall economy on crime. The 1990's represented a time of strong economic growth. This would mean that, on average, the standard of living increased. It may be that this economic growth had a larger effect (decrease) on the number of felonies than on the number of misdemeanors.

Steven D. Levitt (2004) created the study entitled "Understanding Why Crime Fell in the 1990's: Four Factors that Explain the Decline and Six that Do Not." Levitt started out by finding the ten most common things that the media used as an explanation for why the crime rates fell during the 1990s. He collected data on seven different crimes, grouped them into two categories: violent and property crimes, and found that the percentage of crimes committed for each category increased between 1973 and 1991, and decreased between 1991 and 2001. He then compared both larger groups, violent and property, with the setting size, with the category constraints of rural<50,000, urban> 250,000, and suburban in the middle of the two. The findings were that both violent crime and property crime decreased the most in the urban setting, and the least in the rural setting.

Levitt then explained the six things that he has found did not have any effect on the decrease in crime. First, he said that the strong economy did not matter. There was very little correlation between the change in crime and the change in GDP. This disproves the flaw that Corman and Mocan suggested; that the overall economic growth caused the decrease in felonies in comparison to misdemeanors.

Giuliani's new policy and its effects were also discussed by Levitt. He, however, stated that this would be something that was effective in preventing crime. While he sees that during the emphasis of the harsher punishments on misdemeanors did take place at the same time as the decrease in more drastic crimes, Levitt shows that these decreases started in 1990. Giuliani was not elected to be mayor until 1993. So he concludes that some other change that started in 1990 was the cause of the decrease in crimes, and not the broken window effect.

Two more of the conclusions he made are that "Laws Allowing the Carrying of Concealed Weapons," and "Gun Control Laws," have no affect on the amount of crime that takes place, and are not an explanation for why there has been such a large change in crime. The Brady Handgun Violence Prevention Act of 1993 was created to make stricter rules on who could purchase a gun. Before a gun was sold, there would be a background check to be sure that the person qualified. This rule did not show changes in the number of gun-involved crimes, such as homicide, with the explanation that only about 20% of guns are purchased legally, and the rest through a black market. Clearly, a background check on the 20% of buyers who are willing to buy legally will not have a large effect on the number of guns sold.

Also explained in Levitt's work are four reasons that he found did change the amount of crime that occurred. One of these was the increase in the number of police. Levitt concluded that there is a strong, positive correlation between police and crime, but only in the short run. His findings were that when looking at a small period of time, when more police are hired, the amount of crime increases because more people are getting caught. However, he notices that in the long run, the amount of crime actually decreases. People catch on to how likely they are to be caught because the police force is so large, and stop committing crimes.

According to Levitt, the crack cocaine epidemic of the 1980s was a cause of a crime increase. Since many of the sales of crack are gang related, the different gangs in a similar area would compete, causing violence, which increased the number of homicides during this time. Crack also caused more property crimes; addicts tend to desire to get the drug at any cost, and if they do not have the money, are more likely to commit a theft-related crime to obtain the money. The increase in homicides was much greater for black males between the ages of 14 and 24 than for any other group. The other groups that were measured: black males over 24, and white males for both age groups, experienced a pretty consistent number of homicides.

This increase of crime in the 1980s logically led to a decrease in the 1990s. Crack cocaine was no longer as popular in the black market, which was showed by homicide decreases of 48% and 42% for the younger blacks and whites respectively. Both older groups had a 30% decrease in homicides. With these large results, he concluded that the

epidemic was a cause of the increase in crime in the 1980s, and therefore the ending of the epidemic would cause a decrease during the 1990s.

The paper “Crime in the Ivory Tower: The Level and Sources of Student Victimization,” by Fisher, Sloan, Cullen, and Lu (1998), pointed out the observations seen from the Clery Act: school campuses are not safe and disconnected from the rest of the world’s crime like they first seem. It is often times viewed that since a campus only has students and teachers, all there for the same reason, and existing no reason for anyone else to be on the campus, that it is a safe place to be. However, the realization is that students and teachers both are able to commit crimes, and people who do not need to be on the campus can be there anyway. Therefore, the crime rates are actually high. They found four factors that were most important in suggesting whether one would be victimized: proximity and exposure to crime, target attractiveness, and guardianship.

From these four important concepts, the authors collected data by surveying students from many different schools. About 37% said that they had been victimized in some way during the most recent school year. The breakdown by many different traits and lifestyle choices of these victims pointed out a very important characteristic of the target audience. Those who admitted to participating in drug use and who had alcohol multiple times during the week were at a much higher risk to be crime targets.

Hate crime has recently been looked at by having two target audiences- those of race and those of sexual orientation. Those who were of a sexual orientation of anything other than straight were more likely to be the victim of a hate crime than those who are

categorized as straight. The article “Lesbian and Gay Male Undergraduates’ Experiences of Harassment and Fear on Campus,” by Anthony D’Augelli (1992), discusses this.

Since there still exist feelings of homophobia throughout student populations, those who are not heterosexual are targeted from their recognition. The findings were that whether someone was openly not straight, or if they were “in the closet,” they were equally likely to be targeted. The explanation was that since people are friends with those who are similar to them, those who are not straight tend to be friends with others who are not straight, whether or not they have admitted to their orientation.

The target audience of race is similar to orientation; there exists racism toward some, and therefore those persons are at a higher risk to be crime prey. Many authors, including Ceja, Yosso, and Solorzano (2000) of “Critical Race Theory, Racial Microaggressions and Campus Racial Climate: The Experiences of African American College students,” and Brown (1990) of “Racism and Race Relations in the University,” state that there is an overall feeling of not being accepted at schools because of the majority being white. This feeling detracts from both the learning and living experiences for the students. They do not have access to as much help or the partnership of as many peers because of their color, and they are more likely to be targeted for racial crimes since they are vastly outnumbered by white students.

A study done by Steven M. Janosik (2001) is entitled “The Impact of the Campus Crime Awareness Act of 1998 on Student Decision-Making,” later known as the Clery Act. In this study, Janosik attempted to view the effects of the 1998 act, which stated that public schools are required to release their statistics concerning crime, compared to

gender. A random sample from three different schools in similarly rural areas were asked to fill out surveys about whether they knew about this act and whether they had ever seen, and how safe they felt on campus.

From this study, he found that 88% were unaware of the existence of the Campus Crime Awareness Act, and of those who did know about it, 79% chose to not read it. But looking at the gender influence, he found that 13% of men and only 7% of women read the report, six percent of women said they were influenced by the report such that they would make different decisions about their safety, and only one percent of men said the same thing. Also in this survey was questioning whether crime had an influence on their college decision as a prospective student; only four percent said yes.

From all of these statistics, he concluded a few things. First, most people had no idea that the crime report even existed. Second, men were much more likely than women to read the crime report. Third, women were much more likely to act on what they learned from the crime report than men.

To put the latter two ideas into practice, Janosik then decided to advertise around campuses the idea that there exists such a crime report where students could find out about the safety on their own campus. He then took samples of the students, and gave them surveys asking about whether they would change their actions to help protect themselves and their property from physical harm. For property, 41% of women and 21% of men said yes. For physical harm against themselves, 44% of women said yes, and only 15% of men said yes. Also notable was the survey on whether knowing about

the act would make students more likely to report crimes that they saw committed on campus. 53% of females said yes, as did 33% of males.

From this, he decided that while this awareness act was a great idea, it was necessary to actually advertise its existence in order to get any significant effect. Also noticed was how this sort of advertisement and awareness was not effective for all groups, since even though men were more likely to read the act than women, they had less of a response.

There were also many things to still be questioned about this study. There may be a large difference between these results and those found in one done concerning urban campuses, since this study did not use that type of campus. He attempted to explain why women did not read the act as much as men, suggesting only that men may be more drawn to facts and statistics than women. The seemingly most important point, though, was that schools may be choosing to not make the information readily available because it is difficult to release the information, whether it be because of the difficulty to get the facts compiled, or because of the worry that it would have a negative impact on the desire to attend the school.

Bonnie S. Fisher, Francis T. Cullen, and Michael G. Turner (2000) made the study “The Sexual Victimization of College Women.” This research attempts to go much more in depth than most research into understanding sexual violence on college campuses: to not only understand what happens, but to also figure out how it can be prevented. From schools of at least one thousand students, female students were chosen

to talk about whether they felt that they had ever been sexually victimized, and if so, to answer very descriptive questions that tell, in detail, what had happened.

The findings pointed out that most data only provides results on reported rape, which gives very low numbers, but there are many other crimes not reported or noticed. They found from their sample that one in every three women have experienced some sort of sexual victimization, which could be physical or non-physical sexual coercion, as well as sexual contact. The results were that about 2.8% of female students were victims. It is clearly pointed out that these numbers tend to be looked at as underestimated because the data was for the school year, which is only seven months long, and not a whole 12 months.

There were also statistics collected showing that the information provided by the chosen students has flaws. Many did not know the definition of rape, such that only 47% of those raped classified it as rape, 3% said the actions were rape when they were not, and 1% said they did not know how to classify their situation. It is easy to see that while rape is a very important crime to understand and try to prevent, it is difficult to classify and calculate the existence, therefore making it a seemingly under-examined crime.

The book “Campus Violence: Kinds, Causes, and Cures,” by Leighton C. Whitaker and Jeffrey W. Pollard (1993), compares the differences in crimes between city and non-city campuses. Their findings: “Urban students do risk more *types* of violent threats, however, than their peers at rural and suburban schools.” The amount of crimes, not types of crimes, was found to be about the same. This is explained by looking at two different groups of people, either those who have been victims of violence before, or



those who fear cities. They found that those who were past victims know now to be much more cautious and do things to protect themselves, and those who are city phobic are automatically fearful of threats in the city. These worries make students much more aware of crimes than students in rural or suburban settings, which makes the amount of crime that actually ends up occurring very similar.

This study examined many other variables about the situations that the person is in that could have an effect on the chances of a sexual crime occurring. They found that of all rapes existing on school grounds, 60% took place inside some form of on-campus housing. They find that most of the rape that takes place off campus is in bars and clubs, and therefore decide that, even with the advertisements of campus security and the bubble of safety that seemingly exists on campuses, it is actually more dangerous to live on than off campus.

Robert McCormick and Robert Tollison (1984) did a study entitled “Crime on the Court,” which compared crime in the real world to crime (fouls) on the basketball court. It tends to be difficult to develop conclusions from crime because there are so many variables that need to be controlled, and very many unknowns. For example, it is difficult to know how much crime has gone unreported, and whether that unreported crime has a similar attribute that would skew the data. Therefore, McCormick and Tollison use basketball to mirror crime. In basketball, doing something against the rules is “illegal,” and is therefore a “crime.”

Basketball has referees who are always there to watch for fouls. Through 1983, ACC basketball only had two referees during a game, but after 1983, had 3 referees. The

effect of this change was analyzed. The number of fouls decreased by about 1/3, which implied that since the players felt that they were more likely to get caught, since there were more referees watching them, they were less likely to foul.

The next question, though, was whether this observation was skewed because now there were fewer false fouls called. It may have been that before, when there were only two, each had to watch a larger area, and so could watch less closely. They may have thought that they saw an illegal move, but since they were concentrated on something else, they did not see it as well. When the number of referees moved to three, each referee watched a smaller amount of space, and therefore could watch more closely and call a foul with more confidence. McCormick and Tollison found that the increase in officials decreased the variance of the data, which meant that there were fewer false fouls when there were more officials.

Applying this concept to crime, the conclusion would be that as the number of police for a given area increases, the amount of crime will decrease because people will know that they are more likely to get caught and will not be as likely to commit the crime. The police to crime relationship is negative and elastic; the basketball numbers conclude that when the number of officials increases by 50%, crime decreases by 34%.

## CHAPTER III

### REAL WORLD CRIME DEFINED

In this study, we will look for patterns similar to those found in the studies mentioned above, as well as other studies that look at trends in crime. We will look at crime that is specifically committed on college campuses; meaning that any crime, that is done within the borders of the school, whether a student is involved or not, is included in the data. We will then look at the trends that this data shows, and use these trends to understand what the schools could do to decrease the amount of crime on their campus. These trends could help those in the prospective student category decide what school would be the safest. It is an important topic to students and parents especially, since this is the first time that they will be away from the child, when deciding where to attend. This data gives more information than is often discussed in less in-depth articles.

A public school is required to report all crimes that happen on their campus because they receive public funding from the government. The Federal Bureau of Investigation (FBI) collects this data and makes it available to the public in a yearly report. Private schools often report this data as well, in order to provide a comparison, although since they are completely privately funded, the government cannot force them to do so. The FBI reports data on eight different crimes in two different categories (FBI 2006).

One of the categories of crime that the FBI reports is violent crime, which entails murder- including non-negligent manslaughter, forcible rape, and robbery (BJS 2005). The other category is property crime, which is burglary, larceny, motor vehicle theft, and

arson (Criminal Defense 2009). These crimes need to be defined such that it is simpler to see exactly what is being measured.

While robbery, burglary, and larceny all tend to involve theft, there are subtle differences. Robbery is the capturing and taking of another person's property, that involves violence, the threat of violence, or intimidation toward the person. Larceny is capturing and carrying away another person's property without the harm of another person, which usually means that nobody is present at the time. Robbery is the breaking and entering into another person's property or space, and while this action is almost always done in order to commit some form of larceny, on its own it does not involve taking another person's things.

Aggravated assault is any form of violence that one person uses on another person that was intended to cause serious bodily damage, not just some bodily damage. This is obviously harder to define because the qualifications for each category are not as clear as in other crimes. It is therefore up to the individual judge to decide. Also note that non-negligible manslaughter means that the person had the intent to kill. For example, if a person was drunk driving on campus and ended up hitting and killing a pedestrian, this would not be counted as non-negligent manslaughter, and therefore would not be included in the data.

Forcible rape means that the person committing the crime knows that what they are doing is against the other persons will. Included in this category is also when a person is mentally or physically unable to give consent that what they are doing is alright. Statutory rape, consisting of a person of legal age and a person considered a minor, is not

included in this data. As was learned from Fisher, Cullen, and Turner (2000), these results are underreported and do not include other similar crimes of a less serious nature.

Arson is the intentional burning of another person’s property, meaning that an accidental fire is not counted. Finally, motor vehicle theft, more commonly known as grand theft auto, is the stealing or attempting to steal of any person’s vehicle.

In order to compare the amount of crime that takes place to other variables, it is easiest to combine all crimes into one numerical index. To do this, the average amount of jail time sentenced for each crime, in months, was used as a way to show the severity of the crime. This data is average number of months sentenced in jail for anyone who commits this crime, whether they are on their first or tenth time committing the crime, and whether or not they have committed other crimes in the past. These numbers include crimes for adults 18 years of age and older, and does not take into account the data on minors. On average, the number of months for each crime is as follows:

**Table 2.1**

**Crime Severity**

| Crime                                  | Jail Time Sentenced (months) |
|--|------------------------------|
| Murder, Non-negligent manslaughter (m) | 149                          |
| Forcible Rape (f)                      | 117                          |
| Robbery (r)                            | 95                           |
| Aggravated Assault (a)                 | 15                           |
| Burglary (b)                           | 30                           |
| Larceny (l)                            | 30                           |
| Motor Vehicle Theft (v)                | 28                           |
| Arson (s)                              | 84                           |

These numbers are then used in the following equation to calculate the total crime index.

$$TCrime = 149m + 117f + 95r + 15a + 30b + 30l + 28v + 84s$$

This number will be used in order to keep the investigation as simple and understandable as possible. It is better to look at crimes as weighted instead of unweighted, because not all crimes are created equal, since it is obviously worse to murder someone than to steal something while they are not there. This TCrime has been calculated for 492 different schools within the United States, and will be compared to several other variables to come to a conclusion on what affects the total amount of crime on campuses, and what has no affect.

In this section, we will attempt to find a function that can accurately reflect, and possibly be used as a predictor, for crime that occurs on college and university campuses. In order to find functions that can show the relationships between multiple variables, we will first look at simpler relationships between the variables in the data collected.

The data that is used in this study comes from many sources. Most of it is from the resources that parents and students often use to learn more about a school that they are interested in. Collegeboard, Princeton Review, US News, Peterson's and Zilch, and My Plan were the providers of the data. Each database was searched, in the order listed above, for the information desired. This means that each source was treated as equivalent to each other source, so that if a variable from one school was found on one site, and the same variable was found for another school on a different site, they are both equally

accurate and correct, and can therefore be used in comparison. The website of the individual school filled in the gaps in the data. The data on variables such as endowment (NACUBO 2008) and gun rules (FBI enforcement 2006) were also found on the individual websites. When none of these gave the information, the admissions office of that school was asked to give the information, with the holes in the data showing where they opted to not reply or give the data.

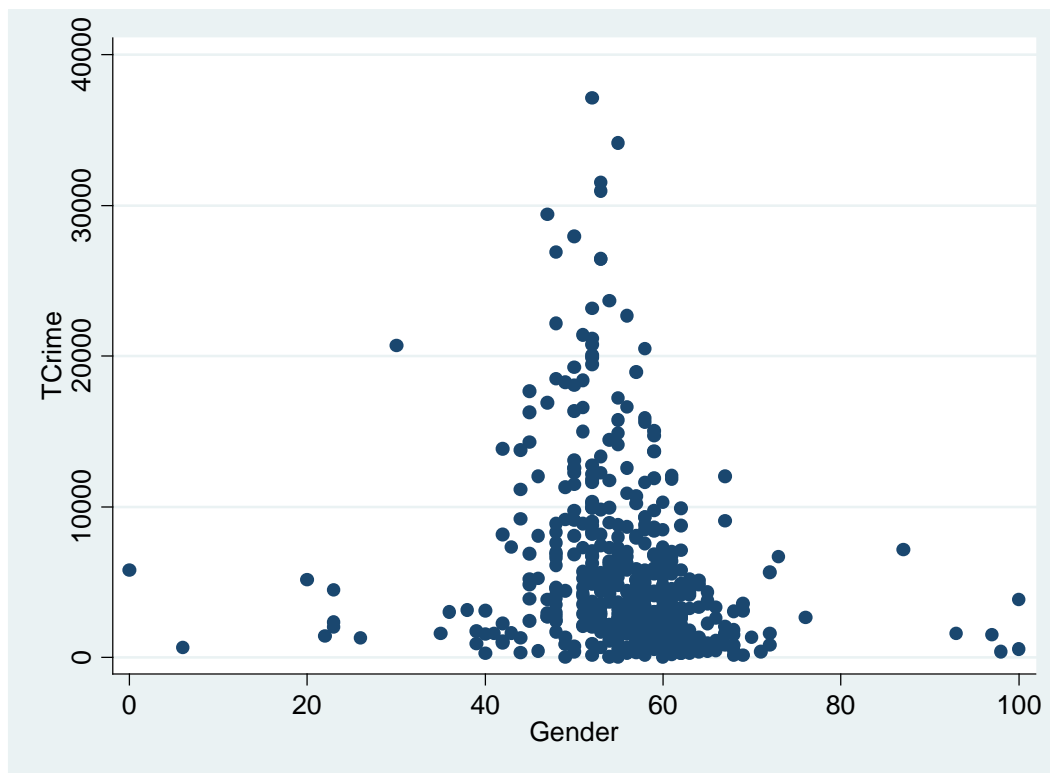
## CHAPTER IV

### ANALYZING TWO VARIABLE RELATIONSHIPS

The first relationship we will look at is that between gender and crime. The two categories are of course male and female, and it is necessary to see if one gender has a larger population, and if that gender overall tends to have the same number of crimes committed as the other. If one gender is the cause of a noticeably larger amount of crime than the other gender, it would show up in the data collected. With the data collected, there is a weak correlation  $r, -.1977$  between gender (female) and total crime. As the number of females increases, percentage-wise, the amount of crime decreases.

**Figure 3.1**

**Total Crime as a Function of the Percent of Students Who Are Female**





As we can see from **Figure 3.1**, comparing the percentage of students at the school who are female to the total crime, there is a normal bell-curve shape. The majority of the data is in the middle of the graph, with varying values.

We can look more specifically at gender by viewing some of the outliers of the gender proportions: when it is 100% female or 100% male, given that the average school is about 57% female. These outliers can be seen in the graph, and while their gender values are at the extremes, in no way do their crime values stick out as unordinary- they are not surprisingly high or low compared to the rest of the data.

Mount Holyoke College and Columbia College are all female schools, so it would be expected, by the correlation just calculated, that crime would be lower at these schools. Mount Holyoke has a crime index of 3,834, and Columbia College has a crime index of 570. It should be taken into account that the average crime index is about 5562. However, looking at this more specifically, we will look at the crime index per capita. Taking the numbers just found and dividing them by the total number of students, we find that Mount Holyoke has an average of 1.71 crime index points per student, and Columbia College has .4056. The average, for all schools, is .4242 per student, which means that an all girls' school actually has a higher crime average than most schools, which does not follow the overall gender pattern.

Looking at the exact opposite type of school, an all male college, is Morehouse College. Their crime index is 5,787, which is just a little higher than average. However, since it is a small college, at a little under 2800 students, which is much lower than the average school, we can see the crime index per student is .9984. This is more than twice

as big as the average. This does go along with the stated pattern that as the number of females increases, the amount of crime decreases.

Clearly, the pattern is not very strong, since even the outliers do not always follow the general trend. If the correlation was strong, then the all male school would have the highest crime rate index of any school, and the all female schools would have the lowest; both have been disproven here. Therefore, we need to look at possible problems with the way the data is compared and calculated, which will be done later, and also look at other variables that could change the crime index.

The study done by Janosik (2001) agrees with these findings. While men are more likely than women to look at the crime statistics that are released, when both genders read it, it is much more likely to have an effect on women. Women change their daily decisions much more often than men do after finding out the crimes that occur on campus. This is agreeing with our findings that as the proportion of females on campus increases, the crime decreases.

The problem, though, is that it is unknown how much the school talks about the crimes that occur. At the beginning of this study, most people did not even know that they could look at the crime. If students at most schools feel the same way, then there would be few who make their decisions for actions on campus based on crime, and therefore this would have less of an effect on gender and crime. But whether this rule is known or not has not been measured.

Next, we consider whether it matters if a school is public or private. The correlation between total crime and public schools is .0501, a very weak correlation

showing that there is about the same amount of crime in both public and private schools. However, there are obviously many trends in public and private schools that are included in other variables to have an effect on the correlation found. These variables could explain why there is a lack of any correlation.

For example, the correlation is  $-.8801$  between tuition and being a public school, making it reasonable to state that a private school does cost more. Tuition may affect the amount of security, because security does have costs, and tuition is a major form of revenue for the school. The correlation between the amount of law enforcement and tuition is  $.1486$ , so that there is a weak but positive relationship between the amount of security and the tuition costs.

There is a noticeable relationship at  $r=-.5858$  between public schools and the percentage of students who live on campus. That means that private schools tend to have more of their students living on campus than public schools do. This is important because there is also a relationship ( $r=.3703$ ) between the cost of on campus housing and the amount of total crime. The data shows that as the amount of students living in housing increases, the price tends to increase ( $r=.3285$ ). As the price increases, there tends to be more security ( $.3613$ ). In private schools, the cost of housing is usually more ( $.3783$ ), meaning that one would expect there to be more law enforcement at private schools. However, it should be noticed that there is practically no correlation between the number of law enforcement and the school being a public or private school. This means that there are still other variables not being taken into account that must have a large influence on either law enforcement or being a private school.

This finding is very different than that from “The Sexual Victimization of College Women,” (Fisher Cullen Turner 2000) which pointed out that there was more rape and sexual victimization in on campus housing than anywhere else. Even when taking the data we found and accounting for only rape, we find that the correlation between on campus housing and rape is very low, at around .1498. While there are slightly different forms of the crime being measured, the results reflected should be similar. The problem, most likely, is that there is underrepresentation in the FBI collected data because of the underreporting by individuals.

Corman and Mocan (2005) talked about the relationship between crime and wealth. They found that those who are part of the higher income brackets are more likely to have a lower amount of crime than those who have lower incomes. To compare this, we will look at the relationship between crime and tuition. There is very little correlation between the two,  $r=.0743$ . This shows that there is not really any relationship, although this could be due to the many variables that tuition effects, and these many variables would then affect the total crime. Income and tuition are not completely alike, although according to Thomas J. Kane (2001) in “College-Going and Inequality,” there is a strong relationship in higher tuition schools having students from more well- off families (higher income). This has also been found by Jeff E. Hoyt and Andrea B. Brown (2004) who found that “students from low and middle income groups were less likely to attend selective and more costly institutions.”

Since the study found that the decrease in crime could be caused by the growth of the economy, this suggested that when people are better off financially, they will commit

fewer crimes. The same could be true when comparing college campuses, so that students at schools with higher tuitions suggest that they are more well-off and will not commit as many crimes.

However, S. Hills (1982) did a study called “Crime and Deviance on a College Campus- The Privilege of Class,” which suggested the opposite. It explained that those at colleges with higher tuitions are from wealthier families, and therefore have more money to commit crimes such as drug use. However, they also suggested that those schools tend to “look the other way” in order to keep their appearance up, so these may cancel each other out and make it seem as though there is no difference in crimes. This also could be an impact seen in our data. The tuition may not have seemed to have an effect on the amount of crime because the extra crime that takes place when tuition increases is hidden by the school to protect the school’s image.

Also, Levitt (2004) brings this issue up in his paper. Instead of looking at incomes, he looks at the overall GDP, and decides that it did not have any impact on the amount of crime. He compared the overall crime to the GDP, and said that there was very little correlation, and therefore excluded economic growth from his study.

Tuition covers many costs besides the amount of law enforcement, so the correlation that we found (.1486) would not be expected to have a large value, and instead depends on the priorities of the individual school. In fact, we will notice that tuition has a stronger relationship with being public, as mentioned above, as well as with the number of undergraduate students, the percent living on campus, SAT scores, room costs, and the student to faculty ratio.

First, we'll look at the  $-.2313$   $r$ -value between the tuition and the number of undergraduate students. If there are more students, then there is money coming from more students, so each student should have to pay less, because there exist some fixed costs for a school, and splitting these fixed costs between more people would give a lower overall cost. Once again, we will look at the two extremes: the low values of undergrads, and the high values of undergrads.

The average number of undergraduates for a school is a little under 11,000, so we'll take an arbitrary number of 1,000 undergraduates and say that they are the low values. For these schools, the correlation is now  $.1079$ , meaning that overall, as the number of students goes up from 0 to 1,000, the tuition actually goes up. This of course does not follow the pattern stated above, so the smallest school does not have the largest tuition per person.

Now we will look at patterns in schools where the number of undergraduates is much larger than the average, again an arbitrary number, say 25,000. This time, there is a value of less than  $.1$ , so there is no relationship between tuition and number of students. As the number of students increases past this amount, the tuition stays the same. So what we are finding is that the overall patterns that we saw for the overall function does not apply to all of the data.

Next we will compare the SAT scores to the tuition. This has a correlation of  $.5468$ . Overall, the average SAT score is 1000, since this is how the test is curved and how scores are decided. So to break this problem into more pieces, we'll look at the correlation below average, and the correlation above average. While neither of these

include the average value 1000, this can be forgotten because no school reported this as their average score. For schools who have their own SAT average as below 1000, there was close to no correlation, .0308, between tuition and the scores. So once below average, there is really no pattern to how the tuition is decided. However, there was a strong relationship of .5558 between the variables when the average was over 1000. So the smarter the school was, when smartness is measured by the test score, the greater the cost.

Finally, there is a pattern between the student faculty ratio and the tuition (-.3184) which means that tuition will rise when the ratio falls. This is clearly expected, because fewer students are paying for one faculty member, so they will have to pay more per person. This assumes that faculty at each school make about the same amount, and while this is a dangerous assumption, there is also a negative correlation between SAT and the ratio, so those with higher SAT scores tend to have a lower ratio, and as was just discovered, as SAT scores go up, tuition goes up. Reasoning this, we will look at the minimum and the maximum value of the ratio, because these values are far from the mean of 18.4.

The minimum number of students per faculty member is 5, at Rice University. Their tuition is \$16,053 per year. This is not the maximum, but it is one of the higher values. The maximum of 139 is at Central Texas College. The tuition is \$765, which is not the lowest, but is certainly one of the lower values. To see how much of an effect the ratio has on tuition, we will look at the average cost per faculty member for each student. By taking the total number of students (adding the undergrad and grad students) we will

then divide that by the ratio, which will tell us the number of faculty. We will then divide the tuition by this number of faculty, to get to values that can be compared for each school. For Rice, the calculation is  $16053/[(3154+2302)/5]= 14.71$ , and for Central Texas is  $765/[(22542+0)/139]=4.72$ . Clearly these are not the same values, so there are many other factors than just the student faculty ratio. To compare this to the average, we get  $4275/[(110964+2147)/18]=5.99$ . This value is in between the two found, giving the idea that the cost per student for each faculty member is increasing at an increasing rate.

In these past paragraphs of data, one variable has changed another, but that changed another variable, and so forth, as to become the cause of quite a bit of confusion, and more importantly, the inability to understand which variable is the true cause of another variable. This issue will be discussed later. However, to make slightly clearer the variables' relationships, the correlations between them are shown in **Table 3.1**.



**Table 3.1****Correlations Between Variables**

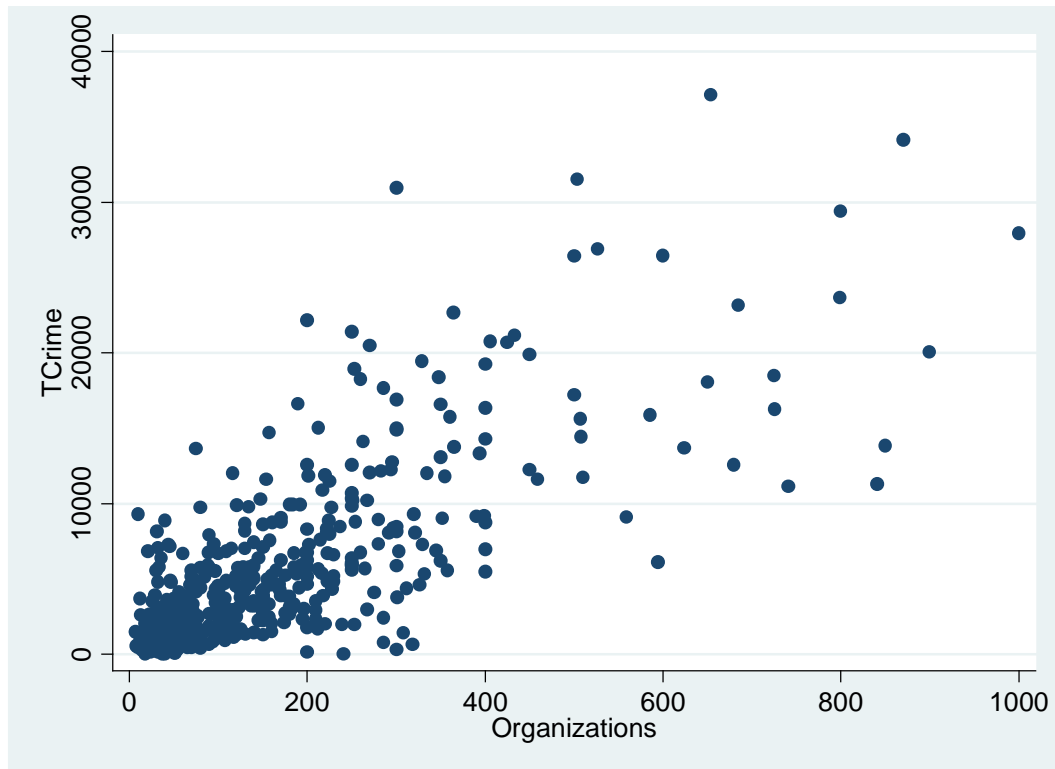
|                | public | tuition | law   | on-<br>campus | room  | TCrime | under-<br>grad | sat   | stufac |
|----------------|--------|---------|-------|---------------|-------|--------|----------------|-------|--------|
| public         | 1      |         |       |               |       |        |                |       |        |
| tuition        | -.888  | 1       |       |               |       |        |                |       |        |
| law            | .040   | .077    | 1     |               |       |        |                |       |        |
| on-<br>campus  | -.608  | .669    | -.045 | 1             |       |        |                |       |        |
| room           | -.374  | .492    | .329  | .297          | 1     |        |                |       |        |
| TCrime         | .108   | -.018   | .813  | -.107         | .330  | 1      |                |       |        |
| under-<br>grad | .303   | -.254   | .675  | .389          | .154  | .788   | 1              |       |        |
| sat            | -.376  | .544    | .461  | .412          | .450  | .395   | .240           | 1     |        |
| stufac         | .449   | -.544   | -.031 | -.455         | -.288 | .040   | .310           | -.360 | 1      |

There is a strong relationship between the number of organizations and the amount of crime. This is a positive .7609. This is counterintuitive, and goes against most research that has been done. Mahoney (2000), who did the study “School Extracurricular Activity as a Moderator in the Development of Antisocial Patterns,” found that those who were involved in more extracurricular activities while growing up, until age 18, were more social than those who did not. He also found that those who were antisocial were more likely to commit crimes. However, he found that once hitting adulthood, ages 20-24, there was no longer a relationship between crime, being antisocial, and

extracurricular activities. There are other factors that decide whether someone will commit crimes once hitting this age.

**Figure 3.2**

**Relationship Between the Number of Organizations and the Total Crime**



**Figure 3.2** above shows a simple illustration of the strong positive correlation between the number of organizations and the total crime that occurs. It is very easy to see the general relationship, which shows the overall strength of this correlation.

But this still does not provide an explanation for the strong correlation that we found. Organizations do cost money to run, since the school is responsible for granting them with enough to accomplish what they would like to do. This would propose that organizations drive costs up. There is a slight positive correlation between the tuition and

the number of organizations (.1445). So if there are more organizations, people are paying more. However, the amount they are paying is probably not all going to organizations. Looking at the effect that increasing the number of organizations has on increasing the number of law enforcement,  $r=.6423$ . Since we have already concluded that the number of law enforcement increased the amount of crime, when the number of organizations increases, the amount of crime will also increase.

Unfortunately, the number of organizations seems to be linked to many different variables in a similar amount. The  $r$  values for organization versus other variables are: room .2631, endowment .2840, SAT .5265, area .1344, student faculty ratio -.1073, campus size .4682, percent on campus .1129, and gender -.2410. With all of these correlations, and not knowing exactly how a change in one variable leads to a change in another variable, it is impossible to single out the cause for the increase in crime with the increase in the number of organizations. This is the exact same problem that was presented earlier when trying to understand the effects of tuition. So many variables become involved that it is hard to pinpoint which is the real cause and which are just involved because variables that are related are involved. This was discussed in by McCormick and Tollison (1984) with the solution of using a model that reflected similar results without all of the other unknown variables.

Money can also be reflected by the endowment of a school, which is the total amount of money that a school has in donations, to be used for investments or land. The school may not take into account how much they are charging each student per semester, but instead looks at how much money they have total to decide how much of it to put

toward crime prevention. When calculated,  $r=.2683$  between the total crime and endowment, which means that there is a relationship between the two variables in the direction stating that as endowment increases, total crime increases. We will look at a few different ways to explain this.

It is necessary to look at the statistics on endowment itself. It varies greatly, with the highest being about \$36.6 billion, and the lowest at \$4,000 at North Dakota State College of Sciences. However, only 456 of 492 schools reported their endowment, so there may be a smaller or larger number. We can see that the range between these two values is extremely large, with a standard deviation of \$2.2 billion. The mean value for the data is \$434,113,100. The standard deviation value is actually larger than the mean value, and because of this, the relationships found, or lack thereof, must be taken with a certain weight.

The number of students probably matters in the amount of endowment that a school gets. There must be a reason that a person or company has the inclination to donate to one school and not another, and this could come from loyalty to schools where a person is an alumni. But when comparing the endowments to the number of undergraduate students, there is no relationship. However, when doing the same comparison but with graduate students, the correlation is .2988.

A simple explanation would be that those who have higher degrees will, at some point in life, have more power to decide where a larger endowment goes. Or, looking at endowment as the independent variable, those schools who receive more endowment have more money to support graduate students, since unlike how undergraduates pay

tuition, graduate students more often get some sort of grant in return for their studies and work. Therefore, a school would need to have money in order to support the graduate students, so the more endowment they got, the more graduate students they could have. This argument is strengthened by the lack of any correlation between the number of graduate students and the tuition that the undergraduates pay. This would imply that the undergraduate tuition does not help pay for the graduates learning, so the money must come from somewhere else, such as endowment. The more graduate students, the more crime there is, as we will discuss later, so the higher endowment would then be related to more crime.

Related to this, the endowment will be compared to the SAT scores of the undergraduate students. The schools with higher SAT averages also tend to have higher endowments. The relation between this and the last idea we discussed: graduates and endowment, is that there is  $r=.4184$  between SAT and graduate students, so those schools with higher SAT scores also have more graduate students. The SAT and endowment have a similar correlation at  $r=.4271$ . It could be explained the same way as above. Those with higher SAT scores probably get better jobs that pay more, so they have more money in the future to give to their schools, which would be in the form of endowment. Clearly, endowment, SAT, and number of graduate students are all tied together, so it difficult to know which is causing what.

Unfortunately, since the standard deviation is so much larger than the mean, it is difficult to know what values of the data are outliers, and therefore it is difficult to test for patterns at a low endowment compared to those at a high endowment. To test the

relationships at the very high values and very low values of endowment, we will look at the top and bottom six values. This means that the endowment is either less than \$200,000, or is greater than \$5 billion. The average SAT for the lowest schools is 980, and for the highest schools is 1193. These schools are following the overall pattern as stated above. However, looking at the correlations for each of these will tell a different story. The correlation between SAT and endowment if the endowment is low is  $-.5027$ , so when scores go up, endowment goes down. For the highest schools, it is  $.5144$ , so when scores go up, endowment goes up. From what we have seen in patterns in the data thus far, it would be difficult to perceive how it is possible that SAT increases make endowments decrease. Before making any conclusions though, we will look at the graduate student relationship, as above, for these extremes.

The behavior for the low and high extremes for the endowment versus graduate population is similar to that for SAT. For the lowest endowed, there is an average of 368 graduate students, and for the highest the average is 1215. The correlations are again opposites, with the low being  $-.1356$ , and the high being  $.1958$ . These are very similar, but with opposites signs, just as above. This gives us two different patterns that do not at all match to make a conclusion about the data. Therefore, we will look at one more set of six observations: a set containing the mean value of endowment.

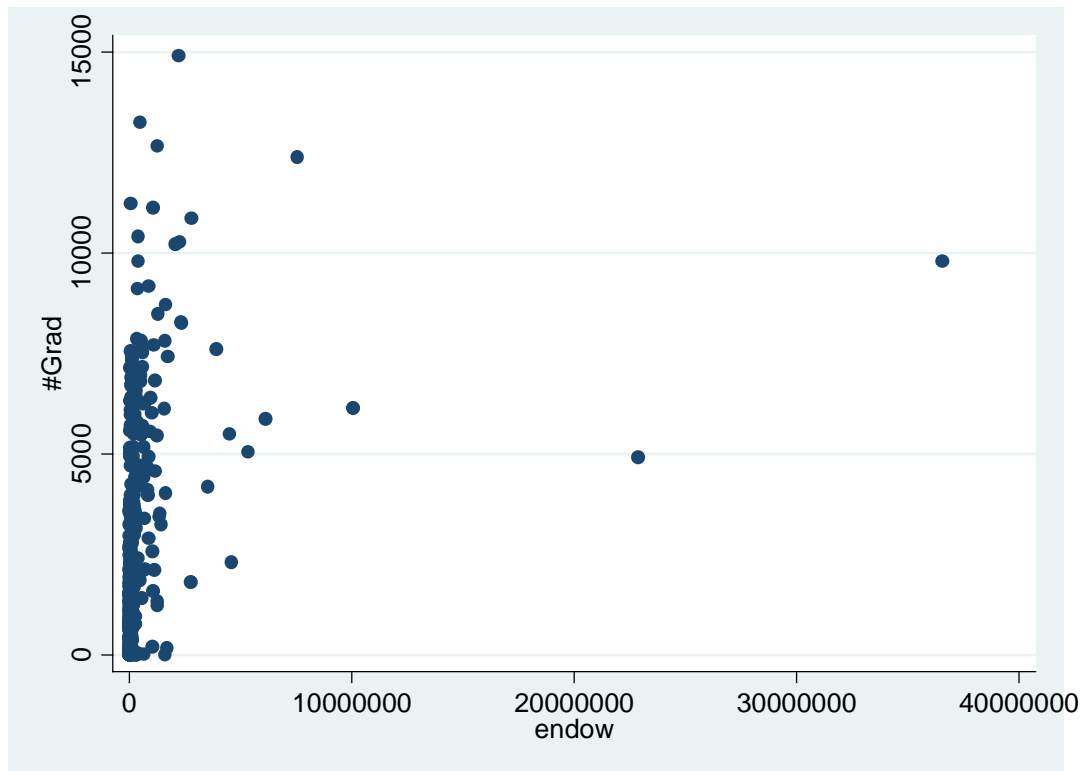
Taking the set where the endowment greater than 385 million but less than 500 million, we get that the average endowment is \$431,467,000, which is extremely close to the average of all of the endowment data. The average number of graduate students for these schools is 7209, and the SAT is 1128. These numbers are both in between the

averages that we calculated for the sets of high and low endowments. Therefore the overall trend still holds true given this set. When we break it down further like before, we find that there is no real correlation for the number of graduate students, but the correlation for SAT is  $-.6809$ .

From the three sets, it seems that for the number of graduate students, there is a negative correlation at low endowment, then no endowment in the middle, and positive correlation at the high endowment. This is a pattern, although maybe not one expected. The relationship between the two variables can be seen below.

**Figure 3.3**

**Number of Graduate Students in terms of Endowment**



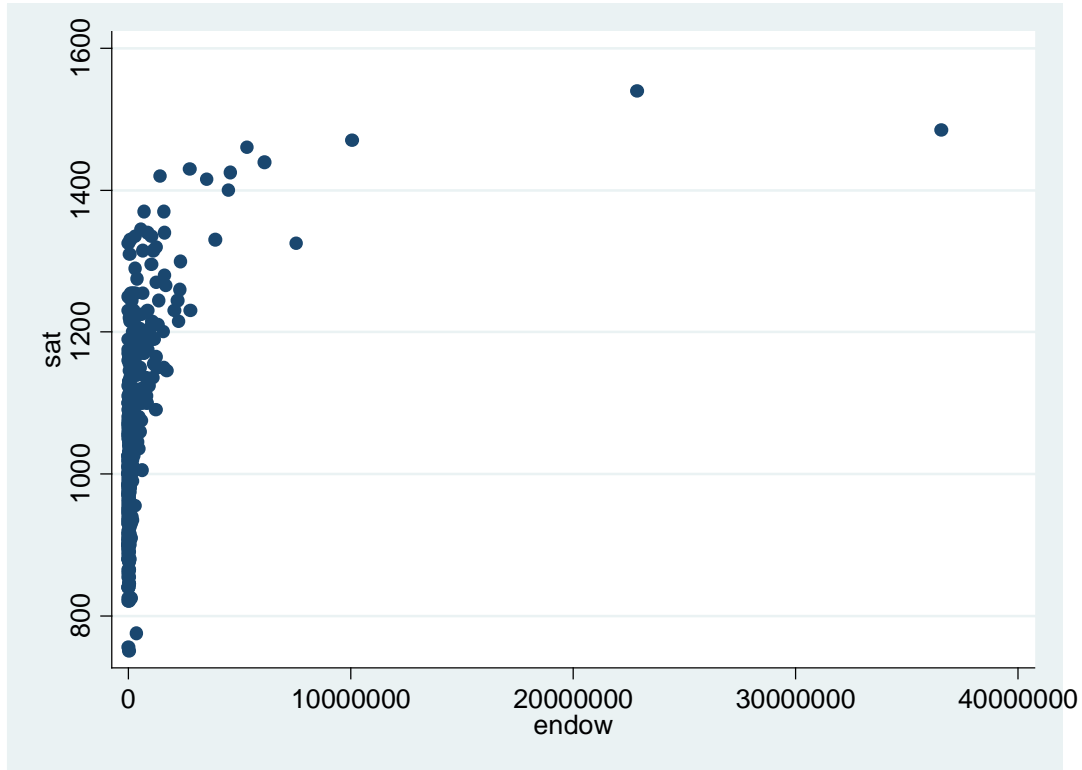
**Figure 3.3** shows that most endowment values are actually within a very small range, and there are a few extreme outliers that have a number of graduate students within the middle range of the extremes of the graduate student level. Since this graph has little pattern for the viewer, even though there is an overall correlation, it is difficult to believe that the endowment would really change the number of graduate students, especially since we already saw that the correlation in pieces were very small and opposite in signs.

The middle values showed an SAT versus endowment correlation of  $-.6809$ , which is very large and does not follow the pattern of the minimums being a smaller negative number and the maximums being a positive number. This also makes it tough to believe that there is an overall positive correlation. Once again, we will look at a graph to attempt to picture the correlation.



**Figure 3.4**

**Relationship Between Endowment and SAT Scores**



**Figure 3.4** makes a lot more sense. We can see that while the lower endowment numbers are all over the place in terms of SAT scores, the higher endowment values have some of the highest SAT scores. Therefore, it could have been just coincidental that the six that we picked for the low and middle endowment levels happened to have a negative correlation, because overall, there is a positive correlation that has a pattern similar to a logarithmic graph. It seems that endowment, in the big picture, will have a pretty big effect on the scores of students' SAT scores, or the relationship could be the other way around, but the two are highly related.

One of the absolute most important variables that goes into the amount of crime that takes place is the number of law enforcement members. The law enforcement is, after all, the one who catches the crime and makes it known for the crime data. The correlation between total crime and the number of law enforcement is .8006, which shows a very strong relationship. The more security a school has, the more crime that will take place and/ or get caught. Such a high correlation would pretty much mean that it is the only thing that really matters, and if the desire is to catch more criminals, then the school should just get more law enforcement. However, within the law enforcement data, there are many hidden issues that will matter to whether it is really as straightforward as it seems.

The data collected has officers divided into two different groups: the officers, and the civilians. Officers are those who are qualified by the state to enforce all aspects of the law in the same ways that any other typical police officer does. If guns are used for law enforcement on campus, the officers are the ones who will have the guns. The civilians are those hired by the university to enforce the rules, but can only enforce and give consequences set by the university. Civilians have close contact with the police, and are able to witness crimes and immediately report it to the police for the correct consequence to be used. Civilians cannot arrest students, rather just give them citations to be paid or served through the school (such as a ticket, service hours, or a class). Civilians also cannot use guns, whether or not the campus allows them for the police.

The correlation between the total crime and the number of officers is .8126, and between total crime and the number of civilians is .6396. Both of these show a very

strong relationship. The correlation for the number of officers may be higher because they are the professionals, and therefore know how to catch crime in a more efficient way. There are also 36 schools that do not have any civilians, but do have an average of six officers, and this lack of civilians would most logically decrease the correlation value.

The findings of total crime and officers agree with the interpretation provided by Corman and Mocan (2005) of Giuliani's actions. They questioned the relationship between the two variables, because hiring more meant that it was more important to look for more crime, and doing so meant that more crime would most likely be found. This same effect could take place on campuses, by a school having more officers meaning that they are more serious about keeping their campus safe, and each individual officer will therefore work harder to accomplish this goal.

Levitt (2004) also looks at the specific example of Giuliani in New York City, and completely dismisses the idea of his harsher punishments decreasing crime. The decrease started earlier than Giuliani's election, so it had to be before these punishments were in place. However, he does say that the increase in the number of police does change the amount of crime. While at first the addition of more police means that there will be more crime, in the long run the amount of crime will decrease. This could definitely affect the data because it is unknown how long each school has had their number of police. That would mean that if there were two schools that had the same number of students per law enforcement, and all other variables are comparable, the amount of crime could be very different depending on how long each school has had that number of enforcement.

Depending on how long each school has had the number of law enforcement would have an effect on the amount of crime that occurred.

We have already looked at the tuition and total law enforcement above, with the realization that the increase in tuition does slightly increase the amount of law enforcement. But, we can now look if it has more of an effect on either subdivisions of total law enforcement. The law enforcement, as stated before, has  $r=.1486$  with tuition, which can be compared to that of officers,  $.1574$ , and civilians,  $.1099$ . The numbers are very similar, and can be explained in the same way as the crime and number of civilians could be. Since these patterns show nothing, we should remove the schools that do not have any civilians, and recalculate.

The same relationship still shows once removing these values.  $r=.1587$  for officers, and  $.1078$  for civilians. Also doing this for the relationship between total crime and each group, the correlation values are extremely similar, so it seems that the higher number of schools not having any civilians does not skew the data. It is surprising, though, that tuition would have such a small influence on either value. Law enforcement does cost money, and the money needs to come from somewhere.

The other source of money that we've looked at is endowment. While endowment doesn't tend to be thought of as smaller expenses such as law enforcement, it would make sense that if a school had more money in endowment, they would feel wealthier overall, and spend more of their tuition than a school without the endowment would. There is a relationship between law enforcement and endowment of  $.3079$ . Law enforcement is something that a school cannot go without, which makes it a more fixed

cost. Therefore, they may look at their permanent worth when thinking about a permanent cost more so than their changing tuition worth. This idea is further pushed when looking at the correlation values for the two groups: .3673 for officers, .1787 for civilians. There is a much stronger relationship between endowment and officers than endowment and civilians. Officers are more permanent than civilians, because civilians are students who have been hired, and will therefore change every year or so. Since endowment is permanent, it would make sense that it has a higher relationship with officers.

The other cost that can be looked at is the cost to live on campus at the school. Since those who live on campus are relying on the campus law enforcement for more time than those who live off campus, the costs may be included in the housing costs instead of the tuition costs. There is a correlation of .3613 for the amount of law enforcement and the average cost of living on campus. This is a much larger correlation than took place with tuition. Also, the specifics are officers:.3665 and civilians:.2877. As the room costs increase, the number of officers and civilians increases, and officers are more likely to increase than civilians. From all of these patterns, civilians have a lesser correlation, possibly because it depends on the policies of the school and the program that they have to train civilians. Officers are much more comparable campus to campus and are given about the same duties at every school. Therefore, it would be expected that the number of officers would be more consistent.

But the cost of living on campus, just like the tuition, could depend on the number of students. So we will compare the percentage of students who live on campus to the

price of living on campus. This has a correlation of .3283. As the percentage of students living on campus increases, the cost of living on campus increases. To try to explain this, we will look at the outliers of the percent on campus, where fewer than 5% but not 0% live on campus, and where at least 90% of students live on campus. We are doing this because there is only one school where everyone lives on campus; it would be difficult to require absolutely everyone, no exceptions, to live on campus. It is easy to have nobody live on campus, by not having housing, but that means there is no comparative price, so we will just look at a very low percentage instead.

There are seven schools that have at least 90% of their students living on campus. Comparing the average cost for this extreme majority to live on campus of \$7978 to the average cost of living on campus of \$7423. The average cost for when less than 5% but more than 0% live on campus is \$5825. These both follow the overall pattern. An explanation is that housing is an investment for the school. The more housing they have, the larger the investment is, and so the more they will try to get a large return on it. If only 5% of students live on campus, it is not a big matter, and will not make much money. But if 90% live on campus, it is a cost that 90% of students have to pay, and increasing even a little would have a big difference in the overall profits. Also, if that many students live on campus, it is probably “required,” and difficult to get out of, and they can act as though they have a monopoly; set prices as high as they want because the students will have to pay the price and live there anyway.

Comparing this to other money related items with the school, there is nothing showing that increasing the profits in housing would allow the school to decrease the

profits somewhere else. There are positive correlations when comparing both room and the percent on campus to tuition and endowment. The more housing the school has, the more endowment that they have, since the housing may be on land that was an endowment. Tuition has a strong relationship with room costs because schools try to maximize their profits on everything. Consumers think of room and tuition as separate costs, so the school can have the highest costs possible on both of them to earn the most money possible.

We will once again compare the total number of law enforcement to the amount of crime, and take into account the school population. While many patterns with law enforcement have already been seen, they have been comparing school to school, without the thought of how many students there are. However, the size of the school or community would affect the amount of crime that takes place, because if there are more people, then there is a higher demand for help, so the supply of law enforcement has to be larger.

To take size into account, we will look at the number of students per law enforcement officer. This will show how many students, on average, an officer needs to look after. The average school has 30 law enforcement, so to calculate the average crime index per officer, we will have  $5562/30=182.61$ . The most law enforcement officers that any school has is 142, with a crime index of 4686, so the ratio is 33, which is way lower. Then, looking at the school with the fewest law enforcement, there are two that have only one. One has a proportion of crime index to law enforcement at 360, the other at 270. So while the overall crime index tends to increase as the number of enforcement increases,

the total amount of crime per officer will decrease as the number of enforcement increase. This further shows the simple correlation that as enforcement increases, total crime increases. But this may also point out another flaw in the data. If there is such a strong correlation between the number of enforcement and the total crime index, then it would be difficult to conclude that any other variables have a measurable effect on the crime. It could be that if there was a way to control the number of enforcement, then the schools would have a very similar crime index.

The size of the campus will also have an effect on the amount of crime. The correlation between the two is .3971, which is definitely a noticeable amount. However, area is very difficult to understand in this case, because the increase in crime because of an increase in area is not easily explained independently. The amount of crime goes up as the size of campus goes up. The problem is, land does not commit crimes or need to be protected from the crime or anything. So it is seemingly always a variable depending on other variables.

A larger area could have more crime because it needed more law enforcement to protect it. If there needs to be an officer for a certain number of acres, then a larger campus would have more enforcement, even though everything about the school may be the same. This is true with a correlation of .3650. As the area goes up, the number of enforcement does tend to increase as well. But if the number of law enforcement officers is only chosen by the area, then crime would be caught more often than before. Since population did not change, there is now an enforcement guarding fewer people, so if they do anything, they are more likely to get caught. The school would have to adjust such



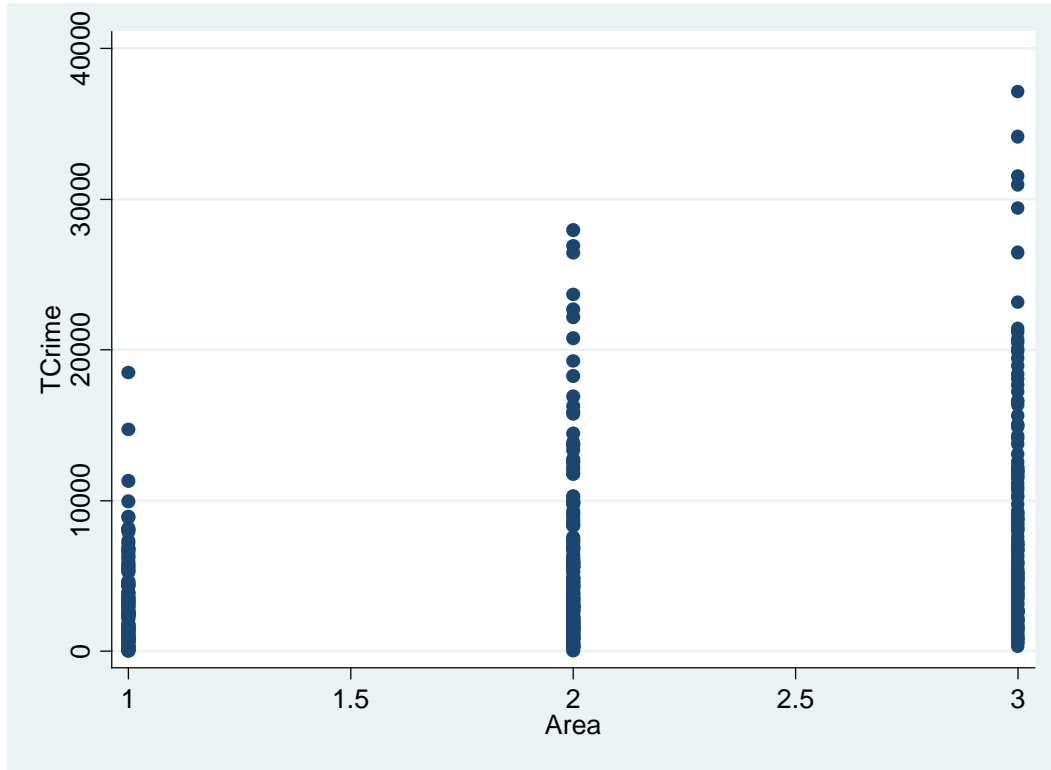
that the increase in area but the decrease in population density averaged out, so that the same amount of crime was found, given that the amount of crime is the same for both.

However, it is rare that a very large campus has very few students. A campus is probably bigger because it has to hold and accommodate to more students. This has a correlation of .3650, proving that as the acreage goes up, the number of students tends to go up as well. But if the number of students goes up, then there should be more enforcement. The dilemma is the same as before. It is difficult to know the cause of the relationship between area and crime, but clearly it is related to these other variables and seems to therefore have an effect on the amount of crime.

The type of area that the school is in could also change the amount of crime. To show the comparison between the surrounding area and the amount of crime, we will divide the schools as being in three different types of areas: urban, suburban, and rural. Rural will be defined as less than 50,000, suburban 50,000 up to less than 250,000, and urban at least 250,000. We will assign values 1, 2, and 3, to rural, suburban, and urban respectively. Using this, we can compare the area to the total crime, and find that the correlation is .3124. This shows the overall trend that there is more crime as an area becomes more populated.

**Figure 3.5**

**Density of Total Crime Levels in Each Area Type**



Viewing **Figure 3.5** above as more of a bar graph with density, we can see that where the area is 3, meaning urban, there is the most dense line at the lower values of total crime, and this density continues for higher up than in suburban or rural. Also, it can be seen that the highest total crime values are higher for urban than suburban or rural. The opposite observations, meaning lowest dense line and higher values, can be seen for rural, with suburban in the middle.

This is different than the findings from Whitaker and Pollard (1993), who saw that the amount of crime is about the same, and it is just the types of crime that vary. The urban areas caused restrictions and fear from the students which made the crime

about equivalent. This data took into account the size of the school though, and so it is necessary for us to now look at crime on college campuses while thinking about both the type of area and the size of the school.

An area may have a higher population or move from one area categorization type to another based on there being the presence of a school. A school brings people to the area, and while students are not usually included in the population, because to be counted there has to be a permanent address, it still will change things. People may go to school there and not want to move away, so there are more candidates for the businesses that are there, and businesses may want to move there to have a large option of new hires available.  $r=.2875$  for these two variables. Rural schools tend to have the fewest students, and urban has the most.

The number of people in the surrounding area increased crime. Now we will look at the number of people at the school itself and see how crime changes. These turn out to be strongly correlated, with  $r=.7135$  for undergraduate students and  $.8479$  for graduate students. The greater the number of students, the more crime that will take place. These are some of the strongest correlations that have been seen. This would mean that the amount of crime mostly depends on how many students there are. So a person would be smart to choose a small school, but then small schools would become larger, and large schools smaller.

The bigger deal with this is something that has been covered throughout many of the prior variables, which is that the number of people matters. Therefore, while these numbers seem larger, it probably turns out to be weaker, so that there is more crime per

person on campuses with more people than with less, but not to as extreme of a level. This again would be dependent on the amount of law enforcement, organizations, amount on campus, and almost all other variables because it is the heart of the whole problem. The problem with exploring this variable is that since so many things could affect the number of people and what the people do with their time, that it would be difficult to see the population as a variable itself.

Guns have been a big issue on college campuses, because it is difficult to tell whether they cause more crime or help get rid of it. The relationship between law enforcement carrying guns and crime is pretty weak, at .1211. There exists a relation such that crime increases slightly when law enforcement carries guns. This makes it seem as though it would be better to choose to let officers not have guns. Unfortunately, there are so few schools that choose to not allow law enforcement to use guns on campus: 96.54% do use guns, so it is difficult to find an applicable correlation between the existence of guns and any variable. There is such a large variation in the amount of crime in all of the data, and since almost all of the schools carry guns, it is not uncommon that there would be a slight pattern that would show up. Those schools without guns are decently random, but since there are so few, they are bound to have some sort of pattern, which has caused the correlation.

The gun laws were also visited in Levitt's (2004) study. He talked mostly of "Conceal and Carry," and "Gun Control." These explain the stricter rules that are put on consumers of guns. But he concludes that these do not change the amount of crime that occurs, because most people buy on the black market. This "rule breaking" can be

applied to the gun carrying on campus. Just like the sales of guns, where the laws did not change much, it would make sense that the laws of not being able to have a gun on campus would not mean that nobody carried one. It cannot be measured who has concealed weapons on campus and who does not, so we cannot calculate a specific relationship. However, it may be that schools that do not allow officers to carry guns promote this, especially since it is so rare, and are more able to convince students that guns are not needed on campus. This would mean that the number of guns that students have on campus would decrease, and perhaps this would cause a decrease in crime. This could also contribute to the small correlation that we found between guns on campus and crime.

The summary of all of the data found and the correlation between each and the total crime index is stated in the following table.

**Table 3.2****Summary Statistics**

| Variable          | Variable code     | Mean      | Standard Deviation | Min  | Max     | Correlation to TCrime |
|-------------------|-------------------|-----------|--------------------|------|---------|-----------------------|
| Public            | public            | .884      | .320               | 0    | 1       | .0501                 |
| Surrounding Area  | area              | 2.073     | .743               | 1    | 3       | .3124                 |
| Female            | gender            | 55.789    | 9.184              | 0    | 100     | -.1977                |
| Undergrad Pop.    | undergrad         | 10964.270 | 8790.155           | 471  | 52298   | .7135                 |
| Grad Pop.         | grad              | 2146.557  | 2644.672           | 0    | 14918   | .8479                 |
| % On Campus       | oncampus          | 30.022    | 22.997             | 0    | 100     | .0405                 |
| Campus Size       | acre              | 601.143   | 1102.650           | 5    | 15984   | .3971                 |
| Endowment         | endow             | 4.34e8    | 2.18e9             | 4000 | 3.66e10 | .2683                 |
| Organizations     | organizati<br>ons | 165.486   | 160.672            | 7    | 1000    | .7609                 |
| Student/Faculty   | stufac            | 18.366    | 9.886              | 5    | 139     | -.0887                |
| Tuition           | tuition           | 4275.641  | 4242.294           | 240  | 20171   | .0743                 |
| Housing Costs     | room              | 7422.756  | 2157.867           | 1250 | 15308   | .3702                 |
| SAT               | sat               | 1063.646  | 134.313            | 750  | 1540    | .4040                 |
| Guns              | guns              | .965      | .183               | 0    | 1       | .1211                 |
| Total Law Enforc. | law               | 30.456    | 26.649             | 1    | 173     | .8006                 |
| Officers          | officers          | 19.788    | 15.634             | 1    | 89      | .8126                 |
| Civilians         | civilians         | 10.674    | 13.444             | 0    | 97      | .6396                 |
| Violent Crime     | Violent           | 5.305     | 6.658              | 0    | 44      | .7724                 |

|                           |          |          |          |   |       |        |
|---------------------------|----------|----------|----------|---|-------|--------|
| Murder/<br>Manslaughter   | Murder   | .014     | .135     | 0 | 2     | .0137  |
| Rape                      | Rape     | 1.026    | 1.636    | 0 | 13    | .5148  |
| Robbery                   | Robbery  | 1.508    | 2.903    | 0 | 24    | .6208  |
| Assault                   | Assault  | 2.756    | 3.827    | 0 | 26    | .6523  |
| Property<br>Crime         | Property | 173.949  | 185.789  | 0 | 1187  | .9987  |
| Burglary                  | Burglary | 23.246   | 34.236   | 0 | 328   | .7099  |
| Larceny                   | Larceny  | 143.077  | 155.706  | 0 | 966   | .9848  |
| Motor<br>Vehicle<br>Theft | Motor    | 5.742    | 11.458   | 0 | 118   | .6154  |
| Arson                     | Arson    | .884     | 1.988    | 0 | 17    | .4303  |
| Total Crime<br>Index      | TCrime   | 5561.561 | 5905.935 | 0 | 37146 | 1.0000 |

## CHAPTER V

### ANALYZING MULTIPLE VARIABLE RELATIONSHIPS

Using the information of what is known of the relationships between the different variables, we can more closely analyze the data and compute trends that occur using more than one variable. First, we must create new variables, which are just calculated using the variables with data collected above. To look at the crime per capita, we will create  $l_{tcpc}$ , calculated by dividing the total crime by the sum of the population of undergrads and grads. This ratio will also be calculated by replacing total crime with the number of officers ( $badgeratio$ ) and the number of graduate students ( $gradratio$ ). The variables and their calculation methods are as follows:

$$l_{tcpc} = \ln (TCrime / (undergrad + grad))$$

$$l_{students} = \ln (undergrad + grad)$$

$$l_{policepc} = \ln (officers / (undergrad + grad))$$

$$badgeratio = officers / (officers + civilians)$$

$$l_{money} = \ln ((endow + tuition * undergrad) / (undergrad))$$

$$gradratio = grad / (undergrad + grad)$$

$$l_{sat} = \ln (sat)$$

$$l_{room} = \ln (room)$$

$$l_{organizations} = \ln (organizations)$$

$$l_{acre} = \ln (acre)$$

$$l_{stufac} = \ln (stufac)$$



The new variables above are self explanatory and are proportions of variable combinations. Note that in some, the natural log (ln) is taken in order to normalize the relationship variables such that they are easier to understand and work with. The following table summarizes the new variables.

**Table 4.1**

**Summary Statistics of New Variables**

| Variable       | Mean    | Standard<br>Deviation | Min     | Max     |
|----------------|---------|-----------------------|---------|---------|
| ltcpc          | -1.0292 | .7605                 | -3.5103 | 1.8169  |
| lstudents      | 9.1240  | .9053                 | 6.1549  | 11.0906 |
| lpolicepc      | -6.4333 | .6867                 | -8.9364 | -3.3168 |
| badgeratio     | .7109   | .1730                 | .125    | 1       |
| lmoney         | 8.1013  | .7549                 | 5.4813  | 10.0811 |
| gradratio      | .1386   | .1148                 | 0       | .7553   |
| lsat           | 6.9618  | .1235                 | 6.620   | 7.3395  |
| lroom          | 8.8663  | .3170                 | 7.1309  | 9.6361  |
| lorganizations | 4.6860  | .9656                 | 1.9459  | 6.9078  |
| lacre          | 5.7354  | 1.1162                | 1.6094  | 9.6793  |
| lstufac        | 2.8372  | .3390                 | 1.6094  | 9.6793  |

With these variables, we will now look more in depth at their relationships and the conclusions that can be drawn from them. Instead of simple correlations involving just two variables, we will now look at equations involving many variables. This will help to decrease a large problem that has been continually discussed; variables are all related in such a way that we cannot tell what is changing what. Put more simply: A had

a strong relationship with B. But B had a strong relationship with C and D. So did A actually have a strong relationship with B, or was this correlation just caused by B's relationship with C and D?

First, we'll look at how lmoney is affected by the other variables. lmoney shows the total amount of money that a school has per student, given that there are only undergraduate students. By comparing this to the variables lsat, lstufac, public, and gradratio, we can come up with an equation to show the overall relationship.

$$\text{lmoney} = 1.321 (.1321) + 1.135 (.165) \text{lsat} + .263 (.182) \text{gradratio} - .4321 (.077) \text{stufac} + 1.208 (.058) (\text{if public}=0); [R^2 = .737, N = 402]$$

Through this, we can see the direction and amount of change that is caused in the total amount of money that a school has in relation to these other variables. Notice that in this model, there is a significant increase in the amount of money that a school has if the number of graduate students in comparison to the total number of students is larger. Also note that the amount of money will significantly decrease when the student to faculty ratio increases. Schools with higher SAT scores will have more money. This helps to decrease the confusion in variables that was occurring before.

A problem before was this relationship that schools with higher average SAT scores are "better" and will have a lower student to faculty ratio so tuition will increase. Now, the SAT and student to faculty ratios have been separated, and their monetary effects can be seen individually without one effecting the other. Also from this equation can be seen that there is a significant increase in lmoney for a school if it is a private school. Measuring this value in the equation helps by making sure that we are no longer

including the effects of public versus private when looking at the SAT scores, which was a problem before since the SAT scores were seemingly much higher in private than public schools, and skewed other results.

An equation similar in structure can be found using different variables to predict the amount of crime per capita that will occur, the  $ltpc$ .  $Guns$ ,  $area$ ,  $lpolicepc$ , and  $lroom$  will predict the crime per capita. The benefit of this equation, unlike how we looked individually at the relationships earlier, is that the effect on crime per capita that occurs is also taking into account the other variables in the regression.

$$ltpc = -2.989 (.871) + .4721 (.042) policepc - .074 (.161) (if guns=0) - .229 (.072) (if area=1) - .243 (.062) (if area=2) + .592 (.087) lroom; [R^2 = .337, N = 429]$$

The area being rural or suburban have similar effects on the overall crime per capita, even though there existed a strong positive correlation between the total crime and the type of area. This means that instead of the expected idea that rural has the least crime, then suburban has a moderate amount, and urban has the most, there is actually some crime in rural and urban areas, and a much greater amount in the urban areas. In this regression, when police do not have guns, crime goes down. This is analytically equal to findings beforehand which suggested that when police carry guns, crime will go up slightly. There is a larger effect from the amount that living on campus costs, such that when that value increases, the crime per capita also increases. This effect is actually larger than that of the number of officers per student. This is surprising because it would seem that the amount of crime would be heavily reliant upon the number of police, or at least more so than the cost of on campus housing.

Adding to the previous regression the gender and percent on campus, the new output is the following.

$$\text{ltcpc} = -2.127 (.904) + .328 (.050) \text{lpolicepc} - .125 (.157) (\text{if guns}=0) - .359 (.073) (\text{if area}=1) - .303 (.061) (\text{if area}=2) + .383 (.090) \text{lroom} - .003 (.003) \text{gender} + .009 (.002) \text{oncampus}; [R^2 = .411, N = 426]$$

Adding these two variables does not have a huge effect directly, because the coefficients are extremely small. However, the impact of the other variables has changed. The number of police per capita now has less of an impact on the amount of crime per capita. Police not having guns is now more important. Crime decreases more in a rural or suburban area, and the difference between these two types of areas is now more apparent. The cost of living on campus has more of a crime increasing impact than before. These coefficients have moved in different directions, explaining why the gender and oncampus variables seem to cause no change in the total crime per capita.

The number of police is also dependent on many other aspects of the school. Here, we will model this value by comparing it to the other traits of the school and campus.

$$\text{lpolicepc} = -8.108 (.386) + .360 (.037) \text{ltcpc} + .008 (.002) \text{gender} - .0281 (.023) \text{acre} + .526 (.129) \text{badgeratio} + .008 (.001) \text{oncampus} - .147 (.029) \text{lorganizations} + .222 (.043) \text{lmoney}; [R^2 = .570, N = 439]$$

Notice how there is only a slight relationship between the number of students who live on campus and the number of police per student. This may be because the number of students and the number of students living on campus tends to be decently proportional.

The amount of crime that a school has per capita does increase the number of police. This, as has been mentioned before, brings up the issue of which is truly the independent and which is the dependent variable; does the number of police increase because the amount of crime has increased, or does the increase in police increase the amount of crime found.

Gender has very little effect as well, because gender, as was found before and shown in the inconsistent patterns of outliers. As the campus size increases, the number of police per student decreases. As area increases, the number of students tends to increase, but since the  $l_{policepc}$  already takes into account the number of students, so the effect is small.

A very large contributor is the number of law enforcement who actually have a badge, meaning they are police who are legally certified through the state. This is very logical because as the number of police goes up at any given school, the number who have badges versus the number who do not will also go up. If there are more organizations, the number of police per student will decrease, which has also been talked about because the amount of money that is being spent on organizations will be taken away from the amount of money for campus security. Similar to this, the amount of money that the school has, in this case per undergraduate student, will have an effect on the number of police such that if the school is richer, they will be able to afford more security. This value is very similar to the average value that we found in the correlation between the number of officers and each tuition and endowment.

Now, we will add public to the previous equation.

$$\text{lpolicepc} = -8.285 (.507) + .359 (.037) \text{ltcpc} + .008 (.002) \text{gender} - .029 (.023) \\ \text{acre} + .529 (.129) \text{badgeratio} + .008 (.001) \text{oncampus} - .151 (.031) \text{lorganizations} + .241 \\ (.055) \text{lmoney} + .055 (.103) \text{public}; [R^2 = .570, N = 439]$$

This equation shows the same results as before. There were only extremely slight changes caused to the effects of the other variables by adding whether a school is public or private. Even when just looking at the correlation between the two, there was not a very strong relationship, but now it is even smaller, such that before the results were magnified by unmeasured variables affecting crime and public schools similarly.

To look even more closely at this last example, we will add more variables, and see their effect on the variables that were already in the equation. We have now added SAT scores, the ratio of graduate to total students, and the student to faculty ratio.

$$\text{lpolicepc} = -6.178 (1.85) + .292 (.039) \text{ltcpc} + .004 (.002) \text{gender} - .022 (.022) \\ \text{lacre} + .521 (.130) \text{badgeratio} + .008 (.001) \text{oncampus} - .214 (.037) \text{lorganizations} + .098 \\ (.062) \text{lmoney} + .055 (.259) \text{lsat} + .329 (.228) \text{gradratio} - .304 (.100) \text{lstufac} + .069 (.104) \\ (\text{if public}=0); [R^2 = .577, N = 392]$$

Notice that by adding these variables, there has been a noticeable decrease in the police per student and the total crime per student relationship. There has been an increase in the effect that the number of organizations has on the number of police. There is also a large decrease in the role that money plays on the number of police per capita. But looking back at the equation for lmoney, we can see why. The lsat value was included in the equation and had an effect on the lmoney. Since some of the lmoney effect on

lpolicpc was included in lsat, there would logically be a decrease in the coefficient on lmoney.

Both the SAT scores and the school being public cause a small increase in the number of police. The grad to total ratio and the student to faculty ratio go in opposite directions but are both similar in magnitude. When the number of graduate students increases, the number of police will, too, but when the number of faculty increases, the number of police will decrease. An easy explanation for this is money; graduate students pay, but faculty cost money, and money is involved when it comes to deciding how many police to hire.

Finally, we will look at the previous equation, but take out the money per capita. Money was not found to have a strong relationship, at only .98, but the amount of money per undergraduate that a school has does have an impact on many of the variables in that equation.

$$\text{lpolicpc} = -5.7290 (1.80) + .293 (.039) \text{ltpcpc} + .003 (.002) \text{gender} - .024 (.022) \text{lacre} + .516 (.127) \text{badgeratio} + .008 (.001) \text{oncampus} - .215 (.036) \text{lorganizations} + .131 (.256) \text{lsat} + .341 (.224) \text{gradratio} - .360 (.098) \text{lstufac} + .171 (.088) (\text{if public}=0); [R^2 = .577, N = 399]$$

It is important to note that in this equation, compared to the prior, the coefficients have gone almost unchanged, except for lsat, which now has more than twice its previous effect. The average SAT score will now make the police per capita increase at a higher rate. SAT scores and lmoney therefore have an overlapping effect, and when is removed, it is not as though lmoney has completely disappeared. But this also suggests that

Money did not affect the relationship between the police per capita and any of the other variables. This seems odd, since, for example, organizations and police both cost money, so it would seem likely that there would be a larger change for organizations.

The comparison of these equations furthers the problem that has been covered before: that it is difficult to measure exactly how much each variable is related to any other variable because they are all connected in some way. As shown by Levitt (2004), it is difficult to quarantine the effects that a variable has on all others, but those that seem to consistently have a significant role in the change, despite the addition of other variables, are the ones that actually are causing the change. In the example provided, the idea would be that even though variables were added, the badgeratio still seems to have a similar value, whereas the emphasis on money has significantly decreased, so it does not have an effect on policing as was first perceived.

Furthering this problem are all of the variables that we did not take into account in this study. Past studies have proven that drugs (Levitt 2004), alcohol, and partying (Fisher Sloan Cullen 1998) have changed the decisions that the students make and their ability to be targeted as crime victims. Having this same effect are sexual orientation (D'Augelli 1992) and racial discrimination (Brown 1990), which have been shown to cause crime through feelings of dislike toward a particular audience. These variables were all unmeasured in this study but do change the amount of crime that takes place according to these other studies. It is possible that some of the variables that we have measured are strongly related to these factors, and are the true causes of the patterns in crime.



Another problem is that mentioned by McCormick and Tollison (1984), which is that it is difficult to measure the true amount of crime, because so much goes unreported and many victims feel that their situation did not qualify as crime when it in fact did (Fisher Cullen Turner 2000). Through basketball the conclusion was that increasing police would decrease crime, so in this study we must then assume that the positive relationship between the two was due to some other variable.

## CHAPTER VI

### CONCLUSION

From comparing these variables both one on one and in groups, the amount that they are intertwined becomes apparent. Schools are no longer safe-havens, not because they do not have the desire, but because there is no way to perfect the solution. If one variable is changed, because it will seemingly make crime go down, then another variable will be affected and increase the crime, making the action less valuable.

The solution therefore comes more as a guess and check and less as an absolute mathematical problem. Take the solution that seems as though it will have the best effect, and try it out. We, as well as previous studies, have found that changing the number of law enforcement officers will have the largest effect on the amount of crime, and seems to still have a large effect even when other variables are added. This could be logically recommended as the best route to take, and the effects monitored over time and adjusted, by changing other factors, if necessary.

The FBI has been trying to help students become aware of their surroundings, and have criticized schools for not advertising the information that they have been required to obtain for the annual report. But the seemingly different ideals of the schools on reporting crime versus hiding it for image purposes has made this information far from objective.

The main idea in this study, as well as through all others, is to be aware, and be prepared, for the fact that crime does exist on campus, and there is no way that it can be perfectly prevented. There are far too many variables to narrow down the cause to just a

few. We measured around two dozen, and could still name more, and not forget those that we didn't name, that also had an effect on the total crime.

It is necessary to make students feel as though it is not worth the risk to commit the crime. By making students aware of crime, the criminal is less likely to be successful because students will be more aware of prevention options. Making it known, and showing, that crime is a big priority on campus shows the criminal that there are people watching, and waiting to punish for the illegal actions. If a school is able to have both entertainment, so that a student will hold it in greater value than committing a crime, and fear, so that a student is too scared of consequences to commit the crime, then a safe, low crime area will have been created.

## BIBLIOGRAPHY

- Brown, D. (1990). Racism and Race Relations in the University. *Virginia Law Review*, vol 76, 295-308.
- Bureau of Justice Statistics. (April 2005). *Prison Sentences and Time Served for Violence*. Retrieved August 9, 2009, from <http://www.ojp.usdoj.gov/bjs/pub/pdf/psatsfv.pdf>
- CollegeBoard is a site that presents facts and information about many schools providing post-secondary education. <<http://www.collegeboard.com>>.
- Corman, H. & Mocan, N. (April 2005). Carrots, Sticks, and Broken Windows. *The Journal of Law and Economics*, vol 48(1), 235-266. doi: RePEc:ucp:jlawec:y:2005:v48:i:1
- D'Augelli, A. (1992). Lesbian and Gay Male Undergraduates' Experiences of Harassment and Fear on Campus. *Journal of Interpersonal Violence*, vol 7(3), 383-395. doi: 10.1177/088626092007003007.
- Department of Justice: Federal Bureau of Investigation. (2006). *Crime in The United States*. Retrieved July 10, 2009, from [http://www.fbi.gov/ucr/cius2006/data/table\\_09.html](http://www.fbi.gov/ucr/cius2006/data/table_09.html)
- Department of Justice: Federal Bureau of Investigation. (2006). *Full Time Law Enforcement Employees*. Retrieved July 10, 2009, from [http://www.fbi.gov/ucr/cius2006/data/table\\_79.html](http://www.fbi.gov/ucr/cius2006/data/table_79.html)
- Donohue, J., & Levitt, S. (October 2001). The Impact of Race On Policing and Arrests. *The Journal of Law and Economics*, vol 44(8), 367-394. doi: 0022-2186/2001/4402-0002
- Fisher, B., Cullen, F., Turner, M. (December 2000). The Sexual Victimization of College Women. *Minnesota Center Against Violence and Abuse*. NCJ 182369.
- Fisher, B. Sloan, J., Cullen, F., Lu, C. (1998). Crime in the Ivory Tower: The Level and Sources of Student Victimization. *Criminology*, vol 36(3), 671-710. NCJ 173581.
- Hills, S. (August 1982). Crime and Deviance on a College Campus- The Privilege of Class. *Humanity and Society*, vol 6(3), 257-266. NCJ 088165

- Hoyt, J., Brown, A. (2004). Marketing UVSC: How Prospective Students View the College. *Utah Valley State College*. Retrieved October 15, 2009. <<http://www.uvu.edu/iri/pdfs/research/marketinguvscspring2003/collegechoice5.pdf>>.
- Janosik, S. (2001). The Impact of the Campus Crime Awareness Act of 1998 on Student Decision-Making, *National Association of Student Personnel Administrators*, vol 38 (3), 348-360.
- Kane, T. (June 2001). College Going and Inequality: A Literature Review. *University of California- Los Angeles School of Public Policy and Social Research*. Made for The Russell Sage Foundation. Retrieved October 1, 2009.
- Levitt, S. (2004). Understanding Why Crime Fell in the 1990s: Four Factors that Explain the Decline and Six that Do Not. *Journal of Economic Perspectives*, vol 18(1), 163-190.
- Mahoney, J. (April 2000). School Extracurricular Activity Participation as a Moderator in the Development of Antisocial Patterns. *The Society for Research in Child Development*, vol 71(2), 502-516. doi: 0009-3920/2000/7102-0018.
- McCormick, R., Tollison, R. (1984). Crime on the Court. *Journal of Political Economy*, vol 92(2), 223-235. doi: 0022-3808/84/9202-0004.
- My Plan is a site that presents facts and information about undergraduate and graduate schools, and careers. <<http://www.myplan.com/education/>>.
- National Association of College and University Business Officers. (2008). *2008 NACUBO Endowment Study*. Retrieved July 25, 2009, from <http://www.nacubo.org/documents/research/NES2008PublicTable-AllInstitutionsByFY08MarketValue.pdf>
- Peterson's is a site that presents facts and information about many schools providing all levels of education. <<http://www.petersons.com>>.
- Princeton Review is a site that presents facts and information about many schools providing post-secondary education. <<http://www.princetonreview.com>>.
- Solorzano, D., Ceja, M., Yosso, T. (2000). Critical Race Theory, Racial Microaggressions, and Campus Racial Climate: The Experiences of African American College Students. *Journal of Negro Education*, vol 69(1), 60-73.
- Total Criminal Defense. (2009). *Property Crimes*. Retrieved August 9, 2009 from <http://www.totalcriminaldefense.com/crimes-a-z/property/default.aspx>

US News is a site providing facts, information, and rankings of undergraduate and specialty schools. < <http://colleges.usnews.rankingsandreviews.com/best-colleges>>.

Whitaker, L., Pollard, J. (1993). *Campus Violence: Kinds, Causes, and Cures, vol 8(3)*. The Haworth Press Inc.

Zinch is a site that presents facts and information beyond test scores about many schools providing post-secondary education. < <http://www.zinch.com/default.aspx>>. <<http://www.russellsage.org/programs/main/inequality/050516.322671/>>.