
Christine L. McGavin
THE RELATIONSHIP OF CRIME PATTERNS TO
SOCIAL AND ECOLOGICAL CONDITIONS IN
GRAND RAPIDS, MICHIGAN: 1980-1990

by

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The spatial distribution of the relationship between crime rates and urban ecology in Grand Rapids, Michigan over time is the focus of this study. Urban ecology can often be measured by indicators of social disorganization. Five crimes (larceny, burglary, robbery, aggravated assault, and homicide) were regressed with several indicators of social disorganization. The independent variables were poverty, transience, family disorganization, the percentage of youth in the population, race, and household density. Both violent and property crimes were strongly related to race, while specific crimes were related to poverty, family disorganization, the percentage of youth in the population, and transience. Property crimes were related to several indicators of social disorganization, and robbery and violent crimes were related to race.

Although the strength of the relationship between indicators of social disorganization and crime rates generally weakened over time, race emerged as the most important predictor of the crime rate. Overall, exceptions to the rule (residuals) appeared in transitional neighborhoods.
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CHAPTER I

OVERVIEW

Introduction

In the last few years, the rising crime rate has been the subject of much discussion as politicians try to develop ways to deter people from becoming criminals. Grand Rapids, Michigan, is no different than other cities in the United States when it comes to criminal activity. Crime seems to be concentrated in specific areas, while other areas are virtually crime free. In the summer of 1994, there was a flurry of activity on the corner of Franklin and Neland streets, in the southeast part of the city. A public telephone booth became a point of contention between business owners, the local telephone company, and neighborhood residents. Three people were shot at that telephone booth in one summer, and there were several other shootings in the same neighborhood. Neighbors wanted the phone booth removed, because they believed that it was drawing bad people to the area.

These incidents got me thinking about several things. Is the telephone booth really the cause of all the criminal activity? What other factors make a neighborhood’s crime rate soar? In my 25 years of living in Grand Rapids, I
remember this neighborhood as a poor one with many dilapidated houses, and although the crime rate was higher than in other neighborhoods, it never seemed to be as “bad” as it is now. Has it always been a “bad” neighborhood? Have the criminal “hot spots” moved over time in Grand Rapids? During the last fifteen years, what areas were “hot spots?” What do these areas have in common?

The phone booth is not the real cause of criminal activity. However, the social and ecological conditions in a neighborhood may have a great impact on the type and rates of crime that happen there. Criminal activity tends to increase with the ecological evolution and development of the city. As neighborhoods go through the natural progression of change—new, aging, dilapidated—crime rates also change. This ecological progression contributes to the type of social activity and organization that a neighborhood demonstrates. This thesis will compare the spatial distribution of crime rates to the social and ecological factors of neighborhoods.

The Study Area

Grand Rapids is a medium-sized city with a population of approximately 190,000. The metro area, which is often defined by the boundaries of Kent County, had a population in 1990 of approximately 500,000 (Missouri State Census Data Center, 1995). The city has a large Dutch
community, but also has a significant number of minorities. It is located on the southwestern side of Michigan and is about 35 miles east of Lake Michigan. The city was originally built on the banks of the Grand River, and expands from this natural dividing line. The banks of the river have been used for many things during the evolution of the city. First as a residential community and workplace for the first settlers, then as an industrial base, and more recently, a gathering place—including a university, parks, and a new sports arena. The central part of the city includes a depressed downtown area and an older residential section. The outer fringes of the city are newer more suburban-looking residential and commercial areas. Grand Rapids is surrounded by growing suburbs on all sides.

The Grand Rapids metro area has a very diverse economic base. Some of the predominant businesses are suppliers to the auto industry, furniture factories, household products (Amway), and many diverse small businesses. This diversity has allowed the city to be more economically stable than other cities in the state of Michigan which are solely dependent upon the neighboring Detroit area auto industry (Olson, 1995). The 1994 median income in Grand Rapids was $26,809, which is in the middle of a range from approximately $17,000 (Saginaw) to $38,000 (Midland). The number of persons below the poverty level in Grand Rapids rose from thirteen percent in 1980 to sixteen percent in 1990. Although the unemployment rate was
lower in 1980 than in 1990, the percentage of people who were actually employed was higher in 1990. When the unemployment rates are compared with other Midwestern cities of similar size, Grand Rapids ranks about average.

In terms of crime, Grand Rapids seems to be about average. In a comparison of major Michigan cities, Grand Rapids ranked third lowest in terms of the number of crimes per 1,000 people (crime rate) for homicide, aggravated assault, rape, robbery, burglary, and larceny (see Figure 1). When compared with six other Midwestern cities of the same size, Grand Rapids ranked third highest (see Figure 2).

Background

Studies by Shaw and McKay (1942), Stark (1978), and Wilson (1987) illustrate that neighborhoods most affected by crime are located in areas that are marked by social disorganization, which in broad terms, is the lack of cohesiveness and interdependence in a neighborhood. These scholars give good reasons why social disorganization and crime are related. Social disorganization most often occurs in areas that are in the later stages of the ecological progression of a city. In this thesis, several symptoms of social disorganization and demographic variables are compared to crime rates to determine the relationship between crime and urban ecology.
Figure 1. Grand Rapids Crime Rates Compared With Other Major Cities.

Figure 2. Grand Rapids Crime Rates Compared With Other Midwestern Cities.

Each type of crime has a certain locational element to it. Often, the type of crime that is prevalent in an area is related to the social and ecological conditions in that area. One type of crime may be more common in a
particular neighborhood, while another type of crime is more common in a different neighborhood. One can speculate that property crimes generally happen where there is some valuable property to vandalize or steal, namely in the middle and upper class residential and commercial areas, while violent crimes tend to be more prevalent in areas of high poverty, high turnover (transience), high population density, and high percentage of minorities in the population.

Property crimes can be defined as those against the property of another person. In order for this to happen there has to be something valuable to steal or vandalize, so generally speaking, criminals target areas where these things are in abundance and are easily accessible. For example, car thefts are more prevalent in large, busy parking lots; larcenies happen in large stores or shopping malls; and burglaries are committed in middle and upper class neighborhoods that are near busy streets or expressways for easy getaways.

Violent crimes are committed against persons rather than property. One can speculate that crimes such as aggravated assault and homicide tend to happen in areas where the urban underclass is living. Urban underclass areas have emerged since the early 1970s, when the high-paying entry-level industrial jobs were either eliminated or moved to outlying parts of town (Wilson, 1987).
Methodology Overview

The methodology for determining the extent of the spatial relationship between urban ecology and crime involves the comparison of police and census data, which are both available for 1980 and 1990. The police statistics are broken down by type of crime and location by patrol district for each year, and will be compared with census block data for the same years to determine the relationships between social and ecological characteristics and crime rates for both 1980 and 1990. Crime rates for larceny, burglary, robbery, aggravated assault, and homicide were calculated from the police data and compared with the social and ecological variables obtained from the United States Census Block Data using regression analysis. Correlation coefficients, significant variables, and mapped residuals were used to determine the relationships between crime rates and social and ecological conditions in each police district.

To accomplish the goals of this thesis, I examined several geographic and sociological theories, described in detail the study area, defined the methodology, and interpreted the results. Chapter II gives a detailed overview of the theories of Shaw and McKay (1942), Stark (1978), and Wilson (1987). Shaw and McKay (1942) theorized that areas with high rates of juvenile delinquency would also have high rates of other social problems
such as poverty, new immigrants, truancy, and disease. In addition, Shaw and McKay found in their study that these areas are also located in the parts of the city that are in the last stages of the cycle of urban development, which often coincident with heavy industrial areas and/or the inner city. Wilson (1987) modernized Shaw and McKay's 1942 study and suggested that there is a new class of people in today's society brought about by the loss of inner city entry-level jobs. The members of this urban underclass tend to live in the oldest, most dilapidated sections of town, are often unemployed, and for the most part are African American. Unlike the people of Shaw and McKay's socially disorganized neighborhoods, the urban underclass has no hope of ever leaving that environment. Stark (1978) defines some of the reasons socially disorganized neighborhoods develop high crime rates.

Chapter III begins with the outcomes I expect to see from this study. There are three major groupings of the hypotheses. First, I expect to see some spatial patterning of the crime rates for Grand Rapids; second, I expect that certain indicators of social disorganization will be related to certain types of crime; and third, I expect that the model I used will explain the crime rates in Grand Rapids. In addition to a description of how I planned to analyse and interpret the data, I also describe Grand Rapids in detail.

Chapters IV and V show the outcomes of the analysis. The spatial patterning of crime rates was determined by calculating the crime rates for
each police district and mapping them; the relationship of crime rates to social disorganization and their change over time was calculated by using regression analysis; and the fit with the model was determined by mapping the residuals and comparing the crime rate maps with the residual maps.
CHAPTER II

BACKGROUND

Many social theorists have studied the causes of crime and crime rate patterns. Classical theories include Durkheim's study of anomie, which is defined as "a condition of relative normlessness in a society or group" (Merton, 1957, 161), caused by people's inability to reach what society sets out for them as "normal" goals, so they find abnormal ways of achieving those goals; conflict theory, which says there is a constant conflict between those in upper social classes (bourgeoisie) and those in lower social classes (proletariat) (Clinard and Meier, 1985); the general behavioral theory, which says that people choose freely between good and evil, but are influenced by their surroundings (Pyle and others, 1974); and differential association, which says that people will conform to the dominant activities of their peer groups, even if those activities do not fit in with their personal values.

These theories do not consider the spatial element of crime rates and patterns. Crime, as it relates to the place in which it occurs, can be directly attributed to social disorganization, which is a culmination of many negative social conditions in a geographic location. Some of the symptoms of social
disorganization are poverty, unemployment, high delinquency rates, high rates of welfare dependency, dilapidated housing, overcrowding, and transience. These social conditions continue to be problems because the members of the community have no formal or informal organizations designed to ameliorate these conditions. Formal institutions such as churches, schools, and neighborhood associations do not exist or do not serve the residents of the community. Informally, people do not know their neighbors, and do not organize to combat common problems.

This chapter will outline how crime is related to disorganized conditions. First, certain demographic variables are characteristic of disorganized areas. They will be outlined in detail, including references to several recent studies that compare crime rates to unemployment, race, age, and gender. Then, the ecological conditions relating to crime and social disorganization are described and two specific studies grounded in the ecological approach are summarized. Shaw and McKay (1942) conducted an in-depth study of the spatial distribution of juvenile delinquency and its relationship to socially disorganized conditions in Chicago, and Wilson (1987) updated Shaw and McKay's findings to take into account current times.
Demographic Relationships to Crime

Demography is "the scientific study of population characteristics." (Rubenstein, 1983, 75). The population of an area is one of its most prominent social and geographic characteristics. Demography can give researchers a basic profile of the social makeup of a particular area, which is an important issue when studying crime. In fact, demography is one element that ties sociology and geography together. Crime is both a social and geographic phenomenon, so a study of crime would be incomplete without an exploration of its demographic elements. Some typical demographic characteristics that are related to an ecological study of crime are age, gender, race, and employment.

Age

Early studies of the relationship between age and crime determined that the most common age of offenders is late adolescence and young adulthood (Pyle and others, 1974). Statistics showed that a high percentage of arrested offenders are under 25 years of age. Within this age group, crimes against persons (violent) tend to be committed by older members, and crimes against property tend to be committed by younger members. This suggests that as a delinquent gets older, he/she becomes a more
"sophisticated" criminal. The seriousness of the criminal act committed is a progressive phenomenon.

Steffensmeier and others (1989) took this a step further and examined the relationship of age to specific types of crime over time. They found interesting results (Table 1) for the crimes studied in this thesis.

Table 1
Peak Age by Type of Crime, 1940-1980

<table>
<thead>
<tr>
<th>Type of Crime</th>
<th>Peak Age, 1940</th>
<th>Peak Age 1980</th>
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<tbody>
<tr>
<td>Larceny</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Burglary</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Robbery</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Assault</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Homicide</td>
<td>23</td>
<td>19</td>
</tr>
</tbody>
</table>

(Steffensmeier and others, 1989, 815)

This clearly shows us that for all five crimes analyzed in this thesis, the modal age is decreasing. However, in 1980 as in 1940, the median age for property crimes is younger than for violent crimes.

Unemployment

Classic arguments connect unemployment with crime as well. This connection, generally speaking, is with unemployment among youth.
Property crimes tend to be most affected by employment conditions (Cantor and Land, 1985). On the individual level, high unemployment rates can create poor economic conditions, so people turn to crime to meet their economic needs. In addition, poor job conditions may motivate people to use crime to meet financial needs that cannot be met by income from a job. On a societal level, a bad job market can create anomic conditions in which people use alternative means to get what they need. The alternative means then become the norm (Allan and Steffensmeier, 1989).

Allan and Steffensmeier (1989) studied many different employment conditions and how they relate to crime. In addition to employment conditions, they also broke down the population into age groups. They argued that there is a strong relationship between age and both employment and crime.

Where jobs are insecure, with low pay, few benefits, and minimal opportunities for advancement, work may provide fewer incentives for young people to form lasting commitments to conventional lifestyles, and such conditions may help to create and sustain deviant subcultures at the community level while eroding norms and social controls (Allan and Steffensmeier, 1989, 109).

This assumption warrants the study of young people's labor markets because that is when their lifestyles of working or not working are formed. They suggested that for male juveniles (ages 14-17) the need to "consume" and prove their manhood among their peers is important, and minimum-wage
jobs can meet that need. If these minimum-wage jobs are not available, young men will turn to crime instead. Young adults (ages 18-24), on the other hand, need more “quality” employment because their interest in supporting themselves and becoming independent motivates them to obtain work. If they can only get part time, low wage jobs, that need is not fulfilled, so they turn to crime. When comparing several employment conditions with arrest rates by age, Allan and Steffensmeier found that the arrest rate was highest among unemployed juveniles, while low-wage employment was related to the lowest arrest rates. For young adults, they found that marginal employment (low hours and low wages) had a strong positive correlation with high arrest rates.

Gender and Race

The classic studies show that, overall, men commit more crimes than women. Additionally, men and women tend to commit different types of crime. Allison showed that the difference between the percent of females and males in the population of the community ranked second in the list of criminogenic variables (Pyle and others, 1974, 23). Fraud, embezzlement, and larceny are female crimes. While women’s crimes seem to take more
calculation and planning, men’s crimes are more spontaneous and often show the “machismo” of the offender.

In a recent study, Sommers and Baskin (1992) argued that one cannot categorize offenders by gender alone. Sex, race, and age are interrelated vis-a-vis crime, and unless one considers all three of them, study correlations may be invalid. Sommers and Baskin (1992) found that overall, men had higher arrest rates than women for homicide, aggravated assault, and robbery. When categorized by race and gender, black males, followed by Hispanic males, then white males had the highest arrest rates for the same crimes. Women ranked lower than any of their male counterparts, but black women’s arrest rates were quite similar to those of white men, which is much higher than Hispanic or white women. Sommers and Baskin’s (1992) findings support Wilson’s (1987) urban underclass theory:

If this argument is correct, one would expect that women living in extreme poverty (i.e., neighborhoods with high concentrations of poverty) would be involved disproportionately in criminal activities, and that black women would be more likely to reside in these neighborhoods (Sommers and Baskin, 1992, 198).

Violent crime cannot be mentioned without connecting it to race. The numbers of offenders and victims of violent crime are disproportionately black. “Only one of nine persons in the United States is black; yet in 1984, nearly one of every two persons arrested for murder and nonnegligent
manslaughter was black, and 41 percent of all murder victims were black” (Wilson, 1987, 22).

Modern Symptoms of Social Disorganization

Many of the demographic conditions outlined above are symptoms of social disorganization. Stark (1978) proposes five general reasons social disorganization and ecological theories about crime hold true. He thinks that neighborhoods which contain high levels of population density, poverty, mixed land use, transience, and dilapidation have higher crime rates.

When the population density of a neighborhood is high, there is more association between people, and even those not particularly predisposed to deviance are forced to interact with many who are predisposed to delinquency. In less dense neighborhoods, interaction is more limited. Peer groups in dense neighborhoods will tend to be inclusive, so there is increased peer pressure. Also in densely populated neighborhoods, people may lack moral expectations of each other, and eventually themselves because they cannot “keep up appearances” in dense areas, so their “skeletons in the closet” are out in the open for everyone to see. As a result, people become inferior role models for each other. Additionally, Stark theorizes that when poor, dense neighborhoods also have crowded households, higher crime
rates are more likely. This is because the more crowded households are, the greater the tendency for people to congregate outside, which often increases the temptation and opportunity for crime. Stark also speculates that in crowded homes children are less likely to be supervised. He argues that young people who live in overcrowded conditions tend to stay away from the house, and away from direct supervision. Stark adds that adolescents who are not well supervised often do poorly in school. When this happens, their "stakes in conformity" are reduced. (Stakes in conformity are things people risk losing by being caught in deviant actions.) Family conflict increases in overcrowded homes, and results in weakened familial attachments and stakes in conformity. The knowledge of an individual's criminal/deviant acts is more likely in overcrowded homes, and it increases the chances for moral cynicism and bad role models (Stark, 1978, 895-903).

Deviance tends to be more prominent in areas of residential transition and mixed land use. These areas are marked by a large number of residents who live in poverty. Stark argues the reason for this is because the area is changing from residential to commercial and the housing structures are old. As a result, landlords cannot charge as much rent per household for such residential units. These transitional areas are marked by common deviant patterns. Because overcrowding usually occurs in or near areas of mixed
land use, people congregate in places that are not meant for recreation, such as railroad yards, warehouses, and street corners. When people gather in one place with nothing special to do, they may turn to deviant acts for entertainment. Deviance is a social activity and is seldom a solitary act; therefore this type of congregating encourages deviance (Stark, 1978, 897).

People who are forced to live in transitional areas tend to use crime and vice as reactions to the dysfunctional social processes, cultural change, and urban growth and decline, of which they have been forced to become a part (DeGeorges, 1978).

In addition, these areas have high rates of transience: a sure sign of social disorganization. This constant change of residents weakens neighborhood relationships. Transience also weakens participation in voluntary organizations, such as churches, neighborhood associations, and block clubs, which in turn reduces residents' stake in their neighborhoods. People are less attached. Neighborhoods that do not have voluntary organizations have less influence on external city forces such as the police department and zoning boards. This lack of political control results in less influence on neighborhood change, which permits deterioration to accelerate. The neighborhood is no longer a part of the political community. Transience also reduces levels of community surveillance: because the neighborhoods
always have newcomers, it is difficult to determine who does not belong there.

Ecologically speaking, these disorganized neighborhoods tend to be dilapidated, which is a social stigma for residents. People are embarrassed to live in such areas, and often do not allow people to know where they live. Additionally, a high rate of deviance is also a social stigma. A neighborhood with poor social stigma does not attract residents who are good role models, and people who are the best role models for the neighborhood get out as fast as they can. When people live in a place where social stigma is high, there is reduced conformity to societal norms. Neighborhoods with high stigma draw the mentally ill, alcoholics, retarded, and others, who involuntarily may find nowhere else to live. These people become potential victims of crime, because they cannot resist it. These problems are compounded because stigmatized areas have more lenient law enforcement. The attitude of law enforcement officials is that deviant and other "unwanted" activities have to take place somewhere: if we keep them here, they will not move to better neighborhoods. This type of lenient law enforcement adds to the incidence of moral cynicism, which draws deviants to such neighborhoods because they are less likely to get caught (Stark, 1978).
Shaw and McKay's 1940's Study of Juvenile Delinquency in Chicago

Shaw and McKay (1942) used the city of Chicago to study the spatial distribution of juvenile delinquency in the city. They found that delinquency is related to the ecological progression of the city. They found that when one goes through a city, one notices that certain areas have the characteristics Stark outlined, while others have different characteristics. For example, a neighborhood that has one older home will probably have several others as well. Areas that have one or two factories will generally have other factories nearby. Likewise, some parts of the city have higher crime rates than other parts of the city. Essentially, phenomena seem to be distributed in clusters: like conditions seem to be more concentrated in certain parts of the city.

The spatial distribution of physical things (such as buildings, factories, houses), economic activities, and social characteristics in a city are based on the original development of the city. Talking about the American central city in pre-automobile times, Burgess and Park, in 1925, noted that

...every American city of the same class tends to reproduce in the course of its expansion all the different types of areas and that these tend to exhibit, from city to city, very similar physical, social, and cultural characteristics, leading to their designation as 'natural areas' (Shaw and McKay, 1942, 18).

This observation was taken to another level by Ernest Burgess, who determined that social phenomena tend to be spatially patterned in
concentric zones which follow the natural progression of the city
development. The zones are as follows:

Zone I ... is the central business and industrial district; Zone II, the "zone in transition," or slum area, in the throes of change from
residence to business and industry; Zone III, the zone of workingmen's
homes; Zone IV, the residential zone; and Zone V, the outer commuters'
zone, beyond the city limits. The same general pattern of areas tends to
appear in any major industrial center, even though such a center may be
on the outskirts of a large city (Shaw and McKay, 1942, 19).

Shaw and McKay (1942) infer that it is not chance or design that causes
an area to be ridden with delinquency. Instead, that area is in the later stages
of the "natural" growth process. They noted that the differences in land use
and the relative position in the city's growth pattern correlate highly with
differences in economic status, occupation, and race and ethnicity. These
demographic characteristics in turn are related to crime.

Many classical studies of crime identify three general crime patterns:
(1) criminal areas, in which a large proportion of the residents are involved in
criminal activities; (2) crime areas, where many crimes take place (not
necessarily where the criminals live); and (3) the relationship between these
and the structure of the city. This relationship often consists of major
transportation networks and gathering places where the opportunity to
commit crime occurs most frequently. For example, more car thefts happen
at a large shopping mall than in a residential neighborhood: there are plenty
of cars to choose from and once the criminal gets into the car, he can drive out to the busy street surrounding the mall and blend in with the rest of the people undetected. The movement of opportunity and victims along this infrastructure plays a large role in where crime occurs (Brantingham and Brantingham, 1981).

Natural crime areas combine all three of the characteristics. The following characteristics are common in natural crime areas:

1. deteriorating or deteriorated housing
2. limited or nonexistent legitimate employment and recreational opportunities
3. anomic behavior patterns
4. a local criminal tradition (which started prior to the duration of the current ethnic group in residence)
5. abnormally high incidence of transient or psychopathological individuals
6. a disproportionate number of opportunities (due to mixed land use) to engage in criminal deviance or to develop subcultures that are extra-legal (criminal or quasi-criminal)
7. an area where poverty and limited wealth is the norm rather than the exception (Georges-Abeyie, 1981, 99).

Often, the conditions Georges-Abeyie (1981) listed above begin with economic hardship, which turns into outright poverty. During this process, other symptoms of disorganization appear, such as high percentages of people on government assistance, transience, unemployment, family disorganization, disease, and crime. Over time, those who can move out of the disorganized areas do so, leaving behind those who have no hope of
getting out of the situation, often referred to as the urban underclass. This lack of hope often leads to high rates of crime.

**Economic Hardship and Its Relationship to Social Disorganization**

Shaw and McKay (1942) found that the first noticeable symptom of social disorganization is economic hardship. They found that where people live is often directly related to their economic status. The poor can only afford to live in the least desirable housing, so they end up in the neighborhoods near the end of the natural urban progression. Those who are poor generally work in low-paying jobs, so the least desirable neighborhoods are occupied by people who have similar occupations or vocations. As people gain the financial means to move, they move from the least desirable neighborhoods into ones that are more desirable and now affordable.

This was very prevalent in segregated Chicago, where the least desirable neighborhoods were occupied by new immigrants or blacks. New immigrants came to the city penniless and with no “social status,” which meant they lived in the least desirable neighborhoods. Because immigration generally happened in “waves” from specific countries, these neighborhoods became occupied by new immigrants from the same country of origin.
Black segregation is somewhat different because of the discrimination during the time period in which Shaw and McKay did their study. Blacks were forced into undesirable neighborhoods, regardless of their economic status. This made it impossible for those who had gained the economic means to move to the more desirable neighborhoods like their white counterparts. In addition to that, landlords charged inflated amounts for rent, because blacks were limited to certain neighborhoods prior to the passage of the anti-discrimination housing legislation in the mid-1960s. So instead of being segregated mostly by economics, black people faced a higher barrier: racial discrimination.

Economic hardship also is accompanied by related social factors, which follow the natural progression of the city. The areas that have a decreasing neighborhood population, (occurring late in the progression of the city population density may be high), a high percentage of people on government assistance, and high percentages of foreign born and recent migrants from the south, exhibit the beginnings of social disorganization. When Shaw and McKay (1942) compared juvenile delinquency rates to the rates of these related social factors, they found a high correlation. They also found that areas with low delinquency rates also had low incidence of the other factors.
They mapped the distribution of truancy, various forms of unemployment, dependency (on welfare), misconduct, high rates of sickness and death, and family disorganization. Again, they corresponded not only with each other, but with the rates of juvenile delinquency. These phenomena often develop simultaneously because the social controls that regulate such problems are non-existent. If they do exist, the residents of the neighborhood do not use or respect them, and the social agencies trying to deal with such social problems have little effect. This lack of control or organization leads to social disorganization and high crime rates.

Areas that are in the beginning of the urban development process have opposite social and ecological conditions and tend to have a common value system among their residents. The people who live in these neighborhoods tend to value education, constructive leisure time activities, and staying in good health (Shaw and McKay, 1942). There are many social "institutions" that reinforce these values such as parent teacher associations, women's clubs, service clubs, churches, and neighborhood centers. People thus have regular access to support groups, and participate in these organizations frequently. This lifestyle leaves the potential for delinquency low because, even when people know alternative value structures exist, those values are not part of their lives.
Socially disorganized areas have a very diverse set of values. “The moral values range from those that are strictly conventional to those in direct opposition to conventionality as symbolized by family, the church, and other institutions common to our society” (Shaw and McKay, 1942, 165).

Organized “institutions” exist, and like the value orientations of the area, they are very diverse. Because economic resources are limited, the population is decreasing, and family structures are deteriorating, the dominant social institutions in the neighborhoods often are organized crime or adult criminal gangs. These institutions espouse the social value of material wealth, regardless of the means taken to get it.

The deviant values are symbolized by groups and institutions ranging from adult criminal gangs engaged in theft and the marketing of stolen goods, on the one hand, to quasi-legitimate businesses and the rackets through which partial or complete control of legitimate business is sometimes exercised, on the other. Thus, within the same community, theft may be defined as right and proper in some groups and as immoral, improper, and undesirable in others....Evidence of success in the criminal world is indicated by the presence of adult criminals whose clothes and automobiles indicate unmistakably that they have prospered in their chosen fields. The values missed and the greater risks incurred are not so clearly apparent to the young (Shaw and McKay, 1942, 165-66).

Wilson and the Urban Underclass

Wilson (1987) also studied the socio-spatial structure in Chicago, building on Shaw and McKay’s 1942 study. The 1970s and 1980s were a time
of great social change in the United States, particularly in economic structure. This structural change brought about a difference in the makeup of the socially disorganized areas in a city.

**Changes Over Time**

Wilson argues that "despite a high rate of poverty in ghetto neighborhoods throughout the first half of the twentieth century, rates of inner-city joblessness, teenage pregnancies, out-of-wedlock births, female-headed families, welfare dependency, and serious crime were significantly lower than in later years and did not reach catastrophic proportions until the mid-1970s" (Wilson, 1987, 3). He attributes this drastic change to the changes in job availability changes brought about by the shift from an industrial to service-based economy.

Shaw and McKay's "disorganized" neighborhoods began with poverty. Once that poverty was a constant in the neighborhood, the other symptoms of social disorganization took hold. Generally speaking, as people gained enough money to move out of the disorganized neighborhoods, they did. Although the tenants of the neighborhood moved out, the social disorganization that took place there never changed, because the disorganization is based on location, not on the residents of the
neighborhood. However, the socially disorganized neighborhoods of recent times not only keep their state of disorganization, but they also keep the same residents, who are usually racial ethnic minorities. There is no way of getting out for these people because they do not have the skills and means to seek out better opportunities elsewhere. These people become isolated and hopelessly trapped in the most disorganized areas of the city. This sense of hopelessness is the reason the residents of the new urban ghettos are referred to as the urban underclass. "Included in this group are individuals who lack training and skills and either experience long-term unemployment or are not members of the labor force, individuals who are engaged in street crime and other forms of aberrant behavior, and families that experience long-term spells of poverty and/or welfare dependency" (Wilson, 1987, 8).

The big difference between Shaw and McKay's study conducted during the height of the large industrial city, and Wilson's study, covering the deindustrialization stage, is the unemployment rate. Residents of the old disorganized neighborhoods obtained jobs in the factories nearby. Many were not highly educated, but they were paid well for the labor they performed in the factories. Today many of the factories have either closed, automated the production processes, or moved to the suburbs or another country. As a result, the high-paying factory jobs that the less-educated had
during Shaw and McKay’s time no longer exist. The modern job market requires much higher levels of education, which the residents of these neighborhoods often do not have. This leads to a much higher unemployment or underemployment rate among residents of these neighborhoods, which is often reflected in even more symptoms of social disorganization.

**Blacks and the Urban Underclass**

When Shaw and McKay finished their study in 1942, blacks were still forced to live in segregated communities. Even if they earned enough money to move out of the black ghettos, they were unable to because of discrimination. “Lower class, working-class, and middle-class black families all lived more or less in the same communities (albeit in different neighborhoods), sent their children to the same schools, availed themselves of the same recreational facilities, and shopped at the same stores” (Wilson, 1987, 7). After segregation was outlawed, those who could move to “better” parts of town did just that. “Today’s black middle-class professionals no longer tend to live in ghetto neighborhoods and have moved increasingly into mainstream occupations outside the black community” (Wilson, 1987, 7). Those who were left behind are the most “disadvantaged” members of the
black community. They are considered a "heterogeneous grouping of families and individuals who are outside the mainstream of the American occupational system" (Wilson, 1987, 8).

The Urban Underclass and Social Disorganization

Social disorganization begins to happen for a number of reasons: discrimination, poverty, demographic changes, or economic disorganization (Wilson, 1987). However, these factors are only the beginning of a process that ends in isolation and hopelessness for the residents of the areas affected. Like Shaw and McKay (1942), Wilson (1987) showed that socially disorganized areas are located in the older, industrial sections of town which are at the end of the "natural" urban process. Wilson also agrees with Shaw and McKay on the fact that these areas are chronically disorganized, and that social disorganization is related to crime. However, the more modern Wilson study shows that unlike the disorganized areas of 1942, today's disorganized areas are more chronic than before. While people in 1942 were able to obtain jobs and eventually leave these areas, the residents of today's disorganized areas are jobless or underemployed and unable to leave these poor areas for "greener pastures." Because the economic structure of the community changed, the social disorganization is brought to a new level.
Isolation of the Underclass

Because of the chronic joblessness, high crime rates, and poor quality schools, people from outside the ghetto community tend to avoid it, leading to the isolation of such areas of the city. When companies move to the suburbs, they not only take jobs with them, but also the people who were able to move. In many cities, the urban underclass is the only major population left in the inner city neighborhoods.

As the prospects for employment diminish, other alternatives such as welfare and the underground economy are not only increasingly relied on, they come to be seen as a way of life ... joblessness, as a way of life, takes on a different social meaning; the relationship between schooling and postschool employment takes on a different meaning. The development of cognitive, linguistic, and other educational and job-related skills necessary for the world of work in the mainstream economy is thereby adversely affected. In such neighborhoods, therefore, teachers become frustrated and do not teach and children do not learn. A vicious cycle is perpetuated through the family, through the community and through the schools. (Wilson, 1987, 57).

This situation only breeds hopelessness in the community. Lack of skills and education leave people stuck in the unemployment cycle, which leads to poverty, welfare dependency, family dissolution, crime, and other symptoms of social disorganization.
Family Dissolution and Welfare Dependency

Members of the urban underclass have very high rates of female-headed households and welfare dependency in comparison to others in mainstream society. This gap has become increasingly greater since the mid-1960s, which Wilson (1987) attributes to the loss of high-paying entry-level jobs. When men do not have jobs, they cannot support their families, which leads to frustration and marital dissolution.

Because this has been happening for close to 25 years, people in the underclass are delaying marriage, sometimes indefinitely. However, they are still having children, which results in a high percentage of female headed households. Women do not want to marry someone who has no job and no means of supporting their families. The number of men who can support their families and do make commitments are very scarce in the underclass areas, which makes the pool of “marriageable” men very small.

Because the pool of “marriageable” men is quite small, an increasing number of underclass children are born out-of-wedlock, many to teenage mothers. While the fertility rate of married blacks has declined, it has increased for unmarried teenagers. When a teenager becomes a mother, she often drops out of school, which lowers her chances of obtaining a reasonably well-paying job. She is forced to remain on welfare for a long period of time.
"A study by the Urban Institute pointed out that 'more than half of all AFDC assistance in 1975 was paid to women who were or had been teenage mothers'" (Wilson, 1987, 29).

The female-headed household has several disadvantages. First, the level of income available to those families is significantly lower. Often, the mother is unemployed and living on welfare, but even if she does work full time, her income is generally less than that of a man due to occupational segregation and wage discrimination based on gender. To compound the problem, her income is not supplemented by a second working adult. As already outlined, economic hardship leads to many other social problems. Second, children cannot be as closely supervised by only one parent. This gives them more leeway to become delinquent.

Wilson (1987), therefore, related crime to social disorganization. His main hypothesis is that increased joblessness in the inner city leads to poverty, welfare dependency, female-headed households, and isolation. The majority of the people who live in this situation are racial ethnic minorities.

Grand Rapids and the Social Disorganization Model

Grand Rapids certainly contains characteristics of the models of Shaw and McKay (1942) and Wilson (1987). Like Chicago, Grand Rapids was
originally an industrial city. Most of the industrial base was originally located on the western banks of the Grand River, which runs through the middle of the city. The furniture industry used the river and the railroads to transport its raw materials and goods to and from the city. Today, the major factories are located in the suburbs, while the central city contains many service-based businesses. The concentric rings of the development process are obvious. The oldest and sometimes poorly-built housing is located around the old factories; old well-built houses are in the next ring, the zone in transition is next, followed by the suburban neighborhoods. The traditional immigrant neighborhood still exists, currently populated mostly by Hispanics, and immigrant populations seem to still move through that neighborhood. However, this neighborhood is not as large as it once was, as many parts of it have been abandoned. Many of the poorly-built houses have been abandoned or demolished. The once stately mansions have been divided into apartments and left to deteriorate. The urban underclass lives and is isolated in these areas.

The theories discussed in this chapter apply to the city of Grand Rapids. Both Shaw and McKay and Wilson’s theories are prevalent, as Grand Rapids has urban underclass neighborhoods in its old industrial core; newer suburban neighborhoods, which are on the outer rings of the city
limits; and transitional areas, which reside between the urban underclass and suburban areas, show characteristics of both the inner city and outlying rings. The next chapter predicts the relationship between crime rates and urban ecology based on these theories, and describes the city of Grand Rapids in detail.
CHAPTER III

STATEMENT OF HYPOTHESIS AND DESCRIPTION OF VARIABLES

The theories presented in the previous chapter can be directly related to the relationship between crime and urban ecology in Grand Rapids. Urban ecology can be measured by the indicators of social disorganization, which tend to be spatially distributed unevenly. Some areas have high levels of social disorganization while others have low levels of disorganization, which often indicates the stage in the process of urban growth and change. Shaw and McKay (1942), Stark (1978), and Wilson (1987) relate crime and social disorganization, and based on their findings and a strong knowledge of ecological conditions in Grand Rapids, I propose the following specific hypotheses for this thesis:

1. High rates of crime will be clustered around parts of the city that are in the last stage of urban development. This is generally patterned in a concentric ring, with the oldest parts of town near the urban core and industrial areas. Likewise, low crime rates will be prevalent in the outer rings of the city. The transitional parts of
the city will have high-to-medium rates of crime. This is in agreement with Shaw and McKay's (1942) theory.

2. Property crimes will be positively related to transience, poverty, high percentages of youth, and family disorganization. This is based on Stark's (1978) observations that the opportunity to commit property crimes is greater in areas with high levels of transience and high percentages of youth and family disorganization. Several base sociological theories suggest that those in poverty may be motivated to commit property crimes to obtain the goods they want or need.

3. The relationship between property crime and transience, poverty, high percentages of youth, and family disorganization will weaken. An inverse relationship between the percent white and property crimes will emerge between 1980 and 1990. This is based on Wilson's (1987) theory that social disorganization—and the crime that goes along with it—is particularly strong in areas that have high percentages of African Americans.

4. Robberies will be inversely related to percent white and mean rent because the transitional areas in which they occur most are near urban underclass areas. This is again based on Wilson's (1987) theory; urban underclass poverty motivates people to use crime to obtain material goods,
and members of the urban underclass tend to use violence more frequently than others.

5. The inverse relationship between the robbery rate and percent white and mean rent will strengthen between 1980 and 1990 as a result of the increased poverty and hopelessness of the urban underclass, as Wilson (1987) predicts.

6. Percent white will be inversely related to the rates of violent crime. This is based on Wilson's (1987) rationale that hopelessness and social isolation bring about frustration and anger, which leads to violent crime among inner city minorities.

7. The relationship between violent crime and race will become stronger between 1980 and 1990 because of the movement of entry-level jobs from the inner city to the suburbs. This is also based on Wilson's (1987) theory that the problem of the urban underclass is getting worse.

8. The exceptions to the rule (residuals) will be located in gentrified and transitional areas. These areas often contain a mixture of organized and disorganized conditions that change rapidly. This mixture and change creates indicators of social organization that cannot be measured by census data. These unmeasurable data were not accounted for in this study.
Dependent Variables

The relationship of crime to social and ecological phenomenon is the basis for this thesis. However, an overall crime rate does not explain crime in enough detail to answer the questions originally posed. Therefore, the dependent variables chosen are the types of crime that have specific relationships to social and ecological factors. These crime types are larceny, burglary, robbery, aggravated assault, and homicide. Originally, rape was one of the dependent variables, but it had to be thrown out because the laws governing what constitutes "rape" were changed between 1980 and 1990, which made the numbers non-comparable. I will calculate rates per 1,000 people for each crime and compare them to the independent variables outlined later in this chapter.

The crime rate is the number of crimes per capita (instead of the raw number of crimes). If we used the raw number of crimes, we could not clearly tell just how much crime there really is in an area in relationship to its population. The crime rate for each district is calculated as follows:

\[ CR = \frac{\text{number of crimes}}{\text{population}} \times 1000 \]

The overall crime rate is not a good measure, because crimes of different levels of seriousness are counted in the same total. For example, six larcenies
could not be compared to six homicides. Therefore, a rate will be calculated for each type of crime. These dependent variables will each be used to test my main hypothesis that there is a significant relationship between crime rates and urban ecology as measured by indicators of social disorganization. The residuals, or exceptions to the rule, will shed further light on the social and ecological relationships with crime.

Social and Ecological Explanation of the Crime Rate

Based on the theory presented in Chapter II, particularly the work of Shaw and McKay (1942) and Wilson (1987), I expect that areas with high crime rates will also have high levels of social disorganization. Many indicators of social disorganization can be drawn from census data, which is the source of the independent variables in this thesis.

Poverty

As Shaw and McKay (1942) and Wilson (1987) pointed out, poverty is one of the initial causes of social disorganization. Joblessness, substandard housing, disease and poor educational opportunities are all prevalent in neighborhoods where poverty is high. Because the census block data does not measure level of education, unemployment, household income, incidence
of disease, or quality of schools, the mean rent for each police district was used to measure poverty. As Shaw and McKay (1942) established, people only live in socially disorganized neighborhoods because they cannot afford the housing elsewhere. Therefore, we can say that mean rent is a good indicator of the amount people can afford for housing. Neighborhoods with low housing costs are more likely to have a large number of residents living in poverty and thus a higher possibility that social disorganization is present.

There are a few possible problems associated with using mean rent as an indicator of poverty. First, one particularly high or low rent house on the block could skew the average to reflect a higher or lower rent overall. Second, some people choose to spend their money on other things besides housing. They purposely live in a lower rent house to use money for other purposes, such as education or cars, or even luxuries such as boats. Usually, rent is the largest monthly expense for people, but some choose to spend their money on other things. We can then say that for most people, rent is a good indicator of income, but for some, the amount of rent paid does not indicate income. Similarly, although rent is probably the largest expense for most people, we do not know what percentage of their income is taken up in rent. In other words, we do not know how much is left over after the rent is paid.
Transience

Transience, as outlined by Stark (1978), is a deterrent to the organization or stability of a community. Generally speaking, those who rent are more likely to “move around” than those who own homes, especially in West Michigan where it is economically feasible for most people to buy a house. The housing market in the area is such that it is very affordable to purchase a home on a limited income. One can assume that those who own homes generally stay in them longer than those who rent, and they tend to take more interest in their neighborhoods. Therefore, I will compare the number of rented units to the number of owner occupied units in each district. Higher rates of rented homes are assumed to indicate higher levels of transience.

The biggest problem with this variable is that there are several large expensive apartment communities that do not have symptoms of social disorganization. The housing units and grounds are well-kept, the rules are enforced, and community activities allow residents to know their neighbors. Some apartment communities have high security levels to keep outsiders from getting in. Although people move in and out of these units frequently, there is still a large amount of organization in the community. It is in the inner city urban underclass neighborhoods where houses are individually
owned by different landlords, rules are not enforced, investment in security
devices is low, and organized community-based activities are non-existent.
Unfortunately, the census data does not differentiate between the two types
of transient neighborhoods.

**Family Organization**

Stark (1978) raised some good points about the level of supervision
and positive adult role models. Simply said, two-parent families have more
adult supervision and positive adult role models are more likely present.
One can assume that children who come from two-parent homes often have
better grades in school, participate in more productive activities, and have a
greater sense of security and stability. With the soaring rates of divorce and
teenage pregnancies, the number of single-parent families is continually
rising, particularly in urban underclass neighborhoods.

Single-parent households can also be an indicator of the poverty,
joblessness, and isolation that the urban underclass experiences. Wilson
(1987) theorized that it is the lack of available entry-level jobs in the inner city
that leads to many female-headed households. Many women are having
children out of wedlock and not getting married, until later in life, (if at all).
This is because the men in the urban underclass do not have work and cannot
support their families, which makes them "unmarriageable." This is a clear indicator of social disorganization. The census variable I chose to illustrate this problem is "Family Householder, No Spouse Present." I will calculate the percentage of single-parent families for the overall population in each district. Neighborhoods that have high percentages of single-parent families are more likely to be in a state of social disorganization.

There may be some interesting demographic changes taking place with this phenomenon, which could make using this variable a problem. In the past, poorer families in the lower social rungs seemed to have higher rates of single parent families. This is probably still true, but the gap between the incidence of poor single-parent families and single parents from higher socio-economic status seems to be getting smaller (Hanson and others, 1995). Divorce is becoming more widespread, so the rates of single parent families are becoming higher in socially stable and ecologically sound neighborhoods. However, the rate of single parent households in higher-class neighborhoods will assumedly still be lower than that of lower-class neighborhoods, and the socio-economic gap between single-parent families outside the urban underclass and families who are part of the urban underclass will get wider.
Stark (1978) also brings up the issue of population density in his paper. He suggests that neighborhoods with dense populations are more likely to have criminal activity. However, some densely populated neighborhoods (such as upscale apartment complexes and condominiums) do not follow the model Stark proposed. Dense housing does not always indicate social and ecological problems. For example, there are many upscale condominiums placed close together on the landscape; however, social disorganization and poverty are not present in those neighborhoods.

Wilson (1987) took this a step further in the “natural” progression of the city. He argues that severely disorganized neighborhoods are actually losing housing and residents. As houses become condemned, they cannot be inhabited, so they remain empty or are torn down. With the loss of residents in the neighborhood and the gain of empty lots and abandoned housing, the social disorganization becomes more pronounced.

Household density, particularly overcrowded conditions in households (instead of neighborhoods), tend to make situations more tense. Everyone needs a certain amount of privacy. If that need is not met, a person might resent others living in his/her space, creating a tense situation for all involved. Because of this and the potential problems with neighborhood
density, I chose household density as the appropriate measure of social disorganization. The variable used in the block data to measure household density is "1.01 or more persons per room." I will use the percentage of households with more than 1.01 persons per room in each district to show how much household overcrowding each district experiences. Districts with large percentages of overcrowded households will have a higher level of social disorganization.

Race

From the classic Shaw and McKay (1942) study to the more recent study of the urban underclass by Wilson (1987), there is a link between high rates of minority populations (particularly black) and social disorganization. This was brought about originally by racial discrimination and segregation, which did not allow racial and ethnic minorities equal housing, educational, and job opportunities. After the passage of anti-discrimination laws, minorities who were able to move out of the inner city neighborhoods did so, leaving behind a population of uneducated, unemployed, and isolated minorities in the inner city. To test the relationship between race and the crime rate, I will calculate the percentage of the population that is white. For the purposes of measurement, I will assume that anyone who is not white is a
minority person. Therefore, I expect to see an inverse relationship between the dependent variables and percentage white.

The only problem with this variable is that it places all minorities into one group. Each minority group has its own culture and value system which often is quite different than other minority groups. For example, many Vietnamese boat people who arrived after the Vietnam war moved into socially disorganized neighborhoods, but were determined to move out of those areas and become financially independent. They become educated, worked hard, and moved on. The blacks of the urban underclass have been isolated in the socially disorganized areas for so long they see no hope of ever getting out of it.

The only way to solve this data problem is to divide all the minority groups and treat them separately. However, the census only measures certain minority types (Black and Asian or Pacific Islander), which leaves out specific minority groups from the count. For example, the census treats the Hispanic minority differently than black or Asian. It just asks people if they are descendants of relatives from Spain. One can be white and a Spanish descendent at the same time. The real Hispanic minority should measure people from Central or South America with Spanish and Indian origin.
Because Wilson's (1987) theory is based on the urban black population, it is important to determine how much of the minority is made of black people. However, the problem with the census' count of minorities makes it difficult to determine what percentage of the minority population blacks represent. General figures for Grand Rapids show that black represent approximately 75 percent of the minority population in 1980 and 80 percent of the minority population in 1990.

**Age**

Statistics have shown that youths are more likely to commit crimes than adults. There are several reasons for this. First, this is the time in life when adolescents are experimenting with new activities. Second, some young people are modeling the behavior of their adult counterparts. Most adult criminals got started when they were juveniles. By the time they become adults, they commit more serious crimes than when they were juveniles. Knowing this, we can say that areas with a high concentration of youth are more likely to have high crime rates. This is compounded in socially disorganized and urban underclass areas, where there is often a lack of jobs and other productive activities readily available for young people. According to Stark (1978), idle time with nothing productive to do creates the
atmosphere for delinquent behavior. The percentage of the population that is below age eighteen from the census block data will be used to measure the age factor.

The only problem with this variable is that it does not measure the age group with the most likely youth offenders: ages 14-21. It is unlikely that a two-year-old will commit crimes, but babies, toddlers, and young children are counted in the age group of "18 and under" by the census. Unfortunately, the census block data does not have an age category of 14-21.

The Type of Crime

Based on the readings summarized in this thesis, interviews with police officials (Steele, 1995), and my own observations, I expect that crime will have different spatial distributions, depending on the type of offense. For example, larceny will show a different spatial pattern than homicide. Furthermore, the strength of the relationship between crime rates and indicators of social disorganization will vary by district. This is because social and ecological phenomena are not spatially consistent throughout the city, and different types of crimes are related to different social and ecological variables. Certain independent variables will be especially relevant for certain types of crimes.
Generally speaking, crimes can be broken down into those against property and those against persons (violent). Property crimes are a function of the availability of property to be stolen or vandalized and the motivation of the criminal to commit the crime. Robbery involves the threat of violence to obtain material goods from the victim, so it therefore contains characteristics of both property and violent crimes. Violent crime involves the injury (or murder) of the victims.

Knowing that property crime involves the presence of goods to steal or vandalize and those who want such goods, I postulate that most property crimes happen where there is a mix of the "haves" and "have-nots" in the same district. In areas where most people have what they want and need, they do not take it from someone else. More specifically, property crimes will be positively related to transience, poverty, high percentages of youth, and family disorganization. Transience, high percentages of youth, and family disorganization provide the opportunity while poverty provides the motivation to commit the crimes. Furthermore, I expect the relationship between property crime and transience, poverty, high percentages of youth, and family disorganization to weaken and perhaps even be replaced by an inverse relationship to percent white between 1980 and 1990. This is first predicted by Wilson (1987), who said that the increased social isolation of
African Americans in socially disorganized neighborhoods leads to increased crime rates overall. The socially disorganized neighborhoods in which the urban underclass live often have dilapidated ecological conditions, which provide more opportunity for potential burglars to get away with their crimes. There are several reasons for this. First, high poverty levels provide the motive: people use alternative means to get what they cannot get legitimately. In addition, those who live in poor housing do not make the additional investments (for example lights and window locks) to make their dwellings less prone to burglary or larceny. Second, high percentages of homes with single parents set the stage for less supervision of young people who might inadvertently get into trouble and develop into criminals. Third, because most property crimes are committed by young people, neighborhoods with large percentages of young people will have more property crime. Finally, transience can also be related to property crime because neighbors do not know each other and are not watching out for each other. However, property crimes in socially disorganized neighborhoods often go unreported, so I assume the data I am using will not show unusually high rates of burglary and larceny there. Therefore, I predict larceny and burglary will be more prominent in economically mixed neighborhoods, particularly in areas adjacent to neighborhoods that are socially
disorganized. In Grand Rapids, this is where the central city districts and the
to the definition of either violent or property crimes is robbery.
Perpetrators' motivations for committing robbery are for the property they
can obtain from their victims, but they use violence (or the threat of it) to get
that property. For example, when a bank gets robbed, the robbers demand
large sums of money. They use a gun or some other weapon to make their
victims comply with their demands. Sometimes, when victims do not
comply, they are assaulted or killed. Some studies show that neighborhoods
which have more opportunities for robberies to occur will also have higher
rates of murder and aggravated assault (Block, 1979). Other studies have
shown that crimes (particularly violent ones) usually take place within a
short distance of the offender's residence (Lynch and Cantor, 1992).
Neighborhoods marked by social conflict and disorganization, combined
with the presence of convenience stores, bars, and other businesses that
attract clients from more socially organized and wealthy areas, provide more
opportunity for robbery to occur. The businesses supply the potential
victims and the socially disorganized and poverty stricken neighborhoods
supply the offenders. In Grand Rapids, the Eastown neighborhood is a good
example of this. The bars in the neighborhood draw relatively well-off clients, and the establishments are located near (not in) an area marked by social disorganization and poverty. This combination has led to several highly publicized murders of people leaving the bars by offenders who live nearby. Knowing this, I can assume that robbery will be more prominent in areas where there are both opportunities and potential offenders: stores that are open late at night and businesses located in poor or transitional neighborhoods that bring in people from other parts of town.

I postulate that violent crimes will have a particularly strong relationship to race and that the relationship between violent crime and race will become stronger between 1980 and 1990 because of the movement of entry-level jobs from the inner city to the suburbs. This is certainly the case in urban underclass areas that are predominantly black, where hopelessness and isolation prevail. Often, crimes of violence are committed out of the need to control. There is a societal perception that says individuals and groups have a "right" to control things. An example of this lies in United States' foreign policy, which has shown this superiority complex: If our government does not like something, or if it cannot control something it "needs" to control, we just go in with military force. That threat of force keeps weaker nations at bay and under U.S. control (Caulfield, 1995). On
television and in movies, violence is played out as a normal, every-day solution to one's problems. People who live in these areas ridden with social disorganization do not have control of their living situations, so they find other ways (violence) to attempt to gain control.

Exceptions to the Rule

Every neighborhood will not fit into this model. Hypothesis number eight predicts that the exceptions to the rule will be in gentrified and transitional neighborhoods. The exceptions to the rule will occur in these areas because gentrification often happens in small pockets of a district, which cannot statistically be measured by areal data. Furthermore, transitional neighborhoods are also difficult to measure with areal data because of their mixed nature. In addition, crime moves from one place to another as enforcement and ecological conditions change in these transitional areas.

There could be a problem because some districts that do not fit into the model may not do so because some of the social or ecological situations are not measurable with census data. Furthermore, this is an areal study, so social and ecological variations within a district could throw the calculations off for the whole district. Maps of the residuals help determine the location
of the exceptions to the rule, and whether or not those exceptions are in
gentrified or transitional areas.

Testing the Hypotheses

The hypotheses outlined in the beginning of this chapter are tested in
three different ways. Maps showing the distribution of crime rates appear in
Chapter IV. These maps test hypothesis number one. Then, multiple
regression was performed and the results, which test hypotheses 2-7, are
explained in Chapter V. Maps of the regression residuals, which test
hypothesis number eight, are also in Chapter V.
CHAPTER IV

GRAND RAPIDS AND THE SPATIAL DISTRIBUTION
OF CRIME RATES OVER TIME

In the last chapter, I predicted that crime rates in Grand Rapids would be higher in the central city and lower in the outlying areas, which is based on Shaw and McKay's theory that crime rates follow the natural progression of the city. Grand Rapids' natural progression fits well with the model of the midwestern industrial city. Older areas are in the inner city, while new development is in the outer ring. Likewise, its crime rates follow the same natural patterns of urban growth.

The Study Area

In 1971, the Grand Rapids Police Department divided the city into four sectors, called Adam, Baker, Charley and David. These sectors were subdivided into 32 districts, which are the smallest geographic areas the police department uses to report crime (see Figure 3). For a detailed description of each police district, see Appendix A.
Figure 3. Grand Rapids Police Districts

Source: Grand Rapids Police Department
Adam sector occupies the west side, where the flood plain is wide, and the terrain remains flat for about 1 and a half miles. This is where the factories and warehouses were first built, as they depended on the river for a power source. This industrial area was complemented by cheaply built houses occupied by the immigrant factory workers from the Netherlands and Poland (Olson, 1995). When these houses were built, they were not designed to last more than 50 years. The houses were built on the flood plain, where they were continually subjected to flood waters. Residents had to spend time and energy repairing their homes after floods receded. Today, the people on the flat part of the west side remain in low-end industrial jobs, either in the furniture industry or the automotive industry. The level of education is still quite low. Many of the people who built homes in this part of town stayed there for life. That generation is dying out now, and the houses are nearing the end of their life span, so many are being allowed to deteriorate. Those who rose out of the low-end jobs settled beyond the flood plain on a large hill. This area was the predecessor for suburbanization outside the city limits. The houses were built later and the landscape is very suburban-looking. Most people who live in this area are well educated and are gainfully employed members of the upper-middle class (Olson, 1995).
Baker is in the Northeast section of town. At one time, this area was the undeveloped area, but has become a middle-income residential area. Many white people who were trying to escape the presence of the incoming black population in the central city after World War II moved to this part of town. However, parts of this area are predominantly black, while other parts are predominantly white (Olson, 1995). In some neighborhoods—especially in the western edge of the sector—the houses are old and run down. With the exception of this western edge, this sector is very much a middle income area. Other parts of Baker sector (particularly on the eastern edge) are new subdivisions. Generally speaking, things improve both economically and ecologically with distance from the central city. This area is the most suburban section of town, and still has open space available for development, particularly on the outer fringe (Olson, 1995).

Charley sector is the inner city, lying east of the Grand River. The east side of the river has a much smaller flood plain: the terrain rises sharply about one half mile from the river. This is where the very wealthy and educated people originally settled. They built stately Victorian mansions on top of the hill looking over the rest of the city in a neighborhood which is now known as Heritage Hill. Those houses were very well built and were meant to last a very, very long time. Heritage Hill was close enough to the
Central Business District to walk, so it was developed first. With the advent of the automobile, people began to move out of Heritage Hill and eastward to Grand Rapids' first suburb: East Grand Rapids outside the city limits. By the late 1960s, Heritage Hill was no longer occupied by the rich. Instead the mansions were divided into apartments and were rented to low-income minorities. Many of the once stately homes were in a state of severe deterioration. During the early 1980s, Heritage Hill became part of the Historic Register. This put severe restrictions on the changes being made to these homes, which has led to the gentrification of Heritage Hill. Young couples bought and restored many of the old homes in there, and Heritage Hill has become a "trendy" place to live, even though some of the streets and surrounding neighborhoods are still ridden with social disorganization and the urban underclass.

Charley also contains a traditional immigrant neighborhood. Charley 1, also known as the "Grandville Corridor," has been home to the major immigrant groups that have come to the city. At one time it housed the new Dutch immigrants, then Italians, and now the Hispanic immigrants live there (Olson, 1995).

David occupies the southern-most part of town. There are many railroad yards located here, as many rail lines run north and south through
the western part of this sector. Housing along these railroads is older and run down. Ecologically speaking, railroads used to be the primary form of transportation, so factories and warehouses were placed there, and workers were not long to follow. These houses were cheaply built and are now in a state of disrepair and only those in extreme poverty will choose to live there. The east side of David, however, is where the middle class resides. This part of town, like the outer parts of Adam and Baker, also developed during the start of suburbanization, and today has the characteristics of a suburban community (Olson, 1995).

Crime Over Time

In addition to changes in the spatial distribution of crimes, I hypothesize that the crime rates will be significantly related to different independent variables in 1980 than in 1990. In addition to Wilson's (1987) Urban Underclass theory, the changes in the nature and motives of crime, particularly the addition of crack cocaine to the drug market during the 1980s, will show up in the statistically significant variables. The most significant variable will probably be race in 1990, while the significant variables for 1980 will be more varied.
The maps that show the individual crime rates by district show us where certain types of crime are concentrated. These maps show the number of crimes per 1,000 people, and are categorized by standard deviation. Areas that are within one-half of a standard deviation are white, those that measure from one-half to one standard deviation away from the mean are gray, and areas that are one or more standard deviation(s) away from the mean are in dark gray. Therefore, the heavy crime areas are marked with darker colors.

Larceny

The larceny rates in 1980 were the highest in Baker 8 and Charley 2, and were in the medium range in Charley 4 and Adam 5. Every other district was about average. A very small concentric ring pattern is visible, but the distribution of larcenies in 1980 is fairly even.

A more scattered pattern emerged in 1990. The four inner city districts remained above average, but they were joined by some of the surrounding districts, and in two suburban districts: Baker 2 and David 8. (See Figure 4.)
Larceny Rates in Grand Rapids 1980-1990

Larcenies per 1,000 People
Grand Rapids, Michigan: 1980

Larceny Rates
Mean = 120.887 s = 265.45
- 0 to 132.7 (28)
- 132.8 to 265.45 (2)
- 265.5 to 1510 (2)

Figure 4. Larceny Rates in Grand Rapids, 1980-1990.

Larcenies per 1,000 People
Grand Rapids, Michigan: 1990

Larcenies per 1,000 People
Mean = 91.421 s = 127.05
- 0 to 63.5 (22)
- 63.6 to 127 (6)
- 127.1 to 665 (4)
Burglary

A concentric ring pattern begins to emerge in the burglary rate maps for 1980. The dark gray area, or highest burglary rates occur in the central city. Some surrounding districts are average, while some are in the middle range.

The concentric ring pattern is thoroughly established in the 1990 Burglary Rate maps, and the number of above average districts has grown. With the exception of Baker 6, all of the high range districts are clustered in the central city. They are surrounded by the middle range districts. The outside ring is made up of average burglary rates, with the exception of Baker 2. (See Figure 5.)

Robbery

Figure 6 shows that in both 1980 and 1990, robbery rates remained in the highest range on the western side of the inner city. Jefferson Street seems to be a boundary between the east and west, not the river. The only change between the two years is that Adam 5 went from mid-range to average and Charley 8 went from average to mid-range. We can certainly see the high
Burglary Rates in Grand Rapids 1980-1990

Burglaries per 1,000 People
Grand Rapids, Michigan: 1980

Figure 5. Burglary Rates in Grand Rapids, 1980-1990.
Robbery Rates in Grand Rapids 1980-1990

Robberies per 1,000 People
Grand Rapids, Michigan: 1980

Robbery Rates
Average = 10.112 s = 10
- 0 to 5 (21)
- 5.01 to 10 (6)
- 10.01 to 102 (5)

Figure 6. Robbery Rates in Grand Rapids, 1980-1990.
ranges in the central city and the mid-ranges surrounding it. The typically low robbery rates remained in the outer edges for both years.

**Aggravated Assault**

Although high aggravated assault rates in 1980 (Figure 7) were somewhat clustered, they were scattered compared to the other crime rate maps. They also tend to be more northward than the other crime rates. The outer districts, however, remained low.

The map for 1990 (Figure 7) shows a little more clustering of the aggravated assaults. The upper range remained in the central city, and included the northwest districts Adam 4 and 5. Surprisingly, the west side drops off completely, because low districts border the high districts. The aggravated assaults seem to be moving southwestward.

**Homicide**

The homicide rates in 1980 were high in a cluster in the southwest central city, and the mid-range districts were somewhat scattered. There is no gradual shift from high to average, and the only consistent pattern that exists is that the central city is again the "hot spot." (See Figure 8.)
Assault Rates in Grand Rapids, 1980-1990

Aggravated Assaults per 1,000 People
Grand Rapids, Michigan, 1980

Figure 7. Assault Rates in Grand Rapids, 1980-1990.
Homicide Rates in Grand Rapids
1980-1990

Homicides per 1,000 People
Grand Rapids, Michigan: 1980

<table>
<thead>
<tr>
<th>Homicide Rate</th>
<th>Mean = 0.325 s = 0.725</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 0.363    (26)</td>
<td></td>
</tr>
<tr>
<td>0.364 to 0.725 (2)</td>
<td></td>
</tr>
<tr>
<td>0.726 to 3.73  (4)</td>
<td></td>
</tr>
</tbody>
</table>

Homicides per 1,000 People
Grand Rapids, Michigan: 1990

<table>
<thead>
<tr>
<th>Homicide Rate</th>
<th>Mean = 0.302 s = 1.012</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 0.506    (28)</td>
<td></td>
</tr>
<tr>
<td>0.507 to 1.01  (2)</td>
<td></td>
</tr>
<tr>
<td>1.02 to 5.68   (2)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 8. Homicide Rates in Grand Rapids, 1980-1990.
In 1990, the homicide rates began to show a little more clustering. They were high in two southwest central city districts, and mid-range just east of those districts. There are fewer above average districts in 1990, but those that are above average remain in the central city.

Conclusion

With a few minor exceptions, the older central city has higher crime rates than the outer fringe, which confirms hypothesis number one outlined in Chapter three. Shaw and McKay's (1942) predictions are clearly visible in the crime rate maps for Grand Rapids in both 1980 and 1990. One can see that the overall pattern of crime rates in Grand Rapids follows the ecological progression of the city outlined in the beginning half of this chapter. The inner city, particularly Charley district, had the highest rates of crime, the transitional areas between the inner city and the outlying areas had medium-level crime rates, and the outer parts of Adam, Baker, and David had low crime rates. The comparison of these crime rates to the indicators of social disorganization outlined in the next chapter explains in detail the relationship between the natural progression of the city and crime rates.
CHAPTER V

CHANGES IN THE SOCIAL AND ECOLOGICAL CORRELATES OF CRIME OVER TIME IN GRAND RAPIDS

In the hypotheses presented in Chapter III, I postulate that there is a relationship between crime rates and urban ecology as measured by the indicators of social disorganization. In this chapter, I use quantitative analysis to accept, reject, or fail to reject each hypothesis. The tables and maps presented in this chapter show the details which led to the decisions made about each hypothesis.

Methodology

I used quantitative analysis to test the hypotheses. The dependent variables in the regression analysis were the crime rates, which were calculated using crime and population figures. Each dependent variable was regressed on the indicators of social disorganization defined in Chapter III to determine the relationship between crime rates and the social and ecological factors for each police district in Grand Rapids. The adjusted coefficient of determination ($R^2$) was used to determine the fit of the model to the data. I did a 1-tailed significance test to determine the statistical
significance of the independent variables for each equation and to determine which indicators of social disorganization were important in explaining the crime rates. The statistically significant independent variables have a t-value of less than 0.10. The independent variables were then ranked using the standardized regression coefficient (Beta) to determine which independent variables had the strongest relationships with the crime rates (hypotheses 2-7). The change over time was measured by comparing the unstandardized regression coefficients (B) for each year. Finally, the regression residuals, which were mapped for each type of crime, show where the exceptions to the rule exist (hypothesis 8). The patterns of the outliers were compared with zoning and land use maps provided by the Grand Rapids Planning Department and discussed with the Deputy Chief of Police, Gerald W. Steele (1995) to determine possible reasons for their deviations. In this chapter, I examine the correlation coefficients, significant variables, and residual maps for each dependent variable, then I explore the overall patterns for the city over time.

Multicollinearity

When I first ran the analysis, there was a problem with multicollinearity of the independent variables for both 1980 and 1990. The
tolerance level was used to determine multicollinearity. The tolerance level shows the amount of variance the independent variable does not share with other predictors in the equation (Norusis, 1993). Tolerance levels of less than 0.25 (less than 25 percent unique variable) indicate multicollinearity of the independent variables. When the list of variables included one or more tolerance levels of less than 0.25, the variable with the lowest tolerance level was eliminated and the regression was run again. This procedure was repeated until the tolerance levels for all the independent variables were above 0.25.

In 1980, the variable I had to eliminate was percent 1.01 or more per room, while in 1990, percent single parents was eliminated. For both years, I eliminated percent owned, probably because I also had a variable for percent rented. This is not surprising because percent owned and percent rented total to a whole, so they are essentially the same thing. The tolerance level for percent owned was lower than for percent rented, so I eliminated percent owned. When that variable was eliminated, the tolerance levels for the rest of the independent variables were within the acceptable range.

In 1990, the independent variables were more closely related to each other. I had to eliminate percent owned and percent single parents. We already know that percent owned and percent rented are related to each
other, so the important variable here is percent single parents, because it is not collinear in the 1980 figures. The percent single parent variable had the lowest tolerance level, and was therefore the most collinear of all. This interesting shift could be telling us that single parent homes were more related to the social and ecological factors in 1990 than in 1980. This is probably because of the increased number of unmarriageable men in the urban underclass. This relationship of single-parent households to race, social disorganization, and poverty could be an interesting topic for someone studying family issues and social problems, but will not be examined any further in this thesis. Once the multicollinearity problem was solved, I was able to re-run the analysis for each type of crime and compare the results across the years.

Property Crimes

Hypotheses 2 and 3 predicted that property crime would be positively related to transience, poverty, high percentages of youth, and family disorganization and that over time, the relationship between these independent variables will weaken. Percent white will emerge as the most important variable that explains property crime in 1990. The two property crimes outlined in this thesis are larceny and burglary.
Larceny

The 1980 the adjusted $R^2$ value was .28441, which shows that the independent variables explain 28 percent of the variation in larceny rates across police districts. In 1990, the adjusted $R^2$ value was .51268, or 51 percent of the variation in larceny rates explained by the model.

In 1980, the independent variables that were statistically significant were percent under 18, percent single parents, and percent white. The standardized regression coefficients show that the most important variable in explaining the larceny rate was percent under 18 (inverse), followed by percent single parents (inverse), and finally percent white (inverse). The inverse relationship of percent under 18 and percent single parents is contrary to what was predicted and what theory suggests should happen. This anomalous finding will be discussed in more detail later.

In 1990, the statistically significant variables were percent white, percent under 18, and percent rented. The standardized regression coefficients show that the most important variable in explaining the larceny rate was percent white (inverse), followed by percent under 18 (inverse), and finally percent rented (positive).

When the results for 1980 and 1990 are compared (see Table 2), two important findings are prevalent. The most significant variable changed
Table 2
Larceny Statistics

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>1980</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Rent</td>
<td>B: -1.478113</td>
<td>0.207799</td>
</tr>
<tr>
<td></td>
<td>T-Value: -1.202</td>
<td>.996</td>
</tr>
<tr>
<td></td>
<td>Sig T*: 0.1201</td>
<td>0.1641</td>
</tr>
<tr>
<td></td>
<td>Beta: -.197955</td>
<td>0.147487</td>
</tr>
<tr>
<td>Percent Rented</td>
<td>B: 254.784471</td>
<td>233.143227</td>
</tr>
<tr>
<td></td>
<td>T-Value: .823</td>
<td>2.146</td>
</tr>
<tr>
<td></td>
<td>Sig T*: 0.20905</td>
<td>0.0207</td>
</tr>
<tr>
<td></td>
<td>Beta: .147902</td>
<td>0.302172</td>
</tr>
<tr>
<td>Percent Single Parents</td>
<td>B: -1221.843177</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T-Value: -1.802</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig T*: 0.04155</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beta: -.404443</td>
<td></td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>B: -1218.391810</td>
<td>-826.283487</td>
</tr>
<tr>
<td></td>
<td>T-Value: -2.295</td>
<td>-3.975</td>
</tr>
<tr>
<td></td>
<td>Sig T*: 0.01505</td>
<td>0.00025</td>
</tr>
<tr>
<td></td>
<td>Beta: -0.456685</td>
<td>-0.592276</td>
</tr>
<tr>
<td>Percent White</td>
<td>B: -372.305477</td>
<td>-115.404091</td>
</tr>
<tr>
<td></td>
<td>T-Value: -1.783</td>
<td>-1.942</td>
</tr>
<tr>
<td></td>
<td>Sig T*: 0.0431</td>
<td>0.03155</td>
</tr>
<tr>
<td></td>
<td>Beta: -0.382606</td>
<td>-0.78958</td>
</tr>
<tr>
<td>Percent 1.01</td>
<td>B: 41.184490</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T-Value: .204</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig T: 0.41995</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beta: -.278958</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>B: 1044.728594</td>
<td>229.446813</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.28441</td>
<td>.51268</td>
</tr>
</tbody>
</table>

* One-tailed test
from percent under 18 to percent white. In addition, the strength of the relationship between larceny rates and all the indicators of social disorganization weakened between 1980 and 1990. (The absolute value of B was consistently lower in 1990 than in 1980.)

The residual maps in Figure 9 show a small difference in spatial makeup between 1980 and 1990. When one looks at the overall patterns in the two maps, the exceptions to the rule are concentrated in the central city. In 1980 the positive outliers were in Charley 1 and Baker 8, and the negative outliers were in Baker 9 and Charley 3. In 1990 the positive outliers were Baker 8 and Charley 4, and the negative outliers were Baker 9 and Charley 3 in the inner city and Baker 7 and David 7 in the outer fringe of the city.

**Burglary**

The 1980 the adjusted $R^2$ value was .50207, which shows that the independent variables explain 50 percent of the variation in larceny rates across police districts. In 1990, the adjusted $R^2$ value was .39784, or 40 percent of the variation in burglary rates explained by the model.

In 1980, all of the independent variables were statistically significant. The standardized regression coefficients show that the most important
Larceny Residuals for Grand Rapids 1980-1990

Larceny Residuals, 1980

Mean = 120.887
s = 210

Larceny Residuals, 1990

Mean = 91.421
s = 80.9

Figure 9. Larceny Residuals for Grand Rapids, 1980-1990.
variable in explaining the burglary rate in 1980 was percent white (inverse), followed in order by percent single parents (inverse), percent rented (positive), mean rent (inverse), and percent under 18 (inverse). Again, the inverse relationship to percent single parents and percent under 18 is contrary to theoretical predictions and will be discussed later.

In 1990, the statistically significant variables were percent white, percent rented, percent under 18, and mean rent. Percent 1.01 or more per room was the only insignificant variable. The standardized regression coefficients show that the strongest predictor of the burglary rate was percent white (inverse) followed in order by percent rented (positive), percent under 18 (inverse), and mean rent (inverse).

When the results for both years are compared, (see Table 3) two observations emerge as important. In 1990, the relationship of burglary rates and percent white was much stronger than the other significant variables (Beta = -0.561735). Also, the regression coefficients show the relationship between the indicators of social disorganization and burglary rates weakened between 1980 and 1990.

The residual maps in Figure 10 show that the spatial distribution of the strong positive and negative residuals remain again clustered around the inner city and industrial areas. In 1980, the positive residuals were in
Table 3
Burglary Statistics

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>1980</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Rent B</td>
<td>-0.468393</td>
<td>-0.101335</td>
</tr>
<tr>
<td>T-test</td>
<td>-2.064</td>
<td>-1.501</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0075</td>
<td>0.0727</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.357652</td>
<td>-0.24699</td>
</tr>
<tr>
<td>Percent Rented B</td>
<td>111.512922</td>
<td>65.98486</td>
</tr>
<tr>
<td>T-test</td>
<td>2.461</td>
<td>1.877</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0104</td>
<td>0.03595</td>
</tr>
<tr>
<td>Beta</td>
<td>0.369079</td>
<td>0.293687</td>
</tr>
<tr>
<td>Percent Single Parents B</td>
<td>-229.987482</td>
<td></td>
</tr>
<tr>
<td>T-test</td>
<td>-2.319</td>
<td></td>
</tr>
<tr>
<td>Sig T</td>
<td>0.01425</td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>-0.434048</td>
<td></td>
</tr>
<tr>
<td>Percent Under 18 B</td>
<td>-140.348702</td>
<td>-101.048713</td>
</tr>
<tr>
<td>T-test</td>
<td>-1.807</td>
<td>-1.502</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0412</td>
<td>0.0726</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.299937</td>
<td>-0.248733</td>
</tr>
<tr>
<td>Percent White B</td>
<td>-87.357817</td>
<td>-59.288917</td>
</tr>
<tr>
<td>T-test</td>
<td>-2.860</td>
<td>-3.082</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0041</td>
<td>0.0024</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.511854</td>
<td>-0.492153</td>
</tr>
<tr>
<td>Percent 1.01 B</td>
<td></td>
<td>-10.07312</td>
</tr>
<tr>
<td>T-test</td>
<td></td>
<td>-0.154</td>
</tr>
<tr>
<td>Sig T</td>
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<td>0.43935</td>
</tr>
<tr>
<td>Beta</td>
<td></td>
<td>-0.02319</td>
</tr>
<tr>
<td>(Constant) B</td>
<td>216.770031</td>
<td>117.02387</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.50207</td>
<td>.39784</td>
</tr>
</tbody>
</table>

* One-tailed test
Burglary Residuals for Grand Rapids
1980-1990

Burglary Residuals, 1980

$Mean = 43.837$
$s = 29.9$

Burglary Residuals, 1990

$Mean = 38.855$
$s = 26$

Figure 10. Burglary Residuals for Grand Rapids, 1980-1990.
Charley 1 and Baker 8, and the negative residuals were in Baker 7 and 9 and Charley 3. In 1990 the positive residuals only appear in Charley 4, while Baker 9 and Charley 5 and 8 showed negative residuals.

Interpretation

The first hypothesis covering property crimes predicted that there would be a positive relationship between property crime rates and transience, poverty, high percentages of youth in the population, and family disorganization. The data showed that property crimes were positively related to transience and poverty in the case of burglary, but transience and poverty were not statistically significant for larceny. Although there was a relationship between property crimes and high percentages of youth in the population and family disorganization, it was inverse. This anomalous finding will be discussed in detail later. In addition to the expected results, race was a significant variable.

These results show that I failed to reject hypothesis number two, because some of the predicted variables were significantly related to the property crime rates, while others were not. There are several reasons for these inconclusive results. First, both larceny and burglary are "wave" crimes, which means that they tend to happen in "spurts." There may be
several larcenies or burglaries in a specific area until the perpetrator is caught or moves on. Because of these “waves” it is difficult to see trends with just two separate years of data. Second, the inverse relationship to percent under 18 is probably the result of problems with the census data, which is explained later in this chapter.

Hypothesis number three predicts that the relationship between property crimes and transience, poverty, high percentages of youth, and family disorganization will weaken and be replaced with an inverse relationship to the percentage of white people in the population. The unstandardized regression coefficients for all of the independent variables showed a weakened relationship from 1980 to 1990. Overall, percent white was the strongest predictor of both larceny and burglary rates in 1990. We can then say that hypothesis number three was accepted.

Hypothesis number eight predicts that the residuals will be in areas of gentrification and transition. In most cases, the residual maps for both larceny and burglary show the positive residuals in transitional districts. However, positive residuals also appeared in David 1 and Charley 4, both urban underclass areas. With the exception of the outlying districts, the negative residuals were in gentrified and transitional areas. The appearance of negative residuals in Baker 7 and David 7 are probably because there are
transitional areas on their boundaries, which could affect the data for the entire area. I failed to reject hypothesis number nine because of the positive residuals in the urban underclass areas. This means that the urban underclass areas have even higher crime rates than the ecological model predicted.

Robbery

The 1980 the adjusted $R^2$ value was .52860, which shows that the independent variables explain 53 percent of the variation in robbery rates across police districts. In 1990, the adjusted $R^2$ value was .48188, or 48 percent of the variation in robbery rates explained by the model.

In 1980, the independent variables that were statistically significant were percent white, percent single parents, percent under 18, and mean rent. The standardized regression coefficients rank the significant variables in order of percent white (inverse), percent single parents (inverse), percent under 18 (inverse), and mean rent (inverse). Again, percent under 18 and percent single parents were significant, but their inverse direction is opposite of what was expected. Reasons for this are explained later in this chapter.

In 1990, the statistically significant variables were percent under 18, percent white, and mean rent. The standardized regression coefficients show
that the most important variable in explaining the robbery rates was percent under 18 (inverse), followed by percent white (inverse) and mean rent (inverse).

When the unstandardized regression coefficients are compared between 1980 and 1990 (see Table 4), the strength of the relationship between robbery rates and the independent variables weakened between 1980 and 1990, with the exception of percent under 18.

The pattern of residuals shown in Figure 11 starts out clustered in the central city in 1980, but developed a somewhat scattered pattern in 1990. The positive residuals in 1980 were clustered in Charley 1, 2, 4, and David 1. The negative residuals were in Charley 3 and 5 and Baker 9. In 1990, the positive residuals remained in David 1 and Charley 2 and 4, while Charley 1 averaged out. The negative residuals were in Adam 3, Baker 9, and Charley 3, 5, and 8. Charley 2 and 4 and David 1 remained higher than predicted for both years, while Baker 9 and Charley 3 and 5 were consistently lower than predicted for both years.

Hypothesis number four predicts that robbery will be inversely related to percent white and mean rent (or race and poverty) because the transitional areas in which they occur are near urban underclass areas, which
### Table 4

Robbery Statistics

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>1980</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean Rent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>-0.243962</td>
<td>-0.107874</td>
</tr>
<tr>
<td>T-test</td>
<td>-2.953</td>
<td>-2.279</td>
</tr>
<tr>
<td>Sig T*</td>
<td>0.0033</td>
<td>0.0156</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.394656</td>
<td>-0.347738</td>
</tr>
<tr>
<td><strong>Percent Rented</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>15.774102</td>
<td>3.536152</td>
</tr>
<tr>
<td>T-test</td>
<td>0.758</td>
<td>0.143</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.2276</td>
<td>0.44355</td>
</tr>
<tr>
<td>Beta</td>
<td>0.110607</td>
<td>0.020816</td>
</tr>
<tr>
<td><strong>Percent Single Parents</strong></td>
<td>-133.090745</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>-104.458072</td>
<td>-200.07776</td>
</tr>
<tr>
<td>T-test</td>
<td>-2.928</td>
<td>-4.239</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0035</td>
<td>0.0001</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.472943</td>
<td>-0.651359</td>
</tr>
<tr>
<td><strong>Percent Under 18</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>-55.432412</td>
<td>-51.166651</td>
</tr>
<tr>
<td>T-test</td>
<td>-3.951</td>
<td>-3.792</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.00025</td>
<td>0.0004</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.688103</td>
<td>-0.561735</td>
</tr>
<tr>
<td><strong>Percent White</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>134.507819</td>
<td>143.44744</td>
</tr>
<tr>
<td>T-test</td>
<td>0.52860</td>
<td>0.48188</td>
</tr>
<tr>
<td>Sig T</td>
<td>-29.796487</td>
<td>-0.650</td>
</tr>
<tr>
<td>Beta</td>
<td>0.26065</td>
<td>-0.090725</td>
</tr>
</tbody>
</table>

* One-tailed test
Robbery Residuals for Grand Rapids
1980-1990

Robbery Residuals, 1980

\[ \text{Mean} = 10.112 \]
\[ s = 13.8 \]

<table>
<thead>
<tr>
<th>Category</th>
<th>Value Range</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.9 to 44.8</td>
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<td>4</td>
</tr>
<tr>
<td>-13.8 to 13.8</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>-25.4 to -13.9</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Robbery Residuals, 1990

\[ \text{Mean} = 13.162 \]
\[ s = 18.4 \]

<table>
<thead>
<tr>
<th>Category</th>
<th>Value Range</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.5 to 54.7</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>-18.4 to 18.4</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>-32 to -18.5</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 11. Robbery Residuals for Grand Rapids, 1980-1990.
are characterized by high concentrations of African Americans and poverty. The results for robbery accept this hypothesis because percent white and mean rent were both inversely related to the robbery rate for both 1980 and 1990. In addition to the predicted variables, percent single parents and percent under 18 were also inversely related, which again goes against theoretical predictions. In addition to the reasons mentioned later, robbery could be inversely related to high percentages of children because robbery is a more "sophisticated" crime, which is normally committed by people who have been criminals for a long time. Although juveniles do commit robberies, young adults or adults are more likely to commit this serious crime. Also, robbery often happens in commercial areas which tend to have a higher density of businesses than housing. Children do not normally live in these areas.

The fifth hypothesis predicts that the relationship between the robbery rate and percent white and mean rent will strengthen between 1980 and 1990 as a result of the increased poverty and isolation of the urban underclass. This hypothesis is rejected because the unstandardized correlation coefficients (B) indicate a weakening of the relationship between robbery rates and percent white and mean rent over time. Interestingly, the inverse relationship between robbery rates and percent under 18 strengthened over
time. Data problems and the nature of the crime (both explained later) probably contribute to this result.

The eighth hypothesis predicts that the exceptions to the rule would be in transitional and gentrified areas. In 1980, the positive residuals clustered around transitional and industrial areas while the negative residuals were in gentrified and transitional areas. In 1990 the positive residuals were in the same transitional and industrial areas, with the exceptions of Charley 1, the traditional immigrant neighborhood. This area could be becoming more organized as a result of the Hispanic Center and other aspects of social organization, such as neighborhood watches and neighborhood associations that cannot be measured by census data. The positive residual in David 1 is contrary to the hypothesis because this area is an urban underclass area. The negative residuals for 1990 were again in gentrified and transitional areas, with the exception of Adam 3 and Charley 8. Adam 3 is surrounded by neighborhoods in the middle to late stage of urban growth, but is not marked with the general decay of the neighborhoods around it (Steele, 1995). Charley 8 is an urban underclass area, and it is surprising that the crime rates are lower than the model predicts. This again could be because of some unmeasurable element of social organization in the area. See Appendix A for detailed descriptions of each district.
Violent Crimes

Hypotheses six and seven predict a strong relationship between violent crime rates and race. This is based on Wilson’s (1987) theory that members of the urban underclass will be prone to committing violent crime. The two violent crimes outlined in this thesis are aggravated assault and homicide.

Aggravated Assault

The 1980 the adjusted $R^2$ value was 0.55158, which shows that the independent variables explain 55 percent of the variation in aggravated assault rates across police districts. In 1990, the adjusted $R^2$ value was 0.41777, or 42 percent of the variation in aggravated assault rates explained by the model.

In 1980, the independent variables that were statistically significant were percent white, percent single parents, percent under 18, and mean rent. The standardized regression coefficients show that the most important variable in explaining the aggravated assault rate was percent white (inverse) followed by percent single parents (inverse), percent under 18 (inverse), and mean rent (inverse).
In 1990, the statistically significant variables were percent white, mean rent, and percent under 18. The standardized regression coefficients show that percent white (inverse) was the most important variable in explaining the aggravated assault rate, followed by mean rent (inverse) and percent under 18 (inverse).

When the results are compared across the years (see Table 5), the unstandardized regression coefficients (B) show a significant strengthening of the relationship between the aggravated assault rates and the indicators of social disorganization over time. In addition, mean rent emerged as the second-most important variable in 1990.

The residual maps in Figure 12 again show an overall clustering of residuals in the central city. The positive residuals for 1980 were Baker 8 and Charley 2, 4, and 7, and the negative outliers were Baker 7 and 9 and Charley 3 and 5.

**Homicide**

The 1980 the adjusted $R^2$ value was .40164, which shows that the independent variables explain 40 percent of the variation in homicide rates across police districts. In 1990, the adjusted $R^2$ value was .05775, or 6 percent of the variation in homicide rates explained by the model.
Table 5

Aggravated Assault Statistics

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>1980</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Rent</td>
<td>B</td>
<td>-0.022483</td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td>-2.972</td>
</tr>
<tr>
<td></td>
<td>Sig T</td>
<td>0.00315</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>-0.387488</td>
</tr>
<tr>
<td>Percent Rented</td>
<td>B</td>
<td>1.898205</td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td>0.996</td>
</tr>
<tr>
<td></td>
<td>Sig T</td>
<td>0.1641</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>0.141802</td>
</tr>
<tr>
<td>Percent Single Parents</td>
<td>B</td>
<td>-12.271268</td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td>-2.943</td>
</tr>
<tr>
<td></td>
<td>Sig T</td>
<td>0.0034</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>-0.52272</td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>B</td>
<td>-8.860591</td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td>-2.713</td>
</tr>
<tr>
<td></td>
<td>Sig T</td>
<td>0.00585</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>-0.427396</td>
</tr>
<tr>
<td>Percent White</td>
<td>B</td>
<td>-5.643484</td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td>-4.394</td>
</tr>
<tr>
<td></td>
<td>Sig T</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>-0.746343</td>
</tr>
<tr>
<td>Percent 1.01</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig T</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>B</td>
<td>12.754135</td>
</tr>
</tbody>
</table>

\[R^2\] .55158 .41777

* One-tailed test
Assault Residuals for Grand Rapids
1980-1990

Aggravated Assault Residuals, 1980

Mean = 1.235
s = 1.26

1980 Assault Residuals

- 1.27 to 2.76 (4)
- -1.26 to 1.26 (24)
- -2.71 to -1.27 (4)

Aggravated Assault Residuals, 1990

Mean = 27.940
s = 30.9

1990 Assault Residuals

- 31 to 135 (1)
- -30.9 to 30.9 (25)
- -50 to -31 (6)

Figure 12. Aggravated Assault Residuals for Grand Rapids, 1980-1990.
In 1980, the independent variables that were statistically significant were percent white, percent single parents, mean rent, and percent under 18. The standardized regression coefficients (Beta) show that percent white (inverse) was the most important variable in explaining the aggravated assault rate, followed in order by percent single parents (inverse), mean rent (inverse), and percent under 18 (inverse).

In 1990, the model did not fit well ($R^2 = 0.05775$), so the only statistically significant variable was percent white (inverse). Steele (1995) suggested that the model did not fit well because the nature of violent crime is changing. In the past, most homicides and assaults were domestically related, in other words, spousal and family fights. Most homicides are now related to drug and gang activity, which adds an entirely different element to the equation.

In comparing the relationship of homicide rates to the indicators of social disorganization over time (see Table 6), some important observations became clear. First, homicide was related to four of the independent variables in 1980, but only one in 1990. This is because the model did not fit well in 1990. Percent white was consistently the most important variable, but the unstandardized regression coefficients show that the relationship between homicide rates and percent white was stronger in 1980 than in 1990.
Table 6

Homicide Statistics

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>1980</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Rent</td>
<td>-0.006324</td>
<td>-0.001821</td>
</tr>
<tr>
<td>T-test</td>
<td>-2.058</td>
<td>-0.788</td>
</tr>
<tr>
<td>Sig T*</td>
<td>0.0249</td>
<td>0.2189</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.309848</td>
<td>-0.162189</td>
</tr>
<tr>
<td>Percent Rented</td>
<td>-0.142871</td>
<td>0.029363</td>
</tr>
<tr>
<td>T-test</td>
<td>-0.185</td>
<td>0.024</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.4275</td>
<td>0.49035</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.03034</td>
<td>0.004776</td>
</tr>
<tr>
<td>Percent Single Parents</td>
<td>-3.095732</td>
<td></td>
</tr>
<tr>
<td>T-test</td>
<td>-1.827</td>
<td></td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0396</td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>-0.374865</td>
<td></td>
</tr>
<tr>
<td>Percent Under 18</td>
<td>-1.823260</td>
<td>-0.950176</td>
</tr>
<tr>
<td>T-test</td>
<td>-1.374</td>
<td>-0.413</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0906</td>
<td>0.34165</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.250005</td>
<td>-0.085477</td>
</tr>
<tr>
<td>Percent White</td>
<td>-2.220548</td>
<td>-1.352456</td>
</tr>
<tr>
<td>T-test</td>
<td>-4.255</td>
<td>-2.054</td>
</tr>
<tr>
<td>Sig T</td>
<td>0.0001</td>
<td>0.0251</td>
</tr>
<tr>
<td>Beta</td>
<td>-0.834802</td>
<td>-0.410291</td>
</tr>
<tr>
<td>Percent 1.01</td>
<td></td>
<td>-0.130145</td>
</tr>
<tr>
<td>T-test</td>
<td></td>
<td>-0.058</td>
</tr>
<tr>
<td>Sig T</td>
<td></td>
<td>0.477</td>
</tr>
<tr>
<td>Beta</td>
<td></td>
<td>-0.01095</td>
</tr>
<tr>
<td>(Constant)</td>
<td>4.118746</td>
<td>2.176315</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.40164</td>
<td>.05775</td>
</tr>
</tbody>
</table>

* One-tailed test
Figure 13 shows that both the positive and negative residuals appear in the central city. The strong positive residuals in 1980 were in Charley 2 and 4, while the negative residuals were in Baker 8 and Charley 5. In 1990, the only positive residual was in Charley 4. The negative residuals were in Charley 3 and David 2. It is important to remember that only six percent of the homicides were explained by the independent variables, so these residuals are not a good indicator of the actual factors related to homicide.

Interpretations

Hypothesis number six predicts that percent white will be inversely related to rates of violent crime. Both aggravated assault and homicide accept this hypothesis because percent white was not only statistically significant, but was the most important variable in explaining the crime rates in each case. In addition to the significance of percent white, mean rent was an important factor in explaining the violent crime rate (with the exception of homicide in 1990). This is additional proof that Wilson's (1987) theory is correct is assuming that poverty contributes to the hopelessness of the underclass.
Homicide Residuals for Grand Rapids
1980-1990

Homicide Residuals, 1980
Mean = 0.325
s = 0.51

-0.52 to 2.06 (2)
-0.51 to 0.51 (28)
-1.03 to -0.52 (2)

Homicide Residuals, 1990
Mean = 0.302
s = 0.9

-1 to 4.5 (1)
-0.9 to 0.9 (29)
-1.17 to -1 (2)

Figure 13. Homicide Residuals for Grand Rapids, 1980-1990.
Hypothesis number seven predicts that the relationship between violent crime and race will become stronger between 1980 and 1990. The unstandardized regression coefficients (B) for aggravated assault strongly accept this hypothesis, but they reject it with homicide. Again, this is because the model did not fit well with homicide in 1990. The shift in the nature of homicide probably also contributed to the reduced strength of the relationship. Also, perhaps 1990 was a "fluke" year. Because of the difference between aggravated assault and homicide, I failed to reject hypothesis number seven.

Hypothesis number eight predicts that the residuals will be located in areas of gentrification and transition. The positive residuals for aggravated assault in 1980 appear in transitional and urban underclass areas. With the exception of Baker 7, all of the negative residuals for aggravated assault in 1980 were in gentrified and transitional areas. Baker 7 probably emerged as an exception to the rule because its edges can be considered transitional areas. This detail cannot be measured in areal data, so the anomalous finding is probably a result of limited data and not the actual conditions in Baker 7. The positive aggravated assault residuals in 1990 only appear in Charley 4, an urban underclass area. The negative aggravated assault residuals in 1990 appear in gentrified and transitional areas with the exception of Charley 8.
and 9, which are urban underclass areas. These anomalous findings are probably again a result of the nature of areal data. Charley 8 borders a gentrified area, and Charley 9 borders East Grand Rapids, a very wealthy suburb of Grand Rapids. The social organization in the adjacent areas could be “spilling over” into these areas. In addition, there was some urban renewal in Charley 9 between 1980 and 1990. A very large park was refurbished and many organized activities for children and adults have contributed to positive activity in the neighborhood. This type of activity cannot be measured by census data, and therefore are not included in the statistics. I found it interesting that there was no cluster of residuals around Adam 3. Steele (1995) says this is because Adam 3 is surrounded by neighborhoods in the middle to late stage of urban growth, but is not marked with the general decay of the neighborhoods around it. Charley 4 and Charley 7 are characteristically urban underclass areas. Positive residuals in these areas show that the crime rates were even higher than the ecological model predicts. This is probably because of the concentration of drug and gang activity in this area, which was not accounted for in this model. Because of the positive residuals in urban underclass areas, I failed to reject hypothesis number eight.
Overall Observations

Race

With the exception of larceny in 1980 and robbery in 1990, the inverse relationship to percent white was the most important variable in explaining the crime rates. This finding is in agreement with Wilson’s (1987) theory that African Americans are more likely to be in socially disorganized areas and that are ridden with high crime rates. The variable that I used, percent white, measured the percentage of white people in an area. The rest of the population includes several different races. However, the majority of the minority population in Grand Rapids is African American. If percent black was used instead of percent white, the relationship between crime rates and race could have been even stronger.

Fit of the Model

With the exception of homicide in 1990, the model fit quite well with the actual ecology of Grand Rapids. Adjusted $R^2$ was fairly close to .5 in almost every case. When working with social data, these are very good results. Some qualitative aspects of social phenomena cannot be accurately be measured quantitatively, so the quantitative models cannot give a one
hundred percent accurate picture of what is happening, and a fifty percent fit with the model is quite good. In addition, the areal nature of the data comes into play as well. Concentration of certain events or conditions in a small area may affect larger areas surrounding it. This is true for both crime and census data.

Transience and Density

With the exception of burglary, percent rented was not significantly related to the crime rates, and percent 1.01 or more persons per room was not significantly related to any of the crime rates. This indicates that transience and density were not important factors in explaining the crime rates, which is contradicts predictions by Stark (1978). The only measurement of transience from the census data that could be obtained is the percent rented, which could be flawed as a measure of social disorganization, because some socially organized neighborhoods have a high number of rentals (such as upscale apartment complexes). This then attributes rentals to both socially organized and disorganized areas and thus does not accurately measure social disorganization. Percent 1.01 or more persons per room is the only measure of density that can be obtained from the census data as well. There are so few households that have 1.01 or more persons per room in Grand Rapids
that it did not make an impact on the statistical analysis. A better measure of density would be needed to see the impact of population or household density on the crime rates.

Percent Single Parents and Percent Under 18

The most surprising result of the analysis was that percent single parents and percent under 18 were significantly related to several of the crime rates, but the relationship was inverse, just the opposite of what was expected. The opposite direction for percent under 18 is because of the limitations of census data. The age range of most juvenile criminals is between 12 and 17. Percent under 18 encompasses a much larger age range. Children between birth and age 10 are less likely to commit crimes than other people in the population, so if an area has a high percentage of people under the age of 18, about half of them are less likely to commit a crime, which could produce an inverse relationship between crime rates and percent under 18. The inverse relationship between single parent families and crime rates is probably a result of the changing role of women in the workplace. At one time women were less educated and more likely to be in poverty if they were widowed or divorced. This has changed with the ability of women to get high-paying jobs so they can better support their families. However, this is
only the case for 1980. Percent single parents was only usable for 1980, because in 1990 it had multicollinearity problems. This indicates that the changing role of women may have been an important demographic characteristic in 1980, but as the urban underclass grew and its men became more unmarriagable and concentrated in underclass areas, percent single parents became so related to the indicators of social disorganization that it couldn’t be used statistically.

**Baker 8**

The Grand Rapids Police Department resides within the boundaries of Baker 8, and some crime rates are higher than predicted by the model. Until recently, when someone reports a crime and does not give a location of where the crime happened, the crime location was reported as at the police station. As a result, crimes that did not happen at the police station were reported there, raising the crime rate for Baker 8. Measures were taken to correct that problem, so there are not as many positive residuals for 1990.

**Charley 1**

The residual maps show a change from higher rates of larceny, burglary, and robbery than the model predicts for 1980, but averages out in 1990. This change could be related to a number of things. First, larceny and
burglary both happen in "waves." These crimes can happen in extremely high numbers in one year, and be almost non-existent in the next. Therefore, to get a better study of these crimes, data spanning several years would be needed (Steele, 1995). Second, Charley 1 is the traditional immigrant neighborhood, and has historically been marked by serious social disorganization and dilapidation (Olson, 1995). The work of the Hispanic Center in that neighborhood may have added some immeasurable social organization, which could not be accounted for in the model. Last, and probably most important, is the population shift that is gradually taking place in that area. Since 1980, people and businesses have been gradually moving out of the area, and are usually not replaced by others. This exodus of people and business leaves fewer victims behind, so the opportunity for crime is not as great (Steele, 1995).

**Heritage Hill**

For all crimes except homicide, Baker 9 and Charley 3 seem to be below what the model predicts. Baker 9, or the Heritage Hill neighborhood, experienced a major gentrification effort during the 1980s. This process is still going on, so some houses are beautifully restored, while others are still dilapidated. This mixture makes it difficult to get a balanced assessment of
the ecological conditions from Census data. In addition, the Heritage Hill Neighborhood Association provides encouragement and support of social organization, which is very commonly practiced in Heritage Hill, and is not measurable by Census data.

Baker 9 experienced a number of significant changes between 1980 and 1990. Its residuals for the larceny rate went from average in 1980 to negative in 1990, so the larceny rate was explained by the independent variables in 1980, but was lower than what the model predicted in 1990. The burglary rate's residuals went from negative in 1980 to average in 1990. This means that in 1980 the burglary rate and aggravated assault rates were lower than the model expected, but averaged out in 1990. Steele (1995) says this is most likely related to the gentrification of the Heritage Hill neighborhood, which lies mostly within the boundaries of Baker 9.

Charley 3 is right next to Heritage Hill, and the neighborhood is taking example from the Heritage Hill area's gentrification. Although gentrification is not as concentrated, it is becoming more obvious as the years progress. The makeup of the population is also shifting as a result: slumlords are being bought out by many middle-class whites, who are restoring the homes and living in them. This is also quickly becoming the "gay" section of town, which could explain a higher rate of social
organization. In addition, the neighborhood park was at one time known as a drug haven, and the city cleaned it up and replaced broken concrete and playground equipment. That park no longer is a dangerous place to be.

**Charley 4**

The residuals in Charley 4 were above average for all types of crime in 1990 and for the violent crimes in 1980. It is really unknown why this is true, but Steele (1995) suggested that in the 1970s, the Lime Lite, a bar in the area, attracted the criminal type. It was finally shut down in the early 1980s, and according to Steele (1995), things seem to have improved somewhat in that area. However, the crime rate maps (Chapter IV) show that crime rates are still above average. Additionally, ecological conditions remain dilapidated. Mixed land use and the proximity to the railroad tracks and the traditional immigrant neighborhood may have contributed to it.

**Adam 3**

The residuals for Adam 3 changed from average in 1980 to below average in 1990 for both robbery and aggravated assault. This neighborhood is not falling into the traditional pattern of decay like some of the districts around it (Steele, 1995). Perhaps St. Adalbert’s Catholic Church, which is located in the district, is offering a form of social organization in the
neighborhood. Further study of this area could yield some interesting results.

David 1 and Robbery

The pattern of residuals for robbery appeared as a cluster in 1980, but in 1990, the cluster spread out. The areas that had above average residuals for robbery are all clustered around Charley 1, the traditional immigrant neighborhood. This cluster broke up in 1990 when Charley 1 averaged out, but the surrounding districts remained higher than predicted by the model. Steele (1995) says this is the beginning of a southwestward push of crime. He foresees crime trends moving in that general direction, and robbery is the first indicator of that. If this is true, the relationship of robbery rates to the social and ecological variables could help predict where social organization and gentrification could help in reducing the crime rates before they get more serious. Steele (1995) predicts that the next area with a serious crime problem will be in the southwest corner of the city and in Wyoming, the adjacent community, which is evident in both the crime rate and residual maps.

David 7

The relationship of larceny rates to the social and ecological variables in David 7 changed from average in 1980 to lower than predicted in 1990.
The only reason this is important is because David 7 is the primary retail area in Grand Rapids. The two major shopping malls are Eastbrook Mall, which is in David 7, and Woodland Mall—right across the street from Eastbrook—which is within the boundaries of the city of Kentwood. There are three reasons the residuals for larceny rates in David 7 could have changed. First, Woodland Mall gained popularity during the 1980s, and Eastbrook Mall lost several stores, particularly a large discount store. More people means more opportunity to steal things from stores and cars in the parking lot. Second, larceny is again a “wave” crime, so larcenies could have happened in waves in those areas in one or another year. Finally, security could have been tightened during that time.

Charley 2

Charley 2 contains the traditional “skid row” neighborhood. Heartside, as it is called, is where many homeless and indigent people remain. Several changes in the residuals between 1980 and 1990 took place. The homicide rate went from being higher than predicted to lower than predicted, the aggravated assault rate went from lower than predicted to average, robbery stayed higher than predicted for both years, and larceny and burglary stayed average for both years. The significant changes were in
the violent crimes. Because this is the area where things are not expected to change concerning crime and vice, the higher than predicted homicide and robbery rates make sense. However, the change from high to average or low is interesting. Also, the lack of change for the property crimes in comparison to the drastic changes in violent crimes is interesting. There is one major reason for all of this activity: there have been many ecological improvements in the area. Once dilapidated single room occupancy hotels have been refurbished, prostitution is diminished, and several agencies dedicated to helping the indigent and homeless have gained a tremendous presence in the area. This form of social organization has significantly improved things. Although the population in the area remains indigent, the services available to help these people reach the goals they want to achieve have been abundant. In addition, new development on the outskirts of this area is beginning to take shape: a new sports stadium is currently being built, several old abandoned warehouses have been converted into retail and restaurant/bar establishments, and a new Federal grant is going to continue this process of renewal. This area will always be the place where the homeless and indigent tend to be, so the funds from the grant will be used to directly help these people (Steele, 1995). This renewal of the blighted area in
Grand Rapids could have been partially the cause of the southward movement of crime rates.

**Jefferson Street Boundary**

Perhaps the most noticeable pattern on the residual maps is the distinct boundary between the positive and negative residuals. These extremes fall right beside each other, and the boundary cuts down the middle of the inner city. The east side of the inner city tends to be below the predicted crime rates, while the west side of the central city tends to be above the predicted crime rates. This boundary almost consistently runs down Jefferson Avenue. Steele (1995) says that the Jefferson Street corridor has historically been the primary area where the Vice Lords gang does its drug trafficking. There are several elderly people that are trapped in the neighborhoods surrounding the street, but there is no real social or ecological difference between the east and west sides of Jefferson Street. Other than that, there is no real explanation for this (Steele, 1995). Perhaps it is related to the official east/west dividing line for the city, Division Street, which is a block west of Jefferson Street. This is an interesting pattern that could be monitored over several years to study possible reasons for this.
Conclusions

Of the eight hypotheses outlined in Chapter III, four of them were accepted, one was rejected, and three failed to be rejected. The crime rate maps in Chapter IV show that the highest crime rates are in the older parts of the city, or the inner city. Larceny rates were not related to transience and density, and there was an inverse relationship to high percentages of youth and family disorganization. However, robbery rates were related to all of the indicators of social disorganization. The relationship between property crimes and poverty, transience, high percentages of youth, and family disorganization weakened over time and the most significant variable for these property crimes in 1990 was percent white, which indicates an important relationship to race. Robberies were inversely related to percent white and mean rent, but the strength of that relationship weakened over time. Percent white was the most important variable in explaining the violent crime rates. That relationship strengthened for aggravated assault, but slightly weakened for homicide. The exceptions to the rule (residuals) appeared in industrial, gentrified, or transitional areas. Table 7 summarizes the results of this study in terms of the hypotheses.
Table 7
Summary of Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High rates of crime will be clustered around parts of the city that are in the last stage of urban development. This is generally patterned in a concentric ring, with the oldest parts of town near the urban core and industrial areas. Likewise, low crime rates will be prevalent in the outer rings of the city. The transitional parts of the city will have high-to-medium rates of crime.</td>
<td>Accept</td>
</tr>
<tr>
<td>2. Property crimes will be positively related to transience, poverty, high percentages of youth, and family disorganization.</td>
<td>Fail to reject</td>
</tr>
<tr>
<td>3. The relationship between property crime and transience, poverty, high percentages of youth, and family disorganization will weaken and be replaced by an inverse relationship to the percent white between 1980 and 1990.</td>
<td>Accept</td>
</tr>
<tr>
<td>4. Robberies will be inversely related to percent white and mean rent because the transitional areas in which they occur are near urban underclass areas.</td>
<td>Accept</td>
</tr>
<tr>
<td>5. The relationship between the robbery rate and percent white and mean rent will strengthen between 1980 and 1990.</td>
<td>Reject</td>
</tr>
<tr>
<td>6. Percent white will be inversely related to the rates of violent crimes.</td>
<td>Accept</td>
</tr>
<tr>
<td>7. The relationship between violent crime and race will become stronger between 1980 and 1990 because of the movement of entry-level jobs from the inner city to the suburbs</td>
<td>Fail to Reject</td>
</tr>
<tr>
<td>8. The exceptions to the rule (residuals) will be located in gentrified and transitional areas.</td>
<td>Fail to Reject</td>
</tr>
</tbody>
</table>
Suggestions for Further Study

One of the most surprising results of this paper is the different relationships of crime rates to the social and ecological variables along Jefferson Street. We cannot speculate why this is happening, except for the drug activity of the Vice Lords on that street. Is drug activity the reason for this significant difference in such a short distance, or is something else going on? Although dangerous, A Geography of the Grand Rapids Vice Lords might be a useful study in determining the reasons Jefferson Street is a dividing line.

Jefferson Street is not the only area affected by drug activity. Drugs and gangs are becoming a consistent underlying factor in crime rates, particularly the rates of violent crimes. It would be interesting to use drug activity as one of the independent variables in this model to see how much other types of crime are related to drugs. Similarly, it would be interesting to use drug activity as a dependent variable in this model to see how it is related to social and ecological conditions.

Because larceny and burglary are “wave” crimes, the data for just two years were somewhat unreliable in determining real patterns for these crimes. An annual study using this model over a long period of time might show more significance than this study was able to show.
Because the model did not fit for homicide in 1990, it would be interesting to study the relationship of homicides to indicators of social disorganization for each year between 1980 and 1990 to determine whether or not the homicide rates in 1990 were an exception to the rule.

This study focused on areal data. A more specific study using point data might be useful, because mixed land use areas could be further broken down and more specific target areas could be identified.

Predictions for the Future

This study can lead us to make several predictions about future crime patterns and their relationships to social and ecological variables in Grand Rapids. First, because race emerged as a significant variable in 1990 for almost all of the types of crime, areas with high numbers of minority populations will continue to have high rates of crime. This will be more pronounced in violent crimes than in property crimes. Second, as Steele (1995) suggested, crime is moving southwestward, and robbery is the first indicator of that. One way to prevent the introduction of more serious forms of crime is to attack the significant social and ecological conditions that are related to robbery, either by increasing socially organized activities, or by more heavily patrolling areas with such conditions. If robberies can be
prevented, perhaps more serious crimes can also be prevented. In the case of Grand Rapids, neighborhoods with high minority populations, high youth populations, and considerable transience should be targeted.

The inverse relationship to percent white and mean rent suggests that crime rates take place in urban underclass areas, which are characterized by social disorganization. Many forms of social disorganization cannot be measured with Census data. Because this relationship is so consistent, and because social disorganization is something that is preventable, crime rates could be lowered if neighborhoods were more socially organized and entry-level jobs were available close by. Active neighborhood associations, job training programs, increased adult supervision, organized youth programs, and community policing are possible suggestions for increasing social organization in neighborhoods.
Appendix A

Detailed Descriptions by Police District
Table 8
Detailed Descriptions by Police District

<table>
<thead>
<tr>
<th>District</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam 1</td>
<td>Outlying suburban district.</td>
</tr>
<tr>
<td>Adam 2</td>
<td>Urban area. Borders outlying Adam 1 on the west and Grand River on the east. Northwest part is similar to Adam 1, while the rest contains old immigrant factory worker housing that is still in a state of good repair.</td>
</tr>
<tr>
<td>Adam 3</td>
<td>The west side has suburban characteristics, south and east have old factory worker housing, which is still in a state of good repair. Contains many major west-side roads and the west side is bordered by a freeway.</td>
</tr>
<tr>
<td>Adam 4</td>
<td>East contains an old industrial area and is bordered by the Grand River. Factory worker housing throughout.</td>
</tr>
<tr>
<td>Adam 5</td>
<td>Old industrial area along the Grand River in the east. Began gentrification of the area in the 1980s—added Gerald R. Ford presidential museum and river front park.</td>
</tr>
<tr>
<td>Adam 6</td>
<td>South part is very industrial, northeast contains factory worker housing, west has a large part and zoo with an active neighborhood association. Borders the Grand river along south and east.</td>
</tr>
<tr>
<td>Baker 1</td>
<td>Housing is mixed between high quality and affordable suburban housing built during the 1940s and 1960s. Some open space still exists in this area. The west edge is bordered by the Grand River.</td>
</tr>
<tr>
<td>Baker 2</td>
<td>Lots of open space to the east. Contains a small lake with upscale apartments and housing surrounding it. Very suburban.</td>
</tr>
<tr>
<td>Baker 3</td>
<td>Borders the Grand River on the west. Some manufacturing. Most aging homes are small but well built.</td>
</tr>
<tr>
<td>Baker 4</td>
<td>Contains aging low-quality housing and a high number of rentals. Football field and track draw many people into the area for high school sporting events. Small retail areas are in this district.</td>
</tr>
<tr>
<td>Baker 5</td>
<td>Bordered by the Grand River on the west. Moving into the later stages of urban development. Mostly populated by poor white people. Small commercial area in southern section. Freeway cuts</td>
</tr>
</tbody>
</table>
through the southern section.

Baker 6  The north half is very similar to Baker 5—many old deteriorating houses. The southern half contains older housing, some of which is dilapidated. Many major thoroughfares run through it, including the freeway and Michigan Street. Retail areas on major streets.

Baker 7  Borders transitional and retail area on the south. Housing is in good repair and becomes more suburban and expensive in the east. Open space is prevalent. Inhabited by the white middle class.

Baker 8  Downtown business and government district—contains little or no housing. Downtown retail areas saw decay and exodus of business during the 1980s. Bordered by the Grand River on the west side.

Baker 9  North section is full of old dilapidated homes that have been divided into apartments, but the south section is part of the gentrified Heritage Hill. Contains a large population of college students and young professionals.

Charley 1  Traditional immigrant area. Industrial along the river, several railroads run through it. Saw a population exodus in the 1980s, but is populated by Hispanic immigrants.

Charley 2  Skid Row—home of prostitution, single room occupancy hotels, and homeless. Gentrification of the areas is currently happening, but was not underway during the time frame of this study.

Charley 3  Gentrified area—Heritage Hill.

Charley 4  Contains many old stately homes that are in a state of disrepair. Conditions get worse as you go south. Railroads in the southwest corner. Mostly occupied by the urban underclass.

Charley 5  Urban underclass area in the south. The gentrification of the Heritage Hill neighborhood is spilling into the north section of this district. This area is very transitional.

Charley 6  Contains Heritage Hill and Eastown neighborhoods, which both have very strong neighborhood associations. Pockets of deteriorated and poor conditions mixed with pockets of gentrified areas. Contains a commercial area that draws many people from outside the neighborhood. Gang activity is prevalent along Wealthy street, a southern thoroughfare.

Charley 7  Industrial on the west side with many railroads running through it. Urban underclass area.
Charley 8  Urban underclass area.
Charley 9  West side contains urban underclass but gradually becomes a well-kept area. Borders East Grand Rapids, a very wealthy suburb.
David 1  Old industrial area—urban underclass.
David 2  Urban underclass.
David 3  West side contains urban underclass, but gradually transitions to middle class well kept housing in the east.
David 4  Middle class area with many small but well-kept houses.
David 5  Middle class. Becomes more suburban as you move eastward.
David 6  Urban middle class, becomes more suburban as you move eastward.
David 7  Suburban area contains Calvin College a large private college. Most student housing is contained on campus. Contains many upscale apartment complexes and large retail areas.
David 8  Suburban.
BIBLIOGRAPHY


