Links between rural development and crime

by

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ABSTRACT: Over the past few years, metropolitan crime has fallen in the United States while nonmetropolitan crime has continued to increase. This paper examines nonmetropolitan crime during the period 1977-1995, and describes its characteristics and spatial dynamics. The paper outlines eight categories of causal factors and investigates their role in nonmetropolitan county crime variation using regression analysis. This analysis shows that many variables commonly identified with "rural development" are associated with crime. The paper concludes by recommending that planners anticipate the social effects of popular rural revitalization strategies, such as tourism, retirement communities, highways, and service sector development.

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1.0 INTRODUCTION

News headlines have reported large decreases in national and metropolitan crime rates during the 1990s that have largely offset rises that occurred during the 1980s. "Property Crimes Plunging in U.S." reads one headline [New York Times 1997]. "U.S. Crime Drops for 5th Year in Row" proclaims another [Excite 1997]. It may therefore seem odd that the same has not occurred for nonmetropolitan areas during the same time period (Donnermeyer 1994). Crime has been going up, not down, and the phenomenon has grown both regionally more widespread and affects an increasing range of crimes.

This climb in nonmetropolitan crime has received far less scrutiny than metropolitan changes in the newsmedia and academia (Donnermeyer 1994). Such inattention may stem partly from the fact that nonmetropolitan crime rates still remain far below metropolitan rates, have increased little in absolute magnitude, and have not advanced enough to dampen the excitement surrounding the precipitous decline in metropolitan crime. However, for some rural communities, the changes have been large and are a cause for concern. Crime may be regarded as an accepted way of life and cost of doing business in many metropolitan communities, but in rural ones it is an important quality-of-life measure that is perceived to lie at the heart of tourism and industrial recruitment success. Therefore, crime increases may be viewed not only as an alarming social trend and a threat to public order but also as a challenge to the economic potential of many underdeveloped rural areas.

Unfortunately, the search for causes of the nonmetropolitan turnabout has not revealed conclusive results. The favored explanation is "convergence." That is to say, nonmetropolitan areas are becoming more like metropolitan areas with respect to the

demographic, economic, and social characteristics that are thought to underlie crime. Nonmetropolitan regions are hosting more inmigrants, younger and more ethnically diverse. Many have become bedroom communities for metropolitan areas and may soon become absorbed into the metropolitan nexus themselves. Many nonmetropolitan areas are also experiencing economic growth, which may be associated with social dislocations that loosen inhibitions to commit crime. Finally, nonmetropolitan regions are becoming connected with metropolitan regions in different ways, and these new conduits permit the transport of bad information and contraband as well as good things.

But while this line of argument may seem inviting, it is incomplete because crime rate differences between nonmetropolitan and metropolitan areas actually widened during much of the 1980s when many social indicators were converging (Fischer 1990; Weishett 1994). Moreover, some indicators are narrowing with metropolitan areas in ways that should decrease crime rates and others continue to diverge in ways that should depress rural crime rates. Nonmetropolitan regions continue to experience a net-outmigration of young people and the remaining population is aging. Moreover, inmigration, while growing, is still relatively lower than for metropolitan areas (Johnson and Beale 1995). Finally, labor markets have improved in many nonmetropolitan areas and new regional employment opportunities should reduce rural crime rates. Therefore, a more comprehensive explanation for recent nonmetropolitan crime is needed.

This paper examines the literature with the goal of identifying socioeconomic determinants of crime that are pertinent in a nonmetropolitan context. In doing this, an interdisciplinary orientation is adopted. Explanations from economics, sociology, and regional science form the basis for several distinctive categories of explanatory variables

that help explain nonmetropolitan crime variation. These categories serve not only to explain but suggest several concrete policies that may mitigate nonmetropolitan crime. Most previous socioeconomic research has focused solely on policy ramifications in the areas of law enforcement and income support, but regional scientists are more concerned with economic growth, migration, industrial targeting, and infrastructure

The paper is arranged as follows. The first section describes recent crime trends in the U.S. and disaggregates spatially the changes in criminal offenses and arrests. The second section describes three fundamental social science perspectives, economic, sociological, and regional science, useful in modelling regional crime variation. The third section provides a review of regional crime literature and introduces a model of nonmetropolitan county crime variation. The fourth section discusses methodology and data. The fifth section presents the empirical results and analysis. The paper concludes with a summary and policy discussion.

2.0 CHARACTERISTICS OF NONMETROPOLITAN CRIME

Data obtained from the Federal Bureau of Investigation's *Uniform Crime Reports* (U.S. Department of Justice 1997) are used here to present a picture of the U.S. crime landscape. Figure 1. shows metropolitan and nonmetropolitan crime rates during the period 1977-1995. Crime rates are computed on the basis of reported offenses in several categories of serious crimes (i.e., “index crimes”), including murder, rape, robbery, aggravated assault, burglary, larceny-theft, arson, and motor vehicle theft. The figure shows that metropolitan crime rates have been decreasing since 1991, but

nonmetropolitan rates have been on the upswing since 1984, only briefly interrupted in 1992-93.

Crime rates in the U.S. have a significant spatial component. Relative to the national average, the West and South stand out as high crime areas while the Appalachian region and farm-belt states have low crime rates. Spatial variation in crime can be explored also using the U. S. Department of Agriculture's urban-rural continuum classification system (U.S. Department of Agriculture 1995). The continuum categorizes U.S. counties based on their proximity to metropolitan areas and degree of internal urbanization. Ten categories are represented, ranging from central counties of large metropolitan areas to remote, totally rural counties.[1] Figure 2. shows the crime rate by continuum category for 1995. It follows a fairly typical urbanization gradient, with higher crime rates exhibited in more urbanized metropolitan areas and lower rates evident as one moves to the rural periphery.

Data obtained from *Uniform Crime Reports* on the number of arrests provide a slightly different picture than the number of offenses. Offenses include arrests and reported crimes in instances where nobody was apprehended. Since arrests are, to a certain extent, the product of local law enforcement priorities, intensity, and effectiveness, they are less likely to reliably measure crime activity than reported offenses. On the other hand, arrests are available for a much wider range of less serious (or "non-index" crimes) crimes. Figure 3. shows that the arrest rate increased in both metropolitan and nonmetropolitan counties during the period 1987-95 and that nonmetropolitan counties are rapidly closing the gap with metropolitan counties. A comparison of figures 1. and 3. invites the question of why the metropolitan arrest rate

continued to grow throughout the 1990s (when metropolitan crime rates were dropping) and why the nonmetropolitan rate is converging so rapidly. The answer is that non-index arrests (e.g., drug sales and possession) fueled the metropolitan arrest increase, but that such arrests grew even more rapidly in nonmetropolitan counties during the period.

The arrest rate has a typical spatial pattern, with more central, urbanized counties having higher levels than more remote nonmetropolitan counties. However, whereas crime rates are always highest in metropolitan areas for individual offense categories, there are crimes for which the arrest rate is highest in nonmetropolitan areas. These crimes include ones that have been identified in the literature as having a "rural" character, such as offenses against family and children, fraud, manslaughter, and driving under the influence (Warner 1982). But, calculations using the latest figures indicate that this list has expanded to include forgery, marijuana sale and possession, synthetic drugs sale and possession, burglary, arson, and embezzlement.

In sum, nonmetropolitan crime is generally lower than metropolitan crime but it has risen over the past few years. The obvious question to ask then is why has it risen? The crime trends described here are consistent with any number of hypotheses. Could more effective metropolitan law enforcement have pushed offenders into rural counties? Are rural law enforcement authorities becoming more adept at detecting crime? Have transportation improvements increased criminal accessibility to rural areas? Have social and economic conditions underlying crime been mitigated in metropolitan areas, while they have deteriorated in nonmetropolitan areas? Or, is something else responsible?

3.0 GEOGRAPHICAL MODELS OF CRIME

For economists, the main starting point for any investigation of crime, particularly economically motivated crime, is Becker's crime model, which represents crime as an unconventional labor market activity (Becker 1968). It portrays the criminal as a rational agent who chooses the optimal amount of crime to commit by equating the marginal benefits of committing a crime to the marginal costs of being caught. The benefits of a crime would include the market value of the expected loot and the costs would be the expected opportunity costs of being apprehended and incarcerated. The expected cost can be represented as the expected value of a compound event, ascertained by multiplying the probability of being apprehended by the probability of being convicted times the length of sentence imposed multiplied by the opportunity cost of serving time. Unfortunately, the Becker model is difficult to validate because the appropriate microdata on individuals is unavailable. Therefore, to test the model, researchers have had to rely on geographical data, aggregated at the level of city, county, or state, and to substitute regional proxy variables to represent the individual rewards and risks of committing crime.

While economics emphasizes indicators of economic activity and law enforcement deterrence, sociologists highlight the role of stratification and socialization in regional crime determination. In stratification theories, the population is segmented into various groups and classes on the basis of some distinguishable characteristic (e.g., social class, ethnicity). Stratification leads to crime because various groups face different opportunity structures and respond differently to prevailing rules and incentives. Socialization theories emphasize the importance of factors such as family, peer groups, educational experiences, and community. Criminal activity is the product of inadequate

socialization processes fostered by poor social support structures. Such theories are easily amenable to testing using geographically aggregated data because they purport to explain group rather than individual-level behavior.

The main contribution of regional scientists and geographers has been to spatialize the economic model of crime. This goal has been accomplished by incorporating distance impediments, travel costs, and greater territorial unfamiliarity as components of the costs of committing crime (Hakim and Rengert 1981; Deutch et al. 1984; Hakim and Buck 1989). These costs help explain the declining crime gradient as one travels from the metropolitan core to suburban and more rural locations in the periphery. Crime has also been analyzed by taking into account spatial interaction and developing more comprehensive measures of regional crime propensities and opportunities (Hakim and Rengert 1981). Because unmeasurable spatial influences are likely to be important, regional scientists also recommend spatial econometric techniques to improve model estimation (Brown 1982; Sorenson et al. 1997).

4.0 LINKS BETWEEN NONMETROPOLITAN CRIME AND DEVELOPMENT

"Economic development" is a multifaceted concept that conveys improvements in the quality of life and life opportunities. The aim here is not to explore the issue of how to measure economic development but rather to identify a few important correlates of it that may be useful in explaining geographical variation in crime rates. For the rural development context, the following categories (several of which can be found in U.S. Department of Justice (1996)) are useful: (1) urbanization, (2) demographics, (3) residential mobility, (4) industry structure and types of enterprises, (5) economic

conditions, and (6) transportation system. That is to say, those rural or nonmetropolitan counties that are more "developed" will be distinctive from others with regard to these items. More "developed" rural counties will be more urbanized, diverse, service oriented, growing, possess good transportation infrastructure, and have mobile populations. In order to round out the model, two additional explanatory categories are added: (7) culture and climate, and (8) law enforcement. Each of these areas is explained in greater detail below.

Urbanization

Crime rates tend to be higher in urban and more densely settled areas than rural areas. Sociologists offer a number of explanations for this finding. One likely cause is the greater degree of anonymity and correspondingly lower lever of intimacy found in day-to-day contact. Freudenburg and Jones (1991) refer to this as the "density of acquaintanceship" and argue that when the population becomes larger, more heterogeneous, and more mobile, it is not as easy for residents to establish lasting interpersonal ties. This lower level of familiarity translates into higher crime detection costs and lower psychosocial costs incurred by the potential criminal when committing crimes. However, extremely low levels of population density (or high degrees of rurality) may stimulate illegal activity also. When residents become too widely dispersed, community integration may be more difficult (Howsen and Jarrell 1987; Jarrell and Howsen 1990) and neighbors are more likely to be perceived as strangers. In addition, it may become more difficult to observe acts of crime and apprehend the perpetrators (Jarrell and Howsen 1990; Hoch 1974).

Residential Mobility

The degree of regional residential mobility, manifested in commuting behavior, migration, and the presence of transient populations, is another potential cause of crime. In part, this pattern may reflect a lower "density of acquaintanceship" caused by the quickened pace of life. Neighbors will have fewer opportunities to form intimate relationships and psychosocial costs of crime may diminish. Moreover, it may become more difficult for residents to determine who is visiting the community for legitimate purposes, and residents commuting outside their county of residence will be less able to safeguard their homes and property. Rapidly growing areas such as "boomtowns" often experience a wave of inmigration which is disproportionately male, young, and of minority ethnic background, groups which exhibit a higher propensity to commit crime (Freudenberg and Jones 1991). Also, highways, retirement communities, and tourism developments may introduce new transient populations into rural areas that increase their exposure to crime (Donnermeyer 1994)

Industries and Enterprises

The industrial composition of the local economy may have some bearing on the incidence of crime. Regions with industries employing large numbers of unskilled workers, particularly the extractive industries, are often regarded to be at risk (Donnermeyer 1994). Two features of such regions invite such speculation. First, they tend to attract and cultivate employees with lower levels of education and fewer alternative opportunities. Second, their economies are more cyclical than those of

industrially more diversified regions, and, thus more likely to go through periods of bust and boom during which workers are alternately shed and recruited, contributing to worker mobility and poverty.

Crime rates may also be affected by the size of service and public service sectors (Jarrell and Howsen 1990; Arthur 1991). For instance, federal, military bases may depress regional crime rates (U.S. Department of Justice 1996). The existence of large numbers of regimented, law-abiding employees, added law enforcement capabilities brought to the region by the base, and the fact that justice is meted out by military courts rather than local law enforcement authorities in cases involving military offenders may help explain this relationship (Hoch 1974). Tertiary sectors, such as retail trade, wholesale trade, services, and finance, insurance, and real estate, may cause crime rates to rise. In part, this "relationship" may be attributed to measurement error. Unlike traditional industries in which the final goods are produced and exported to the consumer, service and trade industries require the consumer to visit the locale; this causes the actual daily population to diverge from the residential population and makes crime rates (which are standardized using resident population) less accurate indicators of crime incidence. However, actual crime effects could result in some instances. For example, the expansion of "shopping facilities" may contribute to growing numbers of commuters, shoppers, and transient elements who put a strain on local law enforcement and make it easier to commit crimes (Arthur 1991). In addition, the goods available in commercial areas make inviting targets for theft (Hakim et al. 1978). The same result may occur with tourism development (Howsen and Jarrell 1987; McPheters and Stronge 1974; Fujii and

Mak 1979), the only difference being that visitors are more likely to originate non-locally.

Two enterprises, gambling casinos and prisons, are often mentioned in discussions about the upsurge in rural crime (Fitchen 1991; Shichor 1992; Rephann et al. 1997). Casinos are probably regarded as more detrimental, in part because they are sometimes connected in the public's mind with the anarchic Wild West and criminal syndicates. Casinos purportedly cause crime by creating compulsive gamblers out of residents, who then victimize others in the community, and by attracting offenders from outside the community (Kindt 1994). The counterargument is that tourism, not casino gambling per se, causes crime. Indeed, casino gamblers are not much different from other types of tourists in terms of their socioeconomic characteristics (Rephann et al. 1997), and once adjustments are made for the volume of tourists visiting an area with a casino, regional crime rates appear quite ordinary (Stowoski 1996). Second, many of the assertions made about the connection between casinos and crime are derived from the Atlantic City experience (Friedman et al. 1989; Hakim and Buck 1989; Buck et al. 1991) or a handful of other urban gambling districts (Ryan et al. 1990). However, the regional context and unique features of such development make it untenable to extrapolate the results to casino development occurring in nonmetropolitan counties.

Economic Conditions

If opportunities exist to make an adequate living in the legal sector, then the economic model of crime predicts that residents are less likely to commit crimes. Economic conditions represent returns available in the legal sector and may be measured

by regional indicators of well-being, growth, and public support such as median household income, per capita income, unemployment rate, employment growth rate, poverty rate, and public assistance levels. For instance, as the unemployment rate increases and residential incomes decrease, the opportunity costs for committing crime are decreased as well.

Improved “economic conditions” need not always reduce crime though. If disparities within a region remain large, additional wealth and income may encourage members of less privileged groups to commit more crimes against their more affluent neighbors. Indeed, the high levels of poverty found in cities combined with proximity to great wealth is one explanation why crime is more concentrated in metropolitan areas (Sullivan 1990). Second, economic growth is helpful if it lowers unemployment and lessens social inequality. However, if growth is rapid enough to cause massive inmigration instead, it may increase the presence of transient elements, weaken local community bonds and make surveillance more difficult (Hemley and McPheters 1974).

Public assistance is designed to dampen the harmful effects of labor market slumps and alleviate social inequalities. It should act as both a "carrot" and "stick" to decrease crime rates. On the one hand, as Jarrell and Howsen (1990) argue, when public assistance is greater "individuals have less need to engage in criminal activity in order to meet their basic needs." On the other hand, individuals "risk losing benefits if convicted." However, reliance on public assistance also may have a stimulative effect on crime if instead it creates a "culture of poverty," which aggravates family dissolution, or alternatively if it simply "provides more leisure time to engage in illegal activities" (Jarrell and Howsen 1990).

Transportation System

Accessibility is a factor in explaining crime variation within metropolitan areas (Buck et al. 1991; Friedman et al. 1989). Though transportation networks are less extensive in rural areas, they may be important contributors there as well. Viewed as a strictly locational matter, highway improvements decrease the costs of shipping stolen property and increase the opportunities for eluding law enforcement authorities. These changes will increase the rate of return for nonresident criminals committing crimes in the region. In addition, certain crimes, such as driving under the influence, drug trafficking, and auto theft, might increase, not because more local residents are participating or being victimized, but because highways serve as corridors through which contraband and vice are conveyed. They will often be detected and apprehended in rural areas, even if the freight does not originate or terminate in the county where it is apprehended. However, Weisheit et al. (1994) warn that drug trafficking facilitated by highway improvements may create a beachhead for other criminal activities. They argue that drug trafficking is the "driving force" behind the spread of gangs to rural areas. Highways may also increase resident mobility and penetration by transient populations, thereby, as Jarrell and Howsen (1990) argue, increasing the density of strangers in an area and contributing to higher crime detection costs.

Demographic Characteristics

Demographic characteristics are used chiefly to control for differences in opportunities faced by different population groups. When legal opportunities and

legitimate means for earning a livelihood are obstructed, members of these groups may find more lucrative returns in the illegal sector. Economic models of crime do not purport to explain this stratification, but take it as a given. Among the demographic variables that should be taken into account are race/ethnicity, age, and gender. Crime research shows that minority ethnic groups, males, and younger age cohorts are more likely to commit crimes than other demographic groups (Senna and Siegel 1993).

Culture and Climate

Cultural or climatic factors may influence regional crime rates. Greater religious intensity, family cohesiveness, and educational achievement may increase the psychic costs of committing crimes. Rural areas are regarded as being stronger in the former areas; while urban areas are comparatively better off in the latter. Within the U.S., sectional cultural factors may contribute to crime variation as well (Nisbett 1993). The West and Southern U.S. are known as regions where rugged individualism has persisted to a greater extent than the North and East, and where gun ownership is more common. Moreover, they have experienced rapid social, economic, and demographic changes during the past few decades. Climatic differences may also be important. One might anticipate higher crime rates in, say, sub-tropical regions because the warm weather facilitates year-round outdoor criminal activity, windows and doors are less likely to be locked, and individuals may be more irritable because of physical discomfort (Hoch 1974).

Law Enforcement

The principal purpose of much crime research in economics has been to determine the relative strength of various law enforcement strategies on regional crime rates. Among the variables of interest are: (1) "the effective strength (aggressiveness) of law enforcement agencies," (2) "administrative and investigative emphases of law enforcement," (3) "policies of other components of the criminal justice system (i.e., prosecurial, judicial, correctional, and probational)," (4) "citizens attitudes toward crime," and (5) "crime reporting practices of the citizenry" (U.S. Department of Justice 1996). Economic research seems to indicate that increases in the likelihood of arrest and punishment is more likely to deter criminal activity than longer or more severe sentencing (Sullivan 1990).

Rural areas have both strengths and weaknesses in law enforcement. First, because of the higher "density of acquaintanceship," rural neighbors are more likely to detect the presence of strangers, to report suspicious activity, and to identify stolen property. Second, rural areas exhibit a much higher per capita ownership of firearms and are may be more predisposed toward "vigilante justice," which increases the risk and costs of crime. Third, fewer rural residents have property insurance. Therefore, they are less likely to be affected by the "moral hazard" problem (Arthur 1991). On the other hand, the police, investigation, and court system in rural areas may be less developed than urban metropolitan areas. Modern policing procedures and new technologies take time to diffuse to rural communities, and, consequently, law enforcement may be less effective in deterring crime.

5.0 METHODOLOGY AND DATA

Offense and arrest rates computed from the *Uniform Crime Report* (U.S. Department of Justice 1997) are the dependent variables. They are obtained by dividing county offenses and arrests by the number of county residents and multiplying by 100,000. Data are not available for some nonmetropolitan counties because of reporting and conversion difficulties. In addition, for some counties, computations are made on the basis of a relatively small proportion of the county jurisdictions reporting. In these instances, the rates may not be representative. Other limitations of the *Uniform Crime Report* data are discussed in Carter et al. (1982) and Senna and Siegel (1993).

The data contain reported offenses for the following index crimes: murder, rape, robbery, aggravated assault, burglary, larceny, auto theft, and arson (U.S. Department of Justice 1996). Arrests are divided into index plus numerous non-index crime categories, including forgery and counterfeiting, fraud, embezzlement, buying, receiving and possessing stolen property, vandalism, weapons violations, prostitution and commercialized vice, sex offenses, drug sales and manufacture, drug possession, illegal gambling, offenses against family and children, driving under the influence (DUI), liquor law violations, public drunkenness, disorderly conduct, vagrancy, suspicion, curfew violation and loitering, and run-aways (U.S. Department of Justice 1996). Offense and arrest rates in 1995 are the dependent variables for the subsequent analysis.

Because this paper is concerned with rural areas, only nonmetropolitan counties are used in the empirical analysis. There were over 2,300 nonmetropolitan U.S. counties in 1993, but complete data were available for only 1,706 counties. Regression analysis is used to investigate the relationships between the dependent variables described above

and various explanatory variables discussed in the previous section. These independent variables are listed and defined in Appendix A.

6.0 EMPIRICAL RESULTS AND ANALYSIS

Column A of Table 1. shows the results of an ordinary least squares regression for the crime rate in 1995. The model has an intermediate level of explanatory power, with an adjusted R^2 of .44. The model is not seriously affected by heteroscedacity as revealed by White's test or multicollinearity as evidenced by pairwise correlations and values of the condition index for the design matrix. In addition, various specifications were tested using stepwise regression and subsets of the explanatory variables. Most coefficient signs were robust to various re-specifications. Column B shows the results for a stepwise regression, with the criterion that each selection variable be admitted if its two-tailed significance level is less than .15.

Most of the statistically significant results are in accord with the literature review. Degree of county urbanization, as measured by the urban-rural continuum dummy variables, appears to have a strong effect on county crime. Each of the continuum variables is statistically significant. Being relatively urbanized and adjacent to a metropolitan county (**AURB20**), holding all else constant, adds approximately 1,000 crimes to the crime rate. Being an adjacent, but totally rural county (**ARUR**), subtracts 275 crimes. The default category is nonadjacent and rural (**NARUR**), which, of course, is not included in the regression. Metropolitan proximity does not appear to have a dominant effect on rural crime, since non-adjacent counties (i.e., **NAURB20** and **NARUR**) often have higher crime rates than adjacent counties (**AURB20** and **ARUR**).

Moreover, residential density (**PDN**) is not statistically significant. Therefore, the level of internal urbanization appears to matter most.

The variables selected to represent residential mobility suggest that a more mobile population will experience higher crime rates. Counties which have a low percentage of owner-occupied housing (**OWNER**), perhaps indicative of less local rootedness and higher rates of in and outmigration, have higher crime rates. The mean percentage of owner-occupied housing in nonmetropolitan counties is seventy-four, but a one percent drop would add approximately seventy-five index crimes. Being a retirement destination county (**RETCD**) will increase the crime rate by 447. It should be noted that retirement counties experience a relatively high rate of inmigration from younger ages as well; so this variable captures the effect of high levels of overall inmigration to some extent. Finally, counties with a large proportion of outcommuting residents (**COMCD**) do not have higher crime rates. This result is at odds with the hypothesis that safeguarding property is more difficult when residents work elsewhere.

Results for "industries and enterprises" suggest that service sectors rather than traditional sectors aggravate crime. A large mining sector (**MINCD**) or manufacturing (**MFGCD**) is not associated with higher crime; a larger service and trade sector (**SVCCD**) and amusements and recreation services sector (**PREC**) are. Indeed, counties with large service and trade sectors could expect the crime rate to jump by 249. The recreation and amusements sector contributes, on average, less than one percent to nonmetropolitan county earnings, but expanding the sector by an additional one percentage point in size would augment the crime rate by almost 495. If, as these results suggest, traditional economic sectors are not the problem, perhaps it occurs because they

have more settled trade and spatial interaction patterns, while regions which specialize in trade and services introduce a level and type of interaction that boosts local crime rates. These effects, however, are not present for all service (and public service) industries. A large federal military presence (**PMIL**), as expected, has a large depressing effect on crime, and neither casinos (**CASINO**) nor prisons (**PRISON**) are statistically significant. Therefore, the anxiety some nonmetropolitan residents feel when such facilities locate in their communities may not be justified.

The effect of economic conditions is varied. The coefficient for per capita income (**PCI95**) is positive and statistically significant, as expected, perhaps because it represents the attractiveness of the county as a target for crime. However, poverty (**POVERTY**), an indicator of deprivation and inequality, does not have the anticipated positive effect. A high level of reliance on transfer payments (**TSFCD**) does not stimulate crime, perhaps, because transfer payments is such a heterogeneous income category (combining public assistance receipts with other sources of transfers such as retirement benefits and disability) or because an ambiguous relationship between transfer payments and crime can be expected for reasons outlined in section four

Other results suggest that economic booms and busts increase crime. Total employment growth (**GEMP**) is positively associated with the crime rate and the unemployment rate (**UNEMP**) is too. Two mechanisms may be at work here. A rapidly growing economy may stimulate crime by creating job vacancies that attract inmigrants from high-risk categories. High unemployment, on the other hand, may indicate greater social inequality and fewer legal sector opportunities. Taken together, the results suggest that communities should walk a tightrope between the two extremes of excessive growth

(and the resulting inmigration) and decline (and the resulting worker displacement) in order to avoid crime spurts.

The remaining results are mixed. Interstate highways are associated with a higher rate of crime, as expected. Counties with high percentages of Black (**BLACK**), Hispanic (**HISPANIC**), and Native American (**INDIAN**) residents exhibit higher rates as do counties in the Western region of the U.S. (**WEST**). Counties with higher probabilities of arrest (**PARR**), perhaps because of more effective law enforcement procedures, have lower crime rates. Divorce (**DIVORCE**), which measures the role of cultural and institutional influences on crime, is not statistically significant. More importantly, however, the percentage of county residents in the young adult cohort (**AGE**) and measure of policing resources (**PPOL**) are statistically significant but have unexpected signs. Ironically, an aging population and more spending on law enforcement are credited with causing recent large drops in metropolitan crime (*New York Times* 1997), but the results here suggest that they have the opposite effect for nonmetropolitan areas. Perhaps, the **AGE** result is an anomaly unique to nonmetropolitan areas. The presence of larger youth cohorts in the population of rural areas may well represent economic vitality rather than a pool of potential criminal converts, since youth out-migration is one of the distinguishing features of non-metropolitan economic decline. The **PPOL** result may, in part, be an econometric phenomenon. In other crime studies, **PPOL** has been found to be jointly determining of regional crime and determined by regional crime (Jarrell and Howsen 1990). Alternatively, it may imply that increased law enforcement manpower is more effective in improving crime detection than it is in preventing crime.

Column C describes the R^2 that results from fitting linear equations to the corresponding blocks of explanatory variables that are found to be statistically significant from the stepwise regression. It shows that the urban-rural continuum dummy variables have the largest explanatory power of any single block of explanatory variables (.17). Two residential mobility dummies (**OWNER** and **RETCD**) are able to capture nearly as much variation (.16), followed by "economic conditions," (.11) and "industry and enterprises" (.10). These findings reinforce the impression that neglected geographical factors play an important role in explaining non-metropolitan county crime variation. Although economic conditions, demographic makeup, and law enforcement have received the most attention in the economics literature, they are by themselves insufficient.

The complete model in Column A was calibrated again for each of the individual offense and arrest categories described earlier. Appendix B. reports parameter estimates and significance test results for each equation. Though it is impossible to describe each estimate, several general patterns deserve further comment. First, the socioeconomic variables used here appear to be more appropriate for property than non-property crimes. Appendix B. shows the explanatory power as measured by R^2 for each of the arrest rate equations. The model performs best for property crimes such as larceny and burglary. For crimes such as prostitution, vagrancy, and domestic abuse, however, the model has far less explanatory power. This finding is consistent with previous studies that have adopted an economic approach to explaining crime (Arthur 1991). This approach is limited in the sense that it assumes that the criminal is a rational agent who weighs the costs and benefits of committing an illegal act in a premeditative fashion. This is an

accurate assumption for most property crimes, but some crimes (such as crimes of passion and ones involving violence) are often impulsive or irrational (Sullivan 1990). Second, the model consistently has more explanatory power for arrests than offenses. This outcome was not expected, in part because offenses are a much better measure of the number of crimes actually committed. Perhaps, this finding suggests that the efficacy (or arbitrariness) of policing authorities (as reflected in relative frequency of arrest) is more sensitive to the same socioeconomic variables than crime is. Third, urbanization, mobility, demographic, and culture/climate explanatory variables are more often statistically significant than variables in other categories, suggesting that regional economic factors play a lesser role in regional crime determination at this more disaggregated level. Fourth, although some variables are not statistically significant for the aggregate crime rate equation, they sometimes are statistically significant for individual offenses or arrests. For instance, manufacturing counties experience more arrests for family offenses and disorderly conduct. Therefore, regressions using aggregate crime statistics may conceal socioeconomic influences that are important for particular crimes. Fifth, two variables (**PMIL** and **PRISON)** consistently give different signed parameter estimates for the offense and arrest equations for the same crimes. The statistically significant parameter estimates are negative for the offense equations, but generally positive for arrest equations. These results suggest that prisons and military bases may have a positive effect on the efficacy of local law enforcement, resulting in higher rates of arrest, which possibly deters crime. Such endogeneity complicates the task of identifying crime impacts.

The disaggregated results of Appendix B. provide another way to analyze the crime effects of rural development strategies. For instance, a new casino may increase rape, burglary, and auto theft, and result in more fraud, illegal gambling, and disorderly conduct arrests. A new interstate highway may lead to more robberies, larcenies and auto thefts and result in more arrests for sale or possession of stolen property, weapons violations, sales and possession of illegal drugs, illegal gambling, driving under the influence, public drunkenness, curfew violations and loitering, and run-aways. Tourism and retirement counties may experience more crimes in most categories. These results suggest that some popular rural economic development strategies could have the unintended side-effect of making rural areas less secure.

7.0 SUMMARY AND CONCLUSIONS

During the past five years nonmetropolitan crime rates have been on the rise while metropolitan crime rates have decreased. The favored explanation for this phenomenon is that nonmetropolitan areas are finally "catching up" with metropolitan areas. They are increasingly being penetrated by infrastructure, migrants, lifestyles, and economic activity often associated with metropolitan areas. The results of regression analyses reported here suggest that there is some merit in this argument. Nonmetropolitan crime is, to a certain extent, a product of rural development processes which have led to increasing urbanization, more inmigration, economic growth, an expanding tertiary sector, improved transportation access, and greater diversity. As these indicators come to resemble those of metropolitan America, increased crime may be expected.

However, this transition may be a slow process, and might be reversed by planning at the local level. The results here suggest several areas that merit consideration in developing industrial targeting approaches to crime prevention. First, communities should be aware of the connection between rapid growth or decline and regional crime rates. Boom towns and plant-shut downs may exacerbate crime. Therefore, a cautious long-term, diversified, development strategy may produce better crime results than aggressive suiting of large companies. Second, the primary and secondary sectors are not associated with nonmetropolitan crime, perhaps due to the settled nature of their activities, but tertiary sectors are. Therefore, nonmetropolitan communities should be aware of the social costs involved in expanding the influence of service and trade industries in the economy. Third, population mobility may exacerbate regional crime rates. Therefore, economic development strategies which have been favorably received in rural communities, particularly tourism, retirement communities, and highway construction, may introduce new problems that should be assessed before proceeding.

Endnotes

[1] U.S. Department of Agriculture (1995). Definitions are as follows: (1) central counties of metropolitan areas with 1,000,000 or more residents (**CENT**); (2) counties in metropolitan areas with 250,000-999,999 residents (**MET1000**); (3) counties in metropolitan areas with fewer than 250,000 residents (**MET250**); (4) fringe counties of metropolitan areas with 1,000,000 or more residents (**FRINGE**); (5) nonmetropolitan counties, adjacent to a metropolitan county, with a total urban population of at least 20,000 (**AURB20**); (6) nonmetropolitan counties, not adjacent to a metro county, with a total urban population of at least 20,000 (**NAURB20**); (7) nonmetropolitan counties, adjacent to a metropolitan county, urban population 2,500-19,999 (**NAURB**); (8) nonmetropolitan counties, not adjacent to a metropolitan county, urban population 2,500-19,999 (**AURB**); (9) completely rural, adjacent to a metropolitan county (**ARUR**); and (10) completely rural, not adjacent to a metropolitan county (**NARUR**).

[2] U.S. Department of Commerce (1994).

[3] "Farming-dependent--Farming contributed a weighted annual average of 20 percent or more of total labor and proprietor income over the 3 years from 1987 to 1989. Mining-dependent--Mining contributed a weighted annual average of 15 percent or more of total labor and proprietor income over the 3 years from 1987 to 1989. Manufacturing-dependent--Manufacturing contributed a weighted annual average of 30 percent or more of total labor and proprietor income over the 3 years from 1987 to 1989. Government-dependent--Government contributed a weighted annual average of 25 percent or more of

total labor and proprietor income over the 3 years from 1987 to 1989. Services-dependent--Service activities (private and personal services, agricultural services, wholesale and retail trade, finance and insurance, transportation and public utilities) contributed a weighted annual average of 50 percent or more of total labor and proprietor income over the 3 years from 1987 to 1989. Retirement-destination--The population aged 60 years and over in 1990 increased by 15 percent or more during 1980-90 through inmovement of people. Commuting--Workers aged 16 years and over commuting to jobs outside their county of residence were 40 percent or more of all the county's workers in 1990. Transfers-dependent--Income from transfer payments (Federal, state, and local) contributed a weighted annual average of 25 percent or more of total personal income over the 3 years from 1987 to 1989," U.S. Department of Agriculture (1995).

[4] U.S. Department of Commerce (1997).

[5] *Casino Resort and Riverboat Fun Book Guide* (1994).

[6] American Correctional Association (1990).

[7] Department of Transportation (1990).

[8] U.S. Department of Commerce (1992).

[9] U.S. Department of Justice (1997). The probability of arrest equals the total number of arrests divided by the total number of reported offenses for index crimes.

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Figure 1. Crime Rate, 1977-95

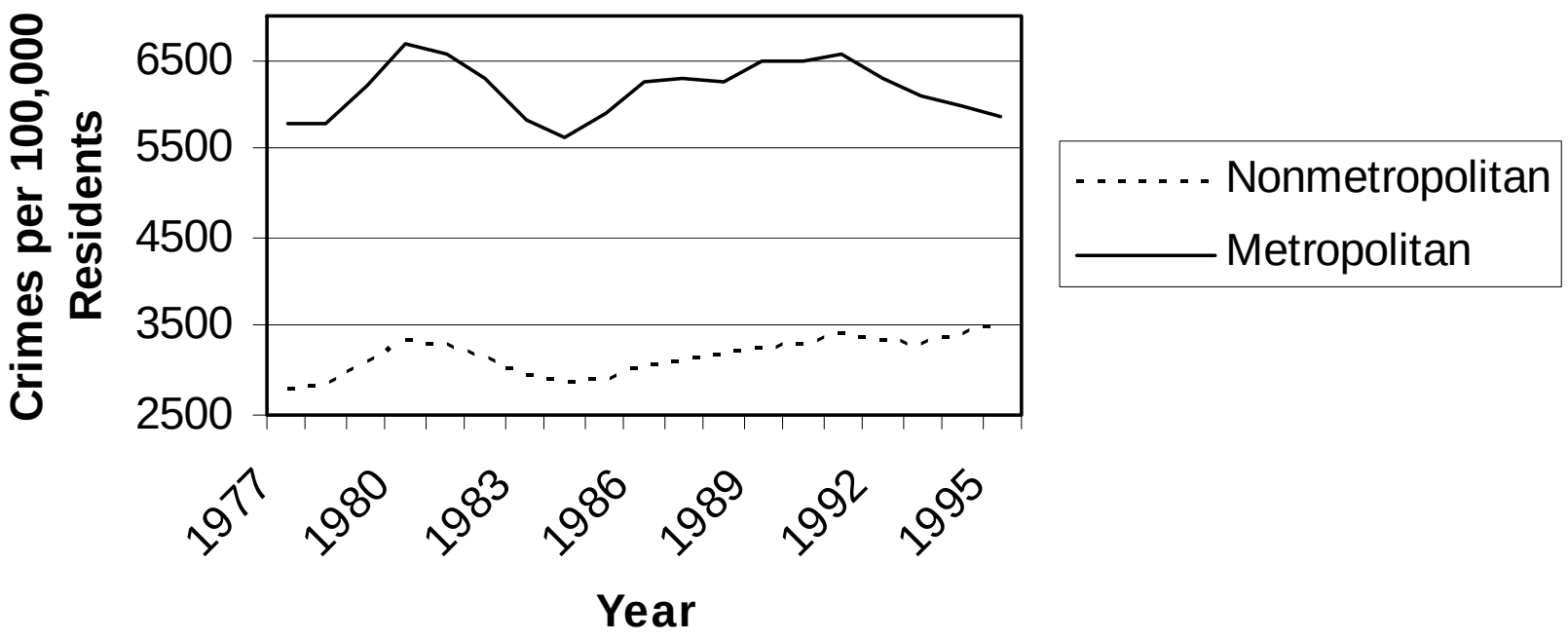

Figure 2. Crime Rate, 1995 by Urban-Rural Continuum Category

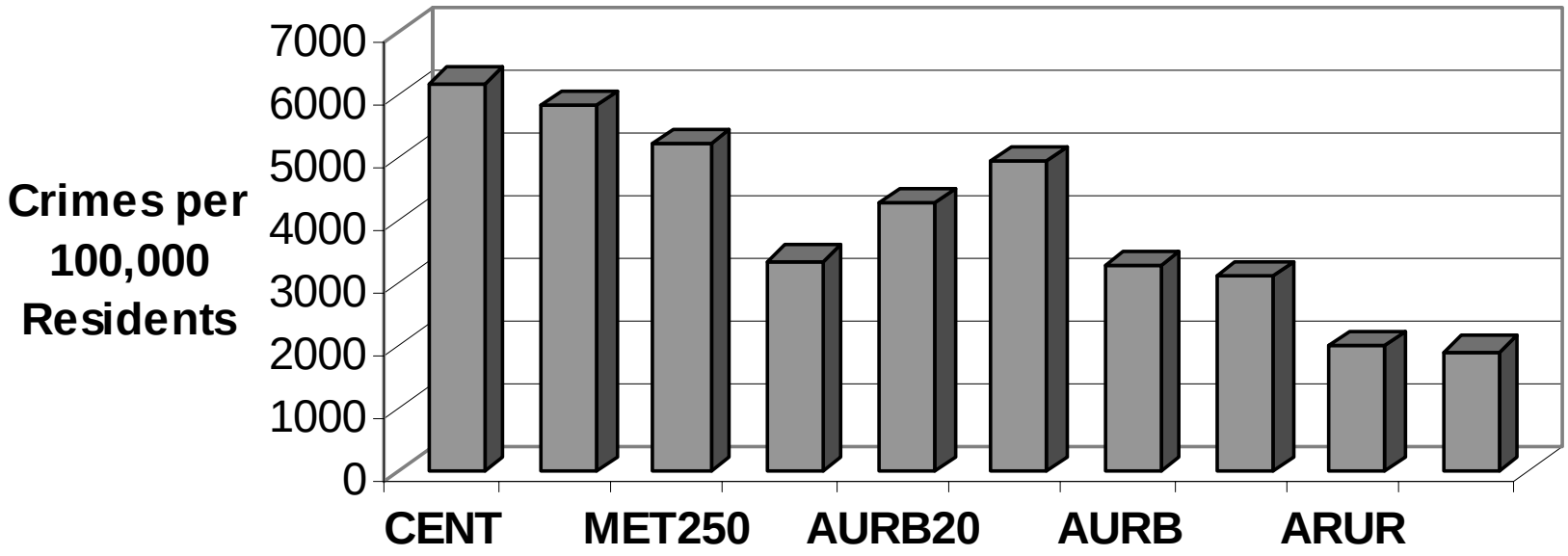

Figure 3. Arrest Rate 1987-95

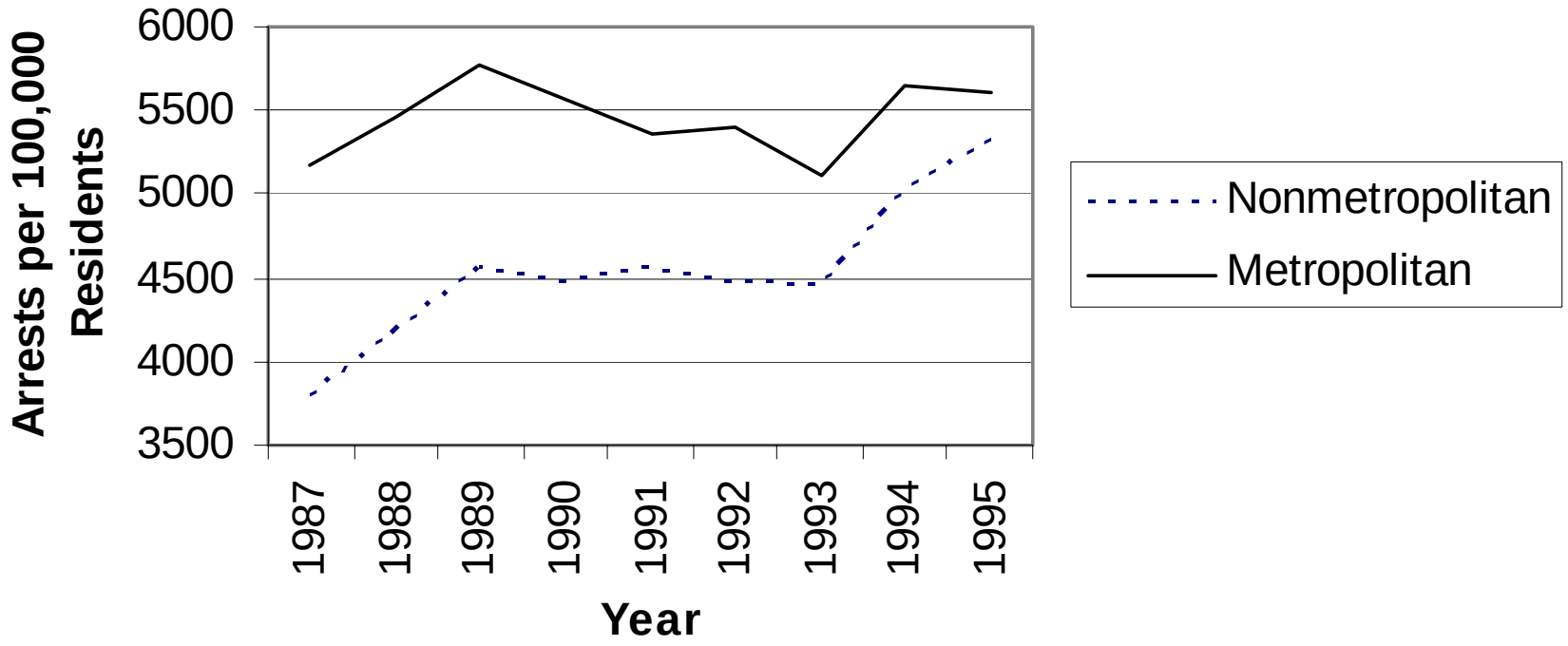

Table 1. Regression analysis results, crimes per 100,000 residents 1995.

	(A) COMPLETE MODEL		(B) STEPWISE SELECTION		(C)
	Parameter Estimate	**t Statistic**	**Parameter Estimate**	**t Statistic**	**BLOCK EXPLANATORY POWER (R^2)**
Intercept	5302	5.357***	4623	5.697***	
Urbanization					**.17**
AURB20	1030	5.431***	1221	6.850***	
NAURB20	1332	6.704***	1478	7.463***	
AURB	504	4.419***	566	5.047***	
NAURB	303	2.766***	385	3.502***	
ARUR	-275	-1.986**	-144	-1.078	
PDN	1	0.540			
Residential Mobility					**.16**
OWNER	-75	-9.778***	-69	-9.111***	
COMCD	-95	-0.884			
RETCD	447	3.716***	445	3.635***	
Industry and Enterprises					**.10**
FARCD	-445	-3.976***	-464	-4.587***	
MINCD	-227	-1.497	-271	-1.864*	
MFGCD	98	0.951			
GVTCD	132	1.001			
SVCCD	249	2.098**	173	1.592	
PREC	495	2.763***	502	2.793***	
PMIL	-63	-4.335***	-57	-3.840***	
CASINO	280	1.352			
PRISON	-131	-0.955			
Economic Conditions					**.11**
TSFCD	-120	-1.033			
POVERTY	-7	-0.722			
PCI95	45	2.738***	63	4.190***	
UNEMP	69	5.502***	70	5.826***	
GEMP	16	5.954***	15	5.583***	
Transportation System					**.02**
HIGHWAY	140	1.855*	140	1.802*	
Demographic					**.07**
BLACK	34	10.711***	34	12.184***	
HISPANIC	7	2.086**	6	1.828*	
INDIAN	17	12.292***	13	1.811*	
AGE	-30	-2.327**	-20	-1.569	
Culture/Climate					**.08**
WEST	791	6.289***	791	6.342***	
NORTH	-571	-3.285***	-636	-3.638***	
SOUTH	156	1.384			
DIVORCE	0	0.114			
HIGHSC	21	3.042***	18	3.274***	
Law Enforcement					**.05**
PARR	-502	-8.506***	-538	-8.750***	
PPOL	20	2.552**	11	1.516	
R^2		.44		.43	

***α=.01; **α=.05;*α=.10

Appendix A. Variable definitions.

Urbanization

AURB20[1]	Urban population of 20,000 or more, adjacent to metro area.
NAURB20[1]	Urban population of 20,000 or more, not adjacent to metro area.
AURB[1]	Urban population of 2,500-19,999, adjacent to a metro area.
NAURB[1]	Urban population of 2,500-19,999, not adjacent to metro area.
ARUR[1]	Completely rural, adjacent to a metropolitan area.
PDN[2]	Population density per square mile, 1990.

Residential Mobility

OWNER[2]	Percent of housing owner occupied, 1990.
COMCD[3]	Commuting county.
RETCD[3]	Retirement destination county.

Industry and Enterprises

MINCD[3]	Mining dependent county.
FARCD[3]	Farming dependent county.
MFGCD[3]	Manufacturing dependent county.
GVTCD[3]	Government dependent county.
SVCCD[3]	Service activities dependent county.
PREC[4]	Amusements & recreation services income as percentage of total personal income, 1995.
PMIL[4]	Percentage of total employment in federal, military sector, 1995.
CASINO[5]	Gambling casino present in county.
PRISON[6]	Maximum or medium security prison with at least 250 inmates present in county.

Economic Conditions

TSFCD[3]	Transfer payments dependent county.
POVERTY[2]	Poverty rate, 1989.
PCI95[4]	Per capita income in thousands of dollars, 1995.
UNEMP[2]	Unemployment rate, 1989.
GEMP[4]	Percentage growth of total employment, 1991-1995.

Transportation System

HIGHWAY[7]	Interstate highway present in county.

Demographic

BLACK[2]	Percent of total population Black, 1990.

INDIAN[2]	Percent of total population Native American, 1990.
HISPANIC[2]	Percent of total population Hispanic, 1990.
AGE[2]	Percent of total population 18-24 years of age, 1990.

Culture/Climate

WEST[4]	Western U.S.
NORTH[4]	North-central U.S.
SOUTH[4]	Southern U.S.
DIVORCE[8]	Divorces per 1,000 residents, 1984.
HIGHSC[2]	Percent of residents 25 years and older with at least a high school education, 1990.

Law Enforcement

PARR[9]	Probability of arrest, 1995.
PPOL[8]	Police officers per 1,000 residents, 1982.

Appendix B. Regression analysis results, offense and arrest rates, 1995.

	Urbanization						*Mobility*		
	AURB20	**NAURB20**	**AURB**	**NAURB**	**ARUR**	**PDN**	**OWNER**	**COMCD**	**RETCD**
Offenses									
Murder	0.72	0.80	1.02	0.91	0.04	0.01	-0.14***	1.28**	0.70
Rape	-0.78	3.08	-2.41	-4.40*	-7.28**	0.01	0.16	1.58	2.45
Robbery	28.02***	31.90***	9.70***	5.32**	-2.51	0.13***	-1.50***	-5.17**	9.66***
Assault	92.16**	103.52***	86.32***	26.90	-10.08	0.03	-3.84***	-16.84	42.79**
Burglary	174.40***	211.08***	70.62**	4.42	-64.52*	0.28	-10.43***	-33.10	218.98***
Larceny	668.67***	910.19***	296.84***	251.32***	-192.34*	-0.10	-55.11***	-50.62	121.50
Auto theft	66.39***	69.96***	40.93***	17.42*	-0.14	0.24**	-4.34***	7.76	49.47***
Arson	-0.74	0.62	1.30	-1.86	-3.24	0.06***	-1.00***	2.45	4.37
Arrests									
Murder	1.78***	1.62***	0.58***	0.31**	-0.13	0.01***	-0.04***	-0.13	0.52***
Rape	12.49***	13.47***	3.17***	1.34**	0.09	0.04***	0.02	-0.80	4.06***
Robbery	27.04***	24.20***	2.31*	-0.64	-1.99	0.13***	-0.50***	-3.98***	4.50***
Assault	141.69***	126.50***	37.18***	9.80	-2.66	0.37***	-1.11**	-18.21***	37.96***
Burglary	421.09***	377.61***	96.33***	35.50**	-5.43	1.12***	-3.14***	-37.28***	117.32***
Larceny	1300.13***	1353.30***	247.20***	128.47***	-2.92	2.84***	-9.85***	-81.37**	250.89***
Auto theft	111.31**	94.38***	24.02***	9.52**	1.51	0.30***	-1.17***	-3.75	24.05***
Arson	10.81***	10.51***	2.53***	1.37**	0.36	0.06***	-0.19***	-0.06	2.02***
Forgery	18.79***	21.80***	4.52***	2.85**	-1.09	0.15***	-0.42***	-5.30***	2.68
Fraud	52.93***	54.11***	7.25	11.84	-9.47	0.92***	-0.96	-35.62***	6.23
Embezzlement	1.64***	3.66***	0.16	0.31	-0.52	0.02***	-0.01	-0.22	0.59
Stolen property	26.11***	20.99***	4.85***	2.27	0.21	0.12***	-0.38***	-2.26	3.47**
Vandalism	84.64***	68.91***	16.82***	11.00***	2.44	0.16***	-0.18	-4.75	9.87***
Weapons violations	41.77***	32.20***	8.26***	3.84***	1.19	0.07***	-0.58***	-3.00**	6.28***
Prostitution	1.34***	0.36	-0.00	-0.11	-0.17	0.01***	-0.00	0.14	0.05
Sex offenses	17.10***	12.38***	3.24***	1.78**	0.84	0.07***	-0.11**	-0.62	3.38***
Drug sales	42.94***	26.20***	6.26***	6.13***	-1.12	0.20***	-0.29*	-3.60	7.27***
Drug possession	180.21***	143.19***	31.73***	15.44**	2.32	0.25***	-2.11***	-7.56	32.64***
Illegal Gambling	1.94***	1.64***	0.05	-0.06	-0.16	0.01**	-0.02	-0.38	-0.17
Family offenses	56.28***	31.62***	7.63**	4.15	1.04	0.22***	0.01	1.57	0.79
DUI	312.30***	285.26***	72.77***	47.30***	5.25	0.49***	-1.25	-29.38**	51.93***
Liquor law	194.86***	146.16***	45.50***	33.70***	15.89	0.05	1.02*	-17.29**	5.32
Drunkenness	133.84***	144.94***	51.89***	28.53**	7.07	0.44***	-3.07***	-21.80**	-17.28
Disorderly Conduct	238.93***	140.58***	34.26***	20.62**	-1.68	0.36***	-0.68	-9.19	14.45
Vagrancy	4.60***	3.97***	0.64*	0.37	0.20	-0.00	0.02	-0.24	1.10*
Suspicion	-2.91**	1.17	0.01	0.37	0.21	0.08***	0.00	-0.39	-1.46*
Curfew & loitering	50.92***	34.11***	7.97***	5.55***	2.59	-0.04*	-0.15	-0.29	-4.50*
Run-aways	66.09***	49.29***	12.97***	6.95**	3.12	0.09**	-0.24	-2.15	8.90**

* statistically significant at α=.10; ** statistically significant at α=.05; *** statistically significant at α=.01

Table 3. Continued.

	Industry and Enterprises								
	FARCD	**MINCD**	**MFGCD**	**GVTCD**	**SVCCD**	**PREC**	**PMIL**	**CASINO**	**PRISON**
Offenses									
Murder	-0.15	0.20	0.28	0.03	-0.10	-0.06	-0.03	-0.53	-0.25
Rape	-1.11	1.58	1.12	9.02***	1.54	-0.67	-0.53	21.20***	-1.85
Robbery	-4.43	-8.12**	3.82	0.34	-0.26	16.06***	-0.99***	3.70	0.18
Assault	-6.44	-2.44	26.26	41.96*	15.08	39.12	-4.40*	-3.53	-43.77*
Burglary	-78.12***	-159.23***	-19.67	58.82*	26.37	119.36**	-15.69***	119.50**	-41.40
Larceny	-340.67***	-45.40	79.29	-0.69	204.24**	286.57**	-39.22***	93.98	-14.95
Auto theft	-14.81	-13.76	6.66	22.73*	4.01	33.47**	-2.60*	45.30**	-28.92**
Arson	-7.74***	-1.36	-1.20	-4.14	-1.48	4.37	-0.55*	1.77	-0.84
Arrests									
Murder	-0.04	-0.21	0.07	-0.09	0.13	0.82***	0.01	-0.06	0.10
Rape	-1.04	-1.03	-0.31	0.09	-0.14	2.75**	-0.11	2.77**	2.49***
Robbery	0.10	-3.68**	-0.41	-1.40	0.72	7.41***	-0.20	-1.38	1.48
Assault	4.55	-5.81	2.21	-0.92	4.04	47.18***	-0.59	-7.63	9.88
Burglary	-16.88	-68.44***	-13.37	-18.85	19.04	96.18***	-3.52*	-8.60	38.45**
Larceny	-83.25**	-125.87**	12.50	-29.86	53.12	203.40***	-6.53	-52.13	95.04**
Auto theft	-3.32	-11.66**	-1.25	-3.40	5.25	27.28***	-0.37	1.09	3.24
Arson	-1.07*	-0.78	-0.61	-2.07***	-0.30	2.70***	-0.13	-0.38	1.12
Forgery	-1.79	-1.77	1.00	-2.49	2.49	6.22**	-0.20	0.72	4.20**
Fraud	-5.01	7.19	4.77	0.87	-8.88	25.22	0.57	30.91*	-14.95
Embezzlement	0.14	0.11	-0.48	0.55	0.07	1.48***	0.15***	0.90	0.18
Stolen property	0.43	-1.20	-0.20	-2.83*	0.54	1.56	0.18	0.49	7.63***
Vandalism	-0.66	-3.18	3.79	-0.85	5.87*	6.26	-0.57	4.71	9.99***
Weapons violations	-2.04	-5.53***	-0.17	-4.10**	2.21	9.21***	-0.16	-0.15	3.46**
Prostitution	0.05	0.03	-0.00	-0.33*	0.12	0.34	-0.03*	-0.06	0.59***
Sex offenses	-1.24	-0.89	0.31	-0.29	0.07	1.05	-0.03	1.61	3.54***
Drug sales	0.23	-1.37	0.12	-0.91	3.86	13.32***	0.63**	2.26	-2.15
Drug possession	-3.54	-21.55**	-5.57	-8.67	11.92	37.12***	-0.95	-3.53	22.16***
Illegal Gambling	0.32	0.12	-0.03	0.51	0.13	1.13**	-0.07*	3.20***	-0.43
Family offenses	-5.36	8.36*	8.61**	-3.44	-0.18	1.55	0.28	-12.53*	11.27**
DUI	-8.72	-27.71*	2.38	-13.38	20.63	47.57**	0.81	-20.55	21.38
Liquor law	-19.03**	-5.59	10.92	11.28	-5.78	17.14	-2.18*	11.98	-30.84***
Drunkenness	-21.85*	-26.30*	-10.09	-26.08*	-2.52	66.41***	-2.57*	-21.58	4.42
Disorderly Conduct	-14.13	-3.06	18.71**	-11.32	-2.93	26.89	-2.28*	42.63**	11.37
Vagrancy	-0.45	0.28	-0.61	-1.08*	-0.41	0.85	-0.06	-1.32	0.27
Suspicion	-0.78	-1.39	-0.46	-0.57	0.07	-1.25	0.39***	0.80	-1.29
Curfew & loitering	-5.65***	-2.57	2.89	-3.62	4.54**	5.08	-0.04	3.91	7.53***
Run-aways	-3.73	-3.45	2.96	-3.02	4.35	4.77	1.28***	-1.85	13.21***

* statistically significant at α=.10; ** statistically significant at α=.05; *** statistically significant at α=.01

Table 3. Continued.

	Economic Conditions					*Transportation System*	*Demographic Characteristics*			
	TSFCD	**POVERTY**	**PCI95**	**UNEMP**	**GEMP**	**HWY**	**BLACK**	**HISPANIC**	**INDIAN**	**AGE**
Offenses										
Murder	-0.73	0.17***	-0.11	-0.02	0.01	0.08	0.08***	-0.03*	0.04	-0.19***
Rape	-0.21	0.34	1.08***	2.16***	0.01	0.58	0.19***	-0.02	-0.08	0.31
Robbery	-6.91**	-0.17	-0.52	0.73**	0.11	4.11**	1.47***	0.10	0.28	-1.47***
Assault	15.42	-3.80**	-0.84	2.30	1.08**	6.93	7.19***	2.94***	4.69***	-5.09**
Burglary	-18.50	-2.10	-2.97	20.33***	2.50***	3.17	8.75***	3.22***	4.40**	-14.95***
Larceny	-92.23	-1.83	48.08***	38.76***	11.56***	107.48**	15.12***	1.55	7.15	-3.59
Auto theft	-17.93	0.45	0.72	4.78***	0.61**	17.56**	0.69**	-0.77**	0.71	-5.19***
Arson	-0.06	0.58***	0.03	0.48*	-0.01	1.05	-0.20***	-0.21***	0.13	-1.04***
Arrests										
Murder	-0.23	0.01	-0.04**	0.06***	0.01*	0.04	0.02***	-0.01	0.03***	-0.05***
Rape	-1.62**	0.12*	0.21**	0.53***	0.00	-0.02	0.05**	-0.02	0.09*	0.14*
Robbery	-1.82	-0.27**	-0.27	0.52***	0.05	0.64	0.46***	0.08*	0.35***	-0.57***
Assault	1.22	-2.07***	-0.55	3.13***	0.21	4.77	1.93***	0.72***	2.66***	-0.97
Burglary	-17.45	-2.27*	-1.27	8.93***	0.56	4.77	2.44***	0.74*	4.40***	-2.67
Larceny	-41.98	-0.19	11.41**	10.76***	1.51*	48.42**	3.55***	-0.74	7.85***	5.96
Auto theft	-5.05	-0.32	0.39	2.17***	0.11	7.63***	0.21*	-0.12	0.93***	-1.21**
Arson	0.38	0.00	-0.09	0.26***	-0.01	0.52	-0.01	-0.01	0.14***	-0.14*
Forgery	-4.65***	-0.12	-0.04	-0.08	0.19***	1.84	-0.15***	-0.30***	-0.11	0.12
Fraud	-11.34	-1.25	-0.58	0.24	0.27	8.59	-0.06	-1.32***	-0.51	1.380
Embezzlement	-0.80**	-0.01	0.02	0.12***	0.01	-0.20	0.03***	0.01	0.07***	-0.00
Stolen property	-1.72	-0.04	0.01	0.54***	-0.00	1.89*	-0.04	-0.13***	0.25**	0.03
Vandalism	-1.09	-0.47*	-0.11	0.18	-0.01	2.32	0.14	-0.01	0.42**	0.11
Weapons violations	-1.79	-0.40***	-0.15	0.92***	0.05	1.72*	0.07*	-0.10**	0.36***	-0.17
Prostitution	0.09	-0.01	0.02	0.01	-0.00	0.12	0.01***	0.01**	0.02**	0.00
Sex offenses	-1.13	-0.11	-0.09	0.11	0.00	0.36	-0.05**	-0.04	0.11**	0.06
Drug sales	-3.65	-0.12	0.04	0.81***	0.08	4.86***	0.04	-0.21**	0.05	0.06
Drug possession	-8.50	-1.66***	0.57	3.32***	0.37**	10.69**	0.28	0.57***	1.96***	0.00
Illegal Gambling	-0.53*	0.03	-0.03	0.05*	0.03***	0.53***	0.04***	-0.01	-0.04**	-0.08**
Family offenses	-1.67	0.30	0.16	-0.38	0.13	0.06	0.02	0.12	0.65***	-0.43
DUI	-19.35	-4.32***	2.76	5.08***	0.54*	24.11***	0.96***	0.37	8.82***	5.61***
Liquor law	-17.25*	0.57	3.18**	-0.92	0.08	4.43	-0.13	-0.31	2.21***	8.44***
Drunkenness	-6.16	1.46	-1.78	7.19***	0.34	13.72*	-2.55***	0.80**	1.97**	-1.30
Disorderly Conduct	-6.20	-0.21	0.49	-0.50	0.22	5.85	1.07***	0.27	2.59***	1.22
Vagrancy	-1.43**	0.04	0.02	0.05	-0.00	0.12	0.04**	0.00	0.31***	-0.01
Suspicion	-0.43	0.06	-0.10	-0.16	-0.01	-1.27***	-0.01	0.03	-0.00	-0.19**
Curfew & loitering	0.62	0.01	-0.32	-0.25	0.04	2.58*	-0.05	0.12	-0.07	-0.32
Run-aways	1.36	-0.21	-0.04	0.11	-0.00	7.18***	-0.26***	0.13	0.43**	-0.52

* statistically significant at α=.10; ** statistically significant at α=.05; *** statistically significant at α=.01

Table 3. Continued.

	Culture and Climate					*Law Enforcement*		*Intercept*	R^2
	WEST	**NORTH**	**SOUTH**	**DIVORCE**	**HIGHSC**	**PARR**	**PPOL**		
Offenses									
Murder	1.70**	0.51	2.31***	0.00	-0.04	-0.06	-0.06	15.67***	0.14
Rape	1.33	-11.53***	-3.36	0.01	0.45***	-1.72	-0.06	-57.84**	0.10
Robbery	1.31	-7.55*	8.11***	0.03	-0.24	-5.05***	0.07	144.93***	0.48
Assault	88.71***	-14.33	21.68	0.30	-2.50**	-37.47***	1.64	633.77***	0.27
Burglary	142.22***	34.27	97.57***	0.57	1.32	-120.50***	-0.87	1251.77***	0.32
Larceny	501.34***	-522.42***	32.28	-0.72	22.85***	-311.05***	19.21***	2855.65***	0.46
Auto theft	55.77***	-50.53***	-2.15	0.02	-0.64	-25.59***	-0.09	454.43***	0.19
Arson	11.26***	5.40	6.94***	-0.03	0.31**	3.88***	-0.16	63.81***	0.09
Arrests									
Murder	0.53***	0.02	0.70***	0.00	-0.01	-0.10	-0.01	3.95***	0.32
Rape	0.360	-0.71	-0.30	-0.00	0.14***	-0.40	-0.44	-19.84***	0.37
Robbery	1.87	-2.72	6.10***	0.01	0.03	-1.20*	0.00	38.90***	0.49
Assault	27.44***	8.36	21.62***	0.04	-0.47	-6.71*	-0.17	114.84**	0.43
Burglary	72.59***	70.26***	56.45***	-0.07	0.42	-21.12***	-0.75	204.26	0.55
Larceny	263.26***	54.02	79.26**	-0.34	5.11**	-44.33**	-0.98	58.29	0.64
Auto theft	28.96***	-7.26	5.84	0.00	-0.38	-5.06**	-0.21	100.16***	0.47
Arson	3.76***	4.17***	0.59	-0.01	-0.00	0.76**	-0.05	14.27**	0.37
Forgery	9.29***	4.14	10.87***	-0.01	-0.50***	1.37	0.04	65.72***	0.36
Fraud	9.67	3.94	46.72***	-0.12	-1.68***	6.30	-0.42	201.12**	0.24
Embezzlement	0.38	-0.50	0.94***	0.00	0.03	0.07	0.01	-3.27	0.18
Stolen property	7.68***	11.95***	2.11	-0.02	-0.23**	1.02	-0.02	38.51***	0.37
Vandalism	17.73***	59.19***	-10.04***	-0.11*	-0.39**	2.28	-0.13	49.21*	0.47
Weapons violations	10.11***	-4.90**	6.23***	-0.00	-0.38***	0.33	-0.04	71.94***	0.50
Prostitution	-0.08	0.57**	0.07	-0.00	0.00	0.00	-0.00	-0.39	0.12
Sex offenses	3.66***	11.33***	-1.45*	-0.02	-0.13***	0.79*	-0.05	21.39***	0.41
Drug sales	12.40***	1.41	5.17**	-0.01	-0.65***	2.13*	0.09	56.79***	0.34
Drug possession	34.26***	35.18***	20.32***	-0.07	-1.20***	0.32	0.14	223.40***	0.43
Illegal Gambling	-0.25	0.58	0.61**	-0.00	0.02	-0.04	0.11	-0.89	0.13
Family offenses	-1.38	-14.64**	-18.24***	0.01	-0.52**	-0.61	0.06	40.17	0.21
DUI	46.26***	42.21**	-10.22	-0.18	-2.59***	-4.73	0.56	242.10***	0.48
Liquor law	-0.14	-46.59***	-69.22***	-0.09	0.34	2.46	0.24	-159.55**	0.37
Drunkenness	-12.35	-37.82**	131.75***	0.08	0.58	-3.53	-0.12	130.49	0.32
Disorderly Conduct	-7.35	101.55***	-38.55**	-0.20	-1.24	2.83	0.20	140.27	0.34
Vagrancy	1.02*	0.69	-0.61	-0.00	-0.04	0.05	-0.01	0.24	0.11
Suspicion	2.10	-1.05	-1.54**	0.01	-0.06	-0.20	0.10**	6.91	0.12
Curfew & loitering	1.80	-17.30***	-12.56***	0.01	-0.25*	-0.21	-0.08	45.91**	0.25
Run-aways	4.04	-1.88	-4.52	-0.01	-0.01	1.03	-0.08	26.01	0.28

* statistically significant at α=.10; ** statistically significant at α=.05; *** statistically significant at α=.01