STRUCTURAL INEQUALITY AND CRIME IN CITY: THE DETERMINANT

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Abstract

The paper delineates the relationship between economics inequality and criminal activities in the cities. The study analyzed 192 cities from 18 counties in Kansas City Metropolitan which comprised two metro cities. The study found significant correlation between selected inequality determinants. It shows 38 percent of crime per capita (CPC) is explained by socioeconomics determinants (R^2= .379; p< .01). Few inequality determinants posit positive correlation with CPC such as social family disruptions (FHH= .9; p< .01), poverty (POV= .4; p< .05) and racial segregation (RACE= .14; p< .05). This study further analyzes the data into two different type of crimes; i) property crime; and ii) violent crime. The R^2 for property crime per capita, PCPC is .375 (p< .01). With significant determinants FHH= .926 (p< .01), POV = .444 (p < .05) and RACE is .15 (p < .05). Meanwhile, result on violent crime per capita (VCPC) gave completely different picture, R^2= .271; p< .05. VCPC is only explained by previous crime (LAGCRIME= - 82.31; p< .05) and percentage of male unemployment (UNEMP= .498; p< .05) determinants.

Keywords: Poverty, Inequality, Crime, Economy, Socioeconomic

1.0   INTRODUCTION

Crime has become a major concern across the world and gained popularity in researches and discussions. Undeniable, it is an important indicator for quality of living standard in neighborhood as individual make judgments and comparing their costs and benefits, before decided to locate in a residential or workplace area. Criminal incident has become important indicator as availability of jobs, education, and price of land, transportation and health services in making decision. Today, there is a growing study and consensus that resource deprivation such as poverty, inequality, unemployment and education are the cause for crime or delinquent activities like [Buonanno & Montolio (2008), Fajnzylber (2002, 1998), Machin & Meghir

(2000), Cerro & Meloni (2000), Morgan (2000), Wolpin (1978), Freeman (1972), Becker (1968), Fleisher (1966)].

Poverty is defined as deprivation of economics opportunity and can be distinguished between *absolute poverty* and *relative poverty*[1]. Undeniable, the income gap between the richer and the poorer become huge and broad. The poverty rates were declined from 51.9 percent in 1981 to 15.5 percent in 2015 (est) and number of people living in extreme poverty fell almost 60 percent to 0.97 billion people from 1981 to 2015 (est). However, we see the number of people living in on less than $2.00 a day increased from 2.5 billion in 1981 to 2.9 billions in 1999 and to 2.6 billion in 2005 (World Development Indicators, 2010). Lower education attainable makes them difficult to secure a job and cost of living inflation worsened their condition. This is why poverty is so prevalent to this marginalizing group.

This poverty phenomenon worsened by the global financial crisis and food price spikes, which cause poor people, remain in poverty through unemployment and worsen their income. According to World Bank (The World Bank Development Prospects Group, 2011), price indices for food rose from 147.0 in 2006 to 224.1 in 2010, and was peak in 2008 at 247.4 (2000=100). The World Bank foresaw around 100 million will fall into this poverty line due to global crisis. Food price spiking makes people unaffordable to get the same value of consumption due to decreasing in real income. It makes people more stress and would lead to delinquency behavior such as, theft, robbery, fraud, pick pocket and others as said in theories.

Interestingly, unlike others, the study employed interdisciplinary perspectives; economics, sociological and criminological disciplines. Perhaps it gives better picture of the relationship between inequality and crime. Kansas City Metropolitan region has been chosen as a sample and 192 cities were examined to explain the relationship between economics inequality and criminal activities. The remainder of the paper organizes as follows; the model and methodology will be discussed in section 2, after the introduction. The result and discussion of the study are elaborated in section 3. Finally is a conclusion in the last section.

2.0   LITERATURE REVIEW

Three dominant theories are being used in this research to understand relationship between poverty or economics inequality and crime or violence activities. The Theory Of Economic of Crime[2] states that criminal behavior as a rational response to the opportunities available to potential crime where individuals maximize their expected utility. Individual makes judgment between their return and cost in committing in criminal activities (Becker, 1968,

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[1] *Absolute poverty* refers to the situation in which a person lacks basic human needs, such as food, shelter and clothing that help to sustain human life. Meanwhile, *relative poverty* exists when necessity to one person is not uniformly a necessity to others. Needs may be relative to what is possible and are based on social definition and past experience (Nunes, C, 2008).

[2] This theory states an individual decides whether to engage or not in criminal activities by comparing the costs and benefits involved in legal and illegal activities. At the same time they also judge the likelihoods and severity of punishment as a cost to commit in criminal activities.

Freeman, 1972, Morgan, 2000, Fajnzylber, 1998, 2002, Cerro & Meloni, 2000). Similarly, Morgan (2000) says, it is hypothyze that people will commit in crime if their return in extremely larger than their cost:

> *"In the economic theory of crime, areas of high inequality place poor individuals who have low returns from market activity next to high-income individuals who have goods worth taking, thereby increasing the return to time allocated too criminal activity".*
>
> *(Morgan, 2000, p. 530)*

On the other hand, Merton's Strain Theory argues economic deprivation, the gap between the rich and the poor, could generate frustration and alienation among the poor. Low status individuals are frustrated by their failure to attain the material attributes of success. This failure is more obvious when they confronted by the success people around them. Unsuccessful individuals become alienated from society and may commit crime in response. Braithwaite (1979) and Stack (1984) said individual alienation can arise from income inequality or from belonging to a racial minority. While, Barlow (1984) argues a rapid rise in income per capita is likely to make a society more materialistic and *anomistic*[3]. Similarly, Blau and Blau (1982) posit economic deprivation may lead to criminal activities to achieve economic means for the poor:

> *"Ascriptive socioeconomic inequalities undermine the social integration of a community by creating multiple parallel social differences which widen the separation between ethnic groups and between social classes, and it create a situation characterized by much social disorganization and prevalent latent animosities. Pronounced ethnic inequality in resources implies that there are great riches within view but not within reach of many people destined to live in poverty. There is much resentment, frustration, hopelessness, and alienation".*
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> *(Blau and Blau, 1982, p. 119)*

Similarly, the Social Disorganization Theory considers factor that diminished the effectiveness of social control. They hypothesizes that poverty significantly contributes to a decline in the ability of a community to establish common goals and impose social control on itself. Additionally, inequality represents a situation where communication across very unequal income categories is more difficult, similar to the difficulties inherent in communication across racially heterogeneous groups [Shaw and McKay (1942) and Kornhauser (1978)]. They identified ethnic heterogeneity and residential mobility as the factors that weakened networks of social control and undermine the ability and willingness of communities to exercise informal control over their members. Difficulties in communication inhibit the creation of community norms and the ability to establish formal and informal social control, thus leading to social disorganization and crime (Blau and Blau 1982).

In addition to these, urban researchers also argue structural economic disadvantage (especially among the poor or minority group), racial segregation and residential segregation are causes for criminal or violence activities. They argue that these entire factors explained criminal

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[3] Anomie is the normless state where individuals' goals are more important than the means adopted to attain them. It is likely to be a feature of periods of rapid economic/social change. Under conditions where anomie is prevalent, all types of crime may be expected to rise in a society.

activities across neighborhoods and cities (Massey and Denton, 1993, Gotham, 2002 and Wilson, 1997, 1987). For instance, an area that contains a large number of 'disrupted' families[4] can lack social control because it implies a lack of supervision and guardianship over both children (one's own children and others') and property within the community (Morgan, 2000), as well as imply a lack of family commitment. Other studies suggest vacancy rates and residential mobility variables to measure community attractiveness and attachment. They postulate areas with low social commitment (where residents want to move) will have higher vacancy and mobility rates (Shaw and McKay, 1942, 1969). Owner occupied housing, on the other hand, should be inversely related to social disorganization (and the related loss of social control and attachment), because it shows a commitment to remain in the community. This individual is not only a resident, but an investor (Shaw and McKay, 1942, 1969).

Finally, not only structural inequality leads to violence activities but it also could expose this poor group as a victim of crime activities. For instance Blau & Blau (1982) find positive relation between crime and income inequality, racial income inequality and racial composition in South areas, by his 125 American metropolitan areas (SMSAs) data. While, Like (2009) examines the link between racial inequality and economic inequality for non-fatal violent victimization in United States twelve cities by using National Crime Victimization Survey (NCVS), concludes with both inequalities effect disadvantage among Black compared to White in urban cities. She also states Black living in cities with higher levels of racial segregation and economic disparities are significantly more likely to be victims of violence.

3.0   MODEL AND METHODOLOGY

This section explained the model, methodology applied and data that has been used to realize this study. Kansas City Metropolitan region has been chosen as a sample region based on its unique characteristics; straddling the border between Missouri and Kansas. This metro also consists of two metro cities: Kansas City, Missouri and Kansas City, Kansas, and it's also the second largest Metropolitan area in Missouri after Greater St. Louis. There are eighteen counties encompass Cass, Clay, Clinton, Jackson, Lafayette, Platte, Ray, Bates, Caldwell and Johnson (which located in Missouri State) and Johnson, Leavenworth, Miami, Wyandotte, Franklin, Linn and Atchison also Douglas (located in Kansas State) as layout by Brooking's Report, 2003. The study sampled all the 192 cities from these eighteen counties.

Kansas City, Missouri been consistently nominated as the most dangerous city in the United State of America as reported in Kansas City News (2012). In 2012, this city ranked at ninth places in the nation, after Miami and Baltimore with the crime risk index of 337. The Kansas City Police Department reported, in 2009 lower rates of most types of violent and property crimes were recorded than in 2008. Most notably, motor vehicle theft was down 19 percent. But aggravated assault grew 4 percent in that period, and forcible rape increased by 11

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[4] Family disruption is measured by the presence of 'traditional' (e.g., single without children, married couple with children) or 'non-traditional' (e.g., divorced/separated, single female with children) families.

percent. Altogether, the city's crime rate is more than three times the national average according to the news (KCTV5, 2012). Table 1 shows most dangerous cities in terms of crime risk.

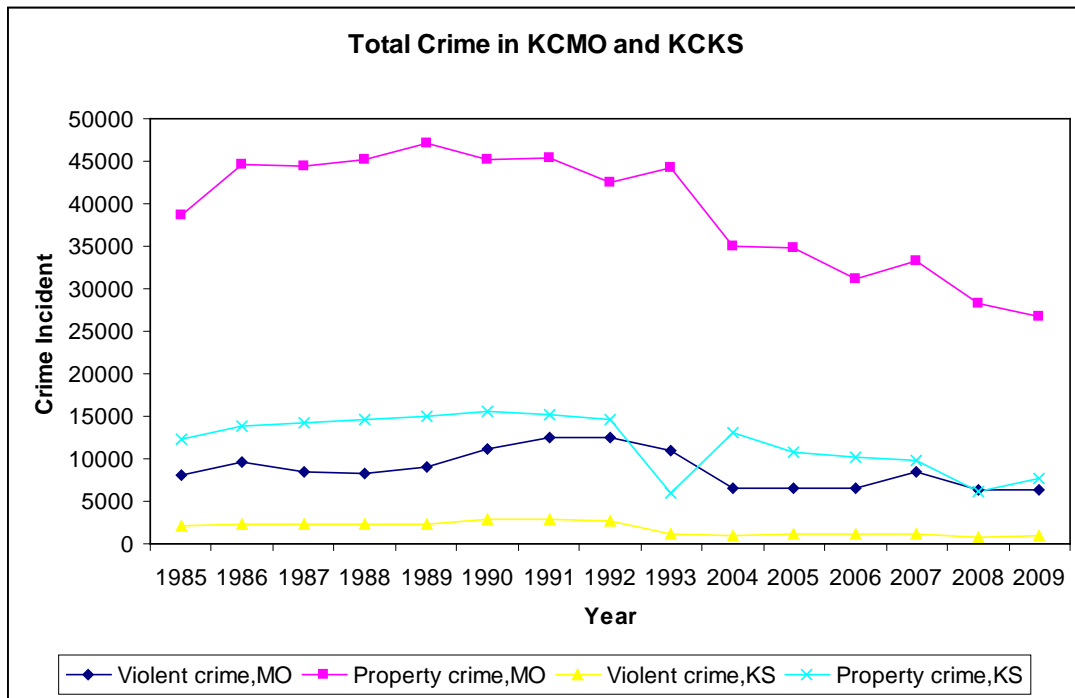**Table 1: The Eleven Most Dangerous Cities in US, 2011**

No.	City	Crime Risk Index
1.	St. Louis	530
2.	Atlanta	484
3.	Birmingham, Alabama	380
3.	Orlando	380
5.	Detroit	369
6.	Memphis	361
7.	Miami	346
8.	Baltimore	339
9.	Kansas City, Missouri	337
10.	Minneapolis	331
10.	Cleveland	331

Source: Onboard Informatics

However the above index figures do not provide a full picture of crime in any given city. Diverse array of factor can contribute to a crime rates such as population density, economic health, transportation, political affiliation, climate and others. This nurture our curiosity, thus calls us to investigate if socioeconomic factors contribute as one of the significant elements that certain cities safer or more dangerous than others.

Figure 1 showed incident of crime has remarkable decreased throughout the year 1985 to 2009. Around 46,616 criminal cases were reported in Kansas City, Missouri and 38,604 cases of them were property crimes in 1985. Meanwhile, 14,451 property crime cases were reported in Kansas City, Kansas for the same period. However, incident of crime shrunk by almost 30 percent in Kansas City, Missouri in 2009. While, reported violent crime cases (ie; homicide, rape and burglary) in Kansas City, Kansas reduced from 8,682 cases to only 940 cases (-89.0 percent) in 2009 (KCMO and KCKS Police Department). The efficacy and effort from both police department in ensuring safety and conducive environment for their neighborhood must be acknowledged.

Figure 1: Total Crime in Kansas City, Missouri and Kansas City, Kansas

Source: Criminal Index from Kansas City- MO Police Department and Kansas City Kansas Police Department.

Thus, we model the crime-socioeconomics relation as below. The crime's model comprises;

$$CPC_{it} = \beta_0 + \beta_1 CPC\text{-}1_{it} + \beta_2 UNEMP_{it} + \beta_3 Pov_{it} + \beta_4 FHH_{it} + \beta_5\ EDU_{it} + \beta_6 RACE_{it} + \beta_7 VACANT_{it} + \beta_8 OWNER_{it} + U_{it}$$

Where *CPC* is the incidence of crime percapita, *CPC-1* is incident of crime percapita in previous year, *UNEMP* is the percentage of male adult unemployed, *FHH* is the percentage of female headed household, with children and no husband present, *EDU* is the percentage of adult who is less than high school graduates, *RACE* is percentage of racial segregation, *VACANT* is the percentage of vacant housing in that area and *OWNER* is the percentage of house owner-occupied resident in that area. The subscript *i* and *t* denote city and time period respectively. This study will apply an Ordinary Least Square (OLS) analysis method regression with SAS 9.1 package. Data had been run in log natural form. The relationship between the predicted indicator (structural inequality) and dependent variable (crime) will be explained in the next section.

The dependent variables in this study were crime rates, based on offenses reported to the police, calculated from the Federal Bureau of Investigation's Uniform Crime Report (UCR) program and also data from Mid-America Regional Council (U.S. Bureau of the Census, 2000) for the year 1997 to 2003. The offenses included are the violent crimes of murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault and the property crimes of

burglary, motor vehicle theft, larceny-theft, and arson. This data was monitored by the prominent organization, FBI[5] and widely used in criminal studies even internationally. While, the independent variables used in this study were calculated from the Decennials Census and Mid-America Regional Council, 2000 Decennial Censuses. Structural inequality indicators comprises percentage of poverty (POV), percentage of adult educational attainment (EDU), percentage of male unemployment (EDU), percentage of racial heterogeneity (RACE), percentage of family disruption (FHH), percentage of vacant housing (VACANT), percentage of owner-occupied housing (OWNER) and percentage of crime incident (LAGCRIME) in previous year are used as independent variables.

4.0   RESULT AND DISCUSSION

Table 2 presents the regression analysis for crime per capita (CPC) in Kansas City Metropolitan region in 2000. Data was regressed in a natural log format. The R^2 for CPC is .379 and significant at the $p < .01$ level. An estimated 37.9 percent of the variance in CPC is explained by variance in the predictor variables or independent variables. The percentage of female householder (FHH) variable shows (.899) and percentage of adult lower than high school graduate educational attainment (LESSEDU) shows (- .559) has significant t statistics at 1 percent confidence level. It shows if social family disruptions (FHH) increase by ln .9 percent, the incident of crime per capita will increase by ln 1 percent. Also if adult with lower education reduce ln .6 percent, the incident of CPC will decrease by ln 1 percent. The percentage of poverty (POV) variable (.444) also has significant t statistics at 5 percent confidence level. It means an increase of ln 1 percent in CPC can be explained by the rise of ln .44 percent on percentage of poverty incident (POV). Both of predicted variables have correct sign as expected from crime model; higher incident of family disruptions and poverty will lead to criminal activities. This is consistent with social disorganization theory and theory of economics crime that has been discussed indebt in earlier section.

Moreover, table also indicates an increase of ln .14 percent of racial segregation (RACE) may increase ln 1 percent of CPC incidents. It also has significant t statistics at 5 percent confidence level and also a positive sign as expected in model; higher racial segregation lead to lack of social cohesion in communities and social alienation for the minority group. These circumstances encourage violent and delinquency activities in communities. Surprisingly, percentage of vacant housing unit (VACANT) has (- .392) showed a negative sign, which reversed from theory, although vacancy indicator has significant t statistics at 1 percent confidence level. Finally, percentage of owner-occupied (OWNER) in this regression has shown negative and correct sign (- .749) but it is not significant. Theoretically, higher owner-occupied housing unit reduce 'anonymous' party and increase relation ties among resident, thus reduce crime incidents.

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[5] Also noted that classifying of reported crimes cases by FBI and its agencies are bases on the higher degree of crime. For instance, if the crime incident start with theft but the victim were killed, it will be reported as murder case under violent crime. Since this is the procedure for the whole organization, it will eliminate bias in reporting cases.

Table 2: Descriptive Statistics for Total Crime per Capita (CPC) in Kansas City Metropolitan Area, 2000

Variable	Parameter Estimate	Standard Error	t-value	Pr > t
Intercept	-1.673	2.842	-.590	.555
LAGCPC	-4.336	3.316	-1.310	.194
UNEMP	.042	.181	.230	.816
POV**	.444	.212	2.090	.039
FHH*	.899	.322	2.790	.006
EDU	-.559	.203	-2.750	.007
RACE**	.140	.068	2.060	.043
VACANT	-.392	.221	-1.780	.078
OWNER	-.749	.540	-1.390	.169
R-square	.379*			
Adj. R-square	.323			

* significant at 1 percent level

** significant at 5 percent level

With interest to give clear picture of relationship between criminal activities and structural inequality, this study further analyze the issue into two different type of crime; i) violent crime and ii) property crime. It is hypothesized that all the listed independent variables play different role between these two types of crime. Unfortunately, the result does not differ as regression for CPC.

Table 3 below presents the regression analysis for property crime per capita (PCPC) in Kansas City Metropolitan region in year 2000. Data was regressed in a natural log format. The R^2 for PCPC is .375 and significant at the $p < .01$ level. An estimated 37.5 percent of the variance in PCPC is explained by variance in the predictor variables or independent variables.

The percentage of family disruptions (FHH= .926, $p< .01$) and poverty (POV= .444, $p< .01$), respectively. It means if percentage of FHH increase by ln .9 percent, the incident of PCPC will increase by ln 1 percent. Meanwhile, an increase ln 1 percent in PCPC can be explained by an increase of ln .5 percent percentage of POV. Percentage of adult lower than high school graduate educational attainment (LESSEDU) has (- .621) value. All of predicted variables have correct sign as expected from economics of crime model.

Surprisingly, percentage of male unemployment (UNEMP) is not significant for both type of crime in my regression. For percentage of racial segregation (RACE), an increase of ln 1 percent of PCPC can be explained by rise of ln .15 percent in racial segregation. Similar in the early regression equation, percentage of vacant housing unit (VACANT) has (- .361) showed a negative sign, which reversed from theory. Percentage of owner-occupied (OWNER) also showed shown negative and correct sign (- .839) and not significant.

Table 3: Descriptive Statistics for Property Crime per Capita (PCPC) in Kansas City Metropolitan Area, 2000

Variable	Parameter Estimate	Standard Error	t-value	Pr > t
Intercept	-1.393	2.972	-.470	.640
LAGPCPC	-4.540	3.758	-1.210	.230
UNEMP	.028	.191	.150	.881
POV**	.444	.223	1.990	.040
FHH*	.926	.340	.730	.008
EDU	-.621	.213	-2.910	.004
RACE**	.148	.071	2.070	.041
VACANT	-.361	.232	-1.550	.124
OWNER	-.839	.568	-1.480	.140
R-square	.375*			
Adj. R-square	.319			

* significant at 1 percent level

** significant at 5 percent level

The regression result on violent crime per capita (VCPC), which encompassed reported criminal activities on murder, rape, robbery and aggravated assault gave completely different picture (refer to Table 4). The R^2 for VCPC is .271 and significant at the *p*< .05 level. An estimated 27 percent of the variance in VCPC is explained by variance in the predictor variables. Most of the predictor variables were insignificant except for previous crime (LAGCRIME) and percentage of male unemployment (UNEMP). The LAGCRIME has correct sign (- 82.31) and significant at 95 percent confidence level.

It means 82.31 percent decrease in LAGCRIME may decrease 1 percent of VCPC. It may due to the nature of this crime, which usually people that convicted in violent crime merely do the same mistakes (except for rape offender). Moreover, usually both of the offender and the victims in violent crime have relationship and know each other. In addition, the percentage of male unemployment (UNEMP) showed a correct sign and significant (.498) only in VCPC. An increase of ln .5 percent of male unemployment will increase ln 1 percent of VCPC. Our hypothesis is, this can be explained by Merton's Strain theory who posits that structural inequality may encourage stress and alienation in community. Unable to secure jobs or income due to unemployed lead to higher stress life among individual and relative poverty become more prominent than absolute poverty. For instance the unemployed offender was unintended to kill anybody when breaking the car but end up with murder case, since the victim was killed during the fight.

Table 4: Descriptive Statistics for Violent Crime per Capita (VCPC) in Kansas City Metropolitan Area, 2000

Variable	Parameter Estimate	Standard Error	t-value	Pr > t
Intercept	-6.104	3.240	-1.880	.063
LAGVCPC**	-82.316	39.324	-2.090	.039
UNEMP**	.498	.220	2.260	.026
POV	.314	.251	1.250	.214
FHH	.522	.415	1.260	.212
EDU	-.179	.227	-.790	.433
RACE	.039	.078	.500	.615
VACANT	-.251	.276	-.910	.368
OWNER	-.293	.609	-.480	.632
R-square	.271**			
Adj. R-square	.196			

** significant at 5 percent level

5.0   CONCLUSION

As whole, this study portrayed the relationship between structural inequality and incident of crime from quantitative framework. It discussed here how racial segregation, social disruption, and economic inequality such as poverty were significant in explaining crime activities, at least from statistical framework. The study posits a similar result as Izadi [9] that conclude there is significant relationship between income inequality and crime. Needless to say, the finding of this research consistent with a social disorganization framework theory (Shaw and McKay, 1942, Kornhauser, 1978) and also Massey and Gotham argument about racial segregation or ghetto (Massey and Denton, 1993 and Gotham, 2002). They argue racial heterogeneity made it more difficult to establish a strong network of personal relations or community ties necessary to create common norms and values among a racially, ethnically or culturally diverse group.

Education variable indicated lower education levels can encounter difficulty advancing economically and lead to higher criminal activities. Unemployment also posits the same relation. However, education variable has shown a negative relation in the regression, although significant at 95 percent confidence level. Family disruption variable posits an area that contains a large number of 'disrupted' families can have lack social control because it implies a lack of supervision and guardianship over both children (one's own children and others') and property within the community as well as imply a lack of family commitment, leading to strain.

Accordingly, this indicator had shown significant and correct sign in this analysis. While, vacancy housing and owner occupied housing variables are not significant in this regression.

This finding could provide an understanding criminal and structural inequality in community. Further study is needed on a larger unit of analysis such as states or country that allows for better measurement to provide better intuitive explanation. Moreover, if significant correlations between structural economic inequality and crime rates are identified, more general policies can be designed to control and inhibit crime at its structural sources.

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