

Effects of State Welfare Spending on Violent Crime

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Economics Honor Thesis

Introduction

Americans have a culture that celebrates violence. In 2002, 66.7 percent of the violent crime in the United States was committed with a gun. If we take the 5.6 murders per 100,00 population and subtract two-thirds, we obtain 1.86 per 100,000 non-gun homicides. This number is still higher than most other developed nations in the world.¹ Could this inclination for violence be due to a cultural need for economic success. If so, how do states combat this violence? What kinds of social policy investments would be most effective? Might states investments in welfare spending create a situation where citizens are satisfied with the wealth they have, and therefore not tempted to commit crimes? The purpose of this paper is to investigate the effectiveness of state welfare spending in reducing violent crime.

Previous Literature

The work most often cited by criminologists is Robert Merton's "Social Structure and Anomie" published in 1938, and later expanded upon multiple times. His social anomie theory remains central to criminological theories used today. In Merton's social anomie theory, two important structures of society are discussed: societal goals and institutional rules. How individuals negotiate the tension between the opportunities available to them and the goals expected of them shapes the way that they act, Merton argues, and whether they follow the rules or not. In this respect society creates situations in which deviant behavior may become a normal response.

¹ Steve Messner and Richard Rosenfeld. *Crime and the American Dream*. United States: Thomson Wadsworth, 2004.

According to Merton, there may be situations in which meeting goals and obtaining success matter more than following the rules that society has created. Merton uses the example of athletes: some sports create a situation in which winning the game becomes the only desirable outcome. So desirable, that athletes and coaches may not follow the rules in order to tilt the balance of winning in their favor. Merton also applies this thinking to an economic situation, "The extreme emphasis upon the accumulation of wealth as a symbol of success in our own society militates against completely effective control of institutionally regulated modes of acquiring a fortune".²

Merton identifies five different modes of adaption individuals may pursue to the tension between institutional means and cultural goals available to them: Conformity, Innovation, Ritualism, Retreatism, and Rebellion. Merton goes on to analyze inequality in society. Everyone in American society has the same goal to obtain monetary wealth in order to receive prestige and success. Yet, not everyone in this society is provided the same opportunities or access to success. Merton specifically highlights the area of northern Chicago where the lower classes of people have conformed to the societal desire for wealth. However, a majority of the opportunities provided to them consist of manual labor, which is not accompanied by prestige and wealth. People in the lower class go through a cultural and psychological clash that can elicit behavior not in conformance with social rules. One last observation that Merton makes is that poverty is not necessarily linked to higher crime rates. Instead poverty must also be accompanied

² Robert K. Merton, "Social Structure and Anomie." *American Sociological Review*. no. 5 (1938): 675.

by, “emphasis on monetary accumulation as a symbol of success is antisocial conduct a “normal” outcome”³.

In the 1990s, Merton’s theory became relevant again in many criminological works. In Crime and the American Dream Messner and Rosenfeld build upon Merton’s social anomie theory in creating their updated version titled institutional anomie theory. They primarily focus on the big picture facets of Merton’s original anomie theory, and expand upon it. This theory examines Merton’s anomie theory and looks more closely at the social institutions and how they balance with each other. They investigate the role of the institutional structure and the family unit, and how they affect the causes of crime. Particularly they say that American culture has put such emphasis on the accumulation of monetary wealth that people face immense pressure on people to try and achieve it. The culture and institutional structures centered towards economic success lead some people to crime, when they cannot achieve this economic success by legal means.

Shortly after releasing their institutional anomie theory, Messner and Rosenfeld published a cross-national study testing the theory. They specifically looked at the relationship between decommodification and the homicide rate. Decommodification, as explained by Messner and Rosenfeld, refers to policies and practices that provide access to essential goods and services such as health care and education, without relying on income earned in the labor market.⁴ Messner and Rosenfeld go on to cite their institutional anomie theory saying, “the form of institutional structure that is particularly conducive to high levels of crime is one in which the economy dominates

³ Merton. 671

⁴ Steve Messner and Richard Rosenfeld. "Political Restraint of the Market and Levels of Criminal Homicide: A Cross-National Applicant of Institutional Anomie-Theory." *Social Forces*. no. 4 (1997): 1394.

the institutional balance of power,” They continue on to say this occurs when, “(1) economic goals are assigned high priority in comparison with noneconomic goals; (2) the claims of economic roles are typically honored at the expense of those of noneconomic roles when conflicts occur; (3) social standing tends to be more highly dependent on the performance of economic roles than of noneconomic roles; (4) the calculating, utilitarian logic of the marketplace penetrates other institutional realms.”⁵ Messner and Rosenfeld found results that supported their hypothesis that decommodification and homicide rates are inversely related.

Savolainen used data from Messner and Rosenfeld to test institutional anomie theory in a cross national test using homicide data. His results validated most tenets of the institutional anomie theory, finding that in nations with more developed social welfare programs, the effect of the income gap on the crime rate was marginalized, “high values of welfare spending suggest that economic inequality may actually lower the homicide rate under such conditions.”⁶ According to the author this led these nations to have a, “very small or nonexistent underclass population.”⁷ In essence income inequality had been marginalized by these social programs thereby avoiding many of the structural causes of crime.

Baumer and Gustafson review the social anomie theory of Merton and the institutional anomie theory of Messner and Rosenfeld. Using an aggregate-level data set to empirically test the two separate anomie theories across seventy-seven areas in

⁵ Messner and Rosenfeld. 1997. 1396.

⁶ J. Savolainen. "Welfare State, and Homicide: Further Support for the Institutional Anomie Theory." *Criminology*. (2000): 1036.

⁷ Savolained. 1037.

the United States in the mid to late 1970s, Baumer and Gustafson corroborated the hypothesis from Merton that, "Instrumental crime-rates are significantly higher when both a relatively high level of commitment to monetary success and a low level commitment to legitimate means exist."⁸ In addition they found that increased spending on social welfare as well as increased socialization with family tended to prevent the "goal/means' value complex"⁹ from leading to higher levels of crime. This value complex is the assertion that if people have a goal to obtain monetary wealth that they will work to obtain that by any possible avenue. In accordance with the works of Messner and Rosenfeld as well as Merton, there must be a cultural reinforcement. This is the "American Dream" in Messner and Rosenfeld's work. If people are not able to obtain monetary success through legitimate means, they will resort to deviant behavior, increasing the violent crime rate.

More spending on welfare can ease the "heightened economic pressures"¹⁰ felt by the population. Baumer and Gustafson also provided evidence that could help confirm Merton's assertion that "effects of economic disadvantages on crime may be contingent on the sample era in which they are estimated."¹¹ In conclusion, Baumer and Gustafson agree that new crime models should incorporate tenets of both social anomie theory and institutional anomie theory. Even though institutional anomie theory builds

⁸ E.P. Baumer and R. Gustafson. "Social Organization and Instrumental Crime: Assessing the Empirical Validity of Classic and Contemporary Anomie Theories." *Criminology*. (2007): 651.

⁹ Baumer and Gustafson. 651

¹⁰ Baumer and Gustafson. 654.

¹¹ Baumer and Gustafson. 2007. 653.

upon Merton's social anomie theory, Baumer and Gustafson feel that Messner and Rosenfeld have omitted key parts of social anomie theory.

Merton's anomie theory was not fully appreciated for a few decades. In the interim, theories such as Shaw and McKay's social disorganization became popular. Social disorganization theory views crime as result of a breakdown in the institutions that form society. That means a breakdown in community, family, marriage, or government among others. Peter and Judith Blau tested social disorganization and other theories in their study of violent crimes in the 125 largest American Metropolitan areas. They investigated, "not what kind of individuals tend to commit violent crimes, but what social conditions make it likely that people commit them."¹² For instance, in their study Blau and Blau tested the Southern subculture of violence theory, which linked violent crime to Souther cultural traits. Blau and Blau also tested the culture of poverty theory, which views African Americans as more likely to commit crimes because of their subculture and the broken homes that many lived in inner cities.

To test the different criminological theories Blau and Blau use a cross sectional test of the largest metropolitan areas in the United States. Through their study, Blau and Blau find evidence that supports a structural theory on violence rather than cultural reasons for violence. However, even in their own conclusion, Blau and Blau inadvertently support culture as a reason for crime. They subsequently find that ascriptive inequalities particularly foster violence, concluding that, "Economic inequalities appear to have even more impact on violent crimes than has been

¹² Judith R. Blau and Peter M. Blau. The Cost of Inequality: Metropolitan Structure and Violent Crime. *American Sociological Review*, Vol. 47, No. 1. (1982), pp. 115.

hypothesized.”¹³ Through their study, Blau and Blau find evidence that supports a structural theory on violence rather than cultural reasons for violence.

Krahn, Hartnagel, and Gartrell question previous work linking poverty to homicide. They cite small sample sizes, possible methodological concerns, and possible missing control variables as reasons why the relationship between poverty and homicide may be overstated or not fully explained. In order to make up for these shortcomings in other research, they decide to use a cross-national study. Krahn, Hartnagel, and Gartrell found that homicide rates were directly related with: poor countries, less democratic societies, and countries with fewer youths in schools.¹⁴ They found that, “The bivariate analysis provides no support for the social disorganization, collective violence, or population density predictions of direct effects on homicide rates.”¹⁵ They did however, find evidence supporting the social anomie theories, stating “income inequality might be more likely to generate violent behavior in more democratic societies because of high material inequality and an egalitarian value system.”¹⁶

Williams and Flewelling questioned the presumptions of previous research using aggregate homicide data. They suspected these presumptions created inconsistencies in the previous criminologist’ findings. They looked at homicide in American cities during the time period between 1980-1984. In their research, they used, “ homicide

¹³ Blau and Blau. 126

¹⁴ H. Krahn, T.F. Hartnagel, and J.W. Gartrell. Income Inequality and Homicide Rates: Cross-National Data and Criminological theories. *Criminology*, Vol. 24 (1986), pp. 288.

¹⁵ Krahn etc. 288.

¹⁶ Krahn etc. 288.

disaggregated by the victims/offender relationship.”¹⁷ They found that certain indicators such as the divorce rate and the percent poor had extensive effects¹⁸.

Economists have also developed theories on what causes crime in society. The most popular theory was established by Gary Becker in his paper from 1968. In his paper Becker discusses the different ways crime should be punished and how resources should be allocated among society. Becker explains crime can be modeled alike any other economic action. People weigh the costs and benefits of their actions. If their expected utilities would be higher by committing a crime, then they will commit it. This decision making process includes the possible negative effects of being caught. Every person has a different utility function, therefore not everyone will be tempted to commit crime. Becker discusses the pros and cons of fines against more extreme measures of punishment such as imprisonment. Becker creates models that demonstrate the, “optimal policies to combat illegal behavior are part of an optimal allocation of resources.”¹⁹

There have been numerous additions to Becker’s work over the years, but the one most pertinent to this research was written by Anna Nilsson in 2004. She looked at the Swedish countries in from 1973-2000 and studied the effects of changes in income inequality on crime. She finds that the poor have a, “effect on both the overall crime rate

¹⁷ Robert L. Flewelling and Kirk R. Williams. "The Social Production of Criminal Homicide: A Comparative Study of Disaggregated Rates in American Cities." *American Sociological Review*. no. 3 (1988): 421-431.

¹⁸ Flewelling and Williams. 430.

¹⁹ Gary Becker, "Crime and Punishment: An Economic Approach," *Journal of Political Economy*, 76, no. 2 (1968): 214, <http://www.jstor.org/stable/1830482> (accessed April 29, 2013).

and the specific property crime categories”²⁰. She also found unemployment to be a significant factor in determining property crime. For violent crime, Nilsson found that income inequality and unemployment had little to no effect.²¹

Model for Crime

For this paper a modified version of the Blau and Blau model is used. Their model implies that economic as well as social factors influence the violent crime rate, specifically the murder rate. In Blau and Blau’s model, the three main factors they found to have the greatest influence on the rates of violent crime were: factors that caused anomie to occur in the system, population size, and economic inequality; specifically ascriptive inequality.

A cross-sectional study is done across the fifty United States for the year 2010. The dependent variable to account for violent crime in this model is the murder rate. The independent variables that influence the amount of crime for each individual state are the population size, welfare spending, protection spending, education spending, income inequality, the unemployment rate, the prison population, the percentage of households that are a family household, the percent of divorced people in the population, educational attainment level, and the per capita income.

Much of the data is taken from the federal census in 2010. Data is also taken from the website usgovernmentspending.com which aggregates data from the United States Census Bureau. Violent crime data is taken from the FBI Uniform Crime Report

²⁰ Anna Nilsson, "Income inequality and crime: The case of Sweden" (2004): 1-33, <http://www.ifau.se/en/Research/Publications/Working-papers/2004/Income-inequality-and-crime-The-case-of-Sweden/> (accessed October, 2013).

²¹ Nilsson

for the year 2010. The prison population data is obtained from the Bureau of Justice Statistics.

The theory used for this model is that state spending on welfare and other factors that will contribute to limiting anomie in an area will lead to a lower crime rate. Therefore states that spend more money to control income inequality will have less violent crime. The regression equation used for this model can be seen below:

$$\begin{aligned} \text{Murders} = & \beta_0 + \beta_1 \text{Gini Index} + \beta_2 \text{Educ Spend} + \beta_3 \text{Welfare} \\ & \text{Spend} + \beta_4 \text{HS Grad Rate} + \beta_5 \text{Incarceration Rate} + \beta_6 \text{Percent} \\ & \text{Divorced} + \beta_7 \text{Percent Nonwhite} + \beta_8 \text{Percent Family Households} \\ & + \beta_9 \text{Unemp Rate} + \beta_{10} \text{Protec Spend} \end{aligned}$$

Violent Crime, specifically murder data, as reported by the FBI's Uniform Crime Report for the year 2010 is used as the dependent variable. The adequacy of crime data in representing the total amount of crime can be questioned. This occurs for several reasons including the fact that not all crime is detected or reported, and crimes in prison are not recorded. Murder data is the least subject to these problems, and therefore for the purposes of this research, is deemed the most dependable. While the murder rate certainly does not account for all types of crime, let alone violent crime, it is the most accurate measure that could be used for this study. The murder rate is defined in this paper as the number of murders or non-negligent manslaughters committed per 100,000 people.

The first explanatory variable, *Welfare Spending*, as defined by usgovernmentspending.com is a combination of unemployment spending, family and

children spending, unemployment trust spending, workers compensation, housing spending, social exclusion spending, R&D social protection spending, and social protection spending. In order to standardize across the fifty United States, welfare spending is put in a per capita form. It is expected that overall welfare spending will have an inverse relation with the violent crime rate; that is, increased welfare spending will lead to a reduction in the murder rate. An increase in welfare spending will help the poorer people in society. From the institutional anomie theory, stronger support from the state may divert people from committing crime. Savolainen corroborated this finding when testing the social and institutional anomie theories. Baumer and Gustafson also found that increased welfare spending would lower the economic pressures felt by people who would be tempted to commit crime.

The next explanatory variable *Protection Spending* as defined by usgovernmentspending.com is the combination of police services, fire-protection services, law courts, prisons, R&D public order and safety, and public order and safety. Protection spending was also put in per capita form to standardize. As protection spending increases it is believed that violent crime will decrease. More spending on crime prevention and punishment acts as a deterrent to deviant behavior by increasing the possibility of being caught and punished. Protection spending is an alternative to welfare spending because instead of trying to help the “problem population,” protection spending looks to criminalize them and put them behind bars.

Another explanatory variable, *Educational Attainment*, is the percentage of the populace that has attained at least a high-school education. Those who have a higher educational attainment are presumably more skilled and easier to employ. Therefore

they take a larger proportion of the jobs. If someone does not have a high school diploma, they will have trouble finding a good-paying job. Therefore they may look for other deviant behavior to supplement their income. It is expected that this will lead to an increase in the violent crime rate.

The next explanatory variable, *Education Spending*, as defined by usgovernmentspending.com is spending on: pre-primary through secondary education, tertiary education, education not definable by level, subsidiary services to education, R&D education, and education. Education spending is a per capita figure as well. Similar to educational attainment, higher spending on education is expected to increase skills of the population. However, higher education spending does not necessarily mean higher education attainment, as money can go to waste. Education spending goes towards the youth in each state, presumably before they are old enough to commit violent crime. Therefore the impact of spending on education in one year may not have an effect on the violent crime rate for that year.

Another explanatory variable *Income Inequality* is given by the Gini coefficient for each state during the year 2010. The Gini coefficient in this case measures the amount of income inequality among the populace. A higher coefficient is hypothesized to lead to a higher murder rate. Krahn, Hartnagel, and Gartrell state that income inequality leads to higher crime rates in an egalitarian society. Due to the fact that this study is focused on the United States where Messner and Rosenfeld have argued that the American Dream fosters egalitarianism, income inequality is expected to have a positive effect on the murder rate.

The next explanatory variable *Unemployment Rate* is the statewide unemployment rate. As the unemployment rate is increased the violent crime rate is believed to also increase. As socially acceptable ways to earn money become harder to obtain, state residents will be tempted to resort to deviant behaviors to earn money.

A subsequent explanatory variable *Imprisonment rate* is the number of inmates currently in prison in each state per 100,000 in the adult population. It is assumed that a higher prison population will lead to a lower violent crime rate. There are many reasons why this is deemed true. With a higher prison population, there will be fewer criminals in the general populace to commit murders. Another reason is that a higher prison population will act as a deterrent to those who are not in prison and debating murder. Lastly, crimes in prison are not reported. Therefore by incarcerating a large portion of those potentially capable of committing murder, they will commit these murders in prison and it will not be counted for the states murder rate total.

The eighth explanatory variable is *Percent Family Households*, which looks at the population living in households and of that, the percentage that have a family living together in the household. This rate both includes married couple families as well as single parent householders with no husband. This is thought to have an inverse relationship with the violent crime rate. A family household provides stability to the entire family unit. This stability will lead the family to adhere to the cultural norms. As this percentage becomes lower, crime is expected to increase.

The penultimate explanatory variable *Percent Divorced* is the percentage of the population that has been married and divorced. Blau and Blau consider divorce a source of anomie; Flewelling and Williams also found this same result. They show that

anomie is positively related with violent crime. Therefore in this study, the percentage of the population divorced is thought to be positively related to the violent crime rate.

The last explanatory variable *Percent Nonwhite* is the percentage of the population that is not caucasian white. Blau and Blau used the percentage of the population that was black however, it was felt percentage not white would be more relevant today. This variable takes into account the racial inequality that occurs in each state when looking at the murder rate. It is expected that this variable will be vary directly with the murder rate.

Empirical Section

After running a few preliminary regressions analyses, it was decided to drop the unemployment rate and percent family households from the model. There were multicollinearity issues between the unemployment rate and the welfare spending per capita variable. Due to the fact that welfare spending was the primary explanatory variable of interest it was decided that dropping the variable was the best solution. There were no transformations of the variables or re-specifications that made theoretical or economic sense. Dropping the variable allowed a better estimate of the coefficient of Welfare spending by giving a more accurate t-statistic.

Ordinary Least Squares was the chosen economic regression type for this model and the results were:

Table 1: Results

Variable	coefficient	(t-score)
Constant	14.571	(0.874)
Gini Index	7.349	(0.409)
Education Spending	-0.001	(-1.427)
Welfare Spending	0.0008	(0.921)
High School Graduation Rate	-.158	(-1.455)
Incarceration Rate	0.005	(4.188) * **
Percent Divorced	-.130	(-0.817)
Percent Nonwhite	-.0236	(-1.448)
Protection Spending	0.0016	(0.865)
Adjusted R-square	0.612	

(***) denotes significance at the 99% level

The Gini Index, as expected, varied directly with the murder rate. As there was more income inequality, the murder rate increased. This result is consistent with anomie theories and the American Dream complex. The t-score for the Gini coefficient was significant at an acceptable confidence interval. The Gini Index seems to have multicollinearity issues with education spending, welfare spending and the high school graduation rate. There were not feasible transformations or re-specifications to make and the Gini Index is too integral to drop, so it was left in the model.

Education spending had a pretty significant negative effect on the violent crime rate. For every one dollar increase per capita in education spending, the murder rate decreases .105%. It seems that the multicollinearity issues deflated the t-scores for

education spending, therefore it not significant at any accepted level. While a increase in education spending in 2010 may not show immediate results combating the murder rate, it is possible that some states have had increased spending for a number of years. Spending a number of years ago could be what led to this negative relationship. It is impossible to say though, given the confines of this study.

Welfare spending was not significant and did not have the predicted sign or magnitude. Savolainen found in his study that some northern European countries that had more socialistic governments negated the goal/means complex of Merton. Potential deviants did not feel the pressure to engage in criminal behavior. It is possible that there could be a different cultural situation between northern European countries and the United States. Potential criminals in the Northern European countries could be less materialistic than in the United States. Alternatively, it is possible that states have not yet reached the threshold of welfare spending that will negate the goal/means complex. Another reason may be that states may not be able to spend enough to fulfill people solely with reasonable welfare programs. More welfare does not necessarily mean new welfare programs, but instead could be a result of more people who are out of work. That would explain the positive correlation between welfare spending and the murder rate.

The high school graduation rate had a negative effect on the murder rate as expected. However, the t-statistic of the high school graduation rate was not high enough to be significant. With higher educational attainment, it is easier to get a job. The unemployment rate for people with a higher education is lower. With lower

unemployment there is less stigma that could lead to violent crime: low self esteem, loss of self, and low monetary worth among other things.

Both protection spending and the incarceration rate varied directly with the murder rate. This relationship could be an effect of higher murder rates rather than a cause. A state may spend more money on police and courts in order to curb a high violent crime rate. With a higher murder rate, more people will be caught and sentenced to jail sentences. This would explain the higher prison populations in those states that have a higher murder rate.

Percent divorced was a variable that signaled anomie to Blau and Blau. However the percent divorced was negatively related to the murder rate. It is possible that since the 1980s the stigma of divorce has lessened, and now is a more common practice. Therefore, divorce may not be a source of anomie .

Percent nonwhite was negatively related to the murder rate as expected and was nearly but not quite statistically significant. This relationship continues to show the racial inequality that still exists in the United States. This relationship could be due to the continued lack of opportunities for nonwhite Americans who become stuck in their social situation. In other words, there could be a lack of upward economic mobility in the United States.

There continues to be a problem with violence in the United States at levels not seen in the other developed countries around the world. From the results of this research it seems the most effective way to combat this issue is to place more emphasis on education. High school graduation and education beyond that has a significant impact on people's lives. Higher educational attainment leads to more fruitful

employment as well as lower murder rates. It seems to be in state's best interest focus their efforts on education.

Continued Research

After obtaining slightly inconclusive results it was decided to retest the model with panel data. All the variables except the percent non-white were kept the same. Instead of percent non-white, the percent of the population that was black was used. Black people are not given the same opportunities that white and other races are given in society. A black person is more likely to be arrested than a white person for committing the same crime.²² Becky Pettit states shocking statistics in her book, *Invisible Men*, on Russ Robert's show *Econ Talk*, "You also find that among young black men who have dropped out of high school, they are more likely to be in prison or jail than they are to be employed."²³ With this inequality, it was expected that as the percentage of the population that was black increased, the murder rate would increase.

For the percent black, percent divorced, and high school graduation variables, the average change was calculated and used from the Census bureau's 2000 and 2010 reports. Ordinary least squares regression was used on a fixed effects model from the years 2000-2004. This analysis was done on the fifty United States. The results from the estimated regression equation can be seen in Table 2 below:

²² "Pettit on the Prison Population, Survey data and African-American Progress." Narrated by Russ Roberts. *Econ Talk*. *Library of Economics and Liberty*, December 31, 2012. http://www.econtalk.org/archives/featuring/becky_pettit/

²³ Pettit

Table 2: Panel Results

Variable	coefficient	(t-score)
Constant	23.689	(2.768)
Gini Index	-1.082	(-0.471)
Education Spending	0.0045	(1.094)
Welfare Spending	0.0029	(0.503)
High School Graduation Rate	-0.134	(-0.812)
Incarceration Rate	-0.0035	(-1.539)
Percent Divorced	-45.794	(0.759)
Percent Black	-25.264	(-0.677)
Protection Spending	0.0088	(0.434)
Adjusted R-square	0.967	

(***) denotes significance at the 99% level

(**) denotes significance at the 95% level

(*) denotes significance at the 90% level

These results did not improve upon the previous results. Because of this, it was decided to slightly modify the model used. It was determined that the incarceration rate variable and high school graduation rate variables should be dropped. The incarceration rate and the protection spending variable significantly overlap. When more criminals are incarcerated, states are forced to increase spending on prisons and jail facilities. Therefore all the change that occurs in the incarceration rate is already included in change in the protection spending variable. Since the goal of this research was to identify what kinds of spending it could use to lower the murder rate, the protection spending variable was the variable that was decided to be kept.

Similarly, the high school graduation rate and education spending are both variables dealing with educational attainment. As the high school graduation rate increases, the state must spend more to educate the additional students. This can be done through opening new schools or hiring more teachers, both of which cost the state money. Inversely, as the high school graduation rate decreases, fewer students are being taught. Therefore the state would not have to spend additional money opening new schools and paying new teachers.

The results from the updated model can be seen below in Table 3:

Table 3: Panel Results

Variable	coefficient	(t-score)
Constant	2.231	(0.310)
Gini Index	0.0046	(0.998)
Education Spending	0.011	(1.991) * *
Welfare Spending	0.010	(1.346)
Percent Divorced	-58.002	(-0.774)
Percent Black	77.617	(3.397) * **
Protection Spending	-0.045	(-1.673)*
Adjusted R-square	0.98	

(***) denotes significance at the 99% level

(**) denotes significance at the 95% level

(*) denotes significance at the 90% level

The results looked better than the previous results. There are now three significant variables. The education spending variable is significant at the 95%

confidence level. However, the estimated sign of the coefficient does not make theoretical sense. This could again be due to continued issues with multicollinearity. It still appears that education and educational attainment play a large role in the murder rate. The correlation matrix in table 4 below, shows the multicollinearity issues. We can see specifically see the large correlation between the spending variables.

Table 4:

	BLK	DIV	EDUC	GINI	MRDR	PROT	WELF
BLK	1	-0.132630	-0.133331	0.133250	0.783958	0.066898	-0.084473
DIV	-0.132630	1	0.124920	0.076447	0.048636	0.169458	0.048880
EDUC	-0.133331	0.124920	1	0.069255	0.025717	0.906126	0.856935
GINI	0.133250	0.076447	0.069255	1	0.218897	0.216710	0.056669
MRDR	0.783958	0.048636	0.025717	0.218897	1	0.326371	0.196195
PROT	0.066898	0.169458	0.906126	0.216710	0.326371	1	0.876057
WELF	-0.084473	0.048880	0.856935	0.056669	0.196195	0.876057	1

The percent black explanatory variable was significant to the 99% confidence level and, as expected, varied directly with murder rate. This is evidence for the inequality that exists for black people in the American society.

The protection spending variable was significant at the 90% confidence level and was negatively related to the murder rate. Increasing spending on protection had a two part effect on the murder rate. Increased policing led to more arrests and increased prison populations. This means that there were fewer criminals out in society to commit

crime. The other effect increased policing had was as a deterrent to other possible criminals.²⁴

The welfare spending variable was again proven to not be significantly related to the murder rate. It appears that state governments cannot satiate the hopes of the American Dream that citizens have. They did not provide enough institutional support, by the means of welfare spending, in order to negate the goals means complex of Merton. The people in the United States still felt the need to commit crime in order to augment their incomes.

Conclusion and Further Research

The welfare spending done by the states does not seem to alleviate the economic pressures of the possible criminals. The results that Baumer and Gustafson found in some European countries does not seem to translate to the United States for time periods tracked by this research. This could be due to the culture of the United States that places such a high emphasis on monetary wealth and success, more so than the rest of the world. It may not be possible for states to spend enough money to satiate people who otherwise would be tempted to pursue illegal activities.

The results were also inconclusive on the education spending variable. In the 2010 cross-section regression, education spending was negatively related to crime but not significant to any acceptable degree. In the 2000-2004 panel study, the education spending variable was significant but had the opposite sign of what was expected. With higher levels of education, people should make more money. Therefore not being as

²⁴ Steven D. Levitt, "Understanding Why Crime Fell in the 1990s: Four Factors That Explain the Decline and Six That Do Not," *Journal of Economic Perspectives*, 18, no. 1 (2004): 163-190,

tempted to commit crime. However, this relationship was not found in the results. This could be due to multicollinearity issues with the other spending variables.

From these results, it seems the most effective way for states to combat crime in America would be to spend more money on protection spending. However, the protection spending does not necessarily fix the crime in America, it simply hides it. Messner and Rosenfeld make this point in their book. States are moving the criminals and the crime into prisons, where crime statistics are not counted in the normal reports done by the FBI and the Bureau of Justice Statistics. Therefore spending more money on protection spending seems to be a short term solution. As the results imply, increased punitive measures are more likely to affect the black population. Therefore they are inherently more discriminatory.

For further research it would be interesting to look at a longer series of years. This would encompass larger changes in spending by the states. It would also be beneficial to look at specific kinds of welfare spending that are not necessarily focused on unemployment payments as the aggregates in this study are, for example looking at a specific type of spending and the effects they have on the crime rate.

America has a problem with murder. There is a culture of crime that could be fueled by its very identity, the American Dream. There may be no immediate solutions that states can implement to fix this problem, and the results of this study were inconclusive in finding one. The only real resolution may be to change the culture that we have today.

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