



# An Economic Analysis of Crime

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### I. ABSTRACT

This study estimates economic factors that explain crime rates for larceny, burglary, and robbery in the 50 states from 2002 to 2009. A panel data set was used, covering 2002, and 2004 to 2009. Our explanatory variables were sorted into three categories: economic, deterrence, and demographic. Economic variables included unemployment and poverty rates. Deterrence variables included concealed carry weapon laws, preventative spending, and incarceration rates. Demographic variables included urbanization rate, dropout rate, the young male population (15-24), as well as the racial composition of the population. Our results varied across the three crime types observed, becoming less significant as the violence of the observed crime increased. Our results indicate that econometric models have difficulty predicting and explaining crime rates. This may be due to the lack of economic reasoning used when committing a crime.

### II. Variables

Our **dependent variables** were larceny, burglary, and robbery

#### Economic variables

PVTY<sub>it</sub>: Percentage of population with income for the *i*<sup>th</sup> state for 2002, 2004-2009  
 UN<sub>it</sub>: Unemployment rate for the *i*<sup>th</sup> state for 2002, 2004-2009

#### Deterrence variables

PrS<sub>it</sub>: Preventative spending for the *i*<sup>th</sup> state for 2002, 2004-2009  
 INCARC<sub>it</sub>: Incarceration rate for the *i*<sup>th</sup> state for 2002, 2004-2009, found by dividing the incarcerated population by the total state population  
 UCCW<sub>it</sub>: Dummy variable, 1 if the *i*<sup>th</sup> state had unrestricted conceal carry weapon laws for 2002, 2004-2009  
 SCCW<sub>it</sub>: Dummy variable, 1 if the *i*<sup>th</sup> state had shall-issue conceal carry weapon laws for 2002, 2004-2009  
 MCCW<sub>it</sub>: Dummy variable, 1 if the *i*<sup>th</sup> state had may-issue conceal carry weapon laws for 2002, 2004-2009

#### Demographic variables

WHITE<sub>it</sub>: Percentage of the population that is White for the *i*<sup>th</sup> state for 2002, 2004-2009  
 BLACK<sub>it</sub>: Percentage of the population that is Black for the *i*<sup>th</sup> state for 2002, 2004-2009  
 ASIAN<sub>it</sub>: Percentage of the population that is Asian for the *i*<sup>th</sup> state for 2002, 2004-2009  
 HISP<sub>it</sub>: Percentage of the population that is Hispanic for the *i*<sup>th</sup> state for 2002, 2004-2009  
 YM<sub>it</sub>: Percentage of the population that is young males, age 15-24, for the *i*<sup>th</sup> state for 2002, 2004-2009  
 URB<sub>it</sub>: The urbanization rate for the *i*<sup>th</sup> state for 2002, 2004-2009. Calculated by taking the population of the *i*<sup>th</sup> state living in urban areas divided by the total state population, as defined by the U.S. census.  
 DR<sub>it</sub>: The high school dropout rate for the *i*<sup>th</sup> state for 2002, 2004-2009

### III. Theory

We specify larceny, burglary, and robbery as functions of our economic, deterrence, and demographic variables and hypothesize the marginal effects (+/-) of the explanatory variable on crime.

#### Economic variables

PVTY(+): Expected to have a positive relationship with crime, as more people live in poverty a greater percentage of the population has less to lose from committing a crime.  
 UN(+): Expected to have a positive relationship with crime. As fewer people have a steady stream of income, more may resort to crime to fund their lifestyle.

#### Deterrence variables

PrS(-): Expected to have a negative relationship with crime, as more is spent to prevent crime less crime should occur, enforcement becomes more likely.  
 INCARC(-): Expected to have a negative relationship with crime, as more incarcerated means more potential perpetrators are in jail and unable to commit a crime.  
 UCCW, SCCW, MCCW (-): Previous studies found violent crime decreased when states adopted shall-issue concealed carry weapon laws, making concealed carry weapon permits easier to obtain. A state having easier access to concealed carry weapons was expected to have lower crime rates.

#### Demographic variables

WHITE, BLACK, ASIAN, HISP(+): Saving behavior and wealth differ across races, important to control for  
 YM(+): Expected to have a positive relationship with crime since young males are a large percentage of the crime committing population.  
 URB(+): Expected to have a positive relationship with crime. As the urbanization rate increases, this increases the opportunities to commit crimes, and gives the perpetrator more anonymity.  
 DR(+): Expected to have a positive relationship with crime. A higher dropout rate indicates a lower level of educational attainment, which leads to higher crime rates. Less educated individuals tend to commit more crimes, since they have fewer legal options to make a living.

### IV. EMPIRICAL RESULTS

Variable	Larceny		Burglary		Robbery	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
UN	0.052836	.0000	0.011886	.0023		
PVTY	-0.003893	.7499	0.004736	.2656	0.000704	.5214
PRS	1.26E-11	.7728	8.66E-1	.5698	-2.55E-12	.5165
INCARC	-0.070392	.8762	0.012070	.9366	0.005015	.9030
BLACK	-0.062288	.2018	-0.053456	.0018	0.004589	.3016
HISP	-0.401614	.0000	-0.030000	.0406	0.015552	.0001
ASIAN	0.165585	.0003	0.034134	.0320	0.002329	.5706
WHITE	-0.000566	.4503	0.000389	.1364	0.000109	.1126
YM	0.370066	.0000	0.042107	.0906		
DR	-0.007818	.5097	0.003330	.4196		
URB	0.011893	.0726	0.002379	.3004	-0.000873	.1514
Adjusted R <sup>2</sup>	0.957527		0.979526		0.976893	

• Estimated using fixed to control for cross-section heterogeneity.  
 • Variables with no coefficient were found to be irrelevant

### V. ANALYSIS

The following insights can be gained from our results:

#### Larceny

- Results were the most significant for the larceny rate
- For every 1% increase in the unemployment rate there is a 0.052% increase in the larceny rate.
- The Hispanic population variable was significant and negative, implying that for every 1% increase in the Hispanic population, there is a 0.401% decrease in the larceny rate.
- For every 1% increase in the Asian population, there is a 0.165% increase in the larceny rate
- The young male population variable was significant and positive, suggesting that for every 1% increase in the population, there is a 0.370% increase in the larceny rate.
- The urbanization rate variable was significant at the 10% level and suggested that for every 1% increase in the urbanization rate, there is a 0.012% increase in the larceny rate.

#### Burglary

- The higher level of violence in burglary poses some challenges to our model. Compared to the larceny model, the variables held less explanatory value
- For every 1% increase in the unemployment rate, there is a 0.012% increase in the burglary rate.
- For every 1% increase in the Black population, there is a 0.053% decrease in the burglary rate.
- For every 1% increase in the Asian population, there is a 0.034% increase in the burglary rate.
- For every 1% increase in the Hispanic Population, there is a 0.030% decrease in the burglary rate.
- The young male variable was positive and significant, however much less significant than in the larceny regression

#### Robbery

- Robbery, the most violent of the three crimes, was the least predictable
- The Hispanic population variable was the only variable that held significance. For every 1% increase in the Hispanic population, there is a 0.016% increase in the robbery rate.

### VI. Policy Implications

Our analysis suggests it is challenging to successfully model the factors that determine larceny, burglary, and robbery. So it is also difficult to glean meaningful policy recommendations from the results. We speculate that perpetrators may not employ rational economic calculation when making their decisions about whether or not to commit a crime. Instead, crime may be motivated by other factors—such as emotion and opportunity—which are harder to statistically verify.