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Labour Market and Economic Crimes: An Investigation from Fifty U.S States and The District of Columbia

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ABSTRACT

Crime is a serious and complex problem that affects both the social and economic development of a country. An investigation studying not only the determinants of crime but also the relationship between crime and economic phenomena such as employment, income, and immigration, is necessary. The purpose of this empirical report is to investigate the relationship between labor market conditions and economic crimes in the fifty U.S. states and the District of Columbia by building upon the economic model of rational behavior. A very intuitive hypothesis is that an agent is more likely to engage in criminal activity if there is a low level of deterrence (e.g. minimal police enforcement, absence of death penalty, etc.) and unfavorable economic conditions (e.g. high unemployment rate, low educational attainment, low GDP per capita). There are also various socioeconomic variables such as age distribution, church attendance, immigration, urbanization, and racial mix that reflect an individual's tastes and thus influence behavior.

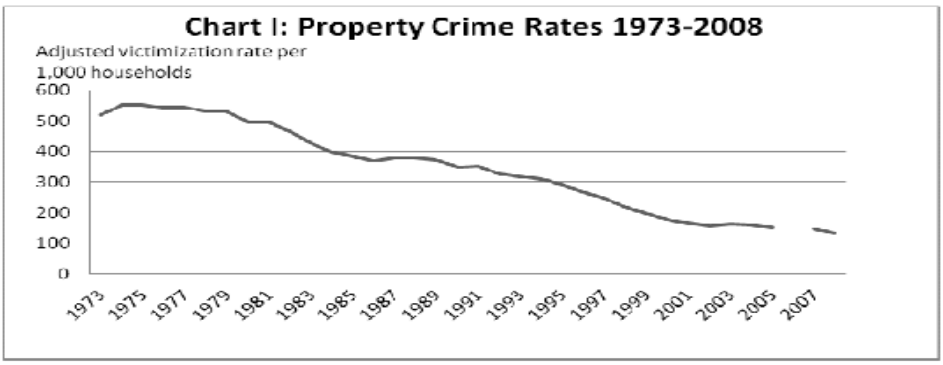
Keywords: **Economic crime; Labour market; Employment; GDP; Immigration; Income; Behavior**

1. Introduction

Crime is a serious and complex problem that affects both the social and economic development of a country. As a result, the economics of crime is an important field of economics investigation studying not only the determinants of crime but also the relationship between crime and economic phenomena such as employment, income, and immigration. "To the economist, crime is rational behavior a choice that is made by a person or persons in deciding how best to spend their time." (Hellman and Alper, 2006, p. 1) The assumption of rationality does not apply to every type of crime (e.g. "murders of passion") and as a result, this paper focuses on property crimes (including burglary, larceny, and motor vehicle theft) because these are most closely related to the 'rational choice' model.

Legal definitions and various data about property crimes can be found in the Uniform Crime Reports (UCR) compiled by the Bureau of Federal Investigation (FBI) or in the National Crime Victimization Survey (NCVS) of the Bureau of Justice Statistics (BJS). "The information the agencies collect yearly guides criminal justice policy and act as an important knowledge source for citizens about crime in their communities." (Anderson 2002) Over the last 30 years, property crime in the United States has been following a downward trend, except in the late 1980s when property crime increased by approximately 15% as reported by the UCR (1986, 1991), (Hellman and Alper, 2006, p. 9). The property crime rate declined almost 5.5% from 2008 to 2009 and remains at the lowest levels recorded since 1973, the first year that such data were collected. (BJS, Property Crime 2011)

The following is a chart depicting property crime rates for the period 1973 to 2008 as reported by the NCVS. The UCR includes only offenses known to the police, whereas the NCVS obtains information from a sample of households and also includes property crimes that were not reported to the police. The NCVS found that in 2009 only 40% of property crimes were reported to the police. (BJS, Property Crime 2011).



Source: National Crime Victimization Survey (NCVS) (2009). Ongoing since 1972 with a redesign in 1993, this survey of households interviews up to 134,000 people's age 12 and older in as many as 77,200 households twice each year about their victimizations from crime. Property crimes include burglary, theft, and motor vehicle theft. For more information see http://bjs.ojp.usdoj.gov/content/glance/house2.cfm

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The purpose of this empirical report is to investigate the relationship between labor market conditions and economic crimes in the fifty U.S states and the District of Columbia by building upon the economic model of rational behavior. A very intuitive hypothesis is that an agent is more likely to engage in criminal activity if there is a low level of deterrence (e.g. minimal police enforcement, absence of death penalty, etc.) and unfavorable economic conditions (e.g. high unemployment rate, low educational attainment, low GDP per capita). There are also various socioeconomic variables such as age distribution, church attendance, immigration, urbanization, and racial mix that reflect an individual's tastes and thus influence behavior. All these variables will be discussed in section 4 in more detail.

2. Recent literature

Most studies that are based on the economic model of rational crime are analytical and are based on Gary Becker's (1968) seminal paper. *Crime and Punishment: An Economic Approach* in which he first developed the idea of 'rational' criminal behavior and the "supply of offense" function. Since then, many studies have been done to find the determinants of crime and the socioeconomic variables that play a role in the decision to commit a crime. Paolo Buonanno's (2003). *The Socio-economic Determinants of Crime* discusses contributions to the model of rational crime and thus presents both theoretical and empirical papers while focusing on the relationships existing between crime and wage inequality, income redistribution, education, age, and unemployment. A related empirical paper is Scott Noveck's (2007) *Testing the Theory of Rational Crime with United States Data, 1994-2002* in which he uses the model of rational crime to examine the impact of changes in law enforcement expenditure and economic incentives on seven index crimes using state-level U.S data from the years 1994 through 2002. Index crimes are "specific offenses, and attempted offenses, which are counted by the FBI in compiling an index of serious crimes." (Hellman and Alper, 2006, p. 3) There are a total of eight index crimes that can be divided into two categories: violent crimes (also referred to as crimes against (persons) and property crimes which do not involve force or threat of force against a person. (Hellman and Alper, 2006, p. 3) Aside from using Becker's model, Noveck also builds upon models used by Ehrlich (1973) and Levitt (2002). Many other papers are in the same spirit as the above papers, specifically Jorgen Lauridsen's (2009).

Is Baltic Crime Economically Rational? whose goal is to investigate whether crime in the Baltic countries is governed by economic rationality. A major difference between this paper and the ones mentioned is the use of cross-section data in this investigation as opposed to panel data. This study is also broader in scope and tries to test how crime is affected by three different classes of influence, namely level of deterrence, economic conditions, and socioeconomic factors.

3. Model

The model of rational crime provides a framework within which to examine specific problems and its consideration is the first step in addressing empirical questions concerning criminal activity. (Cooter and Ulen, 2004) As mentioned before, the first to develop a model of criminal choice was Becker (1968) and he drastically changed the way people view criminal choice (e.g. bad people do bad things). Historically crime was thought to be the result of mental illness or bad attitudes but Becker rationalizes that "some individuals become criminals because of the financial and other rewards from crime compared to legal work, taking account of the likelihood of apprehension and conviction, and the severity of punishment."(Becker, 1968 p.176) Therefore this model considers criminal activity as the outcome of a rational maximization problem in which an individual has to compare the costs of illegal activities with the returns from legitimate market opportunities. The summation of all individual maximization outcomes results in a market "supply of offenses" function which applies to society as a whole. (Becker 1968)

3.1 Benefits from crime

The kinds of gains one can obtain from a criminal act vary, depending on the type of crime and also on the individual criminal. (Hellman & Alper, 2006, p. 53) The most obvious benefit of crime is material gain. In some cases, a criminal knows the exact value of the monetary gain, whereas at other times only the expected value to be gained is known. (Hellman & Alper, 2006, p. 54)

The other benefit of criminal activity is psychic gain. This is a more general category because it can include many possibilities such as the thrill of danger, a sense of equity and accomplishment, honor, peer approval, and others. (Hellman & Alper, 2006, p. 54) Just as monetary gains differ from crime to crime, the importance of psychic gains also depends on the crime. However, there is more to be said about the costs of crime and the next section is dedicated to describing these costs.

3.2 Costs of Crime

The costs of engaging in criminal activity are more diverse and complicated. One of the most important costs of crime is a punishment which includes fines or incarceration. However, punishment is rarely certain and thus one must consider expected punishment instead. A rational amoral person will commit the crime if the expected punishment is less than the expected net benefit from the crime. (Cooter and Ulen, 2004) The expected net benefit to the criminal is the reward less any direct costs involved in committing a crime. There are three main categories of costs and I will briefly discuss each of them. Firstly, there are material costs or out-of-pocket expenses such as burglar tools, lawyer fees, payoffs to officers, and so on. (Cooter and Ulen, 2004) Material costs vary for different crimes.

The second category of costs is based on the opportunity cost concept. The opportunity cost of time and effort is one example. Some individuals are more productive in the legitimate labor market because they are better educated and have more experience while others are more productive at illegal activities and it requires less effort for them. If an individual's expected return from 'time and effort' spent in legitimate employment is less than the expected return from 'time and effort' spent in criminal activity, he/she will most likely engage in a life of crime. (Cooter and Ulen, 2004) Another opportunity cost is that of future legitimate economic opportunities. Many socioeconomic variables are related to crime and affect future opportunities such as social class, cultural and family background, educational

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attainment, age, and sex of the potential criminal. (Buonanno 2003) In addition, the opportunity cost of reputation or public shame (loss of respect) is also a direct cost of crime.

Finally, the third type of cost is psychic cost. There are a large number of psychic costs that can be included here but a few examples are fear, dislike of risk, and private shame which refers to the extent to which a person is constrained by guilt or morality (factors such as family values and church attendance play an important role). (Cooter and Ulen, 2004)

All the costs and benefits listed above are for the individual criminal because we are dealing with an individual model of rational behavior. There are however costs that affect the society as a whole which are not discussed in this paper but it is worth mentioning at least two examples. A cost to society is the loss of the productive activity of the criminal and also the threat to property rights threatened. (Hellman & Alper, 2006, p. 120)

4. Data & Empirical Specification and Estimation Technique

In the introduction, it was mentioned that the purpose of this paper is to investigate the relationship existing between labor market conditions and economic crimes in the United States. This section specifies what these market conditions consist of and describes the data used to quantify each variable. I will start by first introducing the three property crimes that serve as dependent variables in the model.

Burglary (BRG) is the unlawful entry of a structure to commit a felony or theft, whether or not force is used. Attempted forcible entries are also considered burglaries. (Hellman & Alper, 2006, p. 4) Larceny-theft (LART) is the unlawful taking, carrying, leading, or riding away of property (except motor vehicles) from the possession or constructive possession of another (e.g. pickpocketing, purse snatching, shoplifting). (Hellman & Alper, 2006, p. 4) Finally, motor vehicle theft (MVT) is the theft or attempted theft of a motor vehicle (excludes motorboats, construction equipment, airplanes, and farming equipment). (Hellman & Alper, 2006, p. 4) One can see now that these crimes are very closely related to the rational choice model. Most of the data on reported offenses are taken from the U.S. Census Bureau, and the U.S. Department of Commerce (2006) (various tables; see Table I for exact source). The year 1999 is the most recent year for which the highest volume of data is available and so this is the year chosen for this empirical paper. The three classes of influences examined are the level of deterrence in each state, the economic situation of each state, and socioeconomic conditions.

The measures chosen to describe the level of deterrence variable are the number of sworn police officers per 100,000 persons (POL) and a binary variable that represents whether or not capital punishment (CAP) is legal in the respective state. Based on the economic model of rational behavior, the propensity to commit crimes should be negatively related to the level of deterrence so we expect negative signs on both coefficient estimates.

The second category is the economic conditions variable and three measures are used to quantify this variable: the unemployment rate (UMP); Gross Domestic Product per capita (GDP); and educational attainment (EDUC) measured as the proportion of the population with a High School diploma or more. We expect the number of property crimes to be positively related to UMP and negatively related to GDP and EDUC.

The final category is the socioeconomic conditions variable and this category is more general so many possible influences could have been included. The first influence chosen for this study is the proportion of people that are new immigrants in each state (IMG). A rough prediction for the relationship between IMG and crime is that they are inversely related. This is because many immigrants are highly qualified and have high educational attainment and so would not choose to engage in criminal activity. However, it is possible for immigrants that were accepted into the U.S. for reasons other than high qualifications to have a hard time finding legal employment and thus resort to illegal activities.

Another influence is the degree of urbanization (URB). The data for this measure is only available for the year 1990. It makes intuitive sense to expect crime to be positively related to URB, especially where there are weaker community attachments. The proportion of people between the ages of 15 to 24 years of age (AGE) is also used as part of the socioeconomic conditions. This measure is slightly adjusted from the raw data because the two different age groups of 15-19 and 20-24 are added together to obtain the preferred age group 15-24 and then all observations are divided by the total population of the state to get a proportion. It would have been preferred to have the proportion only of males in this age group but that information was not available. We expect the coefficient on AGE to be positive.

The proportion of people that attend a Christian church (CHR) is also an interesting measure because it reflects an individual's convictions and sense of morality. Christian church adherents are defined as "all members, including full members, their children, and the estimated number of other regular participants who are not considered as a communicant, confirmed or full members." (U.S. Census 2000, Table 76) Data on Christian church adherents are" based on reports of 133 church groupings and exclude 34 church bodies that reported more than 100,000 members to the Yearbook of American and Canadian Churches." (U.S. Census 2000, Table 76) Therefore one would expect crime to be negatively related to CHR, although it might not turn out to be statistically significant. The final influence included in this category are racial mix measured as the proportion of Hispanics (HISP) and the proportion of Blacks (BLK). I also put these two together to form a minority variable (MIN) which is used for some of the regressions instead of the separate variables. Thus when HISP and BLK are used, MIN is not, and vice versa. Predictions for these last variables are difficult to make but one should see a positive relationship between crime and the general MIN variable.

A problem that arises when conducting such an experiment is that many of the influences or variables that could provide more depth to the model cannot be quantified. For example, it is impossible to quantify all the illegal immigrants in the United States just as it is very hard to quantify the opportunity costs of crime. There are also variables for which data were not readily available, such as youth unemployment rates per state which would have fit the model better.

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The Ordinary Least Squares (OLS) estimation technique is implemented on the following empirical model specified in matrix form.

$Y = \beta X + \varepsilon$

Where Y is a vector of 51 observations, X is a matrix of explanatory variables (the size of the matrix varies with each specification), β is a coefficient vector and the error term ε follows a normal distribution with mean 0 and variance $\sigma^2\varepsilon$.

5. Results

Table II summarizes the OLS regression results for different specifications explaining the relationship between labor market conditions and property crimes. There are four different specifications for Total Property Crime (TPC) and one for each of the three types of property crime discussed earlier. Table I provides the mean, minimum, and maximum values for each of the dependent and explanatory variables used in the model.

5.1 Total Property Crime

Specification A of Table II shows the results obtained by regressing TPC against the intercept and all the explanatory variables, namely POL, CAP, GDP, UMP, EDUC, IMG, URB, AGE, CHR, HISP, and BLK. The coefficient on POL is significant and positive which is contrary to the prediction. A reason for this result might be that when crime increases, more police officers are needed and thus influences can go in both directions. Although the coefficient for CAP is not significant, it is also positive meaning jurisdictions with more crime might introduce more severe punishment like the death penalty. The other significant coefficients are on GDP, IMG, URB, and BLK, and they all have the expected sign. It is interesting to see that the two minority groups HISP and BLK have different signs and only the coefficient on BLK is significant. The other explanatory variables do not have point estimates that are statistically significant however they have the expected sign. The R^2 is high at 0.95 indicating that a very large proportion of the variability in the data set is accounted for by the model.

Specification B of Table II displays the results obtained from the regression in which I dropped HISP and BLK and used MIN. The same coefficients are significant as in Specification A but now one can see that MIN is not statistically significant. The R^2 is just slightly lower at 0.94.

After running the first two regressions and looking at a table displaying the correlation between the variables, a very high correlation is noticeable between AGE and BLK and between AGE and HISP. There is also a high correlation between GDP and POL possibly meaning that states with higher GDP per capita can afford to hire more police officers. These results can be seen in Table III.

Specification C displays the results from regressing TPC on all variables but dropping the racial mix measures, namely HISP, BLK, and MIN. Looking at the table it can be seen that the only difference between this and the previous specification is that AGE is now statistically significant but the sign is negative which is counterintuitive. It means that as the proportion of people aged 15 to 24 increases by one percent, property crimes decreased by 20.04 crimes per 100,000 persons. This is counterintuitive because the standard view on property crime is that it is a young person crime and so crimes should increase as the proportion of young people increases. The R^2 is the same as in Specification B.

Finally, Specification D drops the AGE variable and uses the MIN variable together with all the other ones. The result is that MIN becomes statistically significant and the sign is negative. This means that a one percent increase in the proportion of Hispanic and Black populations taken together causes a decrease of 10.25 property crimes per 100,000 persons. The R^2 is the same as in Specifications B and C.

5.2 Burglary

The results of regressing BRG against the intercept and the other variables, namely POL, CAP, GDP, UMP, EDUC, IMG, URB, AGE, CHR, HISP, and BLK are also shown in Table II. The statistically significant coefficients are the intercept, POL, GDP, EDUC, and IMG. All the signs on the coefficients are as expected. It is interesting to note that this is the only regression for which the coefficient on EDUC is statistically significant. One can suppose from this result that once individuals graduate from High School they develop more awareness of the risks involved in committing burglary and become discouraged from attempting to commit it. Also, it is worth mentioning that URB became insignificant when considering only BRG, although it was significant in the previous regressions in which total crime was the dependent variable. This means that URB has a big impact on one of the other property crimes. The R^2 is 0.77 which is the lowest out of all the different regressions.

5.3 Larceny theft

Regressing LART against the intercept and the other variables leads to obtaining statistically significant estimates for POL, GDP, and IMG with the appropriate signs. Once again URB is not statistically significant, which leaves MVT as the only property crime that is influenced by the degree of urbanization. The R^2 is 0.94.

5.4 Motor vehicle theft

The results from regressing MVT on all the explanatory variables are in the last column of Table II and one can see that quite a few coefficients are statistically significant, namely POL, GDP, IMG, URB, AGE, HISP, and BLK. As predicted in the previous section, the coefficient on URB is significant and positive. This makes sense since more vehicles are available in urbanized areas. Once again AGE is statistically significant with a negative sign leading one to believe that MVT is not a young person's crime. It is interesting to note that both HISP and BLK are significant but with opposites signs. The coefficient on HISP is negative saying that an increase in the proportion of Hispanic people causes motor vehicle thefts to decrease, whereas there is a positive relationship between BLK and MVT. The R^2 is slightly higher than for LART.

6. Conclusions

Although some of the outcomes from the regression turned out to be the opposite of what was expected, overall, the empirical results support the hypotheses made based on intuition and other economists' findings. The level of deterrence variable quantified by POL and CAP had the wrong sign, but this might be a causality problem. The results showed a negative relationship between property crimes and GDP per capita, although many

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would say that higher income would provide an opportunity for more crime. It was surprising that UMP was not statistically significant in any of the regressions although it seems such an important determinant of crime. Better results might have been obtained if only youth unemployment rates were considered, but data were not available by state. As mentioned above, the results for the coefficient on AGE were most counterintuitive because they lead one to believe that in fact, property crime is not a young person's crime. Once again, this result might have been different if only data for males were used.

This research could be improved by specifying a more complete model to account for the simultaneity and by trying to obtain data that better quantify the variables desired to observe.

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TABLE I

Sample Information

Label	Variable Definition and Source	Mean	Minimum	Maximum
TPC	Total Property Crime; offenses known to the police per 100,000 population (1999). U.S. Census Bureau, U.S. Department of Commerce (2006). Table 331, retrieved from www.allcountries.org/uscensus/	3,735.53	2,185.40	6,439.30
BRG	Burglary; offenses known to the police per 100,000 population (1999). U.S. Census Bureau, U.S. Department of Commerce (2006). Table 331, retrieved from http://www.allcountries.org/uscensus/	741.58	307.90	1,286.90
LART	Larceny theft; offenses known to the police per 100,000 population (1999). U.S. Census Bureau, U.S. Department of Commerce (2006). Table 331, retrieved from http://www.allcountries.org/uscensus/	2,614.08	1,591.60	4,181.30
MVT	Motor vehicle theft; offenses known to the police per 100,000 population (1999). U.S. Census Bureau, U.S. Department of Commerce (2006). Table 331, retrieved from http://www.allcountries.org/uscensus/	379.85	112.70	1,281.70
POL	Sworn police officers per 100,000 population (1999). U.S. Census Bureau, U.S. Department of Commerce (2006). Table 353, retrieved from http://www.allcountries.org/uscensus/	24	16	72
CAP	Binary variable describing capital punishment. Equals 1 if capital punishment is legal in the state and 0 otherwise. Death Penalty Information Center (2010). Retrieved from http://deathpenaltyinfo.org/state-by-state	1	1	1
GDP	Gross Domestic Product per capita (1999) at market prices, not seasonally adjusted. Bureau of Economic Analysis, U.S Department of Commerce (2010), *Per Capita Real GDP per State* . Retrieved from http://www.bea.gov/interactive.htm	38,903.1	26,710.0	122,148.0
UMP	Unemployment rate (%). U.S. Bureau of Labour Statistics, *State and Regional Unemployment, 1999 Annual Averages* (2000). Retrieved from http://bls.gov/news.release/History/srgune_02252000.txt	4.16	2.50	6.60
Label	**Variable Definition and Source**	**Mean**	**Minimum**	**Maximum**
EDUC	Proportion of population (%) with High School diploma or more as of March 1999 for persons 25 years old and over (# of people with HS diploma/Total state population) *100. U.S. Census Bureau, Department of Commerce (2006). Table 253, retrieved from http://www.allcountries.org/uscensus/	84.69	75.10	92.80
IMG	Proportion of population (%) that are new immigrants in each state (1999) (# of immigrants/Total state population)*100. U.S Census Bureau, Department of Commerce (2006). Table 9, retrieved from http://www.allcountries.org/uscensus/	0.10	0.05	0.21
URB	Proportion of population (%) that lives in an urban area (1999) (# of people in urban area/Total state population)*100. U.S. Census Bureau, Department of Commerce (2006). Table 37, retrieved from http://www.allcountries.org/uscensus/ The District of Columbia has 100% urbanization	68.80	32.20	100.00
AGE	Proportion of population (%) that is between 15-24 years of age (1999) (# of people in age group/Total state population)*100. U.S. Census Bureau, Department of Commerce (2006). Table 24, retrieved from http://www.allcountries.org/uscensus/ South Dakota is the state in which 58% of population is in this age group.	18.00	4.00	58.00
CHR	Proportion of population (%) that attends a Christian church (1990) (# of adherents/Total state population) *100. U.S. Census Bureau, Department of Commerce (2006). Table 76, retrieved from http://www.allcountries.org/uscensus/	53.35	29.60	79.60

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HISP	Proportion of population (%) that are of hispanic origin (1999) (# of Hispanic people/Total state population) *100. U.S. Census Bureau, Department of Commerce (2006). Table 25, retrieved from http://www.allcountries.org/uscensus/	21.51	7.80	52.33
BLK	Proportion of population (%) that are black (1999) (# of black people/Total state population) *100. U.S. Census Bureau, Department of Commerce (2006). Table 25, retrieved from http://www.allcountries.org/uscensus/	7.94	0.35	49.33
MIN	Proportion of population (%) that is a minority. Created by adding HISP and BLK together. South Dakota has the largest proportion of Hispanics and Blacks together	29.45	8.15	91.88
SAMPLE	51 observations for each variable		**2 of 2**	

TABLE II

	State		Level of deterrence		Economic Conditions				Socioeconomic Conditions		
	POL	CAP	GDP	UMP(%)	EDUC(%)	IMG(%)	URB(%)	AGE(%)	CHR(%)	HISP(%)	BLK(%)
Alabama	2.3	1	29518	4.8	81.1	0.08	60.4	24	70.7	20.10	7.83
Alaska	2.1	0	55892	6.4	92.8	0.08	67.5	7	31.8	15.72	1.72
Arizona	2.3	1	33505	4.4	83.1	0.07	87.5	5	41.1	10.93	0.64
Arkansas	2.3	1	28784	4.5	78.9	0.09	53.5	23	60.5	20.48	8.87
California	2.2	1	40832	5.2	80.4	0.11	92.6	8	39.2	18.22	1.52
Colorado	2.6	1	42545	2.9	90.4	0.10	82.4	10	37.8	22.59	2.84
Connecticut	2.6	1	51073	3.2	83.7	0.12	79.1	17	58.9	22.98	4.97
Delaware	2.3	1	57793	3.5	84.5	0.08	73.0	11	44.6	18.09	2.74
District of Columbia	7.2	0	122148	6.3	82.8	0.17	100.0	4	57.5	7.80	0.35
Florida	2.6	1	33313	3.9	82.7	0.07	84.8	6	39.5	13.75	1.04
Georgia	2.6	1	39329	4.0	80.7	0.08	63.2	11	56.5	12.27	2.13
Hawaii	2.5	0	39148	5.6	88.0	0.07	89.0	9	35.3	22.63	2.28
Idaho	2.1	1	27897	5.2	84.8	0.10	57.4	33	50.4	37.86	21.93
Illinois	3.2	0	41961	4.3	85.4	0.12	84.6	13	57.5	19.69	3.11
Indiana	1.9	1	35395	3.0	82.9	0.08	64.9	14	47.1	19.01	4.04
Iowa	1.8	0	34288	2.5	89.7	0.08	60.6	34	60.3	33.85	18.82
Kansas	2.4	1	35344	3.0	87.6	0.08	69.1	24	54.3	30.32	10.45
Kentucky	1.7	1	32588	4.5	78.2	0.10	51.8	28	60.1	23.77	12.66
Louisiana	3.7	1	39087	5.1	78.3	0.11	68.1	14	70.1	13.72	2.85
Maine	1.9	0	31596	4.1	88.9	0.09	44.6	27	36.1	32.99	19.75
Maryland	2.7	1	38458	3.5	84.7	0.09	81.3	9	43.9	16.52	1.81
Massachusetts	2.9	0	44266	3.2	85.1	0.16	84.3	15	60.9	20.31	3.54
Michigan	2.1	0	36729	3.8	85.5	0.09	70.5	9	49.2	12.24	1.48
Minnesota	1.7	0	40589	2.8	91.1	0.07	69.9	23	64.2	25.14	8.31
Mississippi	2.1	1	26710	5.1	78.0	0.09	47.1	14	70.1	9.64	2.94
Missouri	2.4	1	35929	3.4	85.0	0.08	68.7	13	56.6	16.35	3.20
Montana	1.9	1	28210	5.2	88.8	0.06	52.5	20	42.7	24.45	9.26
Nebraska	2	1	36522	2.9	89.3	0.07	66.1	19	63.4	20.25	5.95
Nevada	2.7	1	43519	4.4	86.4	0.11	88.3	4	29.6	12.20	0.57
New Hampshire	2	1	36908	2.7	86.5	0.11	51.0	35	38.9	45.25	30.63
New Jersey	3.5	0	44818	4.6	87.4	0.18	89.4	13	55.7	20.59	2.95
New Mexico	2.4	0	31973	5.6	80.9	0.07	73.0	12	58.3	15.63	2.67
New York	3.9	0	43933	5.2	81.9	0.21	84.3	17	55.5	26.33	5.41
North Carolina	2.3	1	38139	3.2	79.8	0.08	50.4	18	59.6	15.08	5.33
North Dakota	1.8	0	31732	3.4	84.9	0.10	53.3	46	75.9	32.62	28.43
Ohio	2.1	1	36891	4.3	86.1	0.08	74.1	14	48.9	21.28	4.03
Oklahoma	2.2	1	31122	3.4	83.5	0.08	67.7	18	66.5	18.74	5.09
Oregon	1.9	1	32982	5.7	86.2	0.06	70.5	8	31.8	17.15	1.88
Pennsylvania	2.1	1	36140	4.4	86.1	0.11	68.9	18	58.6	21.06	5.48
Rhode Island	2.4	0	34860	4.1	80.9	0.11	86.0	18	75.1	21.14	4.54
South Carolina	2.3	1	32007	4.5	78.6	0.07	54.6	17	61.7	14.69	4.47
South Dakota	2	1	33390	2.9	88.7	0.10	50.0	58	68.1	42.55	49.33
Tennessee	2.3	1	34872	4.0	79.1	0.09	60.9	13	60.8	13.22	2.87
Texas	2.5	1	40726	4.6	78.2	0.08	80.3	14	63.5	17.49	3.01
Utah	1.8	1	34421	3.7	91.0	0.05	87.0	23	79.6	25.10	6.63
Vermont	1.7	0	31287	3.0	89.3	0.09	32.2	26	40.4	20.98	17.15
Virginia	2.8	1	40644	2.8	87.3	0.12	69.4	18	46.8	26.57	6.86
Washington	1.7	1	44019	4.7	91.2	0.05	76.4	6	32.4	13.01	0.94
West Virginia	1.6	0	27676	6.6	75.1	0.10	36.1	20	41.3	17.34	9.53
Wisconsin	2.5	0	36415	3.0	86.8	0.11	65.7	24	63.9	24.96	9.22
Wyoming	2.9	1	46133	4.9	90.7	0.11	65.0	38	47.6	52.33	30.86
AVERAGE	2.4	1	38903	4.2	84.7	0.10	68.8	18	53.3	21.51	7.94
MIN	1.6	1	26710	2.5	75.1	0.05	32.2	4	29.6	7.80	0.35
MAX	7.2	1	122148	6.6	92.8	0.21	100.0	58	79.6	52.33	49.33

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TABLE III

Correlations

	UMP	EDUC	GDP	CAP	POL	CHR	AGE	IMG	URB	HISP	BLK	MIN
UMP	1	-0.312957	0.227563	-0.153643	0.292448	-0.237208	-0.35051	0.09023	0.126459	-0.303816	-0.279053	-0.301807
EDUC	-0.312957	1	0.103946	-0.165299	-0.146343	-0.306755	0.183896	-0.13031	0.124477	0.429851	0.26638	0.35829
GDP	0.227563	0.103946	1	-0.20962	0.825562	-0.089193	-0.31089	0.44395	0.495792	-0.205207	-0.213793	-0.217394
CAP	-0.153643	-0.165299	-0.20962	1	-0.200556	-0.039321	-0.042963	-0.372626	-0.05899	-0.02001	-0.018769	-0.020086
POL	0.292448	-0.146343	0.825562	-0.200556	1	0.088061	-0.302151	0.658746	0.527552	-0.222548	-0.246201	-0.243437
CHR	-0.237208	-0.306755	-0.089193	-0.039321	0.088061	1	0.398827	0.113533	-0.07706	0.053793	0.14793	0.106151
AGE	-0.35051	0.183896	-0.31089	-0.042963	-0.302151	0.398827	1	0.042862	-0.579171	0.831298	0.944595	0.922675
IMG	0.09023	-0.13031	0.44395	-0.372626	0.658746	0.113533	0.042862	1	0.289706	0.133105	0.058869	0.09831
URB	0.126459	0.124477	0.495792	-0.05899	0.527552	-0.07706	-0.579171	0.289706	1	-0.30357	-0.539897	-0.441248
HISP	-0.303816	0.429851	-0.205207	-0.02001	-0.222548	0.053793	0.831298	0.133105	-0.30357	1	0.859687	0.961925
BLK	-0.279053	0.26638	-0.213793	-0.018769	-0.246201	0.14793	0.944595	0.058869	-0.539897	0.859687	1	0.966569
MIN	-0.301807	0.35829	-0.217394	-0.020086	-0.243437	0.106151	0.922675	0.09831	-0.441248	0.961925	0.966569	1

Source: Based on OLS Regression Results obtained with Eviews

TABLE II

OLS Regression Estimates

	Dependent Variables						
Explanatory Variables	**A** TCP	**B** TCP	**C** TCP	**D** TCP	BRG	LART	MVT
Intercept	3937.24*	4515.61*	4705.78*	4510.63*	2585.16*	964.45	387.33
	1155.871	*1257.581*	*1232.835*	*1239.169*	*624.113*	*868.543*	*256.445*
POL	1149.39*	1212.22*	1195.06*	1213.56*	228.06*	857.21*	64.09*
	104.142	*112.616*	*110.372*	*108.787*	*56.232*	*78.254*	*23.105*
CAP	55.91	62.26	42.11	63.30	-4.90	60.08	0.73
	85.634	*94.380*	*90.985*	*91.428*	*46.238*	*64.347*	*18.999*
GDP	-0.01*8	-0.01*6	-0.0*15	-0.016*	-0.0*08	-0.0*13	-0.0*02
	0.0050	*0.0055*	*0.0054*	*0.0054*	*0.0027*	*0.0038*	*0.0011*
UMP	27.73	23.99	21.69	24.12	-20.59	45.76	2.56
	39.664	*43.708*	*43.469*	*43.117*	*21.417*	*29.805*	*8.800*
EDUC	-0.20	-9.13	-11.33	-9.09	-15.*66	17.20	-1.73
	12.467	*13.373*	*13.069*	*13.192*	*6.732*	*9.368*	*2.766*
IMG	-27851.1*3	-29150.04*	-293*22	-29151.43*	-5179.43*	-21618.3*7	-1052.71*
	1828.438	*1962.134*	*1944.628*	*1937.986*	*987.266*	*1373.921*	*405.663*
URB	10.76*	10.80*	8.82*	10.96*	0.79	5.21	4.76*
	4.133	*4.556*	*3.890*	*3.434*	*2.232*	*3.106*	*0.917*
AGE	-46.76	-1.31	-20*.05		-17.91	-13.04	-15*.81
	25.522	*23.032*	*6.035*		*13.780*	*19.177*	*5.662*
CHR	8.42	-2.09	2.48	-2.43	2.33	4.17	1.91
	7.062	*6.829*	*4.134*	*3.451*	*3.813*	*5.306*	*1.567*
HISP	-20.37				-8.13	3.42	-15.*66
	10.915				*5.893*	*8.201*	*2.422*
BLK	43.41*				17.26	3.84	22.30*
	19.990				*10.794*	*15.021*	*4.435*
MIN		-9.62		-10.25*			
		11.409		*2.964*			

Numbers in italics are standard error estimates
*indicates statistical significance at the 5% level (two-tailed t-test)

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	Dependent Variables						
Explanatory Variables	**A** TCP	**B** TCP	**C** TCP	**D** TCP	BRG	LART	MVT
R squared	0.950	0.938	0.937	0.938	0.770	0.935	0.948
F statistic	67.358	60.172	67.253	68.524	11.895	51.100	64.154
N	51	51	51	51	51	51	51

Numbers in italics are standard error estimates
* indicates statistical significance at the 5% level (two-tailed t-test)