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Why do Budgets received by State Prosecutors vary across Districts in the United States?*

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Abstract

This paper examines the determinants of the budgets that the severely resource constrained state prosecutors of the United States receive from mostly the local governments. In doing so, this paper contributes to the existing literature, which has so far treated prosecutorial budget as exogenously given. The theoretical model of this paper provides a framework to understand the key factors involved in determining the prosecutorial budgets and provides policy implications such as a more efficient way to reduce crime is to provide the prosecutors with right incentives to work for society's best interest than to provide them with more budgets. The main empirical results of the paper are as follows. Prosecutorial budget decreases with an increase in the level of political conservatism as measured by the percentage of votes that President Bush won in November 2000 election. Also, other things remaining the same, the non-elected prosecutors (who face less political pressure) get more budget, prosecute less cases, and have lower conviction rates.

JEL Classification: K40, K41, K42, H72, H76.

Keywords: Prosecuting Attorneys, District Attorneys, State Courts, Crime, Prosecution, Litigation Process, Budget.

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1 Introduction

Prosecutors are important because of two reasons. Firstly prosecutors play a pivotal role in the criminal justice systems of the common law countries such as the United States. They are aptly called the 'gatekeepers of the criminal justice system'. Arrests alone do not deter criminals unless they are followed most of the times by convictions in courts and consequent punishments. Prosecutors, on behalf of the society, ensure that justice is done. Secondly, prosecutors wield great discretionary powers. They have complete discretion, with almost no oversight, over whom to charge for a crime and the nature of those charges, when and under what circumstances to reduce or drop certain charges, whether to offer a plea bargain and the nature of plea bargain, and when to drop the charges all together. In the common law countries, the judges are supposed to be impartial. Therefore, they do not supervise the routine work of the prosecutors as long as the rules and regulations are seemingly followed. In the civil law tradition, which is followed in most European countries, the judge does most of questioning during the trial and the prosecutor acts as his assistant. The main job of the prosecutor in a civil law court is to gather all the facts and information of the case. The common law prosecutors, however, enjoy much autonomy and discretionary power. Sometimes these powers are abused as in the case of lacrosse players of Duke University.

Given the above mentioned importance of the prosecutors and the responsibilities and powers that they carry, it is important to study closely and critically the factors that affect their decisions, how they allocate their resources among competing cases and programs, the amount of resources at their disposal, the political pressure they face to maintain a high conviction rate, and selfish motives, if any, which may lead to decisions and actions that are not in society's best interest. For example, too much political pressure to maintain a high win rate can lead a prosecutor trying to convict even innocent people. If they do not get right incentives to work for society's best interest, they may take cases that are not high priority (from society's viewpoint) but will bring fame to the prosecutors. This, in turn, will help them to get elected or appointed to higher political offices.

In the United States, there are two types of prosecutors, federal prosecutors and state prosecutors. The federal prosecutors prosecute the cases resulting from violations of the federal laws, while the state prosecutors handle the cases that result from violations of the state laws. Since most criminal activities come under the jurisdiction of state laws, the state prosecutors handle

a lot of more cases than the federal prosecutors. Both types of prosecutors are funded by their respective governments.

The federal prosecutors are well funded because they get their budgets from the affluent federal government. However, the state prosecutors, despite being saddled with more cases, are funded poorly by the local governments (and sometimes state governments) because these governments themselves have been struggling fiscally in the last two decades or so. The state prosecutors compete for funds with other local services such as road repair and garbage collection. Due to such poor funding, the state prosecutors are unable to take cases in which the evidence is strong or they have to offer overly generous plea bargains. Needless to say that this is detrimental to the efforts of keeping the crime rate low.

The existing literature on prosecutors tells us that the prosecutors allocate different amounts of resources to different cases based on the probability of winning in each case and relative importance of winning each case for society. For example, from society's point of view, it is more important to convict a guilty defendant in a murder case than in a theft case. However, the existing literature treats the budgets of the prosecutors as exogenously determined. The allocation of the budget to different competing cases itself depends on the magnitude of the available budget. If more budget is available, the prosecutor will be able to take more ambitious cases where the probability of winning is smaller, but the expected societal benefit from a conviction is greater. This paper contributes to the literature by identifying the main determinants of the prosecutorial budgets.

Even though the functioning of prosecutors is so important in understanding how the criminal justice system works, the research that has been done so far on prosecutors is scant. There are three strands of the existing literature on the American prosecutors. One strand, which is also the oldest, has examined the prosecutorial decisions to prosecute and allocation of resources to different cases. There is no agency problem. The prosecutor always acts in society's best interest. The second and more recent strand incorporates the agency problem and then investigates how the agency problem colors the decisions of the prosecutors. The third strand of the literature is written by legal scholars and published mostly in law journals. One of the recurring topics of this strand of literature is the debate whether the extensive discretionary powers enjoyed by American prosecutors are good or bad. Comparison with legal systems of other countries and abstract principles of jurisprudence are used in the debate rather than equations and figures. The suggestions for change range from adopting the civil law system of the European countries

to making minor adjustments in the current system.

The first strand of the literature was started by Becker (1968). Even though it deals with crime and optimal punishment and not prosecutors, it made people realize the usefulness of economic analysis for such issues. Landes (1971) is the pioneering paper in this strand of literature. It showed that prosecutors will devote more resources to cases where spending additional money will increase the chances of winning and to the cases which are in society's best interest to win, like cases involving heinous crimes such as murders. Rhodes (1976) proved the results of Landes (1971) with additional variables such as prosecutor's and defendant's legal strengths and court delays. This paper also provides additional insights such as there will be an increase in the number of plea bargains when there are more court delays or when the prosecutors are burdened with more cases. So plea bargain acts as a 'market clearing device'. Forst and Brosi (1977) incorporated dynamic element in the model. Some of the defendants are recidivist. The prosecutors acting in society's best interest should devote more resources to convict these defendants and get a higher sentence for them because it will reduce the expected future stream of crime.

The second strand of this literature incorporated agency problem and made the models more realistic. Cole (1970) is a pioneering work for this strand of literature. He did a case study of King county of Seattle, Washington and showed the complex web of interconnections among the prosecutor and police, judges, prison wardens, defense lawyers, and community leaders. The prosecutor's action affects and is affected by different groups who are also involved in criminal justice system. For example, when the prisons get overcrowded, the judges reduce sentences for minor crimes, the prosecutors do not prosecute minor cases, and the police do not arrest for such crimes knowing that the prosecutors will not take such cases. Glaeser et. al. (2000) showed that the federal prosecutors are more likely to take the cases of drug related offenses if the defendant has high human capital or is sufficiently rich to hire a good defense attorney. Taking such cases where the defense attorneys are good helps to hone the trial skills of the prosecutors and the prosecutors can also make connections with lawyers of reputed law firms, which may be useful if and when they change careers. Gordon and Huber (2002) discusses in detail the incentives that the prosecutors face, their own personal agenda, and the actions they take under these incentives. They conclude that even when the voters do not know the facts of each individual case, the voters should still press for higher conviction rates from prosecutors because this will induce the prosecutors to work hard, seek the truth in each case, without unnecessarily inducing the prosecutors to try to convict innocent defendants. Boylan (2005)

studied 570 federal prosecutors from 1969 to 2000 and concluded that the federal prosecutors strive to maximize the total prison sentence. Maximizing the total prison sentences leads to favorable career outcomes for US attorneys, while high conviction rates do not seem to affect the career outcomes.

The third strand of literature is written mostly by legal scholars and published in legal journals. A good survey paper on this strand of literature is Misner (1996), which explains in detail the discretionary powers of prosecutors in the United States. Johnson (2001) and Saxonhouse (2001) compare and contrast the Japanese legal system with the American legal system, including the powers of the prosecutors. Another paper worth mentioning is Pizzi (1993), which refutes the call of some scholars to reduce the discretionary powers of the American prosecutors and to make them comparable to those wielded by the European prosecutors. This paper says that the common law and the civil law systems are very different and why it is not possible to borrow a few aspects of the one and incorporate them in the other system, while leaving the other things as before. For example, the prosecutor does not have much discretionary powers in the civil law system because the judge in that system has a lot of power. The judge in civil law system actively participates in the interrogation/cross-examination of the defendant during the trial and can drop charges or bring additional charges at any point during the trial.

My paper contributes to the above literature by studying the factors that determine the amounts of prosecutorial budgets and not just its allocation among competing uses once it has been exogenously determined. The allocation itself depends on the magnitude of the budget. When the budget is small, all or most of the resources will go to absolute necessities. This paper develops a theoretical framework that captures the key determinants of the prosecutorial budgets. It also includes the agency problem where the prosecutor may not act in society's best interest. I have derived predictions and policy implications from the theoretical model such as the implication that providing the prosecutors with right incentives (for example, by pressurizing him to maintain a high conviction rate) is more effective in reducing crime than to provide the prosecutors with additional budgets.

I have also undertaken econometric analysis using a dataset that I constructed by combining data from various sources. The core of the data for this study comes from the *Census of Prosecutors, 2001* which was conducted by the Bureau of Justice Statistics. This is the first and only survey of its kind that obtained information from the offices of all the prosecutors across the United States. Earlier surveys and subsequent surveys did not cover all the districts.

DeFrances (2001), (2002), and (2003) have described this data in detail. I have augmented this data with key demographic and economic data about the prosecutorial districts that I have taken from various sources such as the Bureau of Census and Uniform Crime Report of the FBI. Appendix B provides the details of sources of data and definitions of different variables used in empirical analysis. The empirical analysis verified the predictions from the theoretical models and resolved issues that *a priori* cannot be resolved using the theoretical model such as the effect of increase in political conservatism (as measured by the number of votes that President Bush won in November 2000 election) of a district on the prosecutorial budgets. On the one hand, the conservative voters want to be tougher on crime. But on the other hand, they want smaller bureaucracies (and lower taxes). The empirical analysis in this paper shows that the net result of these two opposing effects is a decrease in the prosecutorial budget with an increase in political conservatism. Another important finding of this paper is that, other things remaining the same, the non-elected prosecutors (who face less political pressure) get more budget, prosecute less cases, and have lower conviction rates. This result confirms the policy implication from the theoretical model of this paper that the prosecutors will not work efficiently if they do not face adequate political pressure to keep the crime rate lower.

This paper is organized as follows. Section 2 gives essential background information about the state prosecutors. Section 3 outlines the theoretical models. Section 4 contains the discussion of empirical analysis including the results. Section 5 concludes the paper.

2 The State Prosecutors

A Public Prosecutor is a legal officer who represents the government in criminal proceedings¹. The State Prosecutors represent state governments in proceedings that result from violation of state laws. State Prosecutors are also known as District Attorneys or Public Prosecutors in many counties. In the United States, state prosecutors can be appointed by the state governments or elected by the local voters of a prosecutorial district. States of Alaska, Connecticut, New Jersey, and also District of Columbia have appointed state prosecutors.

The institutional process of determining budgets of prosecutors proceeds as follows. Prosecutors complete forms that the funding agencies require. The prosecutors indicate through these forms how much money they will need for the next fiscal year. These forms solicit details of all the programs run by the prosecutorial office such as program for prosecuting recidivist criminals

¹Black's Law Dictionary, Third Edition

or providing counseling to the victims. The budgets in most districts are 'zero-based', which means that each year the prosecutor has to justify continuation of each program. Just because a program received funding in the previous year, it does not mean that it will receive funding in the next year. Prosecutors employ accountants and keep a detailed account of expenses of their offices. After prosecutors have submitted the forms, the local government decides how much budget to allocate to the local prosecutor. In most cases, this amount is less than what the prosecutor has requested. The prosecutor, formally, does not have a say in determination of budget beyond requesting a certain amount of budget. However, informally, prosecutors engage vigorously in lobbying and propaganda for getting higher allocation of budget.

Prosecutors are mostly funded by the local governments (county and the city governments), even though sometimes they may also receive funding from the state and federal governments. In the last few years, the local and the state governments are facing severe financial constraints. This has led to budgetary cuts for the prosecutors. Enterprising prosecutors look for funding opportunities from all possible sources such as getting grants from federal governments and big corporations for special programs. However, all these activities take away some of their time and attention from trials and plea bargaining.

The prosecutors have a great amount of discretionary power over whom to prosecute and whom not to prosecute. There is virtually no oversight for their power in deciding whom not to prosecute. Their discretionary power to decide whom to prosecute can in principle be reviewed by the State Attorney General in most states. Another interesting feature of the American criminal justice system is that most of the criminal cases end in plea bargains. Baker and Mezzetti(2001) study the various issues involved in plea bargaining. The most important factor in plea bargaining is the credible threat by the prosecutor to go to trial if the defendant does not accept the plea bargain. However, a prosecutor with meager budget may not sound very credible in his threat. Thus, even plea bargaining (both the number and the nature of pleas) is affected by the amount of resources available to the prosecutors.

3 Theoretical Models

In this section, I develop a simple baseline model and then a more elaborate one, which captures most of the important issues involved in the determination of budgets of state prosecutors. I derive policy implications and testable hypotheses based on these models and then use empirical analysis to see if the data supports the predictions of the models.

3.1 Baseline Model

There are two players, the social planner and the prosecutor, who are involved in a two period game. The timeline of the game is given in Figure 1. In the first period, the social planner moves and decides how much budget he should provide to the prosecutor. In the second period, the prosecutor decides how much of this budget to spend on combating crime and how much of it to spend on his own agenda such as higher salary for himself and his staff, hiring excessive and unnecessary support staff, or using his office as a launching pad to run for a higher political office.

[Figure 1 here]

The objective function of the social planner is

$$\max_B U = f(\bar{c} - c(R(B))) + g(X - B) , \quad (1)$$

where U is the aggregate utility of the social planner, B is the budget that the social planner provides to the prosecutor, X is the total amount of resources available to the social planner, $f(\cdot)$ is the utility derived from a lower crime rate c relative to an critical level of crime rate $\bar{c}$, R is the actual amount of resources that the prosecutor will spend on combating crime where $R \leq B$, $g(\cdot)$ is the utility that the prosecutor derives from spending on a composite good that includes things such as roads and schools. The more budget the social planner gives to the prosecutor, the less resources he has left to spend on the composite good. The functions $f(\cdot)$, $g(\cdot)$, and therefore their sum $U(\cdot)$ are strictly increasing, concave, and twice differentiable functions everywhere as long as $c < \bar{c}$. When the crime rate c is greater than or equal to the critical rate $\bar{c}$, then $f(\cdot) = -\infty$.

The critical level of crime rate $\bar{c}$ depends on the society's underlying norms and socio-economic conditions. It is a level of crime at which there will be a great social unrest and the social planner (and also the prosecutor) will get infinitely large negative utility from it. The function $f(\cdot)$ is similar to Stone-Geary utility function, which gives an infinitely large negative utility when the consumption of a necessity good is less than the subsistence level. Thus, the social planner (and the prosecutor) will strive to keep the crime rate below the critical level.

The objective function of the prosecutor is,

$$\max_R V = h(\bar{c} - c(R(B))) + k(B - R) , \quad (2)$$

subject to

$$R \leq B$$

where V is the aggregate utility of the prosecutor, R is the amount of resources that prosecutor will spend on combating crime. Functions $h(\cdot)$, $k(\cdot)$, and hence their sum $V(\cdot)$ are increasing, concave, twice differentiable, and bounded everywhere. Therefore, prosecutor gets a diminishing marginal utility. In other words, when the actual crime exceeds or is equal to the critical level of crime then the prosecutor derives a large negative utility. This is because at such a level of crime rate, he will lose his job and losing the job for this reason will also be harmful for his future career. Thus, the first priority of the prosecutor is to keep the crime rate comfortably below the critical level of crime, $\bar{c}$.

The actual crime rate is endogenous in the theoretical models (and also in the empirical analysis). The crime rate declines as the prosecutors spends more resources R to combat crime. Therefore, $c'(R) < 0$. However, as the prosecutor spends more and more money on fighting crime, there are diminishing returns so that $c''(R) > 0$.

Since this model is a finite period game, it can be solved using backward induction. In the second stage of the game, prosecutor gets a budget B from the social planner. He solves his utility maximization problem treating B as exogenous and calculates the R^* that will maximize prosecutor's utility. The social planner, looking ahead and having the first mover's advantage, takes into account the $R^*(B)$ and decides B^* that will maximize his own utility.

Definition 1: The equilibrium is defined by a (B^*, R^*) such that

1. $B^* = \arg \max_B f(\bar{c} - c(R(B))) + g(X - B).$
2. $R^* = \arg \max_R h(\bar{c} - c(R)) + k(B^* - R).$

In words the equilibrium is defined as follows: Let B^* maximizes the utility of the social planner and R^* maximizes the utility of the prosecutor for a given B^{ast} . The social planner assigns a budget B^* to the prosecutor.

Lemma 1: *The equilibrium as defined in Definition 1 exists. Moreover, when $h'(\bar{c} - c(R)) [-c'(R)] > k'(B - R)$, $\forall R \in [0, B^*]$ then $R^* = B^*$.*

Proof. See appendix A.

Lemma 1 says that when the crime rate will be close to critical level of crime, then the prosecutor will devote all the budget to combating crime and $R^* = B^*$. In other words, there will be a corner solution.

Proposition 1: $0 < \frac{dR^*}{dB^*} < 1$ when $\exists R^* \in [0, B^*]$ such that $h'(\bar{c} - c(R^*)) - c'(R^*) = k'(B - R^*)$.

But if $h'(\bar{c} - c(R)) [-c'(R)] > k'(B - R) \forall R \in [0, B^*]$, then $\frac{dR^*}{dB^*} = 1$ and $\frac{d^2 R^*}{dB^{*2}} = 0$

Proof. See appendix A.

Once the crime rate is comfortably below relative to the critical level, the prosecutor will start spending some of the resources on his own interests. But as long as the crime rate is around the critical level, he will spend all the budget he gets on fighting crime. An important policy implication of this proposition is that the social planner should not fiscally discipline a prosecutor when the crime rate is fairly high. This is because when the crime rate is high, the prosecutor will spend all the available resources to lower the crime rate. But lack of funds under these circumstances will make him ineffective. The common practice in many areas, however, is to give the prosecutor somewhat less than what he asks for. If a prosecutor will ask for, say \$100, the local government will give him \$ 95 (irrespective of factors such as the prevailing crime rate), based on the perception that the bureaucrats always ask for more money than they need.

Proposition 2: $\frac{dR^*}{d\bar{c}} < 0$, when $\exists R^* \in [0, B]$ such that $h'(\bar{c} - c(R^*)) [-c'(R^*)] = k'(B^* - R^*)$, otherwise $\frac{dR^*}{d\bar{c}} = 0$

Proof. See appendix A.

Proposition 2 says that as the critical level of crime rate increases, the prosecutor will spend less money on reducing the actual crime rate and more on his own agenda because his utility depends on the difference between the actual and critical crime rate. An exogenous increase in $\bar{c}$ will be a windfall gain to the prosecutor. An increase in the critical crime rate also increases the changes of an interior solution where the prosecutor also spends a positive amount on his

own agenda.

Proposition 3: $\frac{dB^*}{dX} > 0$

Proof. *See appendix A.*

This proposition shows that when the resources of the social planner increase, he will give more budget to the prosecutor.

3.2 A Model with Additional Parameters

The utility of the social planner is

$$\alpha [f(\bar{c} - c(\gamma R(B)))] + g(X(\alpha) - B) , \quad (3)$$

where $\alpha \in [0, 1]$ is a parameter that measures the political conservatism of the social planner and it scales up his utility derived from having lower crime rate. Higher values of α means that the social planner is more conservative. It is also apparent from the equation (3) that the utility of the social planner from low crime increases, as α increases. However, α also affects X , the total amount of resources available to the social planner because more conservative social planner like to gather less resources because they prefer lower taxes. That is, $\frac{dX}{d\alpha} < 0$.

In the present model, the utility of the prosecutor is

$$\beta [h(\bar{c} - c(\gamma R))] + k(B^* - R) , \quad (4)$$

where $\beta \in [0, 1]$ scales the utility of the prosecutor and γ scales the effectiveness of the resources spent on combating crime, R . The discount factor β is a measure of political pressure that the prosecutor feels to keep the level of crime low. However, the β , the less pressure prosecutor feels. Another parameter introduced in the present model is $\gamma \in [0, 1]$ that measures the effectiveness of resources deployed to combat crime. A lower γ will reduce the effectiveness of resources. It will take more resources to achieve same amount of reduction in crime rate for a lower value of γ . For example, a district with a large urban area will have more complicated crimes such as organized criminal gangs activity and thus it will require more resources to reduce the crime rate. Similarly, a district where the total area is quite large will require more resources to combat crime.

Definition 2: The equilibrium in the model with additional parameters is defined by a (B^*, R^*) such that

1. $B^* = \arg \max_B \alpha [f(\bar{c} - c(\gamma R(B)))] + g(X - B).$
2. $R^* = \arg \max_R \beta [h(\bar{c} - c(\gamma R))] + k(B^* - R).$

In words the equilibrium is defined as follows: Let B^* maximizes the utility of the social planner and R^* maximizes the utility of the prosecutor for a given B^* . The social planner assigns a budget B^* to the prosecutor. The prosecutor then spends $R(B^*)$ on combating crime and $B^* - R(B^*)$ on this own agenda.

Lemma 2: *An equilibrium as defined in Definition 2 exists for the model with additional parameters. When $\beta h'(\bar{c} - c(\gamma R)) [-(c'(\gamma R))] \gamma > k'(B^* - R), \forall R \in [0, B]$ then $R^* = B^*$, otherwise $R^* < B^*$.*

Proof. *See appendix A.*

Proposition 4: The effect of an increase in γ on R^* is ambiguous. That is, R^* can increase or decrease with an increase in γ .

Proof. *See appendix A.*

This propositions says that an exogenous change in the effectiveness of the resources will result in the prosecutor spending either more or less proportion of his budget on fighting crime than before when there was interior solution before. For example, let us consider the effect of an increase in the effectiveness of resources. On the one hand, because the resources are more effective, the prosecutor can devote less resources to fighting crime and yet he will still be able to maintain the same crime rate. On the other hand, since the effectiveness of resources has increased, he may devote more resources towards fighting crime to get higher utility. If there was a corner solution before and the effectiveness of the resources γ decrease further, then the prosecutor will continue to spend all the budget on fighting crime.

Proposition 5: $\frac{dR^*}{d\beta} > 0$ when $\exists R^*$ such that $\beta h'(\bar{c} - c(\gamma R^*)) [-(c'(\gamma R^*))] \gamma = k'(B^* - R^*)$.

When $\beta h'(\bar{c} - c(\gamma R)) [-(c'(\gamma R))] \gamma > k'(B - R) \forall R \in [0, B^*]$, an increase or a same decrease in β will have not increase $B^* - R^*$. However, a sufficiently large decrease in β will result in an increase in $B^* - R^*$.

Proof. See appendix A.

The utility derived by the prosecutor from a low crime rate is discounted by β , the discount factor. It represents the political pressure that a prosecutor faces from either the voters or his political masters to keep the crime rate comfortably below the critical level. The lower the β , the less inclined will be the prosecutor to spend money on reducing the crime rate after the crime rate has become comfortably below the critical level. Since a reduction in β means that if the social planner wants to achieve a certain crime rate, he will have to give extra money to the prosecutor, so that the amount of resources on combating crime R remains the same. A policy implication of this proposition is that instead of giving the prosecutor extra money to ensure that the crime rate remains the same, it is better to increase β by policy functions. A prosecutor in this model spends R out of B . If the ratio R/B decreases, then the prosecutor will become more inefficient. A better way to correct the situation is to ensure that the prosecutor has enough incentives to make sure that the crime rate stays low.

Proposition 6 *The effect of an increase in α on B^* is ambiguous. That is, B^* can increase or decrease with an increase in α .*

Proof. See appendix A.

There are two opposing effects that come into play when α , the level of political conservatism, increases. On the one hand, the social planner will get more utility from a low crime rate. On the other hand, the social planner will have lower resources available because of his preferences for collecting lower tax revenues. The net effect of these opposing forces is unknown in the theoretical model. It can only be known through empirical investigation.

4 Empirical Analysis

The empirical analysis in this paper consists of running regressions with the prosecutorial budget as the dependent variable and relevant demographic and economic variables as the independent variables. The signs, the magnitudes, and the level of significance of these variables provide clues for the relationship between the variables. We can use these to find support for the theoretical model introduced in this paper and get additional insights. Since crime is an endogenous variable, the estimates from Ordinary Least Squares will not be consistent. Therefore, I have used two stage least square (2SLS or IV) and limited information maximum likelihood to get consistent estimates. The estimates from these equations are given in table 10 and the elasticities based on these regressions are given in table 11. Using these regression techniques necessitates the availability of valid instrument for the endogenous variables. I have discussed these in subsection (4.1). The regression techniques 2SLS and LIML give similar results in large data. That is, they are asymptotically equivalent. Two stage least squares is easier to explain and compute, but LIML has the advantage of being invariant to scaling of variables. The word 'Limited' alludes to the fact that we are only estimating one equation instead of the whole system of equation. Limited Information Maximum Likelihood is equivalent to Two Stage Least Squares, while Full Information Maximum Likelihood (FIML) is equivalent to Three Stage Least Squares where we use the information about the relationship among the errors of different equations to get a more efficient estimate. Since I have only one equation in my analysis and not a full system of equations, Two Stage Least Squares and Limited Information Maximum Likelihood is the best I can do. For further information about LIML and FIML, please see Greene (2002), pp. 133-134.

I have done robustness check by running regressions using the logarithm of variables, by dividing the prosecutorial districts first into large population and small population groups and then into rich and poor districts. I have used both the 2SLS and LIML for these regressions.

Then I run 2SLS and LIML for using logarithm of the prosecutorial budget and the logarithm of the independent variables. Taking the log of variables improves the symmetry and reduces the range, but it is a more restrictive model. The elasticity in this model is always constant. Since it is a not a good idea to use a more restrictive model unless there are good theoretical justifications, I did not use log-log model for my main regressions, but only for robustness check.

In order to do the empirical analysis, I have created a dataset by combining data from

different publicly available datasets. Please see Appendix C for the details of the sources of dataset, description of these sources, and the definition of the variables used in this paper. The main source of data is Census of Prosecutors(2001). I augmented this from the economic and demographic variables taken from sources such as Uniform Crime Report of the FBI, the US Bureau of Census, and the Center for Congressional and Presidential Studies at American University.

All the data except from the Census of Prosecutors was available at the level of state counties. I aggregated these to the level of state prosecutorial district that may consist of one or more counties. None of the variables except the prosecutorial budget is scaled. The prosecutorial budget is in thousands of dollars.

4.1 Description of Data

Prosecutorial budgets vary much across districts. The median prosecutorial budget was 320,000 while the average budget was 2,087,007. This indicates a positively skewed distribution. Also, the coefficient of variation was 5.53, which is quite high. Coefficient of variation is a better measure of dispersion when comparing two or more different variables. It is calculated by dividing the standard deviation with the mean and multiplying it by 100. The only variable that has a higher coefficient of variable is crime. Its coefficient of variation is 5.90.

[Tables 1A and 1B here]

Histograms of prosecutorial budget and the logarithm of prosecutorial budget are given in figures 1 and 2 respectively. As we can see, the prosecutorial budget has a huge range and is highly right skewed. After we take logarithm of this variable, it becomes fairly symmetric and starts to resemble normal distribution.

[Figures 2 and 3 here]

The average population of a prosecutorial district was 116,346 in 2001. The median population was 35,765. The average of number of index crimes reported in a prosecutorial district in 2001 was 846 while the median was 143. Since these variables are also highly right skewed, I have also made histogram of the logarithm of these variables. The histogram of the logarithms appear more symmetric. The histograms of population and number of index crimes in the original scales and the logarithmic scales are given in figure 3,4,5, and 6.

[Figures 3, 4, 5, and 6 here]

Figure 5 contains a histogram of the logarithm of per-capita income, while figure 6 contains a histogram of the logarithm of the proportion of votes President Bush won in November 2000.

[Figures 7 and 8 here]

I have also drawn a scatter plot between the prosecutorial budget and important independent variables on a logarithmic scale. Drawing on a logarithmic scale brings out a better picture of the relationship between the variables because it reduces the range and right skewness of these variables. We can see from these scatter plots that there is a strong linear relationship. The only exception is the scatter plot between the prosecutorial budget and the percentage of votes that President Bush won in November 2000. Here the linear relationship is somewhat weaker.

[Figures 9, 10, 11, and 12 here]

Detailed descriptive statistics for all the variables used in regressions are given in table 1A. Table 1B describes the categorical variables such as whether or not a district belongs to a Metropolitan Statistical Area, whether or not the prosecutor is elected or appointed, and whether or not he takes civil cases.

Table 2 provides tenth, twenty-fifth (the first quartile), fiftieth (the median), seventy-fifth (third quartile), and ninetieth percentiles of all variables used in regressions. Percentiles are useful in giving us clues about the shape of the variables. As we can clearly see from these percentiles, most of the variables are right skewed. In other words, most variables have a few observations that are very large. These observations are the large metropolitan cities such as New York and Chicago.

[Table 3 here]

Table 3 provides the frequency distribution table of years the current prosecutor has been in office. As we can see from this table, a majority of prosecutors are either new or have less than ten years of experience. Only a few prosecutors have been in office beyond twenty years. There is even one prosecutor who remained in office for forty years. In most of the prosecutorial districts, the prosecutors are elected. Therefore, remaining in office for twenty years or more is quite a feat.

[Table 4 here]

Table 4 provides the frequency distribution of the prosecutorial budget in various districts, which is the topic of this paper. We can immediately see a wide variation. About 400 districts have a budget of less than one hundred thousand dollars, while about 10 districts have a budget of over ten million dollars. Thus, the data is fairly right skewed. This also becomes apparent from figure 2.

[Table 5 here]

Table 5 provides the frequency distribution table of the population variable. As we can see from this table, the population is highly right skewed. There are a few districts with large populations, while rest of the districts have small or medium populations.

In Table 6 we can see the large variation in the prosecutorial budget, which is the topic of the paper. About 400 districts have prosecutorial budgets that are less than \$100,000, while there are 10 districts that have prosecutorial budgets of more than \$ 10,000,000.

[Table 6 here]

Table 7 shows the frequency tables of the per-capita income. As we can see, most districts in the year 2000 have per-capita income between \$15,000 and \$20,000. This is also clear from figure 8 that shows the plot of the per-capita income.

[Table 7 here]

Table 8 provides the aggregate number of ‘index crimes’ across the United States. Please see Appendix B for definition of this variable. This is a large variation in index crimes across the United States as we can see from this table.

[Table 8 here]

Table 9 provides the number of districts in different states. This number varies from 1 in Alaska, District of Columbia, and Rhodes Island to 155 in Texas. States with larger areas and more population have more prosecutorial districts. The states where each prosecutorial district consists of only one county also have more prosecutorial districts than those states where the prosecutorial districts consist mostly of two or more districts.

[Table 9 here]

4.2 Endogeneity Issues

As the theoretical model postulates, the crime rate of a district is endogenous as it is the very variable that the prosecutorial budget is supposed to affect. A higher crime rate results in a larger budget, while a larger budget is more likely to result in lower crime rate. The latter happens because higher budget results in more prosecutions of criminals. This, in turn, reduces the supply of criminals in society and discourages would-be criminals.

One implication of the crime rate being endogenous is that the OLS estimates will not be consistent. We need at least one valid (and strong) instrument to enable us to run IV or 2SLS regressions. I have used the percentage of males in a district between 16 to 24 years, percentage of the population in a district that is employed, percentage of males in a district with no schooling, and percentage of houses in a district that are unoccupied in a district. I have also tried using other variables such as population in a district that lives below poverty line as instruments for the crime rate. But I ultimately did not use them in my final regressions because they were causing multicollinearity in the first stage regressions.

These instruments turn out to be strong. A rule of thumb is that if at the first stage regression the F statistic is more than 10 then instruments are deemed as strong. The F statistic for the first stage regression of crime rate is more than 100. The Anderson Canonical Test for weak instruments also shows beyond doubt that these instruments are strong and there is no under-identification of the endogenous variable (crime rate). Since I have more instruments than the number of endogenous variables, I also conducted a test for overidentifying restrictions (Sargan-Hansen test). The null hypothesis that the instruments are valid cannot be rejected at any plausible level of significance because of high p-values. In other words, this test could reject the null hypothesis that the instruments are valid. This is the best outcome that is possible because we can never accept a null hypothesis.

4.3 Results and Discussion

Two stage least squares estimation with prosecutorial budget as dependent variable

Table 1 shows the result of regressions that includes all the districts in our dataset. The dependent variable is the prosecutorial budget that is in unit of thousands of dollars. Column (1) provides the OLS estimates, while columns (2) and (3) provide respectively the Instrumental Variables (IV) or the Two stage least squares (2SLS) and the Limited Information Maximum Likelihood (LIML) estimates. The OLS estimates in column (1) are unlikely to be consistent

but are provided for comparison. By looking carefully at columns(2) and (3) one can see that the prosecutorial budget decreases with the increase in percentage of votes won by President Bush in November 2000 elections. This resolves the uncertainty that Proposition 6 described, namely, the direction of change in prosecutorial budget when the level of political conservatism changes. On the one hand, more conservative districts prefer being strict toward crime, and will thus fund the prosecutors well. On the other hand, the more conservative districts like lower taxes and lower bureaucracies. Due to this reason, the prosecutors are likely to get less money in conservative districts. Thus, it was not clear *a priori* what will be the net result of these opposing effects. Columns (2) and (3) of Table 1 show that the net result is negative and the prosecutorial budget will decline with increase in the level of political conservatism. We can see from these columns that the appointed prosecutors get more budget, other things remaining the same including controlling the state fixed effects and the per-capita income. This suggests that the prosecutors, chosen by the state governments, have good connections with the funding agencies. Ramseyer, Rasmusen, and Raghav(2006) shows that the appointed prosecutors also prosecute less cases and even achieve less conviction rate. Thus, to sum up, the non-elected prosecutors get more budget, prosecute less cases, and have lower conviction rates, other things remaining the same. This confirms Proposition 4 of the theoretical model in this paper which says that when the prosecutors have less pressure to maintain a low crime rate, they are more likely to spend the budget on their own agenda, which may not be in society's best interest.

We also see from the regression that the budget increases with the total area of a district. This is because a more spread out geographical area requires more money to work effectively. The prosecutorial budget also increases with crime and the per-capita income of a district. The latter measures the affluence of a district. The prosecutorial budget decreases with term of office of the prosecutor. This is probably because the smaller the number of years a prosecutor is appointed or elected to office, the higher the money spent on elections and thus, less resources are available for budget. Also, the prosecutors who have smaller terms of office are likely to have smaller political clout. The LIML gives the lowest R^2 of the three regression of 0.46. The 2SLS regression has an R^2 of 0.54.

[Table 10 here]

Table 11 provides the elasticities for all the independent variables regressions in Table 10 at their mean value. The p-value of variables in different regressions is also provided next to the

elasticities. We can see that the elasticity of budget with respect to per-capita income is 1.201. This means a percent increase in per-capita income will result in 1.201% increase in prosecutorial budget. A percent increase in percentage of votes that President Bush won in November 2000 will result in a decrease of 0.163% in the prosecutorial budget. One percent increase in Index crimes will result in 0.684 percent increase in the prosecutorial budget.

[Table 11 here]

4.4 Robustness

Different types of districts may display different relationships among the variables. Similarly, it is important to use other specifications to see if the regression results are similar. In order to do robustness check, I have divided all the prosecutorial districts into large population and small population districts and then into rich and poor districts. I used the median values of population and per-capita income to make these divisions. Then, I have used a log-log regression model to see that the results are similar.

Table 12 provides us with the results of the regressions when the full sample is divided into two parts: large population and small population districts. We can see that some of the variables such as per-capita income and population that were significant in the regressions in Table 10 are still significant for both the rich and the poor districts. However, the variables such as Percentage of Votes that President Bush won in 2000 election and Total Area are only significant in the regression for large population districts. This reflects the fact that there are some fixed costs in running a prosecutorial office. A poor district cannot reduce a prosecutorial budget on ideological grounds if it has to remain functioning properly. The rural population has a significant coefficient only for the small population districts. This means that only scantily populated rural areas will get smaller budgets, but the more populated urban areas will not show any such tendency.

[Table 12 here]

Similarly, Table 13 provides the regressions results for the rich and poor districts separately. We can see a similar pattern as the previous regression where some of the variables are significant in the full sample and also in rich and poor districts, but there are few variables such as Percentage of Votes that President Bush in November 2000 Election, that is only significant in the regression for rich districts.

[Table 13 here]

Lastly, Table 14 provides the log-log model where I have taken the logarithm of both the dependent variable and the independent variables before running the regressions. The coefficients in this regression can be interpreted as elasticities. Therefore, no separate table for elasticities is given. All the major results of this paper also hold in the log-log model.

[Table 14 here]

5 Conclusion

This paper examines why the budgets of the state prosecutors vary so much across the United States. The paper develops a theoretical framework that captures the key institutional and strategic factors that determine the budgets of state prosecutors. I derived various policy implications and testable hypotheses from the theoretical model and showed that these hypotheses are supported by empirical analysis using a dataset that I constructed for this purpose. The empirical analysis brought to light some interesting results such as other things remaining the same, the prosecutorial budgets decrease with the increase in political conservatism as measured by the percentage of votes President Bush won in November 2000 election and that the prosecutorial budget is larger for the districts where the prosecutors are appointed rather than elected. The latter result coupled with one of the results of Ramseyer, Rasmusen, and Raghav (2006) where we show that other things remaining the same, the appointed prosecutors prosecute less cases and have lower convictions rates, highlights the importance of giving right incentives to the prosecutors.

Prosecutorial budget is an important determinant of the society's ability to fight crime. Previous studies have treated the prosecutorial budget as exogenously determined while examining the allocation of it to different uses. This paper contributes to the literature by examining the factors that determine these budgets. Another contribution of this research is creation of a unique dataset that will be useful for other researchers who are studying similar issues. I plan to make this data publicly available in near future.

Further study of this important topic is needed. Unavailability of data on the budgets of the local governments prevented me from estimating a full fledged structural model. Also, the empirical analysis with a panel data instead of merely a cross-section would have helped to

answer questions that cannot be answered otherwise. However, the Bureau of Justice Statistics has not conducted any census of prosecutors other than the one in 2001. When these become available in future, it will be possible to do a more comprehensive analysis of the budgets of the state prosecutors.

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Appendix A: Proofs

Proof. Lemma 1:

The equilibrium in this model consists of the maximized utilities of both the social planner and the prosecutor. So the proof of the existence of an equilibrium consists of proving the existence of a maximum in the utility functions of the social planner and the prosecutor. For $c \geq \bar{c}$, we know that both the social planner and the prosecutor will get an infinitely large utility. Therefore, there cannot be any equilibrium for under those circumstances. Since the functions $U(\cdot)$ and $V(\cdot)$ are strictly increasing and concave when $c < \bar{c}$, we know that a maximum will exist for both of them and furthermore, this maximum will be unique. To prove the second part of this lemma, consider the following:

$$\max_R \quad h(\bar{c} - c(R)) + k(B^* - R) , \quad (5)$$

subject to $R \leq B^*$.

The Lagrangian $\mathcal{L}$ is equal to

$$\mathcal{L} = h(\bar{c} - c(R)) + k(B^* - R) + \lambda (B^* - R) \quad (6)$$

The Kuhn-Tucker first order conditions are:

$$\frac{d\mathcal{L}}{dR} = [h'(\bar{c} - c(R^*))] [-c'(R^*)] - k'(B^* - R^*) - \lambda^* = 0, \quad (7)$$

and

$$\lambda^* \cdot (B^* - R^*) = 0. \quad (8)$$

The complimentary slackness (8) states that either $\lambda^* = 0$ and $(B^* - R^*) > 0$ or $\lambda^* > 0$ and $(B^* - R^*) = 0$. Therefore, when there is a corner solution ($B^* = R^*$), $\lambda^* = 0$. Substituting this in the first order condition (7) we get,

$$h'(\bar{c} - c(R^*)) [-c'(R^*)] > k'(B^* - R^*). \quad (9)$$

When there is an interior solution $\lambda = 0$, and substituting this in the first order condition (7)

we get,

$$h'(\bar{c} - c(R^*)) [-c'(R^*)] = k'(B^* - R^*). \quad (10)$$

■

Proof. Proposition 1:

For the case of an interior solution, rearranging terms in equation (7), we get

$$[h'(\bar{c} - c(R^*))] [-c'(R^*)] = k'(B^* - R^*). \quad (11)$$

When B^* increases exogenously, the only way for this equality to hold is for $h'(\cdot)$ and/or $[-c'(\cdot)]$ to decline. Since $h'(\cdot) > 0$ and $h''(\cdot) < 0$ and $-c'(\cdot) > 0$ and $-c''(\cdot) < 0$, the value of R^* will need to increase in order to reduce both $h'(\cdot)$ and $-c'(\cdot)$. In the case of a corner solution, all the budget goes to combat crime. Small increases in budget will not induce an interior solution and any additional amount of budget will be utilized to lower the crime rate. ■

Proof. Proposition 2:

From equation (10), we get equation (11) by rearranging terms. An exogenous increase in $\bar{c}$ results in a decrease in $h'(\cdot)$ because $h''(\cdot) < 0$. Thus, the only way to maintain the equality is by reducing $k'(\cdot)$ on the right hand side. This is only possible by an increase in its argument, $B^* - R^*$. Thus, R^* decreases with an increase in $\bar{c}$. ■

Proof. Proposition 3:

From equation (1), we derive the first order condition for the baseline model. After rearranging the terms in the first order condition, we get,

$$f'(\bar{c} - c(R(B^*))) [c'(R(B^*))] [R'(B^*)] = g'(X - B^*). \quad (12)$$

An increase in X will reduce the right hand side of the above equation because $g''(\cdot) < 0$. In order to maintain the equality, B must increase on the left hand side to reduce left hand side and maintain equality. ■

Proof. Lemma 2:

Please see the beginning of proof for Lemma 1 for the proof of existence of equilibrium.

$$\max_R \quad \beta[h(\bar{c} - c(\gamma R))] + k(B^* - R) , \quad (13)$$

subject to $R \leq B^*$.

The Lagrangian $\mathcal{L}$ is equal to

$$\mathcal{L} = \beta[h(\bar{c} - c(\gamma R))] + k(B^* - R) + \lambda (B^* - R) \quad (14)$$

The Kuhn-Tucker first order conditions are:

$$\frac{d\mathcal{L}}{dR} = \beta h'(\bar{c} - c(\gamma R^*)) [-c'(\gamma R^*)] \gamma - k'(B^* - R^*) - \lambda^* = 0, \quad (15)$$

and,

$$\lambda^* (B^* - R^*) = 0. \quad (16)$$

The complimentary slackness condition (16) states that either $\lambda^* = 0$ and $(B - R) > 0$ or $\lambda^* > 0$ and $(B^* - R^*) = 0$. Therefore, when there is corner solution ($B^* = R^*$), we have $\lambda^* = 0$. substituting this in first order condition (15), we get

$$h'(\bar{c} - c(\gamma R)) - c'(\gamma R) \gamma > k'(B^* - R^*). \quad (17)$$

When there is interior solution $\lambda^* = 0$, and substituting this in the first order condition (15) we get,

$$h'(\bar{c} - c(\gamma R^*)) - c'(\gamma R^*) \gamma = k'(B^* - R^*). \quad (18)$$

■

Proof. Proposition 4:

An increase in γ results in an increase in the effective of resources that are spent to fight crime. Because such an increase results in increase in productivity of R , the prosecutor will

spend more resources in fighting crime when there is interior solution. From equation (18), we know that there will be an interior when $\beta h'(\bar{c} - c(\gamma R^*)) [-c'(\gamma R^*)] \gamma = k'(B^* - R^*)$. Now, suppose there an an exogenous increase in γ . This will reduce both $h'(\cdot)$ and $[-c'(\cdot)]$ because both $h''(\cdot) < 0$ and $[-c''(\cdot) < 0]$. However an increase in γ will increase the γ on the left hand side of the above equation. There, the net result of an increase in γ can be determined without further information about the functional forms of $h(\cdot)$ and $c(\cdot)$ and value of γ . This is only possible when $(B^* - R^*)$ decreases because $k''(\cdot)$. We can argue along the same lines in case we have a corner solution. The net result of an increase in γ is also not certain in the case of corner solution. ■

Proof. Proposition 5:

From equation (17), we know that there will be a corner solution when $\beta h'(\bar{c} - c(\gamma R)) [-c'(\gamma R)] \gamma > k'(B - R) \forall R \in [0, B^*]$. In this situation, all the resources will be devoted to fighting crime and an increase in β will not have any effect. However, a big decrease in β can change a corner solution to an interior solution. Now consider equation (18) for the case where this is an interior solution. When β increases, in order to maintain the equality specified in the first order condition, R^* will have to increase because only an increase in R^* will lower $h'(\cdot)$ as $h''(\cdot) < 0$. Similarly, a decrease in β will lead to reallocation of resources from crime fighting to furthering agenda of the prosecutor. ■

Proof. Proposition 6:

From equation (3), we can derive the first order condition of the utility maximization problem of the social planner.

$$\alpha[f'(\bar{c} - c(\gamma R(B^*))) [-c'(\gamma R(B^*))]] - g'(X(\gamma) - B^*) = 0 \quad (19)$$

Rearranging, we get,

$$\alpha[f'(\bar{c} - c(\gamma R(B^*))) [-c'(\gamma R(B^*))]] = g'(X(\gamma) - B^*) \quad (20)$$

An increase in α will have two effects on the above equation. It will increase the left hand side of the equation. To counterbalance this increase that comes from increase in α , $f'(\cdot)$ and

$-c'(\cdot)$ will have to decrease, which means an increase in B^* . However, because α also affects X , the total amount of resources available the social planner, the right hand side of the equation has also decreased (because $g''(\cdot) < 0$). This should result in a decrease in B^* and increase in $X - B^*$ if we want to maintain the equality. Thus, how the resources will be reallocated due to an increase in α is not clear from the first order condition. ■

Appendix B: Notation

α	A measure of social planner's level of political conservatism.
β	Discount factor that measures the political pressure on a prosecutor for keeping a low crime rate.
γ	A measure of effectiveness of the resources that are spent on reducing crime rate.
c	The actual crime rate (per-capita crime).
$\bar{c}$	The critical level of crime rate at which there is a great social unrest.
R	The amount of resources from the prosecutorial budget that the prosecutor uses to contain the crime.
B	Prosecutorial Budget that the prosecutor gets from the social planner.
X	The total amount of resources of the social planner.
$f(\cdot)$	The utility derived by the social planner by a lower crime rate compared to a critical level.
$g(\cdot)$	The utility derived by the social planner by expenditure on other items such as roads and schools.
$h(\cdot)$	The utility derived by the prosecutor from a lower crime rate compared to some critical level.
$k(\cdot)$	The utility derived by the prosecutor from spending resources on his own agenda.

Appendix C: Data

The variables used in the empirical analysis are defined as follows, all at the state prosecutorial district level:

1. **The Census of Prosecutors, 2001:** The data from this census is available at the following URL: <http://www.ojp.usdoj.gov/bjs/abstract/psc01.htm>. It is the first time that Bureau of Justice Statistics, the statistical arm of Department of Justice covered all the prosecutorial districts in their survey. Earlier survey included randomly selected districts only. The unit of aggregation from the variables taken from this source is Prosecutorial district. A prosecutorial district may consist of two or more state counties. However, most of the prosecutorial districts consist of only one county. The variables that I obtained from this data for the present study are listed below:
 - a) **Prosecutorial Budget:** The annual budget that prosecutors get mostly from the local governments as county and municipal governments.
 - b) **Composition of Districts:** Each prosecutorial district consists of one or more of state counties. The Census of Prosecutors, 2001 contains this composition of prosecutorial districts in terms of state counties. I have used this information to merge variables taken from different datasets that were at different levels of aggregation.
 - c) **Appointed or Not:** A binary variable which indicates whether the prosecutor was appointed or elected. It is one for districts where the prosecutors are appointed. Prosecutors in all the districts in Alaska, Connecticut, New Jersey, and District of Columbia are appointed by their respective state Attorney Generals.
 - d) **Years in Office:** The number of years the current prosecutor has been in office.
 - e) **Term of Office:** It is the number of years a prosecutor will hold the office after being elected or appointed before the next election or reappointment.
2. **Uniform Crime Report, 2001:** The uniform crime report is made by Federal Bureau of Investigation to measure the level of crime across different parts of the United States. It provides data about certain serious crimes reported to different law enforcement agencies across the counties such as police or sheriff departments. These serious crimes include

murders, rapes, robberies, aggravated assaults, burglaries, larcenies, motor vehicle thefts, and arsons. This report for the year 2001 can be obtained from the following URL: <http://www.fbi.gov/ucr/01cius.htm>. This data was available at the level of counties of states. I aggregated this data to the prosecutorial district level.

- a) **Aggregate Number of Index Crimes:** I have constructed a variable called aggregate index crime by summing all these crimes for every county.

- 3. **Census Data of Year 2000:** Data can be downloaded from individual tables available at the following URL: <http://www.census.gov/main/www/cen2000.html>. All of the data that I got from this source was available at the county level of aggregation. So I aggregated this data to the prosecutorial district level.

- a) **Housing Density:** The number of housing units in a district divided by the total land area of that district.
- b) **Males with No Schooling:** Number of males with no schooling in a district.
- c) **Males between Ages of 15 and 24:** Number of males between the ages of 15 and 24 in a district.
- d) **Metropolitan Statistical Area:** A binary variable which is 1 for districts that lies in Metropolitan Statistical Area, 0 otherwise.
- e) **Monthly Median Rent:** The median monthly rent of housing units in a district.
- f) **Number of People who are Employed:** Number of people who are employed in a district.
- g) **Number of Houses that are Occupied:** Number of housing units that are occupied in a district.
- h) **Per-capita Income:** Per-capita income of a prosecutorial district.
- i) **Population:** Population of a prosecutorial district.
- j) **Population Density:** Population of a district divided by the total land area (excluded water area) of that district.
- k) **Rural Population:** Number of people who live in rural areas in a district.
- l) **Total Area:** The total area of a district.

4. **Year 2000 Presidential Election Results:** Data about number of votes won by different candidates in November 2000 presidential election is taken from Center of Congressional and Presidential Studies at American University. It is available over the internet at the following URL: <http://spa.american.edu/ccps/pages.php?ID=12>. This data was also available at the level of counties. Therefore, I aggregated it to the prosecutorial district level.
- a) **Bush Votes:** The number of votes won by President Bush in November 2000 election. This variable measures the strength of the level of political conservatism of a district around the year 2000.
- b) **Percentage of Bush Votes:** I constructed this variable from the above variable by dividing the votes that President Bush won in November 2000 election with the population of the district to normalize it.

Table 1A: Basic Descriptive Statistics for Quantitative Variables

Variable	Mean	Observations	Standard Dev.	C.V.	Skewness	Min	Max
Density of Housing Units	55.18	2195	177.02	3.21	13.34	0.18	4232.61
Number of Index Crimes	463.42	2195	902.05	1.95	5.03	0.00	14445.00
Years in Office	9.25	1845	7.28	0.79	0.96	0.00	40.00
Monthly Median Rent	572.90	2195	397.93	0.69	3.36	225.00	3635.00
Number of Males with No Schooling	244.08	2195	472.32	1.94	6.52	0.00	7725.00
Percentage of Bush Votes	27.36	2193	71.08	2.60	31.53	0.41	2707.75
Per-capita Income	17663.35	2195	3458.11	0.20	1.59	5213.00	44962.00
Percentage of Employed population	45.22	2195	5.38	0.12	-0.62	20.86	64.03
Percentage of Males between 15 and 24	7.08	2195	1.75	0.25	2.84	3.70	21.15
Percentage of Houses Occupied	86.18	2195	9.42	0.11	-2.09	22.99	98.46
Percentage of Rural Population	58.98	2195	28.88	0.49	-0.06	0.00	100.00
Population	65792.27	2195	85775.07	1.30	2.38	412.00	486254.00
Term of Office	4.10	2037	0.87	0.21	1.80	1.00	10.00
Total Area of a District	1310.81	2195	1683.60	1.28	4.58	6.83	21159.85

Notes: All the variables are defined in the Data Appendix B.

Table 1B: Basic Descriptive Statistics for Categorical Variables

Notes: For the definition of the variables, please see Data Appendix B.

Variable	No	Yes	Total Observations
Prosecutor’s Office takes Civil Cases	902	1121	2023
Chief Prosecutor is Appointed	2176	19	2195
Metropolitan Statistical Area	1748	447	2195

Notes:

1. For the definition of the variables, please see Data Appendix B.

Table 2: Key Percentiles

	P 10	P 25	P 50	P 75	P 90
Density of Housing Units	2.17	7.53	19.05	42.80	109.96
Number of Index Crimes	1.00	26.00	129.00	473.00	1319.00
Years in Office	2.00	4.00	8.00	14.00	20.00
Monthly Median Rent	331.00	378.00	448.00	565.00	930.00
Number of Males with No Schooling	6.00	24.00	84.00	270.00	635.00
Percentage of Bush Votes	16.80	20.08	23.54	27.46	33.12
Per-capita Income	14213.92	15659.00	17195.00	19052.00	21568.00
Percentage of Employed population	38.04	42.11	45.85	48.94	51.33
Percentage of Males between 15 and 24	5.62	6.10	6.69	7.54	8.85
Percentage of Houses Occupied	74.62	83.01	89.01	92.45	94.45
Percentage of Rural Population	18.91	36.83	58.35	81.68	100.00
Population	5614.00	12898.00	33391.00	80732.00	172469.00
Term of Office	4.00	4.00	4.00	4.00	4.00
Total Area of a District	389.43	512.41	743.79	1391.49	2754.34

Notes: P1 means first percentile, P5 means fifth percentile and so on.

Table 3: Term of Office in Different Prosecutorial Districts in 2001

Term of Office in Years	Number of Districts	Percent
1	4	0.2
2	94	4.61
3	1	0.05
4	1773	87.04
5	12	0.59
6	113	5.55
8	38	2
9	1	0.05
10	1	0.05
Total	2,037	100

Notes: For the definition of the variables, please see Data Appendix B.

Table 4: Years in Office of Current Prosecutors

Years in Office	Number of Districts	Percent
0-5	617	33.44
5-10	459	24.88
10-15	365	19.78
15-20	195	10.57
20-25	136	7.37
25-30	50	2.71
30-35	18	0.98
35-40	4	0.22
40-45	1	0.05
Total	1845	100.00

Notes: For the definition of the variables, please see Data Appendix B.

Table 5: Frequency Distribution of the Population

Population	Number of Districts
0 -50000	1378
50000-100000	371
100000-150000	171
150000-200000	103
200000-250000	63
250000-300000	38
300000+	71
Total	2195

Notes: For the definition of the variables, please see Data Appendix B.

Table 6: Prosecutorial Budget across Districts

Budget Amount	Number of Districts
\$0 - \$100000	386
\$100000 - \$200000	386
\$200000 - \$300000	265
\$300000 - \$400000	180
\$400000 - \$500000	130
\$500000 - \$1000000	305
\$1000000 - \$2000000	223
\$2000000 - \$3000000	71
\$3000000 - \$4000000	45
\$4000000 - \$5000000	25
\$5000000 - \$6000000	10
\$6000000 - \$7000000	15
\$7000000 - \$8000000	6
\$8000000 - \$9000000	5
\$9000000 - \$10000000	3
\$10000000 +	10
Total	2065

Notes: For the definition of the variables, please see Data Appendix B.

Table 7: Per-capita Income in the Year 2000

Per-capita Income		Number of Districts
\$0	-\$5000	0
\$5000-\$10000		14
\$10000-\$15000		359
\$15000-\$20000		1444
\$20000-\$25000		306
\$25000-\$30000		52
\$30000-\$35000		12
\$35000-\$40000		7
\$40000-\$45000		1

Notes: For the definition of the variables, please see Data Appendix B.

Table 8: Number of Index crimes across Districts

Number of Index Crimes	Number of Districts
0-50	727
50- 100	238
100-150	194
150- 200	118
200-400	299
400-600	156
600-800	85
800-1000	76
1000-1200	61
1200-1400	34
1400-1600	36
1600-1800	36
1800-2000	22
2000-2200	11
2200+	102

Notes: For the definition of the variables, please see Data Appendix B.

Table 9: Number of Prosecutorial Districts in various States

State	Number of Districts	Percent
Alaska	1	0.04
Alabama	41	1.75
Arkansas	28	1.2
Arizona	15	0.64
California	58	2.48
Colorado	22	0.94
Connecticut	13	0.56
District of Columbia	1	0.04
Delaware	1	0.04
Florida	20	0.85
Georgia	48	2.05
Hawaii	4	0.17
Iowa	99	4.23
Idaho	44	1.88
Illinois	102	4.36
Indiana	90	3.84
Kansas	105	4.49
Kentucky	56	2.39
Louisiana	41	1.75
Massachusetts	11	0.47

State	Number of Districts	Percent
Maryland	24	1.03
Maine	8	0.34
Michigan	83	3.55
Minnesota	87	3.72
Missouri	115	4.91
Mississippi	22	0.94
Montana	55	2.35
North Carolina	39	1.67
North Dakota	53	2.26
Nebraska	93	3.97
New Hampshire	10	0.43
New Jersey	21	0.9
New Mexico	14	0.6
Nevada	17	0.73
New York	62	2.65
Ohio	88	3.76
Oklahoma	27	1.15
Oregon	36	1.54
Pennsylvania	67	2.86
Rhode Island	1	0.04
South Carolina	16	0.68

State	Number of Districts	Percent
South Dakota	66	2.82
Tennessee	31	1.32
Texas	155	6.62
Utah	29	1.24
Virginia	120	5.13
Vermont	14	0.6
Washington	39	1.67
Wisconsin	71	3.03
West Virginia	55	2.35
Wyoming	23	0.98
Total	2341	100

Notes: For the definition of the variables, please see Data Appendix B.

Table 10: Regression of Prosecutorial Budgets of all the Districts

	(1)	(2)	(3)
	OLS	IV	LIML
Number of Index Crimes	0.08 [0.10]	1.11** [0.49]	1.41** [0.63]
Per-capita Income	0.03** [0.01]	0.05*** [0.02]	0.06*** [0.02]
Monthly Median Rent	-0.38*** [0.08]	-0.25** [0.12]	-0.21 [0.14]
Metropolitan Area	-46.18 [70.27]	-3.93 [78.09]	7.98 [85.54]
Population	0.01*** [0.00]	0.00 [0.00]	0.00 [0.01]
Percentage of Rural Population	-0.50 [0.68]	0.68 [1.08]	1.02 [1.26]
Density of Housing Units	0.21 [0.13]	-0.08 [0.21]	-0.16 [0.26]
Total Area of a District	0.05*** [0.02]	0.05*** [0.01]	0.05*** [0.01]
Percentage of Bush Votes	-0.51 [0.42]	-4.60* [2.63]	-5.76* [3.38]
Appointed or Not	1579.84*** [573.40]	1533.03** [702.52]	1519.83** [757.70]
Years in Office	0.74 [2.46]	0.05 [2.87]	-0.15 [3.13]
Term of Office	-21.00	-74.96*	-90.17*

	(1)	(2)	(3)
	OLS	IV	LIML
Constant	[28.30] 103.43	[42.18] -58.49	[47.88] -104.13
R-Square	[274.53] 0.68	[336.27] 0.54	[373.00] 0.46
Number of Observations	1806.00	1806.00	1806.00

Notes:

- 1. Dependent Variable is the Logarithm of Prosecutorial Budget of all Districts.
- 2. Robust standard errors are given in bracket.
- 3. * means significant at 10%, ** means significant at 5%, *** means significant at 1%.
- 4. For the definition of the variables, please see Data Appendix B.

Table 11: Elasticities of Different Variables at their Mean Value

Variable	Mean	OLS		IV		LIML	
		Elasticity	P-value	Elasticity	P-value	Elasticity	P-value
Number of Index Crimes	478.428	0.049	0.417	0.684	0.022	0.864	0.024
Per-capita Income	17826.200	0.700	0.032	1.201	0.005	1.342	0.007
Median Rent	578.843	-0.280	0.000	-0.183	0.035	-0.156	0.125
Metropolitan Area	0.219	-0.013	0.511	-0.001	0.960	0.002	0.926
Population	67724.000	1.042	0.000	0.288	0.402	0.076	0.865
Percentage of Rural Population	58.230	-0.037	0.461	0.051	0.525	0.076	0.417
Density of Housing Units	58.944	0.016	0.110	-0.006	0.715	-0.012	0.532
Total Area	1285.210	0.088	0.000	0.078	0.001	0.075	0.002
Percentage of Bush Votes	27.531	-0.018	0.230	-0.163	0.080	-0.204	0.089
Appointed or Not	0.009	0.018	0.006	0.017	0.027	0.017	0.043
Years in Office	9.195	0.009	0.762	0.001	0.987	-0.002	0.961
Term of Office	4.091	-0.110	0.456	-0.394	0.071	-0.474	0.055

Notes:

1. The dependent variable of all the regressions is Prosecutorial Budget.
2. For the definition of the variables, please see Data Appendix B.

Table 12: Regression of Prosecutorial Budget for Large Population and Small Population Districts Separately

	OLS	IV	OLS	IV
	Large Districts		Small Districts	
Number of Index Crimes	0.11 [0.12]	1.18** [0.49]	0.01 [0.03]	0.06 [0.08]
Per-capita Income	0.06*** [0.02]	0.12*** [0.03]	0.01*** [0.00]	0.01*** [0.00]
Monthly Median Rent	-0.35*** [0.09]	-0.20 [0.13]	0.08 [0.07]	0.08 [0.07]
Metropolitan Area	-15.87 [78.46]	72.57 [92.61]	-44.36* [23.47]	-42.93* [23.38]
Population	0.01*** [0.00]	0.00 [0.00]	0.01*** [0.00]	0.01*** [0.00]
Percentage of Rural Population	-1.15 [1.79]	4.79 [3.45]	-0.44** [0.18]	-0.48*** [0.18]
Density of Housing Units	0.15 [0.18]	-0.13 [0.23]	0.03 [0.04]	-0.01 [0.06]
Total Area of a District	0.08*** [0.02]	0.08*** [0.02]	0.01 [0.01]	0.01 [0.01]
Percentage of Bush Votes	-19.33** [8.23]	-44.28*** [14.28]	-0.10 [0.14]	-0.28 [0.35]
Appointed or Not	1426.11** [580.21]	1226.57* [677.36]		
Years in Office	1.62 [5.16]	1.80 [6.05]	-0.94 [1.26]	-0.92 [1.25]

	OLS	IV	OLS	IV
	Large Districts		Small Districts	
Term of Office	-4.45	-33.04	39.87***	35.16***
	[35.18]	[43.26]	[11.14]	[11.53]
Constant	276.59	-358.26	-228.54***	-196.78**
	[396.08]	[513.79]	[70.53]	[76.55]
R-Square	0.66	0.53	0.12	0.12
Number of Observations	928.00	928.00	877.00	878.00

Notes:

1. The Dependent Variable is the Prosecutorial Budget in the ‘large’ and the ‘small’ Districts.
2. Please note that I defined large and small in terms of population size rather than area size using the median population to divide all the districts into two equal groups.
3. Robust Standard Errors are given in bracket.
4. * means significant at 10%, ** means significant at 5%, *** means significant at 1%.
5. For the definition of the variables, please see Data Appendix B.

Table 13: Regression of Prosecutorial Budget for Rich and Poor Districts Separately

	OLS	IV	OLS	IV
	Rich Districts		Poor Districts	
Number of Index Crimes	0.12 [0.13]	1.37* [0.70]	-0.03 [0.19]	0.88** [0.44]
Per-capita Income	0.04 [0.03]	0.09** [0.04]	0.01 [0.01]	0.02** [0.01]
Monthly Median Rent	-0.28** [0.13]	-0.05 [0.22]	-0.33*** [0.08]	-0.30*** [0.11]
Metropolitan Area	9.31 [87.87]	144.49 [123.69]	57.64 [91.51]	-75.82 [107.78]
Population	0.01*** [0.00]	0.00 [0.01]	0.01*** [0.00]	0.00 [0.00]
Percentage of Rural Population	-0.12 [1.14]	1.09 [1.78]	-2.31*** [0.54]	-0.89 [0.79]
Density of Housing Units	0.23 [0.15]	-0.10 [0.26]	0.18 [0.13]	0.24* [0.14]
Total Area of a District	0.04 [0.03]	0.05* [0.03]	0.07*** [0.02]	0.06*** [0.02]
Percentage of Bush Votes	-0.86 [0.70]	-7.75** [3.84]	-0.08 [0.12]	-0.32 [0.24]
Appointed or Not	1596.91*** [589.72]	1481.78** [715.70]		
Years in Office	1.26 [4.49]	-0.53 [5.53]	1.40 [2.06]	1.51 [2.29]
Term of Office	-59.55	-148.55**	42.58**	49.02**

	OLS	IV	OLS	IV
	Rich Districts		Poor Districts	
Constant	[48.17] 323.43 [540.34]	[73.68] -359.86 [745.82]	[18.34] 86.75 [174.59]	[22.88] -154.44 [182.81]
R-Square	0.68	0.51	0.59	0.48
Number of Observations	939.00	939.00	867.00	867.00

Notes:

- 1. The Dependent Variables are the Prosecutorial Budget in the ‘Rich’ and the ‘Poor’ Districts. The districts are divided into ‘Rich’ and ‘Poor’ categories by the median of per-capita income.
- 2. Robust Standard Errors are given in bracket.
- 3. * means significant at 10%, ** means significant at 5%, *** means significant at 1%.
- 4. For the definition of the variables, please see Data Appendix B.

Table 14: Regression of Logarithm of Prosecutorial Budget of all the Districts

	(1)	(2)	(3)
	OLS	IV	LIML
log of Total Index Crimes	0.08*** [0.02]	0.30*** [0.08]	0.36*** [0.11]
Log of Aggregate Income	1.39*** [0.11]	1.57*** [0.14]	1.62*** [0.15]
Metropolitan Area	0.04 [0.04]	0.03 [0.04]	0.03 [0.04]
Log of Population	-0.43*** [0.12]	-0.59*** [0.15]	-0.66*** [0.16]
Log of Rural Population	-0.18*** [0.02]	-0.13*** [0.03]	-0.11*** [0.03]
Log of Density of Housing Units	0.44*** [0.07]	0.17 [0.11]	0.10 [0.14]
Log of Total Area of a District	0.15*** [0.02]	0.16*** [0.02]	0.16*** [0.02]
Log of Bush Votes	-0.58*** [0.06]	-0.65*** [0.07]	-0.67*** [0.07]
Log of Median Rent	-0.38*** [0.06]	-0.40*** [0.06]	-0.40*** [0.06]
Appointed or Not	0.44*** [0.15]	0.50*** [0.14]	0.51*** [0.15]
Years in Office	0.00 [0.00]	0.00 [0.00]	0.00 [0.00]
Term of Office	0.05**	0.05**	0.05**

	(1)	(2)	(3)
	OLS	IV	LIML
Constant	[0.03] -13.93***	[0.03] -14.20***	[0.03] -14.30***
R-Square	[1.01] 0.81	[1.06] 0.79	[1.08] 0.78
Number of Observations	1635.00	1588.00	1588.00

Notes:

- 1. The dependent variable is the logarithm of Prosecutorial Budget.
- 2. Robust Standard Errors are given in bracket.
- 3. * means significant at 10%, ** means significant at 5%, *** means significant at 1%.
- 4. For the definition of the variables, please see Data Appendix B.

Figure 1: Timeline

Histogram of Key Variables

Figure 2: Prosecutorial Budget

Figure 3: Logarithm of Prosecutorial Budget

Figure 4: Population

Figure 5: Logarithm of Population

Figure 6: Number of Index Crimes

Figure 7: Logarithm of Number of Index Crimes

Figure 8: Per-Capita Income

Figure 9: Logarithm of Per-Capita Income

**Figure 10: Votes Won by
President Bush in
November 2000 Election**

**Figure 11: Logarithm of Votes
Won by President Bush
in November 2000 Election**

Scatter Plots between Prosecutorial Budget and Key Independent Variables on Logarithmic Scale

Figure 12: Prosecutorial Budget and Population Figure 13: Prosecutorial Budget and Crime

Figure 14: Prosecutorial Budget
and Aggregate Income

Figure 15: Prosecutorial Budget and
Percentage of Votes President
Bush Won in November 2000