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## Do Warrants Matter?

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## Max Minzner\* and Christopher M. Anderson

# Do Warrants Matter?

**Abstract:** We examine traditional criminal wiretaps to determine whether the 4th Amendment's warrant requirement limits law enforcement. We develop a formal model relating law enforcement's decision to pursue a wiretap to its exogenous cost, probability of yielding evidence, and the expected value of that evidence. We use the model to analyze success rates of all traditional federal wiretaps initiated 1997–2004. We find budget constraints cause law enforcement to pursue only taps that are particularly likely to succeed. Thus, eliminating the warrant requirement for traditional wiretaps would matter little, and the significance of a warrant requirement for new investigative programs, such as the Terrorist Surveillance Program, depends on budget.

**Keywords:** warrants, wiretaps, probable cause, law enforcement costs

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Few threats to liberty exist which are greater than that posed by the use of eavesdropping devices.

*Berger v. New York*, 388 U.S. 41, 63 (1967)

In December 2005, the *New York Times* revealed that the US Government has been engaged in an extensive, previously undisclosed program of electronic surveillance, installing warrantless wiretaps on some telephone calls believed to involve terrorist activity.<sup>1</sup> While the legality of the program remains a subject of much debate,<sup>2</sup> the empirical question raised is whether the warrantless nature

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<sup>1</sup> See Risen and Lichtblau (2005). Copies of the Department of Justice's legal defense of the NSA wiretapping program are available at <http://www.epic.org/privacy/nsa/foia/>.

<sup>2</sup> In the wake of the disclosure of the warrantless wiretapping program, Congress has enacted two major statutory changes to Foreign Intelligence Surveillance Act (FISA). First, in 2007, Congress adopted the Protect America Act, Pub. L. No. 110–55, 121 Stat. 552, which broadly allowed warrantless wiretaps targeting individuals (including United States citizens) located overseas. The United States Foreign Intelligence Surveillance Court of Review concluded that

of these programs actually affects law enforcement behavior. Does a warrant requirement restrict the nature and scope of law enforcement investigations? Or, is there already some other limiting factor that prevents law enforcement from pursuing wiretaps where it would not be able to satisfy the probable cause standard that would be necessary to obtain a warrant?

Success rates of wiretaps, in particular, have received little attention in the legal literature, but prior studies of traditional search warrants suggest warrants might matter. For instance, searches without warrants succeed at a far lower rate than searches with warrants. Random car stops, almost all of which occur without a warrant, recover evidence only 11.7% of the time (Durose, 2005); in contrast, searches with warrants recover evidence at rates exceeding 80% or 90% (Benner and Samarkos, 2000; van Duziend, 1984). Recent debate in the legal literature has focused on the value of requiring judges to explicitly incorporate these differential success rates into the probable cause determination (Minzner, 2009; Lerner, 2006; Rosenthal, 2005). The presence or absence of a warrant, though, may not be the only difference between searches with and without a warrant. For instance, less capable officers might initiate car stop searches or car stops may be cheaper for law enforcement and thus used more aggressively. These factors would decrease success rates compared with traditional warranted searches. A similar dynamic may exist in the wiretap context. The decision to tap a device depends on many factors, such as agents' tapping experience, the costs of the tap, the law enforcement benefits from executing the tap, all of which might increase or decrease the probability of recovering evidence independent of the warrant requirement.

To understand the role of these factors, we introduce a conceptual model that takes the legal restraints as exogenous in order to test the constraints on law enforcement behavior in the real world. We presume law enforcement officers are utility-maximizing agents subject to both the probable cause constraint arising out of the warrant requirement and a budget constraint. The model suggests that if warrants are the limiting factor on law enforcement behavior, average success rates are misleading. Instead, it is the marginal, i.e. least likely to succeed, wiretap that reveals the factors limiting behavior. If

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this type of warrantless wiretap complied with the requirements of the United States Constitution. See *In Re: Directives Pursuant to Section 105 B of the Foreign Intelligence Surveillance Act*, available at [http://www.uscourts.gov/newsroom/2009/FISCR\\_Opinion.pdf](http://www.uscourts.gov/newsroom/2009/FISCR_Opinion.pdf). The PAA expired in February 2008 and in the summer of 2008, Congress passed the FISA Amendments Act of 2008, Pub. L. No. 110–261, 122 Stat. 2436. The 2008 Amendments provided immunity for suit for the telecommunication companies participating in the warrantless wiretapping program and again modified the FISA warrant requirements. For a full discussion of the current legal requirements under FISA, see Kris and Wilson (2008).

warrants are the limiting factor, we would expect the marginal wiretap to recover evidence at something approaching the statistical definition of probable cause. On the other hand, if wiretaps succeed at the margin more often than a probable cause limitation would suggest, some other factor must constrain agent behavior and ensure that only individuals who are very likely to be engaging in criminal activity are pursued.

We apply the model to test whether the warrant process actually limits investigations by considering the success rate of traditional federal criminal wiretaps obtained between 1998 and 2004. Using two measures of success: (1) whether the wiretap led to the interception of what the supervising agent believed to be an incriminating communication and (2) whether the wiretap led to an arrest, we find warrants, even at the margin, are far more successful than the probable cause standard would predict. Even the riskiest wiretaps in the data set recover evidence far more frequently than the probable cause standard requires. Thus, it appears that the judicial review of wiretap applications is not the limiting factor in investigating criminal activity and presents the question of what does constrain law enforcement, and whether it accurately reflects the social value of evidence recovered.

This conclusion raises the question of why wiretaps are so successful. Legal academics have proposed three alternative explanations for high average success rates of traditional warranted searches. First, searches may be easy. If criminal activity is commonplace, even borderline searches are extremely likely to recover evidence (Duke, 1986). Second, judges could be?—inadvertently or ideologically?—systematically imposing a higher evidentiary standard than probable cause. Third, law enforcement might self-impose a standard higher than that commonly associated with probable cause. For instance, law enforcement might self-limit out of fear of later suppression, institutional or budgetary reasons (Dripps, 1986a, 1986b).

Each of these different theories suggests different predictions about the success rates of wiretaps. If searches are easy, we should see variation based on the level of criminal activity in the judicial district. If judges are the binding constraint, we should see variation based on judicial characteristics. If institutional constraints imposed uniformly by the Department Justice (discussed in the next section) restrain wiretap use, we should not see district-level variation. Finally, if budget constraints are the limiting factor, the cost of the wiretap should matter.

Our analysis suggests that wiretaps are so successful because law enforcement allocates scarce budget resources only to wiretaps that are very likely to succeed. Not only are more expensive wiretaps more successful, districts that install more wiretaps are less effective on the margin. As a result, the value of a

warrant requirement turns on the law enforcement budget constraint. For traditional criminal investigations, we believe that wiretaps are substantially underfunded, as law enforcement is not pursuing socially desirable wiretaps. Second, if and only if terrorism investigators have far more resources at their disposal than traditional law enforcement will a warrant requirement affect the investigations that are carried out.

The rest of the article is organized as followed. Section I provides essential background and introduces the formal model. Section II provides a description of the data set we analyze. Section III presents the regression results. Section IV concludes with a discussion of the ramifications of these results.

## 1 Modeling the warrant requirement

Wiretaps are a specialized type of search warrant, which the Supreme Court has held are subject to the requirements and remedies of the Fourth Amendment [Berger v. New York, 388 U.S. 41 (1967); and Katz v. United States, 389 U.S. 347 (1967)]. To obtain a tap warrant, the investigating agent and an Assistant United States Attorney (AUSA) complete a wiretap affidavit, which is then submitted to the Office of Enforcement Operations at the Department of Justice (OEO). An OEO attorney evaluates the package and suggests changes. The standard applied by OEO is commonly thought to be stricter than judicial probable cause, as they require specific evidence of a “dirty call” on the line within the last few weeks. This requirement can be met if the target phone has contact with another device already being intercepted but is more commonly accomplished by having a confidential informant place a call to the phone and engage in conversation of a criminal nature. After the OEO attorney is satisfied with the application, it is sent to a Deputy Attorney General for signature. Only then may the wiretap be submitted to a federal judge for assessment of whether it meets the constitutional probable cause standard.

Once a federal judge authorizes a wiretap on a given phone, federal agents work with the provider of phone service to intercept calls on the line. The Wiretap Act requires that calls be “minimized,” or continuously monitored in real time so that monitoring of a particular transmission can be stopped once it is determined to not relate to criminal activity (USA Bulletin, 1997). As a result, any time that a call is recorded by law enforcement, agents must be available to simultaneously listen to the call as it occurs. Minimization is designed to limit the invasion of privacy that results from the interception. For wiretaps with conversations in foreign languages, contract interpreters may be used. Agents act on the

information generated by the wiretap to make arrests, seize contraband, or otherwise investigate and prevent criminal activity. Taps may be used at a variety of stages in the investigation. If agents identify a phone early, a wiretap may be a first step in the process. Alternatively, agents may be further along in an investigation before they consider a wiretap on a potential target phone.

The Warrant Clause of the Fourth Amendment, and the OEO statutory scheme, are designed to act as checks on law enforcement, preventing police from executing a warrant unless they can demonstrate a likelihood of recovering evidence greater than probable cause. While the Supreme Court has declined to provide a numeric definition for probable cause, it has suggested that it is a relatively low standard, certainly requiring less than a 50% chance of recovering evidence [Illinois v. Gates, 462 U.S. 213 (1983); Gerstein v. Pugh, 420 U.S. 103 (1975)]. McCauliff (1982) surveyed 166 federal judges on the numeric equivalent of probable cause and found a mean reported level of 45.8% and a median of 50%. Some academics take a comparable view of the probable cause requirement (e.g., Bacigal, 2004; Duke, 1986; Kamisar, 1984), while others see judges as rubber stamps for law enforcement, approving all applications presented to them with little or no review (e.g., Wasserstrom and Seidman, 1988; Schroeder, 1981; Saltzburg, 1980). We do not take a view on the exact numeric definition of probable cause in the analysis below, but will use 50% probability as a conservative reference point.

We describe these legal requirements in the following model that incorporates the decision of law enforcement of what devices to tap to elucidate the role of the expected benefit to law enforcement, the cost of the tap, and the probable cause standard. Similar models of law enforcement decision making have been developed to model how racial bias might operate in the decision to search when law enforcement wishes to maximize seizures (Knowles et al., 2001). Modeling racial bias as a reduction in search costs, KPT predict that bias should lead to searches of minorities being less successful than searches of majority members. Using the model, they were unable to reject the hypothesis of no bias in an examination of Maryland traffic stop searches. The KPT model has been extended to incorporate a crime reduction objective for law enforcement (Dominitz and Knowles, 2005) and imperfect monitoring (Persico and Todd, 2005). Significantly, these extensions, as well as the original KPT model, assume that resource constraints are not binding (see Anwar and Fang, 2005; Antonovics and Knight, 2004) and do not include data on the costs of specific searches. Our model's results are driven by the constraints, with the core prediction that the probable cause standard, and thus the warranting process, will only constrain law enforcement's behavior only if other constraints, such as budget, do not bind first.

## 1.1 Modeling the tap application decision

Let there be  $N$  possible tappable devices. A device is a triple  $\{c_i, b_i, p_i\}$  where  $c_i$  represents the cost to law enforcement of tapping device  $i$ ,  $b_i$  represents the benefit to law enforcement from tapping device  $i$  if it reveals evidence of illicit activity,<sup>3</sup> and  $p_i$  is the objective probability that the device provides incriminating evidence. Each element in the device triple is drawn from known independent probability distributions, with  $F(c_i) : [0, \infty) \rightarrow [0, 1]$ ,  $G(b_i) : [0, \infty) \rightarrow [0, 1]$ , and  $P(p_i) : [0, 1] \rightarrow [0, 1]$ . When law enforcement encounters a device, it observes  $\{c_i, b_i, p_i\}$  and must decide whether to allocate  $c_i$  from its total budget  $M$  to tap device  $i$ .

This model assumes law enforcement takes the attributes of each device as given, rather than endogenizing the probability of success on each tap with the expenditures on it. This is based on the legal requirements surrounding wiretaps that give law enforcement a strong sense of necessary costs, and little leeway to improve the likelihood of success by investing more. Over 90% of the costs of a wiretap come from staffing, largely because of the minimization requirements of the Wiretap Act. Staffing cost varies primarily with the hours the device is monitored and whether specialized translation is required. The hours of monitoring required depends on when the device is in use (e.g., business device taps may only require monitoring during business hours) and is fixed and known at the time the decision to pursue the tap is made. Similarly, whether specialized language skills will require adding to the tap cost is known when the tapping decision is made, and adding additional agents or inactive hours to the tap once the minimum required monitoring is in place will have little effect on the probability of recovering evidence. Federal agents and Department of Justice officials have identified these high fixed costs as an important consideration in determining whether to seek authorization to install a wiretap (USA Bulletin, 1997).

## 1.2 Homogenous costs and benefits

In the baseline model, we assume  $c_i = C$  and  $b_i = B$  are equal for all  $i$ . That is, wiretaps only vary in their likelihood of recovering evidence. We examine strategies wherein law enforcement determines cutoff value,  $\tau$ , of  $p_i$  such that

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<sup>3</sup> We interpret the benefit to law enforcement from gathering incriminating evidence very generally. As discussed in the regression analysis, we expect that law enforcement preferences are based at least to some extent on the targeted crime.

they tap devices if and only if  $p_i \geq \tau$ . For simplicity, we demonstrate the model when the  $p_i$ s are uniformly distributed.

Law enforcement seeks to solve the following problem:

$$\max \Pi(\tau) = N \int_{\tau}^1 pBdP(p)dp = NB \left( \frac{1 - \tau^2}{2} \right)$$

$$s.t. \tau \geq \rho$$

$$M \geq N \int_{\tau}^1 CdP(p)dp = CN(1 - \tau)$$

The objective function calculates the expected benefit for tapping each device with  $p_i \geq \tau$ . The first constraint indicates that  $\tau$  must exceed  $\rho$ , the judicially imposed probable cause standard. The second constraint captures the budget constraint, where  $N(1 - \tau)$  is the expected number of phones tapped at a cost of  $C$  which cannot exceed the budget  $M$ .<sup>4</sup> If the probable cause constraint is binding, then the Kuhn–Tucker conditions indicate  $\tau = \rho$ , that is law enforcement will tap all phones with a probability of success greater than the probable cause constraint. If, instead, the budget constraint is binding, then the Kuhn–Tucker conditions give  $M = NC(1 - \tau)$  and  $\tau = 1 - \frac{M}{NC}$ .<sup>5</sup>

This result holds two important implications for interpreting empirical wiretap data. First, the average success rate of taps reflects the mean of the conditional distribution of  $p_i \geq \tau$ , which does not capture the probable cause standard in a nondegenerate distribution of  $p_i$ s; rather, the probable cause standard will only be reflected in the marginal wiretaps, those that are least likely to yield incriminating evidence. Second, the probable cause standard will be binding (and therefore observable) only if there is sufficient funding in law enforcement to tap all phones with  $p_i$  exceeding the probable cause standard. Thus, to understand whether the warranting process constrains enforcement, it is necessary to identify the success probabilities of the least likely taps installed, and compare them with commonly accepted notions of the probable cause

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<sup>4</sup> Note that law enforcement differs from a firm in that they maximize benefits within a fixed, exogenous budget; they do not gain from saving costs. This is consistent with theories of bureaucracy and reflects the law enforcement objective of preventing crime that is bad for society.

<sup>5</sup> Both constraints would bind simultaneously in the event that the budget is exactly the amount required to cover all wiretaps with  $p_i \geq \rho$ ; we dismiss this as occurring with probability zero.



standard. If the marginal taps are more successful than probable cause suggests, some other factor is limiting law enforcement.

### 1.3 Heterogeneous costs and benefits

We next consider law enforcement’s problem when  $b_i \sim \{ \{b_1, b_2, \dots, b_n\}, \{\frac{1}{n}\} \}$  and  $c_i \sim \{ \{c_1, c_2, \dots, c_m\}, \{\frac{1}{m}\} \}$ , each independently distributed. That is, law enforcement observes a device in one of  $nm$  equally likely cost–benefit states and in expectation,  $\frac{N}{nm}$  of the potential devices is in each state. We can assume, without loss of generality, that the costs and benefits are ordered by their indices, i.e.,  $b_1 \leq b_2 \leq \dots \leq b_n$  and  $c_1 \leq c_2 \leq \dots \leq c_m$ . We examine strategies of the form that law enforcement selects  $\tau = \{ \tau_{11}, \tau_{12}, \dots, \tau_{1m}, \tau_{21}, \dots, \tau_{nm} \}$ , a vector of probability thresholds for each cost–benefit type, to illustrate how costs, benefits to law enforcement, and the probability with success interact with the probable cause standard to determine which taps are implemented.

Law enforcement chooses  $\tau$  in order to solve the following problem:

$$\max \prod(\tau) = \frac{N}{nm} \sum_{j,k} \int_{\tau_{jk}}^1 pb_j dP(p) dp$$

$$s.t. \tau_{jk} \geq \rho \forall j, k$$

$$M \geq \frac{N}{nm} \sum_{j,k} \int_{\tau_{jk}}^1 c_k dP(p) dp$$

As in the homogeneous model, law enforcement collects benefit from each tapped device in proportion to its probability of providing incriminating evidence, pays costs associated with the fraction of each type of device tapped, and can only tap devices with probabilities exceeding the probable cause standard. For uniformly distributed  $p_i$ , the Lagrangian for this problem is

$$L = \sum_{j,k} \left[ \frac{Nb_j}{nm} \left( \frac{1 - \tau_{jk}^2}{2} \right) + \lambda_{j,k} (\tau_{jk} - \rho) \right] + \lambda_M \left[ M - \frac{N}{nm} \left( \sum_{j,k} c_k (1 - \tau_{jk}) \right) \right]$$

Taking partial derivatives gives solutions for  $\tau$

$$\frac{\partial L}{\partial \tau_{jk}} = -\frac{N\tau_{jk}b_j}{nm} + \lambda_{jk} + \frac{N\lambda_M c_k}{nm} = 0$$

This implies

$$\tau_{jk} = \frac{1}{b_j} \left[ \frac{nm}{N} \lambda_{jk} + \lambda_M c_k \right]$$

In the polar case where the budget is sufficient to implement all taps for which there is probable cause, the Kuhn–Tucker conditions imply  $\lambda_M = 0$  and  $\tau_{jk} = \rho$ . Since probable cause binds for all types of taps, all types can be used to draw inferences about the empirical probable cause standard. In the polar case where the budget is restrictive enough that the probable cause constraint is nonbinding for all tap types, then the Kuhn–Tucker conditions imply  $\lambda_{jk} = 0 \forall j, k$  and we have:

$$\lambda_M = \frac{\tau_{jk} b_j}{c_k} \forall j, k.$$

That is, each  $\tau_{jk}$  is set in direct and fixed proportion to the corresponding cost and benefit ratio. In the non-polar cases, where probable cause binds for some tap types but the budget constraint binds for others, for any fixed  $b_j$ ,  $\tau_{jv} < \tau_{jw}$  if  $w < v$ . That is, probable cause will bind for the low-cost type within each benefit category before the high cost type, with  $\tau_{n1}$  having the smallest  $\tau$  since by construction,  $\frac{b_n}{c_1}$  is the largest benefit–cost ratio. For purposes of analyzing empirical data on the effects of judicial review and probable cause on investigations, this model implies the  $p_i$ s of the devices chosen for tapping depend also on the benefit and cost to law enforcement. Empirical analyses must incorporate data capturing and controlling for these values. Further, if cost-side variables are empirically significant, it is likely the budget, rather than a judicial probable cause standard, that is limiting the activity of law enforcement. This provides us with guidance on specifying and interpreting an empirical model to test the hypothesis that the warrant process limits law enforcement or that warrants matter.

## 2 The data and statistical methodology

Section 2519 of the Wiretap Act requires that prosecutors and judges report statistical data on their wiretaps every year to the Administrative Office of the United States Courts (AO). The AO sends reminder letters to agents each year to ensure timely and accurate reporting. Reported variables include information on the application (e.g., district, judge, approval date), the target (type of device,

crime), the tap implementation (place, nonmanpower costs, length of wiretap), and the tap outcome (number of intercepted calls and individuals, number of incriminating intercepts, number of arrests, trials and convictions as of the report date). We use data on the 4,578 taps from 1997 to 2004 for which data are available, updated to 2006 reporting to capture arrests and convictions that may occur long after tap evidence is collected.<sup>6</sup>

Before turning to a more sophisticated statistical analysis, a simple observation about the data suggests that law enforcement is self-imposing a standard higher than probable cause: virtually all wiretap warrant applications are approved. Between 1987 and 2007, federal and state law enforcement agencies applied for 26,041 wiretaps, 26,034 of which were approved, a 99.97% approval rate. Furthermore, if the binding constraint is the institutional OEO requirement rather than a budgetary constraint, state wiretaps should be rejected more frequently than federal wiretaps since state wiretaps do not require OEO approval. While AOC only reports the total number of wiretaps sought by law enforcement, without distinguishing between state and federal wiretaps, it does report that, in that time period, 10,025 federal taps were approved and 16,009 state taps were authorized. If we assume all the rejected wiretaps were state applications and all federal wiretaps were approved, state wiretaps still have a 99.96% approval rate.<sup>7</sup>

We seek to understand how wiretap success is influenced by factors that affect judges (who implement the probable cause standard), prosecutors, law enforcement officials, and the level of criminal activity. To do so, we use a binary logit model to relate these factors to two measures of success for taps in the federal wiretap database between 1997 and 2004. Here, we explain the dependent and independent variables in the model.

## 2.1 Dependent variables

We choose two alternative dependent variables measuring whether a wiretap succeeded, though neither choice is perfect. The *Incriminating Intercept*

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<sup>6</sup> Data are available at <http://www.uscourts.gov/library/wiretap.html>.

<sup>7</sup> These figures may overstate the approval rate of the initial applications, as judges sometimes are initially unconvinced by an application, instruct law enforcement to make a stronger case, and then approve the wiretap. This phenomenon does not bias the data for our purposes, as eventual approval indicates there is probable cause to initiate the tap – despite some initial difficulty in documenting it – and it is the underlying probable cause that is relevant to our study.

dependent variable is coded as having a value of 1 if the wiretap is reported as having at least one “incriminating intercept,” and zero otherwise.<sup>8</sup> An incriminating intercept is a communication that the monitoring agent believes involves criminal activity. In many ways, this is the correct measure of success for purposes of understanding how the probable cause standard applied to wiretaps. A wiretap authorization is a statement by a judge that he believes that there is probable cause that the device will be used in furtherance of a particular illegal activity during the period of interception. Whether there is an incriminating intercept on the device during that period shows whether the *ex ante* evaluation was correct. Over 92% of the wiretaps in the data set have at least one incriminating intercept, a figure comparable to the reported success rates of general search warrants discussed earlier. However, this measure may overstate the number of successful wiretaps because it is subjective, and agents may have an incentive to overstate the incriminating nature of calls to gain continuing support of superiors, prosecutors, and judges.

Our second dependent variable is a more objective, but very conservative measure of success. *Arrests* takes on the value 1 if the tap (or a related tap) resulted in at least one arrest. 58.9% of taps are successful by this measure. However, wiretaps sometimes fail to result in arrests for reasons independent of the incriminating nature of the intercepted telephone calls. For instance, a wiretap might not lead to an arrest if law enforcement cannot identify the parties to a conversation. In addition, intercepts of low-level criminals may not lead to arrests, as law enforcement allows monitored activity to continue in hopes of identifying and arresting the leaders within a criminal organization.

## 2.2 Independent variables

We analyze the probability of success of individual wiretaps as a function of measurable attributes of each wiretap. Table 1 provides the full list of

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<sup>8</sup> Law enforcement reports some taps as “related” to another primary wiretap, about 30% of our data. For related wiretaps, separate arrest data are not included and for some related wiretaps, cost data are also not reported. To generate the data for related wiretaps, we average data for all related wiretaps. Specifically, arrests are averaged across all wiretaps related to the same primary tap. As a result, if any tap related to the same primary tap has an arrest, all of the taps in the group have at least a fractional arrest, meaning all taps will be coded as a success. For wiretaps where cost is not separately reported, the cost information is also averaged for all related taps on a per-day basis. In effect, this process means that all taps in a given “relatedness” group have the same average daily cost (although may differ in total cost since the length of each tap varies). Our results are robust to the exclusion of secondary taps.

independent variables included in the regression model, with summary statistics for the variables. The explanatory variables fall into three basic categories, corresponding to the three primary stories about what constraints law enforcement in the use of wiretaps: judicial variables, law-enforcement level variables, and wiretap-specific variables. Judges can influence tap success by requiring a high evidentiary standard, one that implies greater success rates than common notions of probable cause, before approving tap applications. We include demographic attributes of the judges as potential explanatory variables for wiretap success.<sup>9</sup>

The characteristics of the United States Attorney's office for federal district seeking the wiretap may affect tap costs and benefits, and we include law

**Table 1:** Independent variables with summary statistics.

<b>Judicial characteristics</b>	<b>Wiretap-specific variables</b>	
Former Prosecutor (0.501)	<i>Log Average Daily Cost</i> (7.06/1.08)	<u>Wiretap year</u>
Elite Law School (0.286)	<i>Log Length &lt; 30 days</i> (1.85/1.69)	1998 (0.114)
Male (0.768)	<i>Log Length &gt; 30 days</i> (1.97/2.17)	1999 (0.117)
Hispanic (0.072)		2000 (0.115)
African-American (0.073)	<u>Wiretap type/place</u>	2001 (0.115)
Asian-American (0.013)	Pager (0.027)	2002 (0.120)
<i>Log Length of Service</i> (8.01/.929)	Email (0.009)	2003 (0.130)
	Fax (0.006)	2004 (0.175)
	Microphone (0.024)	
<u>Appointing President</u>	Cell Phone (0.559)	<u>Targeted offense</u>
George W. Bush (0.041)	Public Area (0.001)	Bribe (0.004)
Carter (0.127)	Business (0.030)	Conspiracy (0.005)
Clinton (0.336)	Device (0.573)	Corrupt (0.002)
Eisenhower (0.001)	Not Specified (0.001)	Extort (0.009)
Ford (0.007)	Other (0.011)	Firearms (0.003)
Johnson (0.011)	Roaming (0.003)	Fraud (0.012)

(continued)

<sup>9</sup> Demographic information for the judges signing the wiretap orders comes from the Federal Judges Biographical Database, available at <http://www.fjc.gov>, the website of the Federal Judicial Center. Recent surveys of the large literature suggest that the only characteristic of judges that has a frequent, but not universal, statistically significant impact on case outcomes is the party of the appointing president (Sisk, 1998; Pinello, 1999). However, the validity of the party measure has been challenged and alternative measures have been proposed (Epstein, 2002; Sisk and Heisse, 2005), but the Epstein alternative measure is highly correlated with the party of the appointing president.

Table 1: (Continued)

Judicial characteristics	Wiretap-specific variables	
Kennedy (0.000)	None (Pre-2000) (0.344)	Gamble (0.008)
Nixon (0.029)		Kidnap (0.002)
Reagan (0.253)	<u>Wiretap initiation date</u>	Murder (0.006)
	Late August (0.047)	Narcotics (0.841)
<u>Law enforcement variables</u>	Early September (0.033)	Other (0.009)
<i>Murder Rate</i> (0.000/0.000)	Late September (0.037)	Racket (0.061)
Recent Suppression (0.209)	Early October (0.037)	Robbery (0.002)
<i>Log Total Taps</i> (4.54/1.00)	Late November (0.040)	Smuggle (0.005)
	Early December (0.028)	Terror (0.002)
	Late December (0.024)	Theft (0.003)
	Early January (0.027)	

Notes: Variable names in Roman type are binary variables; italicized variables are countable. The numbers following the variable names represent the variable mean for binary variables and the mean and standard deviation for countable variables. The mean and standard deviation are from the 4,577 observations in the arrest data set. The incriminating intercept data set includes slightly fewer (4,518) observations but the means and standard deviations for the smaller data set are not significantly different. For the binary variables that span the dataset, i.e. appointing president, year, wiretap type/place, and targeted offense, we have omitted, respectively, George H.W. Bush, 1997, and Launder to avoid collinearity.

Former Prosecutor: For articles suggesting that former prosecutors impose a reduced probable cause standard, see King (2005), Benner and Samarkos (2000), and Steinberg (1990).

Judicial race: Prior studies suggest that the race of judges generally does not affect case outcomes. See Sisk and Hesse (2005).

Elite Law School: 1 = Chicago, Columbia, Harvard, New York University, Stanford, U.C. Berkeley, U. Michigan, U. Pennsylvania, and Yale; 0 = otherwise. This list derives from a 1974 survey of law school deans asking them to list the top five law schools. These nine schools appeared on at least 10% of lists. Blau and Margulies (1974–75).

Recent Suppression: 1 = wiretap suppressed in the district during past 3 years.

Murder Rate: annual murder rate per 100,000 residents in the year the tap is reported for the municipality housing the primary United States Attorney's Office for the district, as reported in the Uniform Crime Reports, Table 8, Offenses Known to Police in Cities over 10,000 in Population, Crime in the United States, Federal Bureau of Investigation, available at <http://www.fbi.gov/ucr/ucr.htm>. The problems with the UCR have been discussed extensively, but it remains the only geographically disaggregated crime measure that is uniformly reported. For discussions of the choice of the murder rate as a proxy for the general crime rate, see Donohue (1998) and Cantor and Cohen (1980). For problems with the use of the UCR, see O'Brien (1985). The primary alternative to the use of the UCR is victimization surveys. See Stuntz (1998).

Greater/Less than 30 days: The standard authorized initial length for a wiretap is 30 days; law enforcement may apply for renewals for additional 30 day periods. Wiretaps lasting less than 30 days were shut down early due to an arrest or a lack of productivity while those lasting longer than 30 days were renewed.

Wiretap Type/Place: The coding for place and type changed in 2000 and is not comparable to the previous coding system.

enforcement-level variables to capture this effect. In particular, we note that federal wiretap usage varies considerably across the 94 Federal Districts, each served by its own United States Attorney. As a result of differences in policy priorities, as well as differences in population size, there is substantial variation in wiretap usage: five Districts install just under one third of all federal wiretaps in our data set (31.6%) and 11 Districts install almost half (49.7%).

Finally, variations in tap success could also reflect particular characteristics of the wiretap in question and as a result, we include variables describing the wiretaps themselves. The total cost of the wiretap is reported, and we divide by the length of the tap and include the natural log of the average daily cost in the model. We use average daily cost because the wiretap authorization process requires law enforcement to consider tapping decisions in 30 day units: wiretaps are initially authorized for a period of 30 days, with the requirement of renewal for additional 30 day periods.<sup>10</sup> Since agents do not usually know at the time the tap is authorized the number of renewals that will be needed, the decision is made based on the cost of the average daily cost of necessary staffing for the marginal 30 days.

To capture the benefits to law enforcement from a tap, we include the crime under investigation. As many commentators have noted, the Fourth Amendment probable cause standard is legally required to be transsubstantive: judges must apply the same standard whether the crime at issue is serious or trivial (Lerner, 2003; Stuntz, 2001). However, our model implies a budget-constrained law enforcement imposes substantive criteria in their decision to seek a tap and police and prosecutors select which cases to investigate and prosecute, and the seriousness of the crime is one factor that law enforcement considers in its analysis. We note, though, that the crimes under investigation are expressed at a high level of generality and cases often involve overlapping criminal activities, e.g., narcotics investigations often involve allegations of murder and other violent acts.

### 3 Regression results

To test the hypothesis that warrants limit law enforcement activities, we model wiretap success as a function of the independent variables using a district-level

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<sup>10</sup> Taps are required to be monitored if there is an outstanding warrant, and while they can be shut down early to save monitoring costs, the data suggest this rarely happens. 54.8% of taps are for exactly 30 days, while an additional 28.0% are renewed once, to exactly 60 days. Only 0.05% of taps are not a multiple of 30 days in length.

random effects logit model. Table 2 reports the estimated coefficients and standard errors for both regression models. The models fit well (hit rates of 64.7% for arrests and 95.8% for intercepts) and are highly significant (Wald statistics of 338 (65 dof) and 656 (59 dof) for intercepts).

**Table 2:** Random effects logit regression results grouped by district.

Variable	Arrest Coeff.	Std. Err.	Sig.	Incrim. Int. Coeff.	Std. Err.	Sig.
<b>Law Enf. Var.</b>						
Murder Rate	239.275	622.985		748.228	983.881	
Recent Suppression	0.172	0.098		-0.307	0.221	
Total Taps	-0.213	0.053	***	-0.305	0.134	**
Average Daily Cost	0.266	0.033	***	0.610	0.068	***
Greater than 30 days	0.132	0.179		0.211	0.435	**
Less than 30 days	0.230	0.141		0.728	0.346	
<b>Offense Type</b>						
Bribe	0.780	0.596		-1.183	1.352	
Conspiracy	1.056	0.582		-1.154	1.435	
Corrupt	-0.186	0.735		18.065	55,182.990	
Extort	-0.300	0.390		-0.677	1.335	
Firearms	-1.445	0.654	**	20.013	40,572.190	
Fraud	0.132	0.373		-0.513	1.172	
Gamble	-0.366	0.419		20.540	38,445.210	
Kidnap	0.122	0.836		-2.680	1.246	**
Murder	-0.153	0.465		-2.891	1.072	***
Narcotics	0.105	0.209		-1.086	0.834	
Other	0.260	0.406		22.615	71,848.470	
Racket	-0.636	0.243	***	-1.412	0.889	
Robbery	0.695	0.748		-2.091	1.391	
Smuggle	0.109	0.523		20.347	57,759.700	
Terror	-0.061	0.841		-3.707	1.180	***
Theft	0.259	0.666		21.273	58,442.350	
<b>Judge Type</b>						
Former Prosecutor	0.043	0.077		-0.129	0.180	
Elite Law School	-0.043	0.085		-0.151	0.194	
Male	0.063	0.088		-0.086	0.209	
Hispanic	-0.116	0.143		-0.324	0.303	
African-American	0.109	0.134		0.032	0.321	
Asian-American	0.229	0.297		21.911	36,459.450	
Length of Service	0.174	0.085	**	0.155	0.166	
<b>Appointing President</b>						
George W. Bush	0.163	0.302		0.200	0.617	
Carter	-0.293	0.160		-0.263	0.362	

(continued)



Table 2: (Continued)

Variable	Arrest Coeff.	Std. Err.	Sig.	Incrim. Int. Coeff.	Std. Err.	Sig.
Clinton	0.054	0.130		0.202	0.292	
Eisenhower	0.828	1.176		21.735	86,148.830	
Ford	0.031	0.456		-0.622	0.877	
Johnson	-0.200	0.334		-1.074	0.582	
Kennedy	-23.847	48,553.060		18.860	74,757.610	
Nixon	-0.548	0.239	**	0.228	0.581	
Reagan	-0.167	0.117		-0.014	0.277	
<b>Wiretap Type/Place</b>						
None (Pre-2000)	-2.350	1.009	**	-1.011	0.499	**
Business	-0.187	0.245		0.170	0.755	
Public Area	0.897	0.969		21.483	71,167.550	
Device	-0.321	0.407		-0.915	1.027	
Other	-0.769	0.422		-0.022	0.847	
Roving	-0.222	0.615		21.010	65,667.210	
Not Specified	-0.730	1.217		21.232	79,749.630	
Cell Phone	0.661	0.381		0.113	0.916	
Microphone	-0.367	0.315		-1.998	0.757	***
Pager	0.468	0.313		0.132	0.745	
Email	0.514	0.420		-0.937	0.950	
Fax	0.275	0.447		-0.605	1.394	
<b>Initiation date</b>						
Late August	-0.197	0.153		0.167	0.393	
Early September	-0.154	0.182		1.083	0.730	
Late September	-0.246	0.170		0.371	0.460	
Early October	-0.091	0.174		0.024	0.413	
Late November	-0.184	0.165		-0.194	0.373	
Early December	0.370	0.206	**	0.111	0.498	
Late December	0.135	0.212		-0.897	0.404**	
Early January	0.532	0.216	**	-0.459	0.440	
<b>Year reported</b>						
				Secondary		
1998	-0.026	0.141		-0.019	0.209	
1999	-0.015	0.143				
2000	-2.520	1.020	**			
2001	-2.514	1.030	**			
2002	-2.959	1.033	***			
2003	-3.137	1.045	***			
2004	-3.309	1.051	***			
<i>N</i>	4,577			4,518		
Log likelihood	-2,826.013			Log likelihood	-636.477	
Hit rate	0.647			Hit rate	0.958	
Mean square dev.	1,999.295			Mean square dev.	331.149	

Only *Log Average Daily Cost* and *Log Total Taps* in the district are significant in both models, meaning higher cost taps and taps in districts that do fewer taps are more likely to succeed. Crime rates, suppression activity, the offense sought, and judge characteristics are not systematically significant contributors to tap success. This result strongly suggests that budget constraints lead law enforcement to pursue only wiretaps that satisfy the probable cause standard.

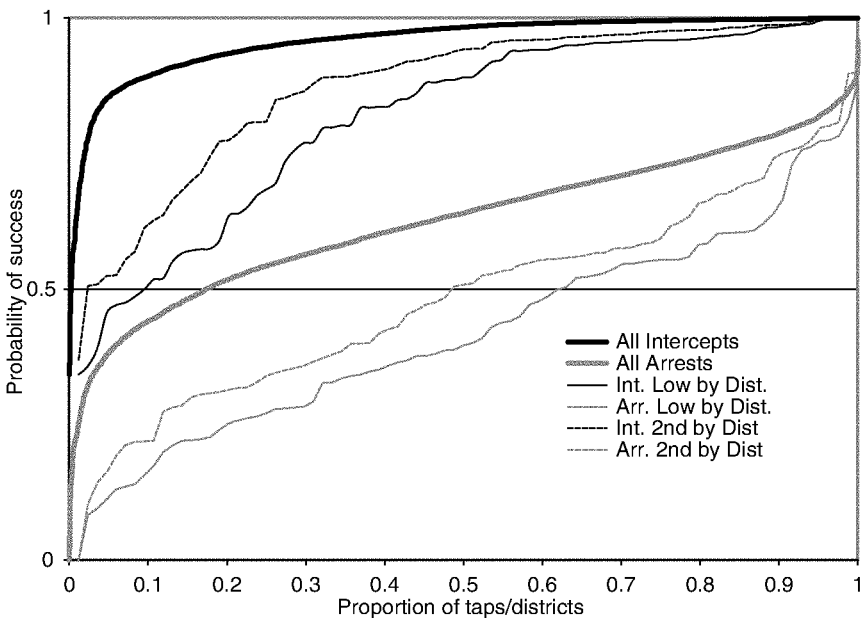
The results are presented in three steps. Section 3.1 compares the empirical probability of success of the marginal tap to accepted statistical notions of probable cause. Section 3.2 argues the cost and benefit variables affect tap success in the way the model in Section 1 predicts if the budget constraint is binding. Section 3.3 presents ancillary support for the primary result, arising from two policy changes.

### 3.1 Success of the marginal wiretap

Before interpreting the effects, or lack thereof, of specific variables, we turn back to the question of whether the warrant process limits law enforcement. As the theoretical model of Section 1 suggests, the first step is to identify the marginal wiretaps. The empirical model of Section 2 relates the costs and benefits (independent variables) to the probability of success (the dependent variable). Since the theoretical model shows that for each cost–benefit ratio, there is a minimum acceptable success probability that will justify pursuing a tap, we can look at the taps with the lowest probability of success in the empirical model—overall and in each district—and interpret these as marginal, conditioned on observed costs and benefits, from the perspective of their appeal to law enforcement. If a large number of these taps have predicted success probabilities comparable to common probabilistic notions of judicially imposed probable cause standards, we infer that our sample is censored in that there are extramarginal taps that offered sufficient expected benefit to law enforcement but were not pursued due to judicial restraint; if the marginal taps have consistently higher probabilities of success than probable cause, we infer something internal to law enforcement constrained pursuit of extramarginal taps that would have met the judicial standard.

Figure 1 presents cumulative distributions of the success probabilities predicted by our models. The thick solid lines indicate the distribution of

individual taps. These distributions strongly suggest that the probable cause standard is not a binding constraint. Virtually all wiretaps have a greater than 50% chance of recovering a dirty communication. Only ten of the 4,578 wiretaps have predicted probabilities less than our conservative 50% probable cause benchmark; 99% of taps have probabilities above 65%; and nearly 9 in 10 have predicted probabilities above 90%. Even on the overly restrictive arrest measure, over 80% of wiretaps have a better than probable cause chance of ending in an arrest. Thus, if probable cause binds, it does so in very few cases.



**Figure 1:** Distribution of predicted success probabilities.

The thin dotted lines in Figure 1 indicate the distribution across districts of the predicted probability the least likely to succeed tap in the district; the dashed line is the distribution of the second least probable tap in the district. Since federal districts are semi-autonomous and vary substantially in their prosecutorial priorities and wiretap usage, it is possible the probable cause standard binds in some districts but not others. Approximately 90% of federal districts did not install a single wiretap with a less than 50% chance of recovering an incriminating communication during the time period

captured in our data set, and only one (the Central District of California) installed two such taps. By the conservative arrest measure, slightly more than 60% of districts installed at least one tap with a less than 50% chance of success, and nearly half installed two such taps. However, many of these low probability arrest taps are for crimes, such as racketeering, where arrests were quite difficult. In the vast majority of districts, it appears even the most marginal wiretaps installed are not constrained by the probable cause standard.

That the probable cause standard is not binding suggests that the judicial factors that could cause variation in the standard applied will not affect case outcomes, and in fact none of the judge demographics is significant in both models. That the overwhelming success of taps across districts does not vary with crime rates suggests the prevalence of crime is not the reason for taps' success. The coefficient on district *Murder Rate* is insignificant in both models ( $p = 0.701$  in *Arrests* and  $p = 0.447$  in *Intercepts*), contrary to Duke's (1986) argument that high crime rates are the source of high search warrant recovery rates.<sup>11</sup> This is not surprising, since for wiretaps to succeed over 90% of the time, criminal activity would have to be rampant for indiscriminately pursued wiretaps to succeed. However, surveys suggest that even personal use of narcotics, a crime far more common than those targeted by federal wiretaps, is relatively infrequent, with less than 10% of Americans report drug use in the last 30 days.<sup>12</sup> Random roadblocks yield evidence of drug crimes 4.74% of the time [*Indianapolis v. Edmonds*, 531 U.S. 32, 34–35 (2000)].

### 3.2 Costs and benefits

If neither probable cause nor high levels of criminal activity explain the high success rates of even marginal wiretaps, some other constraint must limit law enforcement's activity. Our formal model suggests that the costs and benefits to law enforcement may be the determining factor and in this section, we turn to variables that capture those costs and benefits.

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<sup>11</sup> If other measures of the crime rate, such as the uniform crime rate index, or the violent crime rate index, are used instead of the murder rate, the coefficient remains insignificant in both models. We chose the murder rate because murders are among the least underreported crime.

<sup>12</sup> See <http://www.albany.edu/sourcebook/pdf/t388.pdf> for figures relating to survey evidence.

### 3.2.1 Wiretap costs and benefits

The *Average Daily Cost*<sup>13</sup> is the only independent variable is statistically significant at the 99% level for both measures of success.<sup>14</sup> More expensive taps are more likely to succeed ( $p < 10^{-15}$  in both models). Cost is not only statistically significant, but actually results in legally important changes in the probability of success. The predicted probability of success for an average tap (at the sample mean of all variables) is 63.2% for the arrest measure and 99.4% for the intercept measure. Increasing the average daily cost by \$1,000, from the mean value of \$1,159, increases the arrest success rate to 67.0% and the intercept success rate to 99.6%.

This statistical result can be interpreted in two ways, with different implications for wiretap policy. First, if tap costs are exogenous, this means a tap that is \$1,000 per day more expensive must be almost 4 percentage points more likely to yield an arrest to be pursued by law enforcement. Alternatively, costs may be endogenous, and thus law enforcement can choose to “try harder” by spending \$1,000 more per day on a given tap, and this additional effort yields a 4 percentage point increase the probability of arrest. In addition to our *a priori* argument that it is difficult to try harder on a given tap presented in Section 1.1, the data support our assumption that costs are exogenous, and thus that our formal model correctly characterizes law enforcement behavior in the presence of a binding budget constraint.

First, if law enforcement could increase success rates by spending more, we would expect to see higher expenditures on more serious crimes, those that provide more benefit to law enforcement. However, a median test comparing expenditures by targeted offense indicates that costs are not higher for more serious crimes, as only smuggling ( $p < 10^{-3}$ ) and kidnapping ( $p = 0.026$ ) have significantly higher median expenditures, and racketeering lower ( $p = 0.008$ ), than the sample overall. Instead, Table 2 indicates that law enforcement is willing to accept lower probabilities of success on crimes that offer greater benefit: wiretaps aimed at the serious or imminent crimes of *Terrorism* ( $p = 0.002$ ), *Kidnapping* ( $p = 0.031$ ), and *Murder* ( $p = 0.007$ ) are strongly

<sup>13</sup> The explanatory variable used in the regression is the natural log of the average daily cost. The results are robust to using average daily cost itself.

<sup>14</sup> There are several cases where an independent variable is perfectly predictive, resulting a coefficient with a high absolute value and a very large standard error. All taps for *Corruption*, *Firearms*, *Gambling*, *Other*, *Smuggling* and *Theft* resulted in incriminating intercepts, as did all *Public Area*, *Roving* and *Unspecified* place taps. All taps approved by *Asian-American* judges or judges appointed by *Eisenhower* or *Kennedy* revealed incriminating information, but none of the taps approved by the *Kennedy* judges resulted in arrests (hence the large negative coefficient).

significant and negative on the incriminating intercepts measure – which may help prevent crimes – but are no different on the arrest measure ( $p = 0.942, 0.884$  and  $0.742$ , respectively).<sup>15</sup> Variables for *Organized Crime*, *Racketeer* and *Firearms* are negatively significant in the *Arrests* model ( $p = 0.009$  and  $0.027$ , respectively), but *Racketeer* is insignificant in *Intercepts* ( $p = 0.112$ ) and *Firearms* is positive and perfectly predictive, indicating wiretaps aimed at racketeering and firearms are at least as likely as other taps to intercept incriminating communications, but substantially less likely to lead to arrests. This may reflect the difficulty of proving violations of the Racketeer Influenced and Corrupt Organizations Act (RICO), which requires evidence on a wide range of elements.

Second, budget constraints are apparent in the effect of the number of taps each district installs. Wiretap use varies widely across the 94 federal districts. The coefficient of *Log Total Taps* is significantly negative in both models ( $p < 10^{-4}$  in *Arrests* and  $p = 0.023$  in *Intercepts*), indicating that districts that do more taps are less successful on average. If costs were endogenous, this result might arise because districts with more taps spread their budget and spend less on each tap, making them less successful. However, a quantile regression<sup>16</sup> of each district's average tap cost against the number of taps in the data set finds the effect of total taps is economically negligible ( $\$1.50$  less *Average Daily Cost* per unit increase in *District Total Taps*) and statistically insignificant ( $p = 0.184$ ); districts that do more taps spend the same on each tap as those that do fewer. Thus, districts are taking tap costs as given, and those that conduct only a few taps select those likely to yield incriminating evidence and lead to arrest; those that do more taps add cases where gathering evidence is less certain. The most active districts in the data set have approximately 400 wiretaps, reducing the predicted success rates of their average tap to 55.8% and 99.1%, compared to average rates of 63.2% for the arrest measure and 99.3% for the intercept measure.

Taken together, these results indicate that law enforcement considers the exogenous costs and benefits from each tap and chooses to pursue those taps that maximize the benefits it receives within its budget, consistent with our formal model.

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<sup>15</sup> These data provide relatively little direct insight into international terrorism policy, most of which is investigated through classified programs rather than traditional criminal investigation. The data set included only 4 terrorism wiretaps from before 9/11 and 8 after.

<sup>16</sup> Quantile regression is preferable because the data are highly heteroskedastic and means are heavily influenced by a small number of outliers.

### 3.2.2 Beyond the probable cause requirement

Two other results support our conclusion that internal law enforcement dynamics are the effective constraint on traditional criminal wiretaps. First, the enabling statutes and precedents provide a natural experiment on the effective value of the wiretap warrant: evidence stemming from wiretaps on spoken word devices that are later determined to be in appropriate can be excluded from court cases, but evidence recovered from electronic devices (email, pager and fax) cannot.<sup>17</sup> If fear of later suppression, meaning an assessment by a trial judge that the original probable cause finding was incorrect, constrained tapping decisions, then we would expect electronic wiretaps to succeed at lower rates; law enforcement should be more willing to pursue marginal electronic taps, and judges should be more willing to approve them, knowing that even if a later judge disagrees that probable cause was satisfied, recovered evidence can still be used in court proceedings. We include indicator variables for the device tapped (*Cell Phone*, *Microphone*, *Device*, *Email* and *Fax*: 1 = named device is targeted in tap application; 0 = named device is not target of tap) to capture this effect. Our results do not find that electronic taps, reflected in the *Pager* ( $p = 0.135$  in *Arrests* and  $0.860$  in *Intercepts*), *Email* ( $p = 0.221$  in *Arrests* and  $0.324$  in *Intercepts*) and *Fax* ( $p = 0.538$  in *Arrests* and  $0.664$  in *Intercepts*) variables, are significantly less likely to be successful than the baseline of landline telephone taps. Further, *Recent Suppression* is insignificant ( $p = 0.079$  in *Arrests* and  $0.165$  in *Intercepts*), indicating that even for taps with a suppression remedy, districts that have experienced one do not change their tapping activity. Our model predicts such invariance to the probable cause standard when probable cause is not binding.

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<sup>17</sup> The original 1968 Wiretap Act supplemented the Constitutional suppression remedy with a statutory suppression remedy for violations of the Act. The original Act only covered the interception of “wire or oral” communications and when Congress amended the Act in 1986, expanding coverage to electronic communications, they did not expand the statutory suppression remedy, a decision subject to academic criticism (e.g., Kerr, 2003a, 2003b; Leib, 1997). The Supreme Court has not ruled on whether the good faith exception in *Leon* applies to the statutory suppression remedy, but the Department of Justice has taken the view in Congressional testimony that it does not (Gorelick, 1995). As a result, electronic wiretaps appear to be free from the suppression remedy that applies to those intercepting oral communications. Studies show that, for ordinary search warrants, the exclusionary rule increases police attention to the details of Fourth Amendment law, but concern for the rule does not have much effect on police decision making in contemplating a search (e.g., Slobogin, 1999; Perrin, 1997; Spiotto, 1973; Atkins and Rubin, 2003).

The second result that corroborates our interpretation that budget limits law enforcement is the insignificance of the *Roving* tap type ( $p = 0.718$  in *Arrests*; perfectly predictive in *Intercepts*). Roving wiretaps waive the requirement that a particular telephone number be specified in the application, allowing the investigators to switch devices without prior judicial approval, when the target can be shown to be changing phones to thwart the investigation. If legal requirements matter, we might expect that roving wiretaps have success rates different from traditional taps. Allowing roving wiretaps were one of the most controversial elements of the 2001 amendments to the Foreign Intelligence Surveillance Act (FISA), one that proponents argue is a key element of antiterrorist investigations.<sup>18</sup> While the FISA wiretaps lie outside the scope of our data, the lack of a statistically significant coefficient in the regression analysis for the roving wiretap indicator variable suggests that, at least for traditional criminal wiretaps, the differing legal standard does not affect success rates, consistent with legal constraints not being binding.<sup>19</sup>

Of all the variables associated with the wiretap initiation and installation process that could lead to the paradoxically high success rates for wiretaps, only those associated with budget are systematically significant. Our results suggest that law enforcement considers their budget and the cost of the wiretap in deciding whether or not to implement a tap. This self-censoring by law enforcement is a dominant effect in the high success rate for wiretaps.

## 4 Discussion: the role of warrants

This analysis establishes that it is internal law enforcement dynamics driven by budget constraints, rather than the judicial probable cause standard, that limits law enforcement's investigative wiretapping activity. First, because the success rate of even marginal taps exceed that widely associated with the probable cause threshold, warrants are unlikely to be the constraint limiting wiretap use. Second, the relationships between a wiretap's success rate and its cost, the target crime, and the district-wide wiretap usage rates in the relevant district imply that budget constraints drive wiretap success rates. Further, both the structure of the tap process and the data relating tap cost to success suggest

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<sup>18</sup> For an extensive discussion of the differences between roving wiretaps under FISA and the Wiretap Act, see Perrine (2005). As Kerr (2003) points out, it is surprising that the coverage of roving wiretaps and the Patriot Act failed to mention that they had been authorized by statute for 15 years prior to its passage.

<sup>19</sup> This result should be viewed with caution. Comparable data for whether a wiretap is roving is only available since 2000. In our data set, only 16 roving wiretaps were authorized.



that law enforcement takes tap costs and benefits as given, rather than endogenously determining success probabilities, and choose to pursue those taps that yield the greatest benefit within their budget. Because they are expensive, law enforcement does not systematically seek wiretaps that would come close to failing judicial review for the constitutional probable cause standard.

It should not be concluded from this that judicial review should be eliminated. It still provides important checks against bad agents or agents with personal agendas that more than zero warrant applications were rejected suggests it still has a role.

However, that marginal taps are bound by budget constraints implies that there are taps that would satisfy the probable cause standard that are not being pursued. If the probable cause standard reflects a policy judgment of when a wiretap is socially desirable, i.e., society wants law enforcement to seek a wiretap whenever there is probable cause to believe a device is being used for illegal activity, these results suggest that budget limitations have substantially over-deterred wiretap usage and law enforcement is not seeking socially desirable traditional wiretaps. One policy option is increasing budgets, the another is reducing costs. As discussed above, the primary source of the high costs of wiretaps is the minimization requirement: agents must contemporaneously listen to and record calls to ascertain whether the content is criminal. If agents could record calls and review them later, staffing costs would fall dramatically, and enable law enforcement to conduct more socially desirable taps. Minimization, of course, has substantial social benefits, including ensuring that private, non-criminal transmissions are never recorded and hence never leaked. This analysis suggests, though, that the minimization requirement, rather than the probable cause requirement, is the binding legal constraint on law enforcement behavior.

These results provide guidance for analyzing current programs, such as the Terrorist Surveillance Program, where both a warranting and minimization requirement are subject to policy debate. Whether warrants would matter turns largely on the program's funding and cost structure. If the funding and costs are the same as for traditional wiretaps, warrants will not matter much – budget limitations will restrict the use of these wiretaps to situations where probable cause could be easily demonstrated. If, on the other hand, these wiretaps are either sufficiently well-funded that law enforcement has the resources to seek out marginal wiretaps, or if the wiretaps are not subject to the minimization requirement, a warrant requirement would provide a restriction at the margin. While we do not know detailed information about the classified program, we do have aggregate data on the number of wiretaps being installed under FISA compared to those installed by traditional federal law enforcement. The combined total number of FISA wiretaps and search

warrants (in unknown proportion) is higher than the number of traditional wiretaps and has nearly doubled recently to be more than twice as large as the traditional wiretapping program.<sup>20</sup> Given that our results reflect a strong “less is more” effect for wiretap use, this increase in FISA wiretap use suggests that the antiterrorist program may be sufficiently funded that it can conduct many socially desirable taps, but as a consequence it may be pursuing taps that fail to meet the probable cause standard.

Further research is also useful to provide a comparative perspective on wiretap use. The legal constraints on wiretap use vary considerably by country. Notably, in many European countries, wiretaps are used substantially more often with far less oversight. For example, despite a substantially smaller population, the United Kingdom authorizes more wiretaps than the United States and does so without any judicial involvement (Singleton, 2008). Assuming the costs of wiretaps are comparable across countries, our results suggest that the higher usage of wiretaps indicate that they are likely to be less productive than in the American setting.

## 5 Data appendix (for reviewers)

As discussed in the text, law enforcement is required to report wiretap results to the AOC. In turn, the AOC reports the data to the public. The initial report is filed the year that the wiretap is initially disclosed and subsequent reports are filed as events warrant. Most frequently, these events are additional arrests, trials, and convictions that occur in years after the wiretap is initially disclosed. The data set shows evidence that some initial reports are missing data and some supplementary reports are not filed as required by law. The data set includes 106 wiretaps leading to arrests that list a zero or blank entry for incriminating intercepts. (44 of these wiretaps are related to another wiretap and, as a result, their arrest result is inferred by the process discussed in the main text.) It is difficult to understand these data as anything other than a reporting error. Furthermore, 242 (4.97%) wiretaps report a greater number of convictions than arrests, also suggesting a reporting error. In addition to these wiretaps suggesting that some arrests are not being reported, there is reason to believe that convictions are underreported as well. The overall conviction rate in federal court is roughly 90% (including both guilty pleas and convictions after trial). The wiretap data set, though, includes only 11,134 convictions on 25,545 arrests, a 43.6% conviction rate. While some convictions for the most recent wiretaps may not have occurred yet, even the pre-2002 wiretaps show only a 49.4% conviction rate.

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<sup>20</sup> See [http://www.epic.org/privacy/wiretap/stats/fisa\\_stats.html](http://www.epic.org/privacy/wiretap/stats/fisa_stats.html).

**Table 3:** Error rates by district.

District	Total wiretaps	Total wiretaps with excess arrests	Error rate
N.D. Iowa	5	2	0.4
W.D. Tenn.	17	6	0.35
M.D. La.	10	3	0.3
M.D. Tenn.	18	4	0.22
S.D. Ala.	9	2	0.22
S.D. Miss.	9	2	0.22
S.D. Iowa	5	1	0.2
D. Conn.	94	18	0.19
D. S.C.	21	4	0.19
S.D. Ind.	37	7	0.19
E.D. Tenn.	34	6	0.18
E.D. Ky.	12	2	0.17
W.D. Okla.	30	4	0.13
E.D. Ark.	17	2	0.12
W.D. La.	27	3	0.11
N.D. Ala.	18	2	0.11
W.D. Ark.	10	1	0.1

For purposes of our analysis, these errors do not affect our results unless they incorrectly list zero incriminating intercepts or arrests. For the logit regression, mere underreporting does not alter the outcome. 65 wiretaps report no arrests but include at least one conviction. We code these wiretaps as arrest successes despite the reported zero result. We follow the same process for the 62 unrelated wiretaps showing arrests but no incriminating intercepts, but do not alter the incriminating intercepts results for the 44 related wiretaps. Unlike arrests, incriminating intercepts are reported separately for related wiretaps. Because we are inducing the arrest success, we believe that these missing incriminating intercept successes could be correct. These corrections do not change our central conclusions? the regression returns similar results when run on an uncorrected data set.

These data provide the side benefit of allowing us to measure the error rate by district, identifying which districts are most likely to fail to file reports. A full analysis of the data set along these lines is beyond the scope of this article but Table 3 includes initial summary data. It reflects the districts with at least 10% of their wiretaps reporting more convictions than arrests, described as “excess arrests” in the Table.

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