Crime in New Democracies

Leonard Wantchekon and Etienne Yehoue†

November 8, 2002

Abstract

Crime rates have surged in nearly all new democracies. To explain this empirical regularity, we model the effects of political regimes on law enforcement and parametrize political regimes by their vulnerability to violent overthrow. It is assumed that democracies are less vulnerable than dictatorships. We first show that dictatorships generate more investment in “political protection” or secret police activities. When law enforcement does not depend directly on secret police monitoring, regime types have no effect on crime rate. This is true even when secret police monitoring generates an external effect on regular police monitoring. The results indicate that the crime rate tends to be higher under a democratic than an authoritarian government if law enforcement does depend directly on political monitoring. Thus, to effectively combat crime, young democracies should fill the void created by the old regime’s political police by setting up an elite police force, such as the “Scorpions” in South Africa.

*Preliminary draft.
†Leonard Wantchekon is an Associate Professor of Political Science at New York University and Etienne Yehoue is Ph.D. candidate in the Program of Political Economy and Government at Harvard University. We thank Susan Rose-Ackerman and seminar participants at Yale University for very useful discussions and comments. The usual caveat applies.
I. INTRODUCTION

Democratic change is associated with a decrease in state-sponsored political criminality. Citizens benefit from greater political freedom. The government’s ability to repress political dissent is restricted. Due process replaces arbitrary judiciary procedures. Perhaps less expected is that democratization leads to an increase in private criminality. There has been, for instance, a drastic increase in violent crimes in post-Apartheid South Africa. From 1990 to 1994, assault went up by 18%, rape by 42%, robbery by 40%, vehicle theft by 34% (Shaw 1998: 24). In Lithuania, the number of robbery went from about 600 in 1993 to 4000 in 1997, despite a steady increase in GDP growth.\(^1\)

The evidence suggests that South Africa is not an exception. During the five years following democratic change, crime rate went up by 226% in Bulgaria, 429 % in Chile, 108% in Paraguay, 47% in Russia, 330% in Romania. In addition, controlling for education, economic performance and other possible determinants, we find a positive a robust correlation between homicide rate and democratization (see Table I below).

Rising crime rates harm investment and public support for democratic governance. Seligson (1999) finds that three out of four Guatemalan citizens support the use the military in fighting crime, and one of two supports lynching. The direct cost of crime (loss of property and injuries) reached an estimated 40 billion rands in 1996 in South Africa. As a result, investment in the private security industry has risen from 1.2 billion rands in 1990 to 11 billion rands in 1999. There is widespread support for substitute policing institutions and vigilante groups.\(^2\)

Most studies that link political change to crime rate stress the importance of the legacy of violence, which suggests that wartime killings legitimate homicidal violence in postwar societies. Hanawalt (1979) attributes the sharp increase in violent crime in England in the mid-1300s to various civil wars that occurred during that pe-

---

1 The data are from the (United Nations Crime and Justice Information Network) and the ICPO-Interpol International Crime Statistics Reports (1960-1998).
2 The Economist (March 2, 2001).
period. Durkheim (1957) and Abbott (1927) draw similar conclusions from the Franco-
Prussian War and the American Civil War respectively. Many studies on World War
I and II have confirmed these earlier results (e.g. Archer and Gartner 1984). For in-
stance, the average number of robbery incidents in France was about 300 from 1935
to 1940. The number increased sharply to 1100 from 1945 to 1950 and declined to
its pre-war level from 1951 onward.

The legacy of the violent past seems to be a partially valid model for South Africa
and many post-civil war and post-authoritarian societies. Mass murder and the
goulags in the former Soviet Union, torture and humiliation and segregation in South
Africa, and death squads activities in El Salvador have created a culture of violence
in these countries, which has persisted after democratic change.

Economic arguments stress the fact that scarcity and unemployment in the post-
war period fuel criminal activities (Radzinowicz 1971). Sutherland and Cressey
(1966) argue that social disorganization in the postwar period leads to a surge in
crime rate. In our view, neither the legacy of violence model nor the economic hard-
ship model fully captures the essence of the problem. For instance, crime rates have
increased even in countries where political change has been relatively peaceful and
where major increases in unemployment have not occurred such as Benin and Bul-
garia. In this article, we present an explanation that focuses on the crucial question
of law enforcement.

To study the effect of political regimes on crime rate, we present a game involving
the regular police, the central government, and criminals. We parameterize political
regime by its vulnerability to violent overthrow. Following Popper (1962), we assume
that democracies are less vulnerable than dictatorships. Indeed, according to Popper,
whereas democracy derives its legitimacy from the people and is the only regime that
make it possible for the ruled to dismiss a given government without bloodshed (by
means of elections), an authoritarian government can only be dismissed through a
revolution and political violence. As Knight (1988) points out in the case of Soviet
Union, autocratic leaders are not elected by their citizens or accountable to them in
any formal way. Such leaders lack the legitimacy that democratically elected leaders enjoy. As a result, no matter how popular they are or how successful they may be in implementing their goals, there is always the danger that small pockets of discontent, with few outlets for free expression could threaten the political stability of the regime. Thus, autocracies require an effective political police to buttress their rule (Knight 1988, 184).

We assume that secret police activities enhance regular police monitoring, more specifically that secret police make police labor/effort more effective or productive. We also assume that criminals try to avoid police monitoring by engaging in avoidance activities. Together with the level of monitoring, these activities determine the probability of apprehension of the criminals. We show that the more vulnerable the government is, the more intensive are political monitoring or secret police activities. Political vulnerability or regime types have no effect on crime rate if the probability of apprehension depends only police monitoring, that is, if secret police activities affect the probability of apprehension only through their external effect on police activities. This is because local police tend to respond to an intensified political monitoring by working less or by hiring fewer policemen. In other words, police labor and secret police monitoring are strategic substitutes. However if the probability of apprehension of criminals depends directly on local police and secret police monitoring, then lower political vulnerability or democratization will have a positive impact on crime rate.

That law enforcement depends directly on political monitoring is hardly controversial. Communist governments are notorious for politicizing ordinary crimes or portraying political opponents as ordinary criminals. The legal code in the former Soviet Union defined political crimes very broadly to include offenses normally considered non political, such as violation of foreign exchange regulations, smuggling, gun possession, or hooliganism (Knight 1988: 15). More generally, especially during the years of the Red Terror in the late 1930s, “citizens were faced with a high degree of accountability and even the most insignificant mistake could be construed as
a crime against the state” (p. 32). The criminalization of political cases serves to discredit dissidents in the eyes of the public. For instance, commenting on the fate of forty Ukrainian nationalists in the 1980s, a former KGB chairman, V. Fedorchuk, said: “In order to avoid needless international frictions, the majority of them were sentenced for ordinary criminals offenses.” Thus, political police in a dictatorship have to be involved in law enforcement.3

Besides their direct impact on law enforcement, the state security police represent a deterrent to crime in at least two other ways. Their very presence reduces trust among people and as a result, the formation and viability of criminal organizations. In addition, they dispose of special forces to implement tight border controls, which helps limit the penetration of international crime organizations. Understandably, the collapse of the security police lowers the operational costs of crime multinationals and helps restore the minimum level of social trust that could help generate domestic criminal organizations.

Rising crime rates represent a dilemma for new democratic governments. A failure to act encourages the creation of vigilante groups and lawlessness. Overreaction could give the impression of a return to authoritarian tactics. For instance, when Prime Minister Yoshida sponsored a bill to centralize the police force to fight crime more effectively in Post-WWII Japan, opposition groups vigorously resisted the move. They feared that the move was in reality an effort to return to a pre-war system of a politicized police that repressed political and ideological dissent (Hane 1986: 357).

The plan of the article is as follows. We first present additional evidence for the correlation between a higher crime rate and democratization and then a theoretical argument in section III and conclude and section IV.

II. Cross-Country Evidence

3 The same is true but to a lesser degree in democracies. Some political organizations that represent a violent threat to democracies tend to have criminal connections. Terrorist groups in France, Italy, and Germany in the 1970s and the 1980s were renowned for having connections to organized crime.
To show that the correlation between crime rate and regime change holds in a cross-country setting, we present a series of empirical tests. The econometric models are designed to provide additional empirical motivation for the model developed in Section II. A more comprehensive econometric test will be provided in future works.

The dependent variable is homicide rate from 1960 to 1997. The crime statistics were put together using data from UNCJIN (United Nations Crime and Justice Information Network) and the ICPO-Interpol International Crime Statistics Reports (1960-1998). The key independent variable is regime and comes from the Polity 98 data set (Gurr and Jaggers (1998)). The data measure countries on a democratic scale from 0 to 10 and an authoritarian scale from 0 to 10.\footnote{In Model 4, we include two new variables taken from ACLP (1999), i.e. “transition to democracy” and “transition to autocracy”. The transition to democracy is a a dummy variable coded 1 if a country was authoritarian at the end of the previous year, a transition to democracy occurred at any time during the current year, and the regime was democratic at the end of that year and 0 otherwise. Transition to autocracy is a dummy variable coded 1 if a country was democratic at the end of the previous year, a transition to authoritarianism occurred at any time during the current year, and the regime was authoritarian at the end of that year, and 0 otherwise.} Following the standard procedure in the international relations literature, a unique political regime measure is generated by adding 10 to the difference between the level of authoritarianism in 1998 and the level of democracy in 1998. As a result, the regime scores range from 0 to 20. Additional controls include the number of democracies around the world, years under democratic regimes (democratic experience), number of democratic countries in the region (region), GDP growth per capita, illiteracy rate which is a measure of level of education, military personnel. The economic and demographic data are obtained from the World Development Reports of 1999 and 2000 by the World Bank.

We expect crime rate to be lower in more affluent countries (higher growth rate and higher literacy rate) because they can afford more effective law enforcement. In addition, crime rate is likely to be higher in a new democracy surrounded by countries with autocratic governments because of the difference in law enforcement between the two types of regimes. In other words, young democracies will tend to
attract criminals from countries led by autocratic governments, where the probability of apprehension is higher. Table I presents some of the results.

The results indicate that democracies (especially younger democracies) have higher crime rates than autocracies. Both the democracy and transition to democracy coefficients are positive and significant. Interestingly, the “transition to autocracy” coefficient is negative but not significant, which at least indicates that increase in crime rate is not a purely transitional phenomenon. As expected, economic performance (i.e. GDP growth per capita), and education (illiteracy) are negatively correlated with crime rate. The coefficient for military personnel is positive and insignificant.

III. THE BASIC MODEL

We adapt the model of crime and punishment due to Erlich (1978) to study the effect of political change on crime rate. At each of an infinite sequence of dates $t = 0, 1, 2, \ldots, \infty$, there is a population $N_t$ and $S_t$ potential criminals. We assume that both $N_t$ and $S_t$ grow at the same rate $n$ and that the proportion of potential criminals in the population is constant and equal to $s = S_t/N_t$. There are $J_t$ criminals in jail at $t$ so that the rate of criminals who are not in jail and are free to commit crime in period $t$, is

$$\phi_t = s_t - j_t,$$

where $j_t = J_t/N_t$ is the rate of criminals in jail at $t$. We denote by $\gamma_t$ the crime rate, which is assumed to be proportional to $\phi_t$, the rate criminals who are not in jail at time $t$. That is

$$\gamma_t = \kappa \phi_t$$

where $\kappa > 0$. 
The country’s government is either democratic and autocratic. We differentiate the nature of the political regime by its vulnerability to violent overthrow. We denote by $\mu$ the value that the government attaches to political protection, given its political vulnerability. The values of the parameter are $\mu^A$ for an autocratic government and $\mu^D$ for the democratic government. As opposed to a democratic government, an autocratic government is characterized by the absence of institutional mechanisms for a peaceful transfer of power and can be overthrown only through a revolution or coup d’état. As as result, by definition, an autocratic government attaches a higher value to political protection than does a democratic government. Thus, we have,

**Assumption A1:** $\mu^A > \mu^D$.

Within each period $t$, both democratic and autocratic governments spend resources to monitor criminals. The level of monitoring by regular police is denoted by $m_1$. Given their perceived vulnerability to violent overthrow, both types of governments also set up secret police or state security agencies to monitor political criminals i.e. groups and individuals who could potentially wage a coup against the government or engage in terrorist activities. We denote by $m_2$ the level of political monitoring. We assume that law enforcement is partially decentralized so that $m_1$ is chosen independently by local governments, and $m_2$ is chosen by the central government. As in Malik (1990), we assume that criminals knows that their activity is illegal and that they can be caught and punished. As a result, they engage in some avoidance activity, that we denote $a$. Such activities range from bribing policemen to forging identity cards and passports. Together with the level of avoidance activity $a$, the level of monitoring $m_1$ by the government determines the probability of apprehension of criminals $p(m_1, a)$, which is a measure of the effectiveness of law enforcement. Denoting $\partial p/\partial m_1 = p_{m_1}$, we have

**Assumption A2:** $p_{m_1} > 0$, $p_a < 0$; $p_{aa} > 0$ and $p_{m_1}m_1 < 0$, $p_{m_1a} \leq 0$.

The assumption means that a rise in police monitoring ($m_1$) will increase the
probability of apprehension of a criminal and that an increase in the avoidance activity by the criminal, will reduce the probability of his apprehension. In addition, the marginal effect of monitoring on the probability of apprehension is decreasing, and the marginal affect of avoidance on the probability of apprehension is increasing. In other words, \( p(.) \) is concave in \( m_1 \) and \(-p(.)\) is concave in \( a \).

There are three players in the game, i.e., the local police, the secret police, and the criminals. They move simultaneously. In other words, under either regime, the police (local and political) choose \( m_1 \) and \( m_2 \) and the criminals choose \( a \).

**Utility Functions**

Denote by \( P(.) \) the probability that the government or the regime is not violently overthrown. This probability depends on the level of political monitoring and on a parameter \( \mu \), some index of vulnerability. We assume that the secret police and the central government derive utility from political monitoring. Given its level of political vulnerability \( \mu \), the government utility is

\[
U = P(m_2, \mu) - c_2 m_2
\]

where \( c_2 \) is the unit cost of political monitoring. We assume that \( P \) is concave functions in \( m_2 \). Below, we will analyze the case of centralized law enforcement in which the utility function of the government depends on the probability of apprehension of criminals and political monitoring, that is, \( U = p(m_1, a) + P(m_2, \mu) - c_2 m_2 \). We assume that the marginal utility of an additional unit of political monitoring increases when the government feels more vulnerable to violent overthrow or revolution or attaches a higher value to political protection. More precisely, we have

**Assumption A3** : \( \frac{\partial^2 P}{\partial m_2 \partial \mu} > 0 \).

The local government’s objective is to maximize the security of citizens. It derives utility solely from combating crime or the probability of apprehension of criminals. Thus, given \( a \) and \( m_1 \), the utility function of the local police is,
\[ V = p(m_1, a) - c_1 m_1 \]

where \( c_1 \) denotes the unit cost of private monitoring. The criminal payoff's depends on the probability of apprehension, \( p(\cdot) \), the number of periods in jail \( T \), and on the monetary equivalent of one unit of imprisonment term, \( e \), that we set to 1 without loss of generality. A finite \( T \) corresponds to a finite prison term and an infinite \( T \) corresponds to life penalty without parole or death penalty. The criminal disutility or cost function is,

\[ C = p(m_1, a)Te + a, \]

**Externality of Political Police on Regular Police.**

We assume that police monitoring depends not only on the human capital of policemen but also the level of monitoring generated by activities of the political police. In other words, we have

\[ m_1 = f(L)g(m_2) \]  

(1)

To motivate this technology, one can imagine that in face of political uncertainty, the secrete police set up a very thorough monitoring system in the country, which conveys valuable information to the local police, and makes the action of the latter more effective. The presence of secrete police in a location can create an incentive for the regular police of that location to perform their job more diligently because of the fear of being treated like a “traitor”. In doing so, it makes the production of \( m_1 \) more effective. In other words the secrete police reinforce the regular police action in any location in which the former is operating. We assume that \( f \) satisfies \( f(0) = 0, f'(L) \geq 0 \), and similarly \( g \) satisfies \( g(0) = 0, g'(m_2) \geq 0 \).
EQUILIBRIUM ANALYSIS:

Within each period $t$, the Nash equilibrium in the law enforcement game is the set \{\(L^*, m_2^*, a^*\)\} such that, given $m_2^*$ and $a^*$, the local law enforcement authority chooses $L^*$ such that

\[
L^* = \arg \max_L \left\{ p(m_1, a^*) - cm_1 \right\} \tag{2}
\]

such that $m_1 = f(L)g(m_2)$.

The political police and the central government choose

\[
m_2^* = \arg \max_{m_2} \left\{ P(m_2, \mu) - cm_2 \right\} \tag{3}
\]

and the criminals choose

\[
a^* = \arg \min_a \left\{ p(m_1^*, a) T + a \right\}. \tag{4}
\]

We first derive the effect of the political vulnerability of the activities of the secret police. We find the very intuitive result that political monitoring intensifies as the regime feels more vulnerable to violent overthrow. That is, under assumption A3, $m_2^*$ is increasing in $\mu$. In particular, the level of political monitoring is higher under autocracy than it is under democracy.\(^5\) In addition, we find that the equilibrium level of police force is a non-increasing function of the expected time in jail, and the equilibrium level of avoidance increases as the expected jail time increases. Thus, when penalties to criminals are stiffer, there are fewer policemen, and the level of avoidance activities is higher. Both results are intuitive. In particular, the effect of penalties on avoidance is similar to Malik (1990). Using these results, we find that

---

\(^5\)The result is obtained by totally differentiating the First-order conditions of the political police.
**PROPOSITION 1**: The equilibrium level of the police force decreases as the political regime becomes more vulnerable to violent overthrow. In particular, democracies have more policemen than autocracies. In addition, regimes type or political vulnerability have no effect on avoidance.

The intuition of the result concerning police monitoring is as follows. When the regime becomes more vulnerable, political monitoring increases, and police monitoring becomes more effective. However, since police monitoring is costly, this effectiveness translates into a lower level of police employment. The results suggest that police labor and political monitoring are strategic substitutes. As we show below, this result has important implications for studying the effect of political vulnerability on law enforcement.

**Crime Rate**

To compute the time $t$ crime rate $\gamma_t$, we need to explicitly determine the population rate under arrest, $j_t$ and the population rate of potential criminals. Following Ehrlich (1973), we note that the number of criminals in jail at the beginning of period $t$ is equal to the total number of criminals apprehended and jailed in the preceding $T$ periods, i.e.,

$$J_t = \sum_{\tau=1}^{T} p(m_1^*, a^*)(S_{t-\tau} - J_{t-\tau}).$$

This implies that

$$J_t + \sum_{\tau=1}^{T} p(m_1^*, a^*)J_{t-\tau} = \sum_{\tau=1}^{T} p(m_1^*, a^*)S_{t-\tau}.$$ 

By dividing both sides by $N_t$, we have

$$j_t + \sum_{\tau=1}^{T} p(m_1^*, a^*)\frac{J_{t-\tau}}{N_t} = \sum_{\tau=1}^{T} p(m_1^*, a^*)\frac{S_{t-\tau}}{N_t},$$

or
Using the fact that \( N_t = N_0(1 + n)^t \) and \( S_t = S_0(1 + n)^t \), we have

\[
j_t + p(m_1^*, a^*) \sum_{\tau=1}^{T} \frac{N_{t-\tau}}{N_t} J_{t-\tau} = p(m_1^*, a^*) \sum_{\tau=1}^{T} \frac{N_{t-\tau}}{N_t} S_{t-\tau}.
\]

The last equality being obtained from the fact that \( s_{t-\tau} \) is a constant \( s \).

In the steady state we have, \( j_\tau = j_{t-\tau} = j \) for all \( \tau \). Thus

\[
j = s \cdot p(m_1^*, a^*) \sum_{\tau=1}^{T} (1+n)^{-\tau}.
\]

Thus,

\[
\phi = s - j = \frac{s}{1 + p(m_1^*, a^*) \sum_{\tau=1}^{T} (1+n)^{-\tau}}.
\]

Rearranging, we have

\[
\phi = \frac{s}{1 + \frac{1 + n}{n} p(m_1^*, a^*)[1 - \exp\{- (1 + T) \ln(1 + n)\}]}
\]

Since \( \gamma = \kappa \phi \), we have,

\[
\gamma = \frac{\kappa s}{1 + \frac{1 + n}{n} p(m_1^*, a^*)[1 - \exp\{- (1 + T) \ln(1 + n)\}]}
\]

We now assess the effect of political vulnerability or regime type on crime rate.

**PROPOSITION 2**: Under assumption A1-2 and when the central government derives no utility from the apprehension of criminals, the crime rate is unaffected by regime vulnerability. That is, regime type has no effect on crime rate.
We now consider the case where the central government takes over the role of law enforcement. In this case, the problem of the central government becomes

$$\max_{m_2, m_1} \quad p(m_1, a) + P(m_2, \mu) - c_1 m_1 - c_2 m_2$$

s.t. \quad m_1 = f(L) g(m_2).$$

Then, given $a$, the optimal levels of police force and political monitoring are given by,

$$p_{m_1} (m_1(L(T, \mu), m_2(\mu), a(T, \mu)) - c_1 = 0 \quad (5)$$

$$p_{m_1} \frac{\partial m_1}{\partial m_2} + \frac{\partial u_2}{\partial m_2} (m_2(\mu), \mu) - c_2 = 0. \quad (6)$$

The optimal level of avoidance is given by

$$-p_a (m_1(L(T, \mu), m_2(\mu), a(T, \mu)) T = 1. \quad (7)$$

We find that even under centralized law enforcement, any effect that political monitoring might have on the probability of apprehension of criminals is mitigated or even annihilated by its negative impact on police effort or labor. We have,

**PROPOSITION 3:** Under centralized law enforcement, the results of proposition 1 and proposition 2 hold. In particular, regime vulnerability has no impact of crime rate.

### Politicized Law Enforcement

To find how regime change may affect the crime rate, we now examine the case where secret police monitoring has a direct effect on the probability of apprehension of criminals. We motivate this extension by assuming that the government believes that political opposition has a criminal connection. Such a belief could be justified for several reasons. First, criminals and opposition groups engage in the same
avoidance activities. Indeed, because they have to operate in strict clandestinity, opposition groups have to bribe the police, forge identity documents, and avoid police surveillance just as ordinary criminals do. Second, to finance their activities, violent opposition groups tend to engage in extortion or other criminal activities. As a result, the government cannot always distinguish between politically motivated crime and greed-motivated crime. In fact, the government has an incentive never to make such a distinction and to portray all its opponents as violent criminals and mobsters. Thus, the secret police have a direct stake in the apprehension of criminals, and their activities directly affect the probability that they are apprehended.

Thus, we now assume that $p = p(m_1, m_2, a)$ and that $p$ is concave in $m_2$. For the sake of tractability, we also assume that $p$ is separable in $m_1, m_2$, and $a$. That is,

**Assumption 4:** $p_{am_2} = p_{m_1, m_2} = 0$.

The local government’s problem is given by

$$\max_{m_1} \quad p(m_1, m_2^*, a^*) - c_1 m_1$$

subject to

$$m_1 = f(L) g(m_2),$$

whereas the criminal now chooses

$$a^* = \arg \min_a \{ p(m_1^*, m_2^*, a) T + a \}.$$

The FOCs for the government and criminal problems yield to the following system

$$p_{m_1} [m_1, m_2(\mu), a(T, \mu)] - c_1 = 0$$

$$p_{m_2} [m_1, m_2(\mu), a(T, \mu)] + \frac{\partial u_2}{\partial m_2} (m_2(\mu), \mu) - c_2 = 0$$

$$-p_a [m_1, m_2(\mu), a(T, \mu)] T = 1.$$

Differentiating the system with respect to $\mu$ yields to
To solve for \( \frac{dm_2}{d\mu} \) and \( \frac{\partial a}{\partial \mu} \) we will first consider equations (**) and (***) and check that the solutions satisfied equation (*). Denoting by \( \left[ p_{m_2m_2} + \frac{\partial^2 u_2}{\partial m_2^2} \right] p_{aa} - (p_{am_2})^2 = \Gamma < 0 \), we have

\[
\frac{dm_2}{d\mu} = \frac{-p_{aa} \frac{\partial^2 u_2}{\partial m_2^2 \partial \mu}}{\Gamma} > 0
\]

\[
\frac{\partial a}{\partial \mu} = \frac{p_{am_2} \frac{\partial^2 P}{\partial m_2 \partial \mu}}{\Gamma} = 0
\]

since by A1 and A4 \( \frac{\partial^2 P}{\partial m_2 \partial \mu} > 0 \) and \( p_{am_2} = 0 \). For these solutions to satisfy equation (*), it has to be the case that

\[
\left[ p_{m_1a}p_{am_2} - p_{m_1m_2}p_{aa} \right] \frac{\partial^2 P}{\partial m_2 \partial \mu} \frac{1}{\Gamma} = 0
\]

This relation holds if and only if \( p_{m_1a}p_{am_2} - p_{m_1m_2}p_{aa} = 0 \), which is true when \( p() \) is separable in \( m_1, m_2, \) and \( a \). The result is summarized in the following lemma,

**Lemma 6**: Under politicized law enforcement and assumptions A3-4, \( m_2^* \) is increasing in \( \mu \).

This yields to the following proposition:

**Proposition 3**: Under politicized law enforcement and assumptions A1-4, the crime rate \( \gamma \) is decreasing in \( \mu \). In particular, the crime rate is higher under a new democracy than it is under autocracy. In addition, the effect of expected jail time on crime is ambiguous.
IV. Concluding Remarks

We investigate the explosion of criminal activities following political liberalization. Our argument focuses on the direct impact of security police on law enforcement. The effect of the security police on law enforcement stems from the fact that criminal organizations and violent political opposition under democracies and dictatorships overlap. We argue that political liberalization following authoritarian breakdown decreases *ex ante* regime vulnerability to violent overthrow, which leads to political monitoring being less valued. As a result, law enforcement is less effective, and crime rate increases. We also find that for a given level of vulnerability, the effect of punishment on crime rate is ambiguous. The empirical evidence supports the theoretical argument. Controlling for GDP growth, education, and other possible determinants, we find that crime rate per capita is positively correlated with democratization and number of democracies around the world, and negatively correlated with years under democratic regimes.

There are other aggravating factors of the crime problem that need to be stressed. Law enforcement could be less effective not simply because secret police have disappeared but former secret police agents who are now unemployed have joined criminal organizations or selling arms or expertise to those organizations. Another important aspect is the lack of resources in police training. In future works, we intend to extend the present analysis to include those elements.

References


APPENDIX

Proof of proposition 1

After total differentiation of both first-order conditions, we have,
\[
\begin{bmatrix}
 p_{am_1} \frac{\partial m_1}{\partial L} & p_{aa} \\
p_{m_1m_1} \frac{\partial m_1}{\partial L} & p_{m_1a}
\end{bmatrix}
\begin{bmatrix}
\frac{\partial L}{\partial \mu} \\
\frac{\partial a}{\partial \mu}
\end{bmatrix}
= \begin{bmatrix}
-p_{am_1} \frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu} \\
-p_{m_1m_1} \frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu}
\end{bmatrix}.
\]

The solution is:
\[
\frac{\partial L}{\partial \mu} = \frac{(p_{am_1})^2 - p_{m_1m_1}p_{aa}}{\Delta} \frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu} = -\frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu} \frac{\partial m_1}{\partial \mu} < 0
\]
and
\[
\frac{\partial a}{\partial \mu} = \frac{(p_{m_1m_1}p_{m_1a} - p_{m_1m_1}p_{m_1a})}{\Delta} \frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu} \frac{\partial m_1}{\partial L} = 0
\]

QED

Proof proposition 2:

For \( m_2^* = m_2(\mu) \), the crime rate is given by,
\[
\gamma = \frac{\kappa s}{1 + \frac{1 + n}{n} p(m_1(m_2^*, L^*), a^*)[1 - \exp\{- (1 + T) \ln(1 + n)\}]}.
\]

To study the effect of political vulnerability on crime rate, we need to find how it affects the probability of apprehension. This probability increases if \( \frac{dp(\mu)}{d\mu} > 0 \). That is
\[
\frac{dp(\mu)}{d\mu} = p_{m_1} \frac{\partial m_1}{\partial L} \frac{dL}{d\mu} + p_{m_1} \frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu} + p_a \frac{da}{d\mu}.
\]
Since \( \frac{da}{d\mu} = 0 \), and given the expression found earlier for \( \frac{dL}{d\mu} \), we have

\[
\frac{dp(\mu)}{d\mu} = -p_m \frac{\partial m_1}{\partial L} \frac{dm_2}{d\mu} + p_m \frac{\partial m_1}{\partial m_2} \frac{dm_2}{d\mu} = 0.
\]

QED.

Proof of proposition 3:

For the sake of tractability we set, \( m_1 = m_2L \).

To find the signs of \( \frac{\partial a}{\partial T} \), \( \frac{\partial m_2}{\partial T} \) and \( \frac{\partial L}{\partial T} \), we totally differentiate (6), (7) and (8) with respect to \( T \). Using Assumption 4 and rearranging, we have

\[
\begin{bmatrix}
  p_{m_1 m_1} m_2 & p_{m_1 m_1} & 0 \\
  p_{m_1 m_1} m_2 L + p_{m_1} & p_{m_1 m_1} L^2 & 0 \\
  0 & 0 & p_{aa}
\end{bmatrix}
\begin{bmatrix}
  \frac{\partial L}{\partial T} \\
  \frac{\partial m_2}{\partial T} \\
  \frac{\partial a}{\partial T}
\end{bmatrix}
= \begin{bmatrix}
  0 \\
  0 \\
  \frac{1}{T^2}
\end{bmatrix}.
\]

The solution of the system of equations is:

\[
\begin{align*}
\frac{\partial L}{\partial T} &= \begin{bmatrix}
0 & p_{m_1 m_1} & 0 \\
0 & p_{m_1 m_1} L^2 & 0 \\
\frac{1}{T^2} & 0 & p_{aa}
\end{bmatrix} = 0, & \frac{\partial m_2}{\partial T} &= \begin{bmatrix}
p_{m_1 m_1} m_2 & 0 & 0 \\
p_{m_1 m_1} m_2 L + p_{m_1} & 0 & 0 \\
0 & 0 & \frac{1}{T^2}
\end{bmatrix} = 0 \text{ and } \\
\frac{\partial a}{\partial T} &= \begin{bmatrix}
p_{m_1 m_1} m_2 & p_{m_1 m_1} & 0 \\
p_{m_1 m_1} m_2 L + p_{m_1} & p_{m_1 m_1} L^2 & 0 \\
0 & 0 & \frac{1}{T^2}
\end{bmatrix} > 0.
\end{align*}
\]

To find the signs of \( \frac{\partial L}{\partial \mu} \) and \( \frac{\partial a}{\partial \mu} \), we also differentiate (6), (7) and (8) with respect to \( \mu \). Again using Assumption 4 and rearranging, we have

\[
\begin{bmatrix}
p_{m_1 m_1} \frac{\partial m_1}{\partial L} & 0 \\
p_{m_1 m_1} \frac{\partial m_1}{\partial m_1} + p_{m_1} \frac{\partial^2 m_2}{\partial m_2 \partial L} & 0 \\
0 & p_{aa}
\end{bmatrix}
\begin{bmatrix}
\frac{\partial L}{\partial \mu} \\
\frac{\partial m_2}{\partial \mu} \\
\frac{\partial a}{\partial \mu}
\end{bmatrix}
= \begin{bmatrix}
-p_{m_1 m_1} \frac{\partial m_1}{\partial m_2} \frac{\partial m_2}{\partial \mu} \\
Q \\
0
\end{bmatrix}
\]

where \( Q = - \left\{ p_{m_1 m_1} \left( \frac{\partial m_1}{\partial m_2} \right)^2 \frac{\partial m_2}{\partial \mu} + p_{m_1} \frac{\partial^2 m_2}{\partial m_2 \partial \mu} - \frac{\partial m_2}{\partial \mu} \right\} \). We have
\[
\frac{\partial L}{\partial \mu} = \frac{\partial m_2}{\partial \mu} \frac{\partial m_1}{\partial \mu} - \frac{\partial m_1}{\partial L} \frac{\partial L}{\partial \mu} < 0
\]

and \(\frac{\partial a}{\partial \mu} = 0\). Finally, we check that

\[
p_{m_1 m_2} \frac{\partial m_1}{\partial L} \frac{\partial m_1}{\partial \mu} + p_{m_1} \frac{\partial^2 m_2}{\partial m_2 \partial \mu} \frac{\partial \mu}{\partial a} = Q.
\]

is satisfied for \(m_1 = m_2\).

**Proof of Proposition 4**

The expression of crime rate can be written now as follows

\[
\gamma = \frac{\kappa s}{1 + \frac{1 + n}{n} p[m_1^*, m_2^* (\mu), a^* (T, \mu)] [1 - \exp\{-(1 + T) \ln (1 + n)\}]} \]

To assess the effect of political vulnerability on crime rate, we need only to examine \(\frac{\partial p}{\partial \mu}\).

\[
\frac{\partial p}{\partial \mu} = p_{m_1} \frac{\partial m_1}{\partial \mu} + p_{m_2} \frac{\partial m_2}{\partial \mu} + p_a \frac{\partial a}{\partial \mu}
\]

Here, \(\frac{\partial m_1}{\partial \mu} \geq 0\) and \(\frac{\partial a}{\partial \mu} = 0\). Finally, we are left with

\[
\frac{\partial p}{\partial \mu} = p_{m_2} \frac{\partial m_2}{\partial \mu}
\]

from Lemma 5 we have \(\frac{\partial m_2}{\partial \mu} > 0\), which implies \(\frac{\partial p}{\partial \mu} > 0\). Hence \(\frac{\partial \gamma}{\partial \mu} < 0\) QED.

We also examine how the expected time in jail may affect the crime rate in this environment. To do so we take the derivative of \(\gamma (\theta)\) with respect to \(T\).

\[
\frac{\partial \gamma}{\partial T} = -\frac{\kappa s}{n} \left\{ \frac{\partial a}{\partial T} [1 - e^{-(1 + T) \ln (1 + n)}] + \left[ e^{-(1 + T) \ln (1 + n) \ln (1 + n)} \right] p(m_1, m_2 (\mu), a(T, \mu)) \right\}
\]

\[
\frac{1 + \frac{1 + n}{n} p[m_1^*, m_2^* (\mu), a^* (T, \mu)] [1 - \exp\{-(1 + T) \ln (1 + n)\}]}{[1 + \frac{1 + n}{n} p[m_1^*, m_2^* (\mu), a^* (T, \mu)] [1 - \exp\{-(1 + T) \ln (1 + n)\}]}^2
\]
We know that \( \frac{\partial p}{\partial a} < 0 \). To access the sign of this derivative we need to know the sign of \( \frac{\partial a}{\partial T} \). For this purpose we take the derivative of the FOCs of the government and criminal problems with respect to \( T \). It yields to the following system
\[
\begin{cases}
  p_{m1a} \frac{\partial a}{\partial T} &= 0 \\
  p_{m2a} \frac{\partial a}{\partial T} &= 0 \\
  p_{aa} \frac{\partial a}{\partial T} &= \frac{1}{T^2}
\end{cases}
\]

Under the assumption \( p_{m1a} = p_{m1a} = 0 \), we have \( \frac{\partial a}{\partial T} = \frac{1}{T^2 p_{aa}} > 0 \) since \( p_{aa} > 0 \)
by assumption A2. This yields to \( \frac{\partial \gamma(\theta)}{\partial T} \geq 0 \). We conclude that the effect of the expected time in jail on the crime rate is ambiguous.
**TABLE I**

<table>
<thead>
<tr>
<th>Dependent Variable: Homicide</th>
<th>GDP Growth</th>
<th>Education</th>
<th>Regime</th>
<th>Democratic Experience</th>
<th>Region</th>
<th>Other demo.</th>
<th>Military Personnel</th>
<th>Transition to demo</th>
<th>Transition to autocracy</th>
<th>Constant</th>
<th>Number of Obs./countries</th>
<th>Wald Chi-sq</th>
<th>Prob &gt;Chi-sq</th>
<th>R-sq</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-143.8045***</td>
<td>-135.3267***</td>
<td>(37.388)</td>
<td>(35.0645)</td>
<td>-46.9159***</td>
<td>-95.36951***</td>
<td>-37.6862***</td>
<td>-37.82714***</td>
<td>(8.8412)</td>
<td>(22.24124)</td>
<td>(10.34522)</td>
<td>(9.841769)</td>
<td>-16.2777**</td>
<td>170.478**</td>
</tr>
</tbody>
</table>