Preventive Repression: Two Types of Moral Hazard

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Abstract

Authoritarian regimes maintain their grip on power primarily through preventive repression routinely exercised by specialized security agencies, with the aim of preventing any opposition from organizing and becoming public. We develop a formal model to analyze the moral hazard problems inherent in the principal-agent relationship between rulers and their security agents in charge of preventive repression. The model distinguishes two types of moral hazard: "politics," by which the agents (security agencies) can exert political influence to increase their payoff by decreasing the ruler’s payoff, and "corruption," by which the agents can increase their payoff by engaging in rent-seeking activities that do not decrease the ruler’s payoff. The surprising conclusion is that both the ruler and the security agent are better off when the only moral hazard problem available is politics rather than when the agent can choose between politics and corruption. We also show that the equilibrium probability of regime survival is higher when politics is the only moral hazard available to the agent. These findings lead to our central conclusion that opportunities for corruption undermine authoritarian regimes by distorting the incentives of the security agencies tasked with preventing domestic opposition.
Introduction

How do authoritarian regimes protect themselves from potential opposition? Their first line of defense is preventive repression, routinely exercised by specialized security agencies, institutions often called simply "Security." While many autocracies build "seemingly democratic institutions" (Gandhi and Przeworski 2006; Svolik 2012), the quintessential institution of such regimes is the security apparatus, mainly in the form of secret police. Hence, to understand the repressive foundations of authoritarian regimes, we must consider the relations between the rulers and the agencies charged with preventing any potential opposition from organizing, being publicly heard, or otherwise threatening the regime.

This is easier said than done. By their very nature, information about these relations is closely guarded so that we have only scattered, anecdotal glimpses of evidence, often made public only after a regime has fallen (Barros 2016). Yet despite the opacity of these regimes, it is clear that these relationships are often uneasy, as manifested by instances in which the secret police spied on their political principals or a ruler purged his own security apparatus. Hence, what follows should be viewed as a preliminary analysis of the relationship between rulers and their security agencies.

With this caveat, we think as follows. Political power gives the incumbent ruler, individual or collective, access to some resources. To protect this power, the ruler employs security agencies. In turn, to perform its task, a security agency needs the requisite means – buildings, vehicles, arms, spying equipment, funds to pay informers – so that the ruler must provide it with operational resources in addition to paying salaries of the agents. Yet the agency can divert a part of these resources to activities other than protecting the regime, which can in turn make the regime more vulnerable to being overthrown. Therefore, rulers face moral hazard problems with respect to their own security agencies. Moreover, the relation between the rulers and their security agents entails two distinct forms of moral hazard: politics and corruption.

Preventive repression brings into politics an important political force: security agencies
who may seek to extend their grasp inside the regime by engaging in political activities and power struggles. Specifically, these agencies can divert some of their resources to extract benefits from the political elites they are supposed to serve. We label this kind of moral hazard "politics": when they engage in politics, security agents can increase their payoff at the expense of their political principals. Ever since Edward Gibbons (2001[1896]) vividly described how the Praetorian Guards of the Roman Empire used their power to influence the selection of emperors, the fact that security agents can yield significant influence over their political principals has been the focus of studies of the relationship between rulers and their security agents. This political hazard problem, features prominently in almost all work on this topic (Huntington 1957; Nordlinger 1977; Wintrobe 1998; Finer 2002, among others), and is indeed a difficult agency problem to contend with, as illustrated by the fact that in almost every autocratic regime relations between rulers and their security agents are perennially tense (Plate and Darvi 1981; Adelman 1984). A powerful security agency is a double-edge sword for political elites: it can be more effective in protecting the regime but it also creates a moral hazard problem by virtue of its de facto control over the means of violence.

Yet political infighting is not the only danger rulers face from their security agencies. Similarly to other bureaucratic agencies, the security apparatus can also divert efforts and resources to increase its consumption by engaging in rent-seeking activities that do not decrease their principals’ payoff. Secret police agents can engage in graft, pad their expenses, sell their services to private actors, or invest in private economic ventures. We label this kind of moral hazard "corruption."

We develop a formal model to analyze these moral hazard problems inherent in the principal-agent relation between rulers and the agents in charge of preventive repression. It seems plausible that, all else equal, rulers would be better off when their agents quietly misuse resources, i.e. engage in corruption, rather than when they use those resources to increase their privileges at the ruler’s expense, i.e. engage in politics. Yet our model
generates a surprising conclusion that both the ruler and the security agents are better off when the only moral hazard problem is that the agent can engage in politics rather than when the agent can choose between diverting efforts to politics or corruption. We find that when, in addition to seeking political influence, agents have opportunities for corruption, they have weaker incentives to protect the regime. In turn, anticipating that the agents would divert a larger share of their resources away from repression, rulers give them fewer resources, with the net effect that the regime ends up being more fragile. We also show that the equilibrium probability of regime survival is higher when politics is the only moral hazard problem than when the agent can choose between politics or corruption. Therefore, opportunities for corruption by the security apparatus undermine authoritarian regimes. This is our central conclusion about the relation between rulers and the security agencies charged with preventing domestic opposition.

The paper contributes to the literature concerning the relationship between authoritarian rulers and their security agents (Nordlinger 1977; Wintrobe 1998; Finer 2002; Geddes et al. 2014). Methodologically, the literature has analyzed the agency problems arising from the fact that those armed to protect the regime can threaten the powers of political elites either as a stand-alone moral hazard problem or coupled with adverse selection issues arising from incomplete information about the magnitude of potential threats to the regime. Substantively, the literature has investigated the determinants of military dictatorship (Acemoglu, Ticchi, and Vendini 2010, Besley and Robinson 2010), the loyalty-competence trade-off in dictatorial environments (Egorov and Sonin 2011; Zakharov 2016), military intervention in politics when the military is uncertain about government policy (Svolik 2013), and various coordination and commitment problems between political rulers and their agents (Myerson 2008; Cox 2012; Dragu and Polborn 2013; Gailmard 2017). Yet no work has analyzed the principal-agent relationship when security agents have an opportunity to engage in corruption in addition to exerting political influence over their principals. We present the first formal model to assess how these two moral hazard problems affect the equilibrium payoffs of players
and the equilibrium probability of regime survival. Our results are relevant for understand-
ing the principal-agent relationship between rulers and security agents in non-democratic
polities and the repressive foundations of authoritarian government more generally.¹

Next we describe in more detail the strategy of preventive repression, analyze the prob-
lems associated with relying on security agencies for preventive repression, and conclude.

Preventive Repression

In 2016, the Chinese Communist Party directed one of the country’s largest state-run defense
contractors, China Electronics Technology Group, to develop software that would allow
them to collate data on the jobs, hobbies, financial transactions, and consumption habits
of ordinary citizens. This request also included developing software to analyze citizens’
online behavior and to use artificial intelligence to identify their faces on security camera
footage.² This new surveillance system would add to the already large body of data that
the Chinese government collects on each citizen, allowing it to even better flag those that
might be a potential threat. While the stated purpose of this new policy was to fight
terrorism, commentators worried that its real purpose was in fact to help further strangle
regime opposition in its infancy, i.e. to prevent another Tiananmen square.

It is hardly surprising that the Chinese Communist Party is taking advantage of the latest
developments in surveillance technology to strengthen its efforts at preventive repression.
Preventive repression is aimed to render mute potential opposition and repress opponents
before they carry out any activities that would threaten the stability of the regime. In this
sense, preventive repression is ex ante with regard to public manifestations of protest and is
distinct from remedial repression which occurs ex post, after prevention repression has failed
and public protests materialize.

¹The paper also contributes to the literature on bureaucratic politics that documents a variety of principal-
agent problems and bureaucratic biases (Moe 2006; Ting 2003; Bueno de Mesquita and Stephenson 2007;
Stephenson 2008; Gailmard 2010; Baliga and Ely 2016; Dragu 2017).
²Cara McGoogan, ‘Minority Report’-style technology to predict crime in China, The Telegraph, March 9,
2016.
With regards to repression, an ounce of prevention is worth of a pound of cure. No authoritarian regime wants to face a situation in which dissent had grown sufficiently powerful to necessitate large-scale military intervention in order to keep power. Rulers are averse to remedial repression by the military for at least two reasons. First, in such endgame scenarios the regime must rely on the obedience of common foot-soldiers, which can be costly and ineffective. The military is neither trained, specifically equipped, nor motivated to engage in domestic repression, so that using them to squelch protests typically becomes a last resort.\(^3\) Secondly, calling upon and relying on the military involves considerable political risks in terms of regime survival both because the military might simply refuse to obey an order to repress (Pion-Berlin and Trinkunas 2010, Dragu and Lupu 2017) or because the military may exploit the vulnerability of the regime to overthrow it (Acemoglu, Ticchi, and Vendini 2010, Besley and Robinson 2010, Svolik 2013, Albrecht and Ohl 2016).

Consequently, authoritarian regimes primarily utilize and depend upon preventive repression, routinely exercised by specialized security agencies. The security apparatus typically includes three, not always institutionally distinct, bodies: ordinary police, secret police, and the germanderie. The secret police is sometimes euphemistically referred to as an "intelligence" agency, as in the Chilean Dirección Nacional de Intelligencia (DINA, 1973-77), or an "information" agency, as in still Chilean Central Nacional de Información (CNI, 1973-1990), but often it is officially denominated "secret police." The secret police employs professional spies and part-time informants to detect any potential opposition and “nip it in the bud,” in the language of the Paraguayan Stroessner regime. It seeks to identify dissatisfied individuals who are the center of larger communication networks (Perez Oviedo 2015, Siegel 2011) by relying on informers, intercepting communications, planting listening devices, and the like. The "nipping" may entail physical elimination of potential adversaries (Gregory 2013), imprisonment, economic sanctions, prohibitions to travel, intimidation, blackmail, 

\(^3\)As Hannah Arendt notes “The military forces, trained to fight a foreign aggressor, have always been a dubious instrument for civil-war purposes; even under totalitarian conditions they find it difficult to regard their own people with the eyes of a foreign conqueror” (Arendt 1973, 420).

The first institutionalized secret police force in the modern era was the Tsarist Department for Protecting the Public Security and Order (Okhrana), established in 1866 originally to spy on Russian emigrés (Zuckerman 1996). The Soviets reproduced this institution immediately after taking power under the name of Cheka, which over time evolved into GPU, OGPU, NKVD, NKGB, MGB, and KGB, where "GB" always stood for "state security." The history of secret police institutions under Hitler is equally convoluted, with several agencies competing among themselves (Gestapo, SA, SD) and constant reorganizations (RSHA). Similar organizations existed under the fascist regimes of Mussolini in Italy (OVNE), Franco’s Spain, and Salazar’s Portugal (PIDE) (Gallagher 1979; Bramstedt 2013). Secret police was the central instrument of communist rule in Eastern Europe, again with frequent reorganizations and changes of names. The military regimes in Latin America also used security agencies independent of the armed forces (Plate and Darvi 1981; Policzer 2009).

Two aspects of the history of these agencies bear emphasis. One is the frequent multiplication of the agencies, reorganizations, and changes of their names as well as of their leaders. The second is that most regimes strictly separate the security apparatus from the armed forces. Both indicate that the relations between rulers and their security agents are perennially tense. Frequent reorganizations are evidence of the fact that the rulers find it difficult to control these agencies. The careful separation of civilian from military functions and positions shows that the rulers are afraid of the concentration of power among their

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4For example, on the eve of Prague Spring in Czechoslovakia the security apparatus included the State Secret Security Forces (STB), employing more than 20,000 full-time and 147,000 part-time agents, the Committee of Defense Security (OBZ), and the People’s Militia (Ekiert 1996, 148).

5According to Szlachta (interviewed by Mac 1990, 33), in the Soviet Union there were 12 chiefs of the security apparatus before 1980, in Poland between 1945 and 1980 there were 10, in the remaining countries of the Warsaw Pact, there were 42 during the same period. Rough calculation shows that each top ruler (Communist Party Secretary) changed about 3 heads of security apparatus.
agents. Why are these relations so difficult?

The main problem appears to be that security agencies can use their tools and resources to engage in political battles inside the regime and to increase their political power (and the perks associated with that power) vis-a-vis their political principals. Examples of such potential agency problems abound. In the USRR, under the leadership of Menzhinsky, the GPU began to play a large role in the internal factional disputes within the Communist party that arise after Lenin’s death; in Poland during the Stalinist period, General Moczar utilized his position as the Minister of Internal Affairs, which included a separate internal department charged with overseeing the ideological loyalty of the leaders of the Communist Party (Czubiński 1992), to attempt to staff positions at all public institutions with his supporters, over the bitter opposition from other Politburo members (Plate and Darvi 1981; Adelman 1984); in South Korea during the Park regime the secret police, KCIA, grew into such a bureaucratic monster that KCIA Director Kim ended up assassinating President Park; in Yugoslavia, Alexandr Rankovic, the secret police chief, was purged after he bugged President Tito’s apartment; Erich Mielke, the chief of Stasi, the omnipotent Ministry for State Security in the former East Germany, kept a secret dossier on the country’s leader, Erich Honecker; and in Russia in 1991, the head of the KGB, Kryuchkov, and other KGB officers attempted a coup against Gorbachev. The real and potential power of the secret police can also be implicitly inferred from the fact that Hua Guofeng in China, Eric Honeker in Eastern Germany, Stanisław Kania in Poland, Yuri Andropov in USSR, and Saddam Hussein in Iraq all directed the internal security affairs of their respective countries before they eventually took power (Adelman 1984; Koehler 1999; Sassoon 2001; Schoenhals 2013).

While not as glamorous as exerting political influence, there is another agency problem inherent in the functioning of preventive agencies, or any bureaucratic agency for that matter: rather than performing their tasks, secret police agents can instead engage in graft, pad their expenses, sell their services to private actors, or invest in private economic ventures. In

\footnote{For example, when Stalin wanted Trotsky and Zinoviev expelled from the Central Committee in October 1927, Menzhinsky produced a report implicating them in a non-existent military plot.}
other words, they can engage in corruption, diverting resources from preventive repression to outside rent-seeking activities (without decreasing the regime perks of their principals). Consider again just a few examples: The Tanton Macoutes, the secret police of the Duvalier regime, as well as the Savak, the political police under the Shah, regularly took bribes (Plate and Darvi 1981); in Argentina, Haiti, and many ex-communist European countries, members of the secret police used their discretionary powers of arrest and surveillance to loot citizens; the Polish Communist secret police invented informers and pocketed their putative pay\(^7\); the Jakarta police are said to run brothels; members of the FSB in Russia in the 1990s used public resources to moonlight as private guards and help businessmen and oligarchs fight their competitors (Soldatov and Borogan 2010); money from unsupervised budgets enabled Pakistan’s Inter-Services Intelligence, a powerful and independent security agency, to control large industrial, banking, and landowning bodies in Pakistan. Perhaps no example paints a better picture of secret police corruption than that of Vladimiro Montesinos, the head of the intelligence service in Peru during Fujimori’s short authoritarian rule, who was eventually revealed as the mastermind behind a sophisticated network of corruption that penetrated virtually every sector of society. Investigations revealed Montesinos to be at the centre of a web of illegal activities, including embezzlement, graft, and drug trafficking (McMillan and Zoido 2004).

In what follows, we develop a formal model to analyze how the opportunities for engaging in politics or corruption activities by security agents affect the stability of authoritarian regimes. The relation between rulers and the agents in charge of preventive repression is not a usual one between principals and agents in economic settings. In standard principal-agent models, the principal hires an agent to perform tasks that increase the principal’s wealth rather than to protect the wealth they already hold. Moreover, in most models, the

\(^7\)According to Franciszek Schlachta, lifelong secret police functionary and at one time the Polish Minister of Interior, "To fraud, there was no end. An entire mechanism of cheating the institution was created by its employees. They falsified lists of informants, themselves wrote reports from fictitious agents, signed by colleagues, sister, or brother-in-law....I think that more than one-third of informers were a scam." (Interview with Mac 1990, 33).
agent is assumed to have an installed capacity to perform the task.\textsuperscript{8} The classic example is the relation between landlords and peasants: a landlord hires a peasant to produce on a particular plot of land, with resources already fixed, and compensates the peasant for the disutility of his effort depending on his output. The purpose of security agencies, however, is to protect the already existing resources, wealth coming from controlling power, while the agent’s capacity to perform the task must be provided by the principal. This relation creates mixed motives both for the principals and the agents: both want to maximize their expected payoffs but both can consume only if the regime survives, so that the principal must sacrifice its consumption by financing the capacity of the agents to perform their tasks while the agents must limit their rent-seeking to protect the regime. We show that the incapacity of the security agencies to commit themselves not to engage in corruption generates a commitment problem, in which the agents divert too much from protecting the regime and the principal, anticipating the temptation to engage in corruption, allocates too few resources for preventive repression to the agents.

**Model**

To elucidate the principal-agent relation between rulers and their security agents, we model it in the simplest way possible. Assume that the wealth accessible to the ruler is $W$, which we normalize to 1. The ruler allocates an amount of resources for protection\textsuperscript{9}, $B < 1$, and also decides on the share, $s \in [0, 1]$, of the remaining wealth, $R = 1 - B$, to be paid as official compensation to the agent. The agent chooses the part of the allocated resources to use for protection and a part to divert, so that $B = p + d$, where $p$ is used for protection and $d$ is diverted. The probability that the regime survives is simply $p$. If the regime falls, which happens with probability $1 - p$, the ruler and the agent get a payoff of 0. In the contingency that the regime doesn’t fall (with probability $p$), the payoffs of players depend on how the

\textsuperscript{8}Some exceptions are the principal-agent models in finance, e.g. Holmström and Tirole 1997.

\textsuperscript{9}One can think of these resources as the technological tools, buildings, arms, spying equipment, funds to pay informers, and so on, that are necessary for implementing the strategy of preventive repression.
security agent diverts resources from protection to other activities, as described below.

Diversion activities can assume two forms, politics and corruption, so the agent also makes a binary choice regarding in which activity to divert resources, $a \in \{\text{politics, corruption}\}$. If the agent devotes the amount $d$ to politics, such diversion increases the agent’s payoff at the expense of the principal: the agent receives a share $s + d$ of rents $R$ and the principal retains a share $1 - s - d$ of the regime rents $R$. If the agent opts to allocate $d$ to corruption, the agent increases her payoff without decreasing the principal’s payoff: the payoff of the agent is $sR + \gamma d$, where $\gamma \in (0, 1]$ is the rate of return to corruption activities, and the payoff of the principal remains $(1 - s)R$. We assume that when the agent diverts to corruption, the agent engages in clandestine activities which cannot be contracted directly by the ruler.

Given these specifications, the ruler’s payoff is

$$U_R = \begin{cases} 
  p(1 - s - d)R & \text{if } a = \text{politics} \\
  p(1 - s)R & \text{if } a = \text{corruption}
\end{cases}$$

and the agent’s payoff is

$$U_A = \begin{cases} 
  p(s + d)R & \text{if } a = \text{politics} \\
  p(sR + \gamma d) & \text{if } a = \text{corruption}
\end{cases}$$

The timing of the game is as follows: First, the ruler decides how to allocate the unit of resources, such that $1 = B + R$, and also chooses the distribution of rents $s \in [0, 1]$. Second, given the ruler’s decisions, the agent decides what fraction of resources to put into protection and what fraction to activities other than protection. Finally, the agent decides whether to use the diverted resources for politics or for corruption, $a \in \{\text{politics, corruption}\}$.

Before proceeding with the analysis, two observations are in order. First, the agent’s payoff depends on the ruler’s survival. If the agent were to get her payoff regardless whether the ruler stays in power or not, she would have no stake in ruler’s survival and would divert all resources to either corruption or politics, depending only on which of these activities is
more attractive. The ruler, in turn, would get no benefit (in terms of increasing his likelihood of survival) from giving the agent any resources to protect. The principal-agent problem we describe is of theoretical and substantive interest only when there is some common interest between the ruler and the agent, which we capture by the assumption that both players have a stake in increasing the likelihood of regime survival.

Second, notice that, given the choices made by the ruler, if the agent diverts any resources from protection (i.e., \( d > 0 \)), the principal is strictly better off if the agent diverts to corruption rather than to politics. Notice also that, for the same values of \( p \) and \( R \), the sum of the ruler’s and the agent’s payoffs is (weakly) higher if the agent chooses to divert resources to corruption rather than politics. This is the case because \( U_R + U_A = pR \) if the agent diverts to politics and \( U_R + U_A = pR + p\gamma d \) if the agent diverts to corruption. Of course, \( p \) and \( R \) are equilibrium choices and, as we show, both the ruler and the agent would be better off if corruption were not a choice available to the agent. In other words, perhaps surprisingly, we show that, in equilibrium the expected payoff of both players is smaller when the agent can choose between diverting to corruption or to politics than when politics is the only moral hazard problem.

For simplicity of exposition, we first analyze the scenario in which the only choice for the agent is to divert to politics, then the scenario in which the agent can only divert to corruption, and finally the game in which the agent can divert to politics or to corruption.

**The Politics Game**

We first find the equilibrium of the game in which the agent can only divert resources to politics (diverting to corruption is not an available option). Given that \( R = 1 - B \), for any \( B \) and \( s \) chosen by the ruler, the agent’s optimization problem is

\[
\max_{p,d} \{p(s + d)(1 - B)\} \quad \text{s.t.} \quad p + d = B.
\]
Given this problem, we have the following result:

**Lemma 1.** In the politics game, for any $B$ and $s$, the agent’s optimal decisions are:

$$
\hat{p}(B, s) = \begin{cases} 
\frac{1}{2}(B + s) & \text{if } s \leq B \\
B & \text{if } s \geq B 
\end{cases}$$

and

$$
\hat{d}(B, s) = \begin{cases} 
\frac{1}{2}(B - s) & \text{if } s \leq B \\
0 & \text{if } s \geq B 
\end{cases}
$$

(1)

Lemma 1 shows that the agent’s optimal division of resources between protecting the regime and diverting resources to politics depends on the size of the resources allocated to protection relative to the repressive agent’s fraction of rents. If the *politics constraint*

$$
s \geq B,
$$

is satisfied, the agent does not divert any resources to politics and places all of them into protection. However, if this constraints is not met, the agent finds it in her interest to divert some resources to politics increase her share of rents.

A simple inspection of lemma 1 shows that optimal levels of $p$ and $d$ increase in the resources the ruler allocates to protection, $B$. In turn, the effect of an increase in agent’s share of rents, $s$, on $p$ and $d$ is dissimilar: a higher $s$ increases the optimal $p$ and decreases the optimal $d$. This result is intuitive, because if the agent gets a higher share of rents to begin with, the agent has less of an incentive to divert resources to politics.

Given the agent’s optimal decisions, we next find the ruler’s optimal allocation of resources to protection, $B$ and the optimal distribution of rents, $s$. We have to consider two scenarios, one in which the politics constraint is satisfied and the other in which it is not met. Because the agent’s optimal actions are different in these two situations, the ruler’s payoff is also different.

In the first case, the ruler’s optimal allocation of resources to protection and the optimal
distribution of rents are the solutions to the following constrained maximization problem:

$$\max_{B,s} \left\{ B(1-s)(1-B) \right\} \quad \text{s.t.} \quad s \geq B.$$  

In the second scenario, the ruler’s optimal decisions are the solution to the problem:

$$\max_{B,s} \left\{ \frac{1}{2} (B+s)[1 - \frac{1}{2} (B+s)](1-B) \right\} \quad \text{s.t.} \quad s \leq B.$$  

In both of these maximization problems the constraint is binding, that is, \( s = B \) (we prove this result in the Appendix). Because the two maximization problems are equivalent when the politics constraint is binding, the equilibrium level of \( B \) is the solution to maximizing the ruler’s payoff given that \( B = s \):

$$\max_{B \in [0,1]} \left\{ B(1-B)^2 \right\}.$$  

The optimal solution to this maximization problem is \( B^* = \frac{1}{3} \), which implies that the optimal distribution of rents is \( s^* = \frac{1}{3} \). The following proposition characterizes the ruler’s and the agent’s equilibrium behavior in the politics game.

**Proposition 1.** In the politics game, the ruler’s equilibrium choices are \( B^* = \frac{1}{3} \) and \( s^* = \frac{1}{3} \) and the agent’s equilibrium actions are \( p^* = \frac{1}{3} \) and \( d^* = 0 \).

**The Corruption Game**

We next find the equilibrium of the game in which the agent can only divert resources to corruption (politics is not an available option). For any given \( B \) and \( s \) chosen by the ruler, the agent’s optimization problem is

$$\max_{p,d} \left\{ p[s(1-B) + \gamma d] \right\} \quad \text{s.t.} \quad p + d = B.$$
Given this problem, we have the following result:

**Lemma 2.** In the corruption game, for any $B$ and $s$, the agent’s optimal decisions are:

$$
\check{p}(B, s) = \begin{cases} 
\frac{\gamma B + s(1-B)}{2\gamma} & \text{if } s \leq \frac{\gamma B}{1-B} \\
B & \text{if } s \geq \frac{\gamma B}{1-B}
\end{cases}
$$

and

$$
\check{d}(B, s) = \begin{cases} 
\frac{\gamma B - s(1-B)}{2\gamma} & \text{if } s \leq \frac{\gamma B}{1-B} \\
0 & \text{if } s \geq \frac{\gamma B}{1-B}
\end{cases}
$$

(2)

Lemma 2 shows that the agent’s optimal division of resources between protection and corruption depends on the agent’s fraction of rents relative to the size of the resources allocated to protection and the rate of return to corruption, $\gamma$. If the corruption constraint

$$
s \geq \frac{\gamma B}{1-B},
$$

is satisfied, the agent does not divert any resources to corruption, placing all resources into protection. Otherwise, the agent finds it in his interest to divert some resources to corruption to increase her share of rents.

Given the agent’s optimal decision, we next solve for the ruler’s optimal allocation of resources, $B$, and the ruler’s optimal distribution of rents, $s$. Similarly to the previous game, we have to consider two scenarios, one in which the corruption constraint is satisfied and one in which it is not met.

In the first case, the ruler’s optimal allocation of resources to protection and the optimal distribution of rents are solutions to the problem:

$$
\begin{align*}
\text{maximize}_{B, s} & \quad \{ B(1-s)(1-B) \} \\
\text{s.t.} & \quad s \geq \frac{\gamma B}{1-B}.
\end{align*}
$$

In the second scenario, the ruler’s optimal decisions solve the problem:

$$
\begin{align*}
\text{maximize}_{B, s} & \quad \{ \frac{\gamma B + s(1-B)}{2\gamma}(1-s)(1-B) \} \\
\text{s.t.} & \quad s \leq \frac{\gamma B}{1-B}.
\end{align*}
$$

In both of these maximization problems the corruption constraint is binding, that is, $s = \frac{\gamma B}{1-B}$ (shown again in the Appendix), which implies that the equilibrium level of $B$ is the solution
to maximizing the ruler’s payoff given that \( s = \frac{\gamma B}{1 - B} \):

\[
\text{maximize} \quad \{ B(1 - B - \frac{\gamma}{1 - B})(1 - B) \}.
\]

The optimal solution to this problem is \( B^* = \frac{1}{2(\gamma + 1)} \), which implies that the optimal distribution of rents is \( s^* = \frac{\gamma}{1 + 2\gamma} \). Putting together these results, the following proposition characterizes the ruler’s and the agent’s equilibrium behavior in the corruption game.

**Proposition 2.** In the corruption game, the ruler’s equilibrium choices are \( B^* = \frac{1}{2(\gamma + 1)} \) and \( s^* = \frac{\gamma}{1 + 2\gamma} \) and the agent’s equilibrium actions are \( p^* = \frac{1}{2(\gamma + 1)} \) and \( d^* = 0 \).

**Diverting to Politics or to Corruption**

In this section, we analyze the principal-agent problem when the agent has a choice between diverting resources to politics or to corruption. Recall that, for any \( B \) and \( s \), if the agent diverts to politics her expected utility is \( p(s + d)(1 - B) \) and if the agent diverts to corruption, her expected utility is \( p[s(1 - B) + \gamma d] \). Note that if \( 1 - B \geq \gamma \), then \( p(s + d)(1 - B) \geq p[s(1 - B) + \gamma d] \) for all \( p \) and \( d \). Therefore, if \( 1 - B \geq \gamma \), the best payoff from diverting to corruption is (weakly) worse compared to that from diverting to politics. To see this argument, recall that \( \hat{p} \) and \( \hat{d} \) are the agent’s optimal decisions from the politics game and \( \tilde{p} \) and \( \tilde{d} \) are the agent’s optimal decisions from the corruption game. Notice that \( \tilde{p}[s(1 - B) + \gamma \tilde{d}] \leq \tilde{p}(s + \tilde{d})(1 - B) \) since \( 1 - B \geq \gamma \). Notice also that \( \hat{p}(s + \hat{d})(1 - B) \leq \hat{p}(s + \hat{d})(1 - B) \) since \( \hat{p} \) and \( \hat{d} \) are the optimal actions in the politics game. This implies that the best payoff from diverting to politics is (weakly) better than the best payoff from diverting to corruption as long as \( 1 - B \geq \gamma \). And conversely, if \( 1 - B \leq \gamma \), the best payoff from diverting to corruption is (weakly) better than the best payoff from diverting to politics. Therefore, the agent’s optimal choice is to divert to politics if

\[
1 - B \geq \gamma,
\]
and to divert to corruption otherwise.

Given the optimal decision of the agent about whether to divert to politics or to corruption, the agent’s optimal allocation of resources is given by lemma (1) if $1 - B \geq \gamma$ and by lemma (2) if $1 - B \leq \gamma$.

To determine the ruler’s optimal levels of $B$ and $s$, we need to proceed as follows: 1) find for the ruler’s optimal allocations of resources in the politics game under the constraint that diverting to politics is the optimal choice for the agent; 2) find for the ruler optimal allocations of resources under the constraint that diverting to corruption is the optimal choice for the agent; 3) compare the ruler’s equilibrium payoff under these two scenarios (as a function of $\gamma$) to see whether the optimal allocation of resources from the politics or from the corruption game gives the ruler a higher payoff for different values of $\gamma$. We relegate the proof to the Appendix and state the main result below.\(^{10}\)

**Proposition 3.** The ruler’s optimal decisions in the game in which the repressive agent can choose to divert to politics or to corruption are

$$B^* = \begin{cases} 
\frac{1}{3} & \text{if } \gamma \leq \overline{\gamma}_1 \\
1 - \gamma & \text{if } \gamma \in [\overline{\gamma}_1, \overline{\gamma}_2] \\
\frac{1}{2\gamma+2} & \text{if } \gamma \geq \overline{\gamma}_2
\end{cases}$$

and

$$s^* = \begin{cases} 
\frac{1}{3} & \text{if } \gamma \leq \overline{\gamma}_1 \\
1 - \gamma & \text{if } \gamma \in [\overline{\gamma}_1, \overline{\gamma}_2], \\
\frac{\gamma}{1+2\gamma} & \text{if } \gamma \geq \overline{\gamma}_2
\end{cases}$$

where $\overline{\gamma}_1 = \frac{2}{3}$ and $\overline{\gamma}_2 = \sqrt{\frac{1}{2}}$.

The intuition for Proposition 3 is as follows. First, if $\gamma$ is below the threshold $\overline{\gamma}_1$, the ruler’s optimal choices are the solutions to the politics game, $B^* = s^* = \frac{1}{3}$. This is the case because in the politics game the equilibrium level of rents is $R^* = \frac{2}{3}$ and, therefore, for any

\(^{10}\)From a technical perspective, this is a nonlinear bilevel optimization problem in that the ruler maximizes a function of two (continuous) variables that affect the agent’s optimal incentives while the agent optimally decides how much to divert from protection to other activities (a continuous variable) and to which activity to divert (a binary variable) both of which affect the principal’s optimization problem; moreover, depending on whether politics or corruption is the optimal diversion activity for the agent, we need to consider different objective functions for the principal’s maximization problem.
\( \gamma \leq \frac{2}{3} \), the constraint \( 1 - B \geq \gamma \) is satisfied, so that the agent prefers politics to corruption. The reason the ruler makes these choices of \( s \) and \( B \) is that, when \( \gamma \) is not too high, the agent prefers to engage in politics rather than corruption, so the ruler’s optimal choices of \( B \) and \( s \) are set to meet the agent’s politics constraint.

Similar reasoning applies when the value of \( \gamma \) is relatively high, i.e., \( \gamma \geq \frac{\bar{\gamma}}{2} \). For this range of values of \( \gamma \), the agent prefers to engage in corruption rather than politics. Because in the corruption game, the equilibrium level of resources is \( B^* = \frac{1}{2(\gamma+1)} \), the constraint \( 1 - B \leq \gamma \) is satisfied if \( \frac{1+2\gamma}{2\gamma+2} \leq \gamma \iff \gamma \geq \sqrt{\frac{1}{2}} \). Therefore, for \( \gamma \geq \frac{\bar{\gamma}}{2} \), the ruler’s optimal choices of \( B \) and \( s \) are the choices from the corruption game, \( B^* = \frac{1}{2\gamma+2} \) and \( s^* = \frac{\gamma}{2\gamma+1} \). Substantially, when diverting resources to corruption is very tempting for the agent, the ruler anticipates these incentives in his optimal decisions and chooses the resources for protection and the distribution of rents to satisfy the agent’s corruption constraint.

Finally, for values of \( \gamma \) in the middle range, i.e., \( \gamma \in [\frac{\bar{\gamma}}{2}, \frac{\bar{\gamma}}{2}] \), the constraint for whether the agent engages in politics or corruption is binding. The optimal choices of \( B \) and \( s \) in this middle range are set to make the agent indifferent between engaging in politics or in corruption, \( B^* = s^* = 1 - \gamma \). For these values of \( B \) and \( s \), the politics and the corruption constraints are both binding and thus the agent is indifferent between putting all resources into protection or diverting any resources to either of the two activities (this is the case because the corruption indifference condition \( s = \frac{\gamma B}{1-B} \) for \( B = s = 1 - \gamma \) is satisfied and, obviously, the politics indifference condition \( B = s \) is satisfied as well).

Given the previous results, we can investigate how the ruler’s equilibrium payoff varies with changes in \( \gamma \). The ruler’s equilibrium payoff is

\[
U^*_R = \begin{cases} 
\frac{4}{27} & \text{if } \gamma \leq \frac{\bar{\gamma}}{1} \\
\gamma^2(1-\gamma) & \text{if } \gamma \in \left[\frac{\bar{\gamma}}{2}, \frac{\bar{\gamma}}{1}\right] \\
\frac{1}{4(\gamma+1)} & \text{if } \gamma \geq \frac{\bar{\gamma}}{2} 
\end{cases}
\]

The ruler’s equilibrium payoff is continuous in \( \gamma \), and is constant in \( \gamma \) for \( \gamma \leq \frac{\bar{\gamma}}{1} \) and is
decreasing in $\gamma$ for $\gamma \geq \bar{\gamma}_1$. Since the ruler’s equilibrium payoff in the politics game is $4/27$, the ruler is (weakly) better off when diverting to corruption is not tempting for the agent and the only agency problem is that the agent can engage in politics. The rationale is that when the payoff from engaging in corruption is relatively high, diverting to corruption is the pressing agency problem so the ruler has to put fewer resources into protection and more into rents to induce the agent not to divert resources into corruption. Furthermore, when $\gamma$ is high, the agent has more incentives to divert resources from protection to corruption so even if the probability of keeping the payoff is lower (i.e. $p^*$ is lower), the agent’s payoff is higher. Consequently, the ruler anticipates these incentives into his optimal choices of $B$ and $s$, with the overall result of a decreased equilibrium payoff relative to the politics game.

To illustrate this logic, let us consider the scenario in which $\gamma = 1$. In this case, the ruler’s optimal distribution of rents is $s^* = \frac{\gamma}{1+2\gamma} = \frac{1}{3}$ which is the same as the optimal distribution of rents in the politics game (in which diverting resources to corruption is not an available option for the agent). However, when the agent has the option to engage in corruption, the optimal allocation of resources to protection is $B^* = \frac{1}{2\gamma+2} = \frac{1}{4}$, which is lower than in the politics game. The reason is that, because the agent compares the relative payoffs from politics and corruption when deciding which activity is more lucrative the ruler needs to keep more resources for rents. If the payoff from corruption is relatively high, regime rents needs to be high as well to induce the agent not to divert resources from protection to corruption. Therefore, we can see that even though the distribution of rents is the same as in the politics game, i.e., $s^* = 1/3$, the allocation of resources to protection is lower ($B^* = \frac{1}{4} < B^p = \frac{1}{3}$), while the allocation to rents is higher ($R^* = \frac{3}{4} > R^p = \frac{2}{3}$) in the game in which the agent has a choice between corruption and politics as compared to the politics game. As a result, when $\gamma = 1$, the ruler’s payoff is lower ($U^*_R = \frac{1}{8} < U^p_R = \frac{4}{27}$). The same holds for any case in which $\gamma > \bar{\gamma}_1$ and the agent has a choice of actions.

Similarly, we can investigate how the agent’s equilibrium payoff varies as a function of $\gamma$. The agent’s equilibrium payoff is
\[
U^*_A = \begin{cases} 
\frac{2}{27} & \text{if } \gamma \leq \gamma_1 \\
\gamma(1 - \gamma)^2 & \text{if } \gamma \in [\gamma_1, \gamma_2]. \\
\frac{\gamma}{4(\gamma+1)^2} & \text{if } \gamma \geq \gamma_2
\end{cases}
\]

Perhaps more puzzling, the agent is better-off when diverting to corruption is not an available choice. Again, let us illustrate this result for \(\gamma = 1\). The agent’s payoff in the politics game is \(U^*_A = \frac{2}{27}\) while when corruption is also a choice (and \(\gamma = 1\)) it is \(U^*_A = \frac{1}{16}\). Notice that if the ruler were to offer \(B = 1/3\) and \(s = 1/3\), the optimal choices from the politics game, the agent’s optimal response would be to divert some resources to corruption (the corruption constraint would not be satisfied), which would give the agent a higher expected payoff than if the agent were to choose \(p = 1/3\) and \(d = 0\), the optimal choices in the politics game. Anticipating this incentive of the agent, the ruler’s optimal choices are \(B^* = 1/4\) and \(s^* = 1/3\). Consequently, the agent’s equilibrium payoff is \(U^*_A = \frac{1}{16}\), which is lower than the equilibrium payoff if diverting to corruption were not an available choice.

Essentially, there is a fundamental commitment problem here. Both the ruler and the agent would be better off if the ruler were to offer a higher \(B\) when diverting to corruption is an option for the agent. It is not sequentially rational for the agent, however, not to divert resources into corruption if the ruler were to offer a \(B\) such that the corruption constraint is not satisfied. We have the following result:

**Proposition 4.** The ruler’s and the agent’s equilibrium payoffs are (weakly) higher in the politics game than in the game in which the agent can choose between politics and corruption.

Similarly, we can investigate the effect of changes in \(\gamma\) on the equilibrium probability that the ruler keeps power, which is

\[
p^* = \begin{cases} 
\frac{1}{3} & \text{if } \gamma \leq \gamma_1 \\
1 - \gamma & \text{if } \gamma \in [\gamma_1, \gamma_2]. \\
\frac{1}{2\gamma+2} & \text{if } \gamma \geq \gamma_2
\end{cases}
\]
The equilibrium $p$ is constant in $\gamma$ for $\gamma \leq \gamma_1$ and is decreasing in $\gamma$ for $\gamma \geq \gamma_1$, which implies that this probability is maximized when $\gamma \leq \gamma_1$ (since the equilibrium level of $p$ is continuous in $\gamma$). Since the equilibrium level of $p$ is 1/3 in the politics game, the equilibrium probability of regime survival is also (weakly) higher if corruption is not an available choice for the agent. We have the following result:

**Proposition 5.** The equilibrium probability of regime survival is (weakly) higher in the politics game than in the game in which the agent can choose between politics and corruption.

Notice that we restricted our previous analysis to the case in which $\gamma \leq 1$. If $\gamma \geq 1$, then the agent will never choose to divert resources to politics since it will always be the case that $1 - B \leq \gamma$ regardless of what the ruler does. In other words, the ruler’s allocation decisions do not affect the choice of the agent regarding whether to divert resources to politics or to corruption. Consequently, there is nothing to analyze in terms of the relative impact of the two moral hazard problems on the relationship between rulers and their security agents. Moreover, the analysis of the case in which $\gamma \geq 1$ is straightforward: the ruler’s equilibrium choices are $B^* = \frac{1}{2}$ and $s^* = 0$ and the agent’s equilibrium choices are $p^* = \frac{1}{4}$ and $d^* = \frac{1}{4}$. Intuitively, when the relative value of diverting to corruption is so high, the ruler doesn’t find it worthwhile to induce the agent not to divert some resources to corruption, and, as a result, the ruler gives the agent no share of regime rents and chooses the optimal $B$ taking into account that the agent diverts some resources from protection to corruption.\(^{11}\)

Finally, note that if we were to analyze the situation in which the ruler has any amount of resources $W$, the agent’s optimal decision would be to divert resources into politics if $W - B \geq \gamma$ and to divert resources to corruption otherwise. What matters for our analysis is the magnitude of $\gamma$ (the payoff from corruption activities) relative to that of $W$ (the regime’s wealth), because if $\gamma \geq W$ corruption is a dominant strategy for the agent and if $\gamma \leq W$ the agent’s optimal decision about where to divert depends on the ruler’s allocation

\(^{11}\)Notice also that the ruler’s payoff is continuous at $\gamma = 1$, since the ruler’s payoff is the same if the ruler chooses $B^* = 1/2$ and $s^* = 0$ (and the agent chooses $p^* = 1/4$ and $d^* = 1/4$) or if he chooses $B^* = 1/4$ and $s^* = 1/3$ (and the agent chooses $p^* = 1/4$ and $d^* = 0$).
decisions. Because our substantive interest is to assess the relative effect of the two moral hazard problems, for simplicity of exposition, we normalize $W$ to 1 and interpret $\gamma$ as the rate of return to corruption activities relative to that from politics.

**Conclusions**

Dobson (2012) observes that today's authoritarian regimes have replaced brutal forms of violence and mass killings with subtle methods of control and coercion: they have perfected the use of fear and intimidation to maintain their grip on power and have learned to rely on propaganda, censorship, and cooptation in place of large-scale repression of public dissent. Repression is indeed just one, even if essential, instrument by which authoritarian rulers maintain themselves in power (Gehlbach, Sonin, and Svolik 2016). Autocrats can coopt some potential opponents (Gandhi and Przeworski 2006, Bueno de Mesquita and Smith 2009), engage in propaganda (Edmond 2013, Chen and Xu 2015, Little 2017), engineer elections to legitimize their power (Cox 2009, Gandhi and Lust-Okar 2009), or manufacture the semblance of a civil society by creating government-operated NGOs (Dobson 2012, Pud- dington 2017). But repression is not limited to the use of violence against already manifest opposition, which is the subject of most formal literature on this topic (Pierskalla 2010, Besley and Persson 2011). Repression is most effective when it is invisible, when regimes survive without having to beat, teargas, or kill their citizens. As someone has said, "That streets are peaceful does not mean there is no violence" (Przeworski 2015, 249). Visible manifestations of opposition occur only if preventive repression has not been effective to begin with, so that they represent failures of repressive regimes. And there is evidence (Dobson 2012, Puddington 2017) that while autocrats may have increased their use of ballot-box, cooptation and control over information, they also learned to prevent public opposition from forming rather than having to squelch its visible manifestations. Hence, what we need to understand is the logic of operation of repressive systems designed to thwart all attempts to
collectively oppose the government.

Ours is but a first step in this direction. We do not claim that the probability of ruler’s survival is solely a function of the actions of their security agents. Ours is a partial equilibrium model, so that the probability $p$ in our framework should be interpreted as capturing only how much additional increase in the likelihood of survival can a ruler achieve by relying on preventive repression, given the use of other instruments and the eventuality of relying on remedial repression in need. The surprising conclusion of our analysis is that whenever the security apparatus has the option of engaging in corruption, it is a less effective instrument for defending the autocrat. The security agencies can and do engage in extorting money, perks, and privileges from the rulers, but they can be bought off at a relatively low cost. Corruption is a more serious threat to the autocrat. If corruption is sufficiently rewarding to the security agents, the ruler knows that they will divert resources, so increasing their resources is pointless. As a result, the ruler allocates fewer resources to preventive repression, the regime is less likely to survive, and both the autocrat and its agents are worse-off than when corruption opportunities are not as rewarding. One should not be surprised, therefore, that autocrats engage in anti-corruption campaigns and often purge their security appurtenances: the expected tenure of the heads of security agencies is short. The head of the Chinese security apparatus was among the first targets of Mr. Xi’s anti-corruption campaign. But, as we know (Shleifer and Vishny 1993, Rose-Ackerman and Palifka 2016), controlling corruption is not an easy task. Corrupt security apparatus is the Achilles heel of autocratic regimes.

Extensions of our analysis can go in two directions. One is to incorporate preventive repression in a broader framework to investigate how it interacts with other contemporary methods of authoritarian control such as using modern propaganda, manufacturing a civil society or allowing "controlled" elections to maintain a pluralist facade. The second is to examine the conditions under which autocrats shift resources from remedial to preventive repression, trying to avoid the use of violence against already formed opposition. Finally,
while by construction any empirical study of preventive repression suffers from formidable selection problems, we need to sharply distinguish empirical manifestations of preventive from remedial repression, to get more systematic information about the security agencies, their actions, and the outcomes of their actions.
References


Appendix

Proof of Lemma 1. For any $B$ and $s$, given that $d = B - p$, the security agent’s maximization problem is

$$\max_{p \in [0, B]} p(B - p + s)(1 - B)$$

The agent’s optimal level of $p$ is the solution of the FOC: $s + B - 2p = 0$, which implies that $\hat{p} = \frac{B + s}{2}$ if $s \leq B$ and $\hat{p} = B$ if $s \geq B$ (this is a maximum since the second-order condition is satisfied). As a result, the optimal level of $d$ is $\hat{d} = \frac{B - s}{2}$ if $s \leq B$ and $\hat{d} = 0$ if $s \geq B$.

Proof of Proposition 1. First, if $s \geq B$, the agent’s optimal actions are $\hat{p}(B, s) = B$ and $\hat{d}(B, s) = 0$, and the ruler’s optimal allocation of resources is the solution to the following constrained maximization problem:

$$\max_{B, s \in [0, 1]} B(1 - s)(1 - B) \quad \text{s.t.} \quad s \geq B.$$ 

Forming the Lagrangian, $L(B, s, \lambda) = B(1 - s)(1 - B) - \lambda(B - s)$, the first order conditions are $\frac{dL}{dB} = (1 - s)(1 - 2B) - \lambda = 0; \frac{dL}{ds} = -(B - B^2) + \lambda = 0; \lambda(B - s) = 0; \lambda \geq 0; \text{and} \ s - B \geq 0$. The critical points of this constrained maximization are: 1) $B = s = 1, \lambda = 0; 2) B = 0, s = 1, \text{and} \ \lambda = 0; \text{and} 3) B = s = \frac{1}{3}, \lambda = \frac{2}{9}$. Checking the second order conditions, the optimal solutions of this constrained optimization problem are $B^* = \frac{1}{3}$ and $s^* = \frac{1}{3}$.

Second, if $s \leq B$, the agent’s optimal actions are $\hat{p}(B, s) = \frac{B + s}{2}$ and $\hat{d}(B, s) = \frac{B - s}{2}$, and the ruler’s optimal allocation of resources is the solution to the following constrained maximization problem:

$$\max_{B, s \in [0, 1]} \frac{B + s}{2} \left(1 - \frac{B + s}{2}\right)(1 - B) \quad \text{s.t.} \quad s \leq B.$$ 

Forming the Lagrangian, $L(B, s, \lambda) = \frac{B + s}{2} \left(1 - \frac{B + s}{2}\right)(1 - B) - \lambda(s - B)$, the first order conditions are $\frac{dL}{dB} = \frac{1}{4}(3B^2 - 2B(3 - 2s) + 2 - 4s + s^2) + \lambda = 0; \frac{dL}{ds} = \frac{1}{2}(1 - B)(1 - B - s) - \lambda = 0;$
\( \lambda(s - B) = 0; \lambda \geq 0; \) and \( B - s \geq 0 \). The critical points of this constrained maximization are: 1) \( B = s = 1, \lambda = 0; \) and 2) \( B = s = \frac{1}{3}, \lambda = \frac{1}{9} \). Checking the second order conditions, the optimal solutions of this constrained optimization problem are \( B^* = \frac{1}{3} \) and \( s^* = \frac{1}{3} \).

Given that in both scenarios, the ruler’s optimal allocations are \( B^* = s^* = \frac{1}{3} \), this implies that the equilibrium resources for protection and distribution of rents are \( B^* = 1/3 \) and \( s^* = 1/3 \). Finally, this implies that the agent’s equilibrium actions are \( p^* = 1/3 \) and \( d^* = 0 \), as claimed.

Proof of Lemma 2. For any given \( B \) and \( s \), given that \( d = B - p \), the agent’s optimization problem is

\[
\text{maximize } p \in [0, B] \quad p[s(1 - B) + (B - p)\gamma].
\]

The optimal \( p \) is the solution to the FOC: \( s(1 - B) + \gamma B - 2\gamma p = 0 \) (the solution is a maximum since the second order condition is satisfied). The optimal solution is \( \tilde{p} = \frac{\gamma B + s(1-B)}{2\gamma} \) if \( s \leq \frac{\gamma B}{1-B} \) and \( \tilde{p} = B \) if \( s \geq \frac{\gamma B}{1-B} \). This implies that the optimal diversion of resources is \( \tilde{d} = \frac{\gamma B - s(1-B)}{2\gamma} \) if \( s \leq \frac{\gamma B}{1-B} \) and \( \tilde{d} = 0 \) if \( s \geq \frac{\gamma B}{1-B} \).

Proposition 2. First, if \( s \geq \frac{\gamma B}{1-B} \), the agent’s optimal actions are \( \tilde{p}(B, s) = B \) and \( \tilde{d}^* = 0 \). Thus, the ruler’s optimal \( B \) and \( s \) are the solution to the following constrained maximization problem:

\[
\text{maximize } B, s \in [0, 1] \quad B(1 - s)(1 - B) \quad \text{s.t. } s(1 - B) \geq \gamma B.
\]

Forming the Lagrangian \( L(B, s, \lambda) = B(1 - s)(1 - B) - \lambda(\gamma B - s(1 - B)) \), the first order conditions are \( \frac{dL}{dB} = (1 - s)(1 - 2B) - \lambda(\gamma + s) = 0; \frac{dL}{ds} = -(B - B^2) + \lambda(1 - B) = 0; \lambda(\gamma B - s(1 - B)) = 0; \lambda \geq 0; \) and \( s(1 - B) - \gamma B \geq 0 \). The critical points of this constrained maximization problem are: 1) \( B = 0, s = 1, \lambda = 0; \) and 2) \( B = \frac{1}{2(1+\gamma)}, s = \frac{\gamma}{1+2\gamma}, \lambda = \frac{1}{2(1+\gamma)}. \)

Checking the second order conditions, the optimal solutions of this constrained optimization problem are \( B^* = \frac{1}{2(1+\gamma)} \) and \( s^* = \frac{\gamma}{1+2\gamma} \).

Second, if \( s \leq \frac{\gamma B}{1-B} \), the agent’s optimal actions are \( \tilde{p}(B, s) = \frac{\gamma B + s(1-B)}{2\gamma} \) and \( \tilde{d}(B, s) = \frac{\gamma B - s(1-B)}{2\gamma} \). This implies that the ruler’s optimal \( B \) and \( s \) are the solution to the following
The critical points of this constrained maximization are: 1) Forming the Lagrangian, \( L(B, s, \lambda) = \frac{\gamma B + s(1-B)}{2\gamma} (1-s)(1-B) \) s.t. \( s(1-B) \leq \gamma B \).

Forming the Lagrangian \( L(B, s, \lambda) = \frac{\gamma B + s(1-B)}{2\gamma} (1-s)(1-B) - \lambda (s(1-B) - \gamma B) \), the first order conditions are \( \frac{dL}{dB} = \frac{1}{2\gamma} (1-s)[\gamma(1-2B) - 2s(1-B)] + \lambda s = 0; \) \( \frac{dL}{ds} = \frac{1}{2\gamma} (1-B)[-\gamma B + (1-B)(1-2s)] - \lambda(1-B) = 0; \) \( \lambda(s(1-B) - \gamma B) = 0; \) \( \lambda \geq 0; \) and \( s(1-B) - \gamma B \leq 0. \) The critical points of this constrained maximization problem are: 1) \( B = 1, s = 1, \lambda = 0; \) and 2) \( B = \frac{1}{2(1+\gamma)}, s = \frac{\gamma}{1+2\gamma}, \lambda = \frac{1-\gamma}{4\gamma(1+\gamma)}. \) Checking the second order conditions, the optimal solutions of this constrained optimization problem are \( B^* = \frac{1}{2(1+\gamma)} \) and \( s^* = \frac{\gamma}{1+2\gamma}. \)

Given that in both scenarios, the ruler’s optimal allocations are \( B^* = \frac{1}{2(1+\gamma)} \) and \( s^* = \frac{\gamma}{1+2\gamma}; \) this implies that the equilibrium distribution of rents is \( s^* = \frac{\gamma}{1+2\gamma} \) and the equilibrium allocation of resources to protection is \( B^* = \frac{1}{2(1+\gamma)}. \) Finally, this implies that the agent’s equilibrium actions are \( p^* = \frac{1}{2(1+\gamma)} \) and \( d^* = 0. \)

**Proof of Proposition 3.** First, if \( 1-B \geq \gamma \) and \( s \geq B, \) the agent’s optimal actions are \( a^* = \text{politics}, \hat{p}(B, s) = B, \) and \( \hat{d}(B, s) = 0. \) Thus the ruler’s optimal allocation of resources is the solution to the following constrained maximization problem:

\[
\text{maximize}_{B,s \in [0,1]} B(1-s)(1-B) \quad \text{s.t.} \quad s \geq B \quad \text{and} \quad 1-B \geq \gamma.
\]

Forming the Lagrangian, \( L(B, s, \lambda_1, \lambda_2) = B(1-s)(1-B) - \lambda_1(B-s) - \lambda_2(\gamma + B - 1), \) the first order conditions are \( \frac{dL}{dB} = (1-s)(1-2B) - \lambda_1 - \lambda_2 = 0; \) \( \frac{dL}{ds} = -(B - B^2) + \lambda_1 = 0; \) \( \lambda_1(B-s) = 0; \) \( \lambda_2(\gamma + B - 1) = 0; \) \( \lambda_1 \geq 0; \) \( \lambda_2 \geq 0; \) \( s - B \geq 0; \) and \( 1-B - \gamma \geq 0. \) If \( \gamma \leq \frac{2}{3}, \) the critical points of this constrained maximization are: 1) \( B = 0, s = 1, \lambda_1 = \lambda_2 = 0; \) 2) \( B = s = \frac{1}{3}, \lambda_1 = \frac{2}{3}, \lambda_2 = 0. \) If \( \frac{2}{3} \leq \gamma < 1, \) the critical points are: 1) \( B = 0, s = 1, \lambda_1 = \lambda_2 = 0; \) and 2) \( B = s = 1 - \gamma, \lambda_1 = \gamma(1-\gamma), \lambda_2 = \gamma(3\gamma - 2). \) And if \( \gamma = 1, \) the critical points are: \( B = 0, s = \alpha, \lambda_1 = 0 \lambda_2 = 1 - \alpha \) for any \( \alpha \in [0,1]. \) Checking the second order
conditions, the optimal solutions of this constrained optimization problem are \( B^* = s^* = \frac{1}{3} \) for \( \gamma \leq \frac{2}{3} \) and \( B^* = s^* = 1 - \gamma \) for \( \gamma \geq \frac{2}{3} \). The ruler’s payoff is \( U_R^* = \frac{4}{27} \) if \( \gamma \leq \frac{2}{3} \) and \( U_R^* = \gamma^2(1 - \gamma) \) if \( \gamma \geq \frac{2}{3} \).

Second, if \( 1 - B \geq \gamma \) and \( s \leq B \), the agent’s optimal actions are \( a^* = \text{politics} \), \( \hat{p}(B, s) = \frac{B + s}{2} \), and \( \hat{d}(B, s) = \frac{B - s}{2} \). The ruler’s optimal allocation of resources is the solution to the following constrained maximization problem:

\[
\text{maximize } \frac{B + s}{2} \left( 1 - \frac{B + s}{2} \right) (1 - B) \quad \text{s.t. } s \leq B \text{ and } 1 - B \geq \gamma.
\]

Forming the Lagrangian, \( L(B, s, \lambda_1, \lambda_2) = \frac{B + s}{2} \left( 1 - \frac{B + s}{2} \right) (1 - B) - \lambda_1(s - B) - \lambda_2(\gamma + B - 1) \), the first order conditions are \( \frac{dL}{dB} = \frac{1}{4}(3B^2 - 2B(3 - 2s) + 2 - 4s + s^2) + \lambda_1 - \lambda_2 = 0; \frac{dL}{ds} = \frac{1}{2}(1 - B)(1 - B - s) - \lambda_1 = 0; \lambda_1(s - B) = 0; \lambda_2(\gamma + B - 1) = 0; \lambda_1 \geq 0; \lambda_2 \geq 0; 1 - B - \gamma \geq 0; \text{ and } B - s \geq 0 \). If \( \gamma \leq \frac{2}{3} \), the critical points of this constrained maximization are: \( B = S = \frac{1}{3}; \lambda_1 = \frac{1}{9}; \lambda_2 = 0 \). And if \( \gamma \geq \frac{2}{3} \), the critical points are: \( B = s = 1 - \gamma; \lambda_1 = \frac{1}{2}\gamma(2\gamma - 1); \lambda_2 = \gamma(3\gamma - 2) \). Checking the second order conditions, the optimal solution of this constrained optimization problem is \( B^* = s^* = \frac{1}{3} \) for \( \gamma \leq \frac{2}{3} \) and \( B^* = s^* = 1 - \gamma \) for \( \gamma \geq \frac{2}{3} \). The ruler’s payoff is \( U_R^* = \frac{4}{27} \) if \( \gamma \leq \frac{2}{3} \) and \( U_R^* = \gamma^2(1 - \gamma) \) if \( \gamma \geq \frac{2}{3} \).

Third, if \( 1 - B \leq \gamma \) and \( s \geq \frac{\gamma B}{1 - B} \), the agent’s optimal actions are \( a^* = \text{corruption} \), \( \hat{p}(B, s) = B \), and \( \hat{d}(B, s) = 0 \). Thus, the ruler’s optimal \( B \) and \( s \) are the solution to the following constrained maximization problem:

\[
\text{maximize } B(1 - s)(1 - B) \quad \text{s.t. } s(1 - B) \geq \gamma B \text{ and } 1 - B \leq \gamma.
\]

Forming the Lagrangian \( L(B, s, \lambda_1, \lambda_2) = B(1 - s)(1 - B) - \lambda_1(\gamma B - s(1 - B)) - \lambda_2(1 - B - \gamma) \), the first order conditions are \( \frac{dL}{dB} = (1 - s)(1 - 2B) - \lambda_1(\gamma + s) + \lambda_2 = 0; \frac{dL}{ds} = -(B - B^2) + \lambda_1(1 - B) = 0; \lambda_1(\gamma B - s(1 - B)) = 0; \lambda_2(1 - B - \gamma) = 0; \lambda_1 \geq 0; \lambda_2 \geq 0; s(1 - B) - \gamma B \geq 0; \text{ and } 1 - B - \gamma \leq 0 \). If \( \gamma \leq \sqrt{\frac{1}{2}} \), the critical points of this constrained maximization problem are: \( B = s = 1 - \gamma; \lambda_1 = 1 - \gamma; \lambda_2 = 1 - 2\gamma^2 \). If \( \sqrt{\frac{1}{2}} \leq \gamma < 1 \), the
critical points are: $B = \frac{1}{2(1-\gamma)}$, $s = \frac{\gamma}{1+2\gamma}$, $\lambda_1 = \frac{1}{2(1+\gamma)}$, $\lambda_2 = 0$. And if $\gamma = 1$, the critical points are: 1) $B = \frac{1}{4}$, $s = \frac{1}{3}$; $\lambda_1 = \frac{1}{4}$; $\lambda_2 = 0$; and 2) $B = 0$, $s = 1$, $\lambda_1 = \lambda_2 = 0$. Checking the second order conditions, the optimal solution of this constrained optimization problem is $B^* = \frac{1}{2(1+\gamma)}$, $s^* = \frac{\gamma}{1+2\gamma}$ if $\gamma \geq \sqrt{\frac{1}{2}}$ and $B^* = s^* = 1 - \gamma$ if $\gamma \leq \sqrt{\frac{1}{2}}$. The ruler’s payoff is $U_R^* = \frac{1}{4\gamma+4}$ if $\gamma \geq \sqrt{\frac{1}{2}}$ and $U_R^* = \gamma^2(1 - \gamma)$ if $\gamma \leq \sqrt{\frac{1}{2}}$.

Fourth, if $1 - B \leq \gamma$ and $s \leq B\frac{\gamma}{1-B}$, the agent’s optimal actions are $a^* = \text{corruption}$, $ar{p} = \frac{\gamma B + s(1-B)}{2\gamma}$, and $d = \frac{\gamma B - s(1-B)}{2\gamma}$. This implies that the ruler’s optimal $B$ and $s$ are the solution to the following constrained maximization problem:

$$\text{maximize}_{B,s \in [0,1]} \frac{\gamma B + s(1-B)}{2\gamma} (1-s)(1-B) \text{ s.t. } s(1-B) \leq \gamma B \text{ and } 1 - B \leq \gamma.$$ 

Forming the Lagrangian $L(B, s, \lambda_1, \lambda_2) = \frac{\gamma B + s(1-B)}{2\gamma} (1-s)(1-B) - \lambda_1 (s(1-B) - \gamma B) - \lambda_2 (1-B - \gamma)$, the first order conditions are

$$\frac{dL}{dB} = \frac{1}{2\gamma}(1-s)[\gamma(1-2B) - 2s(1-B)] + \lambda_1 (\gamma + s) + \lambda_2 = 0; \quad \frac{dL}{ds} = \frac{1}{2\gamma}(1-B) [-\gamma B + (1-B)(1-2s)] - \lambda_1 (1-B) = 0; \quad \lambda_1 (s(1-B) - \gamma B) = 0; \quad \lambda_2 (1-B - \gamma) = 0; \quad \lambda_1 \geq 0; \quad \lambda_2 \geq 0; \quad s(1-B) - \gamma B \leq 0; \quad \text{and } 1 - B - \gamma \leq 0.$$

If $\gamma \leq \frac{2}{3}$, the critical points of this constrained maximization problem are: 1) $B = 1 - \gamma$, $s = \frac{\gamma}{2}$, $\lambda_1 = 0$, $\lambda_2 = \frac{1}{4}(2-\gamma)(1-\gamma)$; and 2) $B = 1$, $s = 1$, $\lambda_1 = \lambda_2 = 0$. If $\frac{2}{3} \leq \gamma \leq \sqrt{\frac{1}{2}}$, the critical points are: 1) $B = 1 - \gamma$, $s = 1 - \gamma$, $\lambda_1 = \frac{3\gamma - 2}{2}$, $\lambda_2 = 1 - 2\gamma^2$; and 2) $B = 1$, $s = 1$, $\lambda_1 = \lambda_2 = 0$. And if $\gamma \geq \sqrt{\frac{1}{2}}$, the critical points are: 1) $B = \frac{1}{2(1+\gamma)}$, $s = \frac{\gamma}{1+2\gamma}$, $\lambda_1 = \frac{1-\gamma}{4\gamma(1+\gamma)}$, $\lambda_2 = 0$; and 2) $B = 1$, $s = 1$, $\lambda_1 = \lambda_2 = 0$. Checking the second order conditions, the optimal solution of this constrained optimization problem is $B^* = \frac{1}{2(1+\gamma)}$ and $s^* = \frac{\gamma}{1+2\gamma}$ if $\gamma \geq \sqrt{\frac{1}{2}}$; $B^* = 1 - \gamma$ and $s^* = 1 - \gamma$ if $\frac{2}{3} \leq \gamma \leq \sqrt{\frac{1}{2}}$; and $B = 1 - \gamma$, $s = \frac{\gamma}{2}$ if $\gamma \leq \frac{2}{3}$. The ruler’s payoff is $U_R^* = \frac{1}{4(\gamma+1)}$ if $\gamma \geq \sqrt{\frac{1}{2}}$; $U_R^* = \gamma^2(1 - \gamma)$ if $\frac{2}{3} \leq \gamma \leq \sqrt{\frac{1}{2}}$; and $U_R^* = \frac{1}{8}\gamma(2 - \gamma)^2$ if $\gamma \leq \frac{2}{3}$.

Comparing the ruler’s payoff for different values of $\gamma$ in the above four scenarios, the ruler’s highest payoff is $\frac{4}{27}$ for $\gamma \leq \frac{2}{3}$, $\gamma^2(1 - \gamma)$ for $\gamma \in \left[\frac{2}{3}, \sqrt{\frac{1}{2}}\right]$, and $\frac{1}{4\gamma+4}$ for $\gamma \geq \sqrt{\frac{1}{2}}$. As a
result, the ruler’s equilibrium choices are

\[
B^* = \begin{cases} 
\frac{1}{3} & \text{if } \gamma \leq \gamma_1 \\
1 - \gamma & \text{if } \gamma \in [\gamma_1, \gamma_2] \\
\frac{1}{2(\gamma + 1)} & \text{if } \gamma \geq \gamma_2
\end{cases}
\quad \text{and} \quad
s^* = \begin{cases} 
\frac{1}{3} & \text{if } \gamma \leq \gamma_1 \\
1 - \gamma & \text{if } \gamma \in [\gamma_1, \gamma_2], \\
\frac{\gamma}{1 + 2\gamma} & \text{if } \gamma \geq \gamma_2
\end{cases}
\]

where \( \gamma_1 = \frac{2}{3} \) and \( \gamma_2 = \sqrt{\frac{1}{2}} \).

Proof of Proposition 4. In the game in which the agent can choose between diverting to politics and diverting to corruption, the ruler’s equilibrium payoff is the following:

\[
U^*_R = \begin{cases} 
\frac{4}{27} & \text{if } \gamma \leq \gamma_1 \\
\gamma^2(1 - \gamma) & \text{if } \gamma \in [\gamma_1, \gamma_2], \\
\frac{1}{4(\gamma + 1)} & \text{if } \gamma \geq \gamma_2
\end{cases}
\]

where \( \gamma_1 = \frac{2}{3} \) and \( \gamma_2 = \sqrt{\frac{1}{2}} \). Notice that the ruler’s equilibrium payoff is continuous in \( \gamma \) and is constant in \( \gamma \) for \( \gamma \leq \gamma_1 \) and is decreasing in \( \gamma \) for \( \gamma > \gamma_1 \). To see this, notice that at \( \gamma = \gamma_1 \), we have \( (\gamma_1)^2(1 - \gamma_1) = 4/27 \) and at \( \gamma = \gamma_2 \), we have \( (\gamma_2)^2(1 - \gamma_2) = \frac{1}{4(\gamma_2 + 1)} \). Notice also that the expression \( \frac{d}{d\gamma}(\gamma^2(1 - \gamma)) = \gamma(2 - 3\gamma) \leq 0 \) for any \( \gamma \in [\gamma_1, \gamma_2] \) and that the expression \( \frac{d}{d\gamma}\left(\frac{1}{4(\gamma + 1)}\right) = -\frac{1}{4(\gamma + 1)^2} < 0 \) for any \( \gamma \geq \gamma_2 \). On the other hand, in the politics game, the ruler’s equilibrium payoff is \( U_R = \frac{4}{27} \). Taken together, these arguments imply that the ruler’s equilibrium payoff is (weakly) higher in the politics game than in the game in which the agent can choose between diverting to politics and diverting to corruption.

In the game in which the agent can choose between politics and corruption, the agent’s equilibrium payoff is
\[ U_A^* = \begin{cases} 
\frac{2}{27} & \text{if } \gamma \leq \bar{\gamma}_1 \\
\gamma(1-\gamma)^2 & \text{if } \gamma \in [\bar{\gamma}_1, \bar{\gamma}_2], \\
\frac{\gamma}{4(\gamma+1)^2} & \text{if } \gamma \geq \bar{\gamma}_2 
\end{cases} \]

where \( \bar{\gamma}_1 = \frac{2}{3} \) and \( \bar{\gamma}_2 = \sqrt{\frac{1}{2}} \). Notice that the agent’s equilibrium payoff is continuous in \( \gamma \); the agent’s equilibrium payoff is constant in \( \gamma \) for \( \gamma \leq \bar{\gamma}_1 \), is decreasing in \( \gamma \) for \( \gamma \in [\bar{\gamma}_1, \bar{\gamma}_2] \) and is less than \( \frac{2}{27} \) for \( \gamma \in [\bar{\gamma}_2, 1] \). To see this, notice that at \( \gamma = \bar{\gamma}_1 \), we have \( \gamma(1-\gamma)^2 = \frac{2}{27} \) and at \( \gamma = \bar{\gamma}_2 \), we have \( \gamma(1-\gamma)^2 = \frac{\gamma}{4(\gamma+1)^2} \). Also notice that \( \frac{d}{d\gamma} \left( \gamma(1-\gamma)^2 \right) = 1 - 4\gamma - \gamma^2 < 0 \) for any \( \gamma \in [\bar{\gamma}_1, \bar{\gamma}_2] \) and that \( 1 - \gamma = \frac{\gamma}{2(\gamma+1)} \) for any \( \gamma \in [\bar{\gamma}_2, 1] \) since \( 8\gamma^2 - 11\gamma + 8 > 0 \) for all \( \gamma \in [\bar{\gamma}_2, 1] \). On the other hand, in the politics game, the agent’s equilibrium payoff is \( U_A = \frac{2}{27} \). Taken together, these arguments imply that the agent’s equilibrium payoff is (weakly) higher in the politics game than in the game in which the agent can choose between diverting to politics and diverting to corruption.

Proof of Proposition 5. In the politics game, the equilibrium probability of regime survival is \( p^* = \frac{1}{3} \). On the other hand, in the game in which the agent can choose between politics and corruption, the equilibrium probability of regime survival is

\[ p^* = \begin{cases} 
\frac{1}{3} & \text{if } \gamma \leq \bar{\gamma}_1 \\
1 - \gamma & \text{if } \gamma \in [\bar{\gamma}_1, \bar{\gamma}_2], \\
\frac{1}{2(\gamma+1)} & \text{if } \gamma \geq \bar{\gamma}_2 
\end{cases} \]

where \( \bar{\gamma}_1 = \frac{2}{3} \) and \( \bar{\gamma}_2 = \sqrt{\frac{1}{2}} \). Notice that the equilibrium probability of regime survival is continuous in \( \gamma \) since at \( \gamma = \gamma_1 \), we have \( \frac{1}{3} = 1 - \gamma \) and at \( \gamma = \gamma_2 \), we have \( 1 - \gamma = \frac{1}{2(\gamma+1)} \). Notice also that this equilibrium probability is constant in \( \gamma \) for \( \gamma \leq \bar{\gamma}_1 \) and is decreasing in \( \gamma \) for \( \gamma \geq \bar{\gamma}_1 \) since both \( 1 - \gamma \) and \( \frac{1}{2(\gamma+1)} \) are decreasing in \( \gamma \). Take together, these arguments imply that the equilibrium probability of regime survival is (weakly) higher in the politics game than in the game in which the agent can choose between diverting to politics and diverting to corruption. \( \square \)