Investment Without Democracy:
Ruling-Party Institutionalization and Credible
Commitment in Autocracies*

Scott Gehlbach
University of Wisconsin–Madison and CEFIR, Moscow
E-mail: gehlbach@polisci.wisc.edu

Philip Keefer
The World Bank
E-mail: pkeefer@worldbank.org

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Abstract
What explains private investment in autocracies, where institutions that discourage expropriation in democracies are absent? We argue that institutionalized ruling parties allow autocrats to make credible commitments to investors. Such parties promote investment by solving collective-action problems among a designated elite, who invest with the expectation that the autocrat will not attempt their expropriation. We derive conditions under which autocrats want to create such parties, and predict that private investment and governance will be stronger in their presence. We illustrate the model by examining the institutionalization of the Chinese Communist Party. Cross-national comparisons of non-democracies strongly support the model’s predictions.

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1 Introduction

Between 1990 and 2004, there was no statistically significant difference in private investment between democracies and non-democracies (controlling or not for income per capita). In 2004, for example, private investment in both groups of countries averaged 15 percent of GDP, with 25 percent of non-democracies exhibiting more private investment and faster growth than 75 percent of all democracies. These figures seem to challenge the conventional wisdom that institutions that constrain rulers, especially the checks and balances that characterize democracies, are necessary to stimulate investment and consequently growth.

However, just as democracies vary substantially in the degree to which competitive elections and other institutions discourage rulers from engaging in expropriatory behavior, so do institutions in non-democracies vary in the extent to which they prevent power from being concentrated in the hands of a single individual or ruling clique. What are those institutions? Why are they adopted in some non-democracies but not others? What effects do they have on economic performance? We address these questions, focusing on a largely overlooked institutional arrangement that promotes investment in non-democracies: ruling-party institutionalization. We argue in particular that this institution allows autocratic rulers to make credible commitments by designating a party elite who are expected to invest, and by facilitating collective action by that elite in the event of their expropriation.

At the center of our analysis is a commitment problem common to both democratic and non-democratic rulers. Economic agents invest money, time, and effort only with some assurance that the rewards from their investment will not be expropriated. Once investments are made, however, rulers have an incentive to renege on earlier promises not to expropriate. Two related literatures suggest that democratic institutions that promote collective action by citizens can solve this problem. The first, with origins in the analyses of Barro (1973) and Ferejohn (1986), focuses on how citizens can coordinate in electoral settings to hold democratic leaders accountable. This accountability device is obviously missing in non-democracies. The second, drawing upon the seminal work of North and Weingast (1989) and Greif, Milgrom, and Weingast (1994), more generally shows how collective action can restrain rulers. They and especially Weingast (1997) emphasize the role that democratic institutions play in establishing a consensus about the proper limits of the state, facilitating collective action when those limits are ignored.

Competitive elections are not held in non-democracies. Moreover, in the prototypical non-democracy, autocratic rulers take advantage of weak institutions to defuse collective action through "divide-and-rule" tactics (Acemoglu, Robinson, and Verdier, 2004), with negative consequences for property rights and investment (Guriev and Sonin, 2007). Nonetheless, autocratic leaders sometimes encourage the development of institutions that facilitate collective action among an elite group as a way of credibly promising not to expropriate that

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1 The private investment data come from World Development Indicators; countries are identified as democracies if they are coded in the Database of Political Institutions (Beck, et al. 2001) as having elections in which multiple parties or candidates compete and none receives more than 75 percent of the vote.

2 Fearon (2006) argues that regular elections themselves serve as a focal point in democracies, such that a ruler’s decision to bypass electoral control provokes collective action among the citizenry.

3 Autocracies do often hold controlled elections, but these serve different purposes than the competitive elections of democracies. For analysis, see Magaloni (2006) and Simpser (2006).
group’s members. An important case is the institutionalized ruling party. Members of such parties form a protected class by virtue of their ability to rebel against an overbearing ruler. Consequently, institutionalized ruling parties can promote “investment without democracy.” Prominent historical examples of this strategy include the institutionalization of the Partido Revolucionario Institucional (PRI) in Mexico and the Chinese Communist Party under Deng, though as we show, the phenomenon is much more general.

We argue formally that mechanisms that promote transparency within the party create this capacity for rebellion. Our approach follows Chwe (2001), among others, in stressing the informational foundations of collective action. We provide some support for this assumption in a case study of the Chinese Communist Party, where we show that circumscribed access to information plays a central role in regulation of popular protest. However, our framework is consistent with alternative formalizations of the means by which autocrats manipulate collective action to their advantage (e.g., as described in Lorentzen, 2007), so long as those mechanisms serve to protect party elites but not outsiders.

In our model, mechanisms that promote collective action are necessary, but not sufficient, to restrain ruler expropriation. Leaders subjected to collective action are often able to retain some of the fruits of their expropriatory behavior. If these rents are sufficiently large, e.g., because many citizens have made expropriable investments, then expropriation occurs even if it is sure to trigger collective action. The threat of collective action therefore deters expropriation only if the number of potentially expropriable individuals is great enough to pose a threat to the ruler, yet small enough that the gains from expropriation are less than the costs to the ruler of collective action. An attribute of institutionalized ruling parties is that they satisfy this condition by restricting the size of the party elite and establishing a focal point that cadres should be primarily responsible for investment.

Our case study of the Chinese Communist Party illustrates these arguments. In the period immediately after Mao, Communist Party leaders significantly modified party institutions and the size of the party to give themselves the ability to commit credibly to party elites, who in turn were critical to the increased investment that drove Chinese growth. More generally, we find support for the model’s predictions in the analysis of cross-country data. Investment in non-democracies is greater and governance better when ruling parties are older, our proxy for ruling-party institutionalization. At the same time, ruling-party institutionalization has no robust effect on foreign direct investment, most likely because foreign investors do not benefit from the protection of insiders that institutionalized ruling parties provide.

The arguments here differ in several important ways from those in a growing literature on the political economy of dictatorship. The focus on ruling-party institutionalization as a commitment device shifts attention away from institutions that allow elites to make credible promises to an excluded majority, as in Acemoglu and Robinson (2006) and Desai, Olofsgard, and Yousef (2006), toward those that encourage investment by making intra-elite bargains credible. This emphasis echoes Bueno de Mesquita and Root (2000), Bueno de Mesquita, Morrow, Siverson, and Smith (2003), Haber (2006), and Besley and Kudamatsu (2007), who analyze the choices of an autocrat constrained by an elite group whose capacity for collective action is assumed. In contrast to these contributions, the presence and size of this group are endogenous in our model; we ask when an autocrat would choose to designate such an elite and how large it would be. Our work thus builds on earlier analyses that show why self-interested rulers might encourage the development of institutions that facilitate collective
action, but do not describe the conditions under which those institutions are more or less encompassing.

Gandhi and Przeworski (2006) and Wright (2007) also ask when non-democratic rulers might create institutions as credible constraints on autocratic rule; we model the particular mechanisms by which such institutions actually constrain leaders. Similarly, Acemoglu, Ticchi, and Vindigni (2007) endogenize the creation of a group (the military) that can overthrow the ruler, but in their model the value of this group to the autocrat is to suppress internal opposition rather than to encourage investment. Egorov, Guriev, and Sonin (2006) focus on the role of autocratic institutions in improving government performance through the monitoring of bureaucrats. In contrast, in an extension of our model (provided in the appendix and discussed briefly below), we stress the role of institutionalized ruling parties in assuring bureaucrats that they will be compensated for their effort. Myerson (2008) also considers the problem of credibly rewarding supporters, and like us he emphasizes the role of information among those supporters as key to making rewards credible. His focus, however, is on encouraging the participation of “captains” in a contest for power, rather than eliciting investment and bureaucratic effort.

Other contributions share our emphasis on authoritarian parties. Wintrobe (2000), for example, shows how parties can be used to generate loyalty among some citizens, arguing that this may be more important for “totalitarian,” i.e., power-maximizing, than “tinpot,” i.e., wealth-maximizing, dictators. We demonstrate that parties may actually be useful for wealth maximization. Based on the experience of the Partido Revolucionario Institucional (PRI) in Mexico, both Haber, Razo, and Maurer (2003) and Magaloni (2006) emphasize the historical determination of ruling parties in non-democracies, showing how their role in determining economic performance may be a by-product of ruler strategies for retaining power. Without discounting the importance of historical factors, our analysis stresses instead the choice that rulers have with respect to the degree of institutionalization. This emphasis helps to explain, e.g., the difference between Mexico under Porfírio Díaz and under the PRI, or the change in the Chinese Communist Party from Mao to Deng. Lazarev (2007) does endogenize party rule, developing an optimal promotion contract to show how recruitment into activist positions within the party can be used to encourage bureaucratic effort. The extension of our model to bureaucratic incentives clarifies the role of institutionalized ruling parties in making such contracts credible.

Finally, our empirical analysis is related to a large literature that explores the effects of regime type on cross-country variation in economic performance. In their summary of this literature, Przeworski and Limongi (1993) conclude that no robust evidence supports the assertion that democracies grow faster than non-democracies. Acemoglu, Johnson, Robinson, and Yared (forthcoming) counter that democracy does lead to higher incomes, but that the effect can be identified only if one controls for historical factors that separate democracies that attract private investment from those that are overly distributive and prone to political instability, and so repel investment. We explore the parallel question among non-democracies: to what extent does institutional heterogeneity explain significant differences

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4 Egorov, Guriev, and Sonin (2006) endogenize monitoring capacity by giving the autocrat a discrete choice to allow a free press. Although the purpose of information transmission is different in our setup, our model can be read as a partial generalization of their framework, since in our setting the autocrat may allow information transmission among any fraction of the population.
In private investment across non-democracies?

In the following section, we present the formal analysis that responds to this question. We then illustrate our arguments with a case study of the Chinese Communist Party, following which we test the predictions of the model using cross-country data. We conclude with implications of this work for future research on economic performance in non-democracies.

2 Model and Analysis

We can accept only the division into unofficial information (for the Comintern Executive only) and official information (for everybody).

Vladimir Lenin (1921)

The formal model in this section demonstrates the economic consequences of ruling-party institutionalization, identifies the conditions under which autocrats might try to create such parties, shows how encompassing such parties can be, and explains why not all attempts to create institutionalized ruling parties are successful.

2.1 Environment

Consider a model with two sets of players: an autocrat, and a continuum of identical investors of mass one. Investors are indexed by $i$. At the beginning of the game, the autocrat publicly chooses some subset of investors to be party “cadres,” where $s$ is the fraction of all investors who are chosen to be cadres. Investors who are not chosen to be cadres are “outsiders.” As discussed below, the creation of a cadre class helps investors to overcome collective-action problems by making expropriation common knowledge within the class, and can serve as a focal point that helps investors to coordinate expectations about each others’ actions.

Following the choice of $s$ by the autocrat, each investor $i$ chooses an investment level $e_i \in \{0, \hat{e}, \bar{e}\}$. Investment choices are observed by the autocrat; whether they are observed by other investors is immaterial to the equilibrium outcome of the game. An investment of $e_i = 0$ provides a payoff of zero to both the investor and the autocrat. In contrast, an investment of $e_i = \hat{e}$ produces a benefit to the investor of $\hat{g}$ and to the autocrat of $\hat{h}$. One useful interpretation of $\hat{h}$ is that investment raises the marginal return to labor and, therefore, wages; such wage spillovers may relax an unmodeled political constraint if the autocrat’s power is conditioned on guaranteeing a certain level of well-being to owners of labor. Similarly, an investment of $e_i = \bar{e}$ produces a benefit to the investor of $\bar{g}$ and to the autocrat of $\bar{h}$. An investment of $e_i = 0$ is costless, whereas investments of $\hat{e}$ or $\bar{e}$ cost investors $\hat{c}$ and $\bar{c}$, respectively. We assume $\bar{g} > \hat{g} > 0$, $\bar{h} > \hat{h} > 0$, $\bar{c} > \hat{c} > 0$, and $\bar{g} - \bar{c} > \hat{g} - \hat{c} > 0$. Thus, the efficient level of investment is $\hat{e}$. We denote the mass of cadres and outsiders who choose $e \neq 0$ as $v_c$ and $v_{-c}$, respectively, and define $v = v_c + v_{-c}$.

Following investment choices, the autocrat decides for each investor who has chosen $e_i \neq 0$ whether to expropriate the investor of $\bar{g}$, where $\bar{g} < \hat{g} < \bar{g}$ and $\bar{g}$ is exogenous. The

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5Quoted in Egorov, Guriev, and Sonin (2006).
amount expropriated is assumed the same for large and small investments for analytical convenience: we can thus restrict attention to the mass of cadres and outsiders who are expropriated. At the expense of substantial additional notation, this assumption can be relaxed without affecting our qualitative results.\footnote{In particular, we can assume that large investments are more expropriable than small ones, so long as the expropriability of large investments is not so great that cadres no longer have an incentive to choose high effort \((e_i = \hat{e})\) in the party equilibria that we describe below.} Expropriation of any cadre is observed by all cadres, but not by outsiders. This assumption builds on a substantial literature stressing the informational foundations of collective action and is illustrated below in our case study of the institutionalization of the Chinese Communist Party. In contrast, expropriation of any outsider is observed only by that investor, reflecting the typical practice of expropriation in autocratic states: claims of back taxes are made in an environment of generally poor tax compliance, government officials with control rights over quasi-private enterprises are arbitrarily reassigned to different posts, etc. We denote the mass of cadres and outsiders who are expropriated as \(x_c\) and \(x_{-c}\), respectively, and define \(x \equiv x_c + x_{-c}\).

Investors who are expropriated may choose to contest the expropriation, where \(p_i = 1\) indicates contestation and \(p_i = 0\) indicates acquiescence. To capture the idea that contesting autocratic rule is safer when joined by others, i.e., that there is “strength in numbers,” individuals are assumed to bear a cost of contestation \(d > 0\) if the mass of all investors (cadres and outsiders) who choose \(p_i = 1\) is less than or equal to \(k\), and a cost of zero if more than \(k\) investors choose \(p_i = 1\). If they contest, investors recoup proportion \(1 - q\) of the \(\hat{g}\) seized by the autocrat, where \(q > 0\). However, contestation destroys proportion \(1 - m\) of the investor’s gross private benefit, so that depending on whether \(e_i = \hat{e}\) or \(e_i = \bar{e}\) is chosen, an expropriated investor’s net private benefit after contestation is \(m (\hat{g} - q\hat{g})\) or \(m (\bar{g} - q\bar{g})\); the autocrat retains \(mq\hat{g}\). We assume \(d > m (1 - q) \bar{g}\), so that an expropriated investor chooses to contest, \(p_i = 1\), if and only if he expects more than \(k\) investors to contest expropriation.

We assume in particular that expropriated cadres simultaneously and independently choose whether to contest, following which expropriated outsiders do the same, having observed the mass of cadres who contested. This timing assumption assures that cadres have an incentive to respond to an unexpectedly high level of expropriation—contestation allows cadres to signal their expropriation to outsiders whose participation may be necessary to overcome the threshold \(k\), but who do not observe that expropriation directly—and plausibly captures the means by which information about treatment of party officials is transmitted to the general public.

We make three further assumptions to focus on a region of the parameter space where investment and expropriation choices are non-trivial. First, we restrict attention to the case where \(\hat{g} > \bar{g} - \bar{c}\), which implies \(\tilde{g} > \hat{g} - \hat{c}\). This says that the losses from expropriation are sufficiently large that investors prefer \(e_i = 0\) if they expect expropriation with certainty but do not anticipate sufficient contestation by other investors to justify \(p_i = 1\). Second, we impose the condition

\[
m (\hat{g} - q\hat{g}) - \hat{c} > \max \left[0, m (\bar{g} - q\bar{g}) - \bar{c}\right],
\]

which implies that investors choose moderate effort \(e_i = \hat{e}\) if they expect expropriation and
sufficient contestation by other investors to justify \( p_i = 1. \) Third, we assume that \( mq > k, \) which says that the autocrat’s share of expropriated rents in the event of contestation is sufficiently high that if all investors choose \( e_i \neq 0, \) then the autocrat prefers to expropriate all investors, even though that leads to contestation, rather than to expropriate just enough \((k)\) investors that contestation is avoided. This last assumption captures the idea that there are limits to the vulnerability of non-democratic rulers to collective action, as might be the case if autocrats can protect assets in offshore accounts or escape rebellion by fleeing to a third country. Absent this assumption, the autocrat would always prefer that institutionalized ruling parties be as large as possible, since investment would not need to be restricted to a narrow elite to ensure that the autocrat refrains from expropriation of all investors.

All elements of the game are common knowledge. The timing of events is:

1. Party choice: The autocrat publicly chooses \( s \) investors to be party cadres.
2. Investment: Each investor chooses \( e_i \in \{0, \hat{e}, \bar{e}\}. \)
3. Expropriation: For each investor who has chosen \( e_i \neq 0, \) the autocrat chooses whether to expropriate the investor of \( \tilde{g}, \) where \( \tilde{g} \) is exogenous. The expropriation of cadres is observed by all cadres; the expropriation of any outsider is observed only by that investor.
4. Contestation: Expropriated cadres publicly choose \( p_i \in \{0, 1\}, \) after which expropriated outsiders choose \( p_i \in \{0, 1\}. \)

In the discussion to follow, we use the term expropriation game to refer to the subgame that follows particular party and investment choices, and let \( x_c^*, x_{-c}^*, \) and \( x^* \) refer to the equilibrium choice of \( x_c, x_{-c}, \) and \( x, \) respectively, in this game. For notational convenience, we rely on context to indicate whether other variables represent equilibrium choices.

We begin by defining the equilibrium concept and deriving optimal behavior in the expropriation game. Following that, we prove the existence first of “non-party equilibria” and then of “party equilibria.” In non-party equilibria, investment behavior is independent of party choice by the autocrat, demonstrating that attempts to create institutionalized ruling parties may be unsuccessful if they do not change investors’ expectations about what other investors will do. In party equilibria, in contrast, cadres and outsiders differ in their investment behavior. We derive the party size that is optimal for the autocrat in such equilibria, given the constraint that he not want to expropriate party members ex post. Further, we establish conditions under which the autocrat prefers ruling-party institutionalization to non-party equilibria. Finally, we briefly show that the model can be recast as a game between the autocrat and bureaucrats, where institutionalized ruling parties make credible the autocrat’s promise to provide bonuses in return for bureaucratic effort.

### 2.2 Preliminaries

Optimal party choice and investment behavior depend on expectations of what will happen in the expropriation game, but for many investment choices the expropriation game has multiple

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7. This condition, together with the assumption above that \( \tilde{g} - \hat{e} > \hat{g} - \hat{e} > 0, \) suggests the following interpretation of the discrete investment choice: each investor chooses \( e \in [0, \infty), \) where \( \hat{e} \) maximizes maximizes \( g(e) - c(e) \) and \( \bar{e} \) maximizes \( mg(e) - c(e). \)
equilibria. Contestation is optimal for expropriated investors only if they expect more than \( k \) other investors to contest; these expectations depend in turn on beliefs about how many other investors have been expropriated. Because cadres do not observe the expropriation of outsiders, and outsiders know only whether their own individual investments have been expropriated, multiple beliefs are possible off the equilibrium path, i.e., for observations of expropriation inconsistent with the autocrat’s equilibrium strategy. In addition, even if all expropriated investors believe that more than \( k \) other investors have been expropriated, it is optimal to contest expropriation only if they expect enough other expropriated investors to also do so.

To simplify matters, we focus on a subset of sequential equilibria (Kreps and Wilson, 1982) that restricts actions and beliefs in the expropriation game. In essence, we stack the deck in favor of ruling-party institutionalization by assuming that the autocrat can successfully manipulate collective action. That autocrats may nonetheless prefer not to institutionalize party rule, or may fail to institutionalize even when they want to, is one of the key insights of this paper.

**Definition 1.** An equilibrium is a strategy profile

\[
\sigma = (s, (e_i(s))_{i \in I}, x_c, x_{-c}, (p_i(x_c))_{i \in C}, (p_i(p^c))_{i \in O})
\]

(where \( I, C, \) and \( O \) refer to the set of all investors, expropriated cadres, and expropriated outsiders, respectively) and a set of beliefs \( \mu \) such that:

1. The autocrat selects \( x_c \) cadres and \( x_{-c} \) outsiders at random to expropriate.
2. If \( x_c \neq x_c^* \) (i.e., for observations of \( x_c \) off the equilibrium path), cadres believe with probability one that \( x_{-c} = x_{-c}^* \)
3. Each expropriated cadre chooses \( p_i = 1 \) if and only if \( x_c > k - x_{-c}^* \). If \( x_{-c}^* > 0 \), each expropriated outsider \( i \) chooses \( p_i = 1 \) if and only if \( p^c > k - x_{-c}^* \), where \( p^c \) is the mass of cadres who chose \( p_i = 1 \).
4. The assessment \((\sigma, \mu)\) is sequentially rational and consistent.

Condition 4 is simply the definition of sequential equilibrium. Condition 1 simplifies the analysis so that we need only specify beliefs about how many cadres and outsiders are expropriated. Note in particular that Condition 1 implies that if \( x_{-c}^* > 0 \), then for any outsiders who have chosen \( e_i \neq 0 \), all observations of expropriation are on the equilibrium path: because any investor who has chosen \( e_i \neq 0 \) is expropriated with positive probability when \( x_{-c} = x_{-c}^* \), their expropriation is consistent with the belief that the autocrat has chosen \( x_{-c} = x_{-c}^* \), regardless of the actual \( x_{-c} \) chosen.

Condition 2 says that cadres do not change their beliefs about the expropriation of outsiders if they observe an \( x_c \) different than they expect. This condition is “neutral” in the sense that it requires that cadres adjust their beliefs neither upward nor downward about the level of expropriation of outsiders (which they do not observe) in response to an unexpectedly high or low level of expropriation of cadres.

Condition 3 focuses on equilibria in which expropriated investors coordinate on contestation when that is optimal, on and off the equilibrium path. To see that this behavior is sequentially rational, consider the choices of cadres and outsiders:
Proof. Assume otherwise, i.e., assume that there is an equilibrium sider investors.

Lemma 1. In any equilibrium of the expropriation game, the autocrat expropriates all out-

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contestation behavior. As a consequence, in any equilibrium of the expropriation game the expropriation of outsiders is only privately observed, the autocrat can deviate from some action (here and often in the discussion below, we use the term “collective action” to refer to the case where expropriated investors coordinate on pi = 1). However, because the expropriation of outsiders is only privately observed, the autocrat can deviate from some x∗ such that x∗c < v−c to some x such that xc = x∗c and x−c > x∗−c without changing investors’ contestation behavior. As a consequence, in any equilibrium of the expropriation game the autocrat expropriates all outsiders.

Definition 1 does not pin down the contestation choice of expropriated outsiders off the equilibrium path when x∗−c = 0 (i.e., when the autocrat unexpectedly expropriates some outsider). We return to this case in the proof to Lemma 1.

Given the definition of equilibrium, in certain cases the autocrat can credibly commit not to expropriate all party cadres: expropriation of cadres is observed by other cadres, so that cadres might react to an unexpectedly high level of expropriation by joining in collective action (here and often in the discussion below, we use the term “collective action” to refer to the case where expropriated investors coordinate on pi = 1). However, because the expropriation of outsiders is only privately observed, the autocrat can deviate from some x∗ without changing investors’ contestation behavior. As a consequence, in any equilibrium of the expropriation game the autocrat expropriates all outsiders.

Lemma 1. In any equilibrium of the expropriation game, the autocrat expropriates all out-

sider investors.

Proof. Assume otherwise, i.e., assume that there is an equilibrium x∗ such that x∗−c < v−c. Consider the following three mutually exclusive and exhaustive cases:

1. x∗−c = 0 and x∗ ≤ k: By Definition 1, each expropriated cadre chooses pi = 0, so that p∗ = 0. By Definition 1, each expropriated outsider therefore also chooses pi = 0. The autocrat therefore gains x∗ g from expropriation. Now consider a deviation to some x such that xc = x∗c and x−c > x∗−c. Because xc is unchanged, by Definition 1 all expropriated investors choose pi = 0 as before. Thus, the autocrat gains x∗ g from expropriation, so that this is a profitable deviation.

2. x∗−c = 0 and x∗ > k: By Definition 1, each expropriated cadre chooses pi = 1, so that p∗ = x∗c. By Definition 1, each expropriated outsider therefore also chooses pi = 1. The autocrat therefore gains mQx∗ g from expropriation. Now consider a deviation to some x such that xc = x∗c and x−c > x∗−c. Because xc is unchanged, by Definition 1 all expropriated investors choose pi = 1 as before. Thus, the autocrat gains mQx∗ g from expropriation, so that this is a profitable deviation.

3. x∗−c = 0: By Definition 1, each expropriated cadre chooses pi = 1 if and only if x∗c > k, yielding gains from expropriation of x∗ g if cadres do not contest and mQx∗ g if they do. Now consider a deviation to some x such that xc = x∗c and x−c > 0. Because xc is unchanged, by Definition 1 expropriated cadres choose pi as before, yielding gains from expropriation of cadres as in equilibrium. To show that this is a profitable deviation, we therefore need only show that there are positive gains from expropriation of outsiders.
Let \( \pi \) be the proportion of expropriated outsiders who choose \( p_i = 0 \). Then the gain from expropriation of outsiders is \( \pi x_{-c} \tilde{g} + (1 - \pi) mq x_{-c} \tilde{g} > 0 \). Thus, this is a profitable deviation.

Q.E.D.

Although stark, Lemma 1 captures the general intuition that autocrats have greater incentive to expropriate outsiders than insiders. If the autocrat refrains from expropriation of all investors, it must therefore be because he refrains from expropriation of all cadres. Such restraint can only be optimal for the autocrat if, first, the mass of all investors who have chosen \( e_i \neq 0 \) and could be expropriated is greater than the threshold required for collective action, and second, the mass of outside investors who have chosen \( e_i \neq 0 \) and who will, by Lemma 1 be expropriated—is sufficiently low that the autocrat can prevent collective action if he refrains from expropriating some cadre investors. As the following lemma establishes, this condition implies autocrat restraint so long as what the autocrat retains in the event of expropriation of all investors and collective action \((mq \tilde{g})\) is small relative to what he retains by expropriating just enough investors to avoid provoking collective action \((k \tilde{g})\).

**Lemma 2.** The equilibrium of the expropriation game is as follows:

1. if \( v \leq k \), then the autocrat expropriates all investors, and all investors choose \( p_i = 0 \).
2. if \( v_{-c} > k \), then the autocrat expropriates all investors, and all investors choose \( p_i = 1 \).
3. if \( v > k \) and \( v_{-c} \leq k \), then:
   
   (a) if \( v < k/mq \), the autocrat expropriates all outsiders and \( k - v_{-c} \) cadres, and all investors choose \( p_i = 0 \);
   
   (b) if \( v \geq k/mq \), then the autocrat expropriates all investors, and all investors choose \( p_i = 1 \); and
   
   (c) if \( v = k/mq \), then either the autocrat expropriates all outsiders and \( k - v_{-c} \) cadres, and all investors choose \( p_i = 0 \), or the autocrat expropriates all investors, and all investors choose \( p_i = 1 \).

**Proof.** Consider each case in turn:

1. Because \( v \leq k \), for any level of expropriation investors choose \( p_i = 0 \). Consequently, the autocrat’s best response is to expropriate all investors.
2. By Lemma 1, in any equilibrium the autocrat expropriates all outsiders, so by Condition 3 of Definition 1 all expropriated investors choose \( p_i = 1 \) regardless of \( x_c \). Thus, the autocrat’s optimal choice is to expropriate all cadres as well all outsider investors.
3. First note that there is no equilibrium in which \( x^* < k \) or \( k < x^* < v \). In the first case, where the mass of expropriated investors is strictly less than the threshold at which expropriated investors choose to contest, the autocrat can increase \( x \) without triggering collective action. In the second case, where the level of expropriation is large enough to trigger collective action but less than the total mass of investors who have chosen \( e_i \neq 0 \), the autocrat can increase the gains from expropriation by choosing a higher \( x \). Thus, in any equilibrium either \( x^* = k \), which given Lemma 1 implies \((x^*_c, x^*_{-c}) = (k - v_{-c}, v_{-c})\), or \( x^* = v \). Consider each possibility in turn:
(a) \((x^*_c, x^*_{-c}) = (k - v_{-c}, v_{-c})\), which implies that all expropriated investors choose \(p_i = 0\) and the autocrat receives a payoff of \(k \tilde{g}\). By an argument analogous to that just above, the best possible deviation is to \(x = v\), which implies that all expropriated investors choose \(p_i = 1\) (by Definition 1, cadres contest because \(x_c > k - x^*_c\), so that \(p^c > k - x^*_c\), prompting outsiders to contest) and the autocrat receives a payoff of \(mqv \tilde{g}\). This deviation is not profitable if \(k \tilde{g} \geq mqv \tilde{g}\), or \(v \leq \frac{k}{mq}\).

(b) \(x^* = v\), which implies that all expropriated investors choose \(p_i = 1\) and the autocrat receives a payoff of \(mqv \tilde{g}\). The best possible deviation is to \((x_c, x_{-c}) = (k - v_{-c}, v_{-c})\), which implies that all expropriated investors choose \(p_i = 0\) (by Definition 1, cadres do not contest because \(x_c = k - x^*_c\), so that \(p^c \leq k - x^*_c\), prompting outsiders not to contest) and the autocrat receives a payoff of \(k \tilde{g}\). This deviation is not profitable if \(v \geq \frac{k}{mq}\).

Q.E.D.

Together, Lemmas 1 and 2 illustrate the self-enforcing nature of institutions that facilitate information transition among party insiders. Were the autocrat to remove such institutions, then “cadres” would know that they have become “outsiders” and would be expropriated. This in turn would provoke collective action if the mass of investors who chose \(e_i \neq 0\) were sufficiently large. As we show below, disbanding these institutions is not optimal for the autocrat in the “party equilibria” in which the autocrat creates the formal institutions of an institutionalized ruling party and investors respond to this choice. Paradoxically, the only way the autocrat can prevent collective action is by maintaining the institutions that facilitate it among cadres.

2.3 Non-party equilibria

The equilibrium behavior in the expropriation game specified in Lemma 2 determines the payoff to an investor, conditional on his own investment choice and those of other investors. For any investor, the optimal investment choice depends on how many other cadres and outsiders he expects will choose \(e_i \neq 0\). Here we demonstrate the possibility that the party chosen by the autocrat need not coordinate these expectations. In the “non-party equilibria” that we describe, party members enjoy access to information that facilitates collective action, but ruling-party institutionalization nevertheless falls short because of the absence of appropriate expectations regarding who should and should not invest. The creation of formal party institutions is therefore insufficient for ruling-party institutionalization, offering an explanation for why attempts to create such parties may sometimes fail.

Our first proposition establishes that there are “full coordination failure” equilibria, in which each investor chooses \(e_i = 0\), expecting all other investors to do so. In this equilibrium, each investor anticipates that deviation to some \(e_i \neq 0\) would result in his expropriation and, with no other investors having chosen \(e_i \neq 0\), that contestation would be prohibitively costly.

**Proposition 1.** *There exist equilibria in which all investors choose \(e_i = 0\), regardless of the party chosen by the autocrat.*
Proof. In any such equilibrium, each investor receives a payoff of zero. By Lemma 2, a deviation by any investor \( i \) to some \( e_i \neq 0 \) results in that investor’s expropriation, with the investor choosing \( p_i = 0 \). Thus, deviating to \( e_i \neq \hat{e} \) gives a payoff of \(-c < 0\), and deviating to \( e_i = \bar{e} \) gives a payoff of \(-\bar{c} < 0\).

Q.E.D.

In Proposition 1, fear of expropriation prevents any investment. In addition, for any party choice by the autocrat, there is an equilibrium in which all investors undertake moderate investment, understanding that they will be expropriated but reassured that there will be sufficient strength in numbers to contest that expropriation.

**Proposition 2.** There exist equilibria in which all investors choose \( e_i = \hat{e} \), the autocrat expropriates all investors, and all investors choose \( p_i = 1 \), regardless of the party chosen by the autocrat.

Proof. To show that such equilibria exist for any choice of party by the autocrat, consider the following two cases:

1. The autocrat names a party of size \( s < 1 - k \). Then \( v_{-c} > k \), and by Lemma 2 the autocrat expropriates all investors and all investors choose \( p_i = 1 \). The payoff to any investor is then \( m (\hat{g} - q\tilde{g}) - \hat{c} \). In contrast, if any investor \( i \) deviated to \( e_i = 0 \), he would receive a payoff of zero, which by assumption is less than \( m (\hat{g} - q\tilde{g}) - \hat{c} \). Further, if any investor \( i \) deviated to \( e_i = \bar{e} \), then the autocrat would still expropriate all investors and the investor would choose \( p_i = 1 \), giving a payoff of \( m (\hat{g} - q\tilde{g}) - \hat{c} \), which by assumption is less than \( m (\hat{g} - q\tilde{g}) - \hat{c} \).

2. The autocrat names a party of size \( s \geq 1 - k \). Then \( v > k \) and \( v_{-c} \leq k \), and by Lemma 2 it is an equilibrium of the expropriation game for the autocrat to expropriate all investors, and for all investors \( i \) to choose \( p_i = 1 \), if \( mq > k \), which is an assumption of the model. Then by the argument in the previous case, no investor has an incentive to deviate to some \( e_i \neq \hat{e} \).

Q.E.D.

In contrast, there are no equilibria in which all investors choose \( e_i = \bar{e} \). By assumption, the cost of \( \bar{e} \) is justified only if an investor expects not to be expropriated (more precisely, expects to be expropriated with sufficiently low probability). But it is optimal for the autocrat to expropriate all investors if they all choose \( e_i \neq 0 \), even though this leads to contestation.

**Proposition 3.** There are no equilibria in which all investors choose \( e_i = \bar{e} \).

Proof. By an argument analogous to that in Proposition 2, if all investors choose \( e_i = \bar{e} \) the autocrat expropriates all investors and all investors choose \( p_i = 1 \), giving a payoff to any investor of \( m (\hat{g} - q\tilde{g}) - \bar{c} \). But then any investor could profitably deviate to \( e_i = \hat{e} \) and receive a payoff of \( m (\hat{g} - q\tilde{g}) - \hat{c} \), which by assumption is greater than \( m (\hat{g} - q\tilde{g}) - \bar{c} \). Q.E.D.
2.4 Party equilibria

Propositions 1 and 2 describe equilibria in which parties are not fully institutionalized, in the sense that they fail to focus the expectations of investors about who should and should not invest. Without institutionalization, moderate but not high investment is possible, as in Proposition 2, where the expectation that expropriation will be contested is sufficient to justify $e = \hat{e}$ but not $e = \bar{e}$ for all investors. Other equilibria exist, however, in which the division of the investor population into a privileged and non-privileged class establishes a focal point, such that cadres choose high investment $e_i = \bar{e}$ and outsiders choose $e_i = 0$. In these “party equilibria,” the autocrat’s promise not to expropriate cadres is made credible by the decision of outsiders not to invest.

In constructing equilibria in which the autocrat’s party choice focuses investor expectations, we must also specify what investors would do if the autocrat chooses a party (i.e., $s$) different than anticipated, as this determines the optimality of the autocrat’s equilibrium party choice. In considering this play off the equilibrium path, we consider two polar cases, corresponding to the non-party equilibria of Propositions 1 and 2: all investors choose $e_i = 0$, or all investors choose moderate investment $e_i = \hat{e}$. In the first case, the autocrat is trivially better off with an institutionalized ruling party than without. Nonetheless, institutionalized ruling parties cannot be arbitrarily large. Rather, on the equilibrium path, any party equilibrium must satisfy an “expropriation constraint”: the autocrat must prefer expropriation of $k$ (randomly selected) cadres without collective action to expropriation of all cadres and collective action. This implies in particular that parties must be sufficiently small for expropriation of all cadres to be unattractive. Because the autocrat benefits from additional investment even when his gains from expropriation are capped (i.e., because $\bar{h} > 0$), we focus on equilibria with the largest party (and hence greatest investment) that satisfies this constraint.

**Proposition 4.** There exists an equilibrium in which

1. the autocrat chooses a party of size $s = \frac{k}{mq}$;
2. cadres choose $e_i = \bar{e}$ if $s = \frac{k}{mq}$, and $e_i = 0$ otherwise; and
3. outsiders choose $e_i = 0$ regardless of $s$.

In this equilibrium, the autocrat expropriates $k$ of $\frac{k}{mq}$ cadres and all expropriated cadres choose $p_i = 0$.

**Proof.** The optimality of investment behavior off the equilibrium path, i.e., for observations of $s \neq \frac{k}{mq}$, follows the proof to Proposition 1. To show that investment behavior is rational on the equilibrium path, consider cadres and outsiders in turn:

1. Given the strategies in the proposition, $v = s > k$, $v_{-c} = 0 < k$, and $v = \frac{k}{mq}$. Thus, by Lemma 2 it is an equilibrium of the expropriation game for the autocrat to expropriate $k$ of $\frac{k}{mq}$ cadres and for all cadres to choose $p_i = 0$. The probability that any cadre is expropriated is therefore $\frac{k}{s} = mq$, so that the payoff for cadres in equilibrium is $\hat{g} - mq\hat{g} - \hat{c}$. This is greater than the payoff from deviating to $e_i = \hat{e}$, which is $\hat{g} - mq\hat{g} - \hat{c}$, which in turn is greater than zero (the payoff from $e_i = 0$) given that $m(\hat{g} - q\hat{g}) - \hat{c} > 0$, which is an assumption of the model.
2. The payoff to any outsider in equilibrium is zero. If instead some outsider \( i \) deviated by choosing \( e_i \neq 0 \), then by Lemma 1 that outsider would be expropriated and by Lemma 2 it would (still) be an equilibrium of the expropriation game for the autocrat to expropriate \( k \) of \( \frac{k}{mq} \) cadres and for all investors to choose \( p_i = 0 \). (Note that the deviating outsider has mass zero, so the mass of expropriated investors is unaffected by the outsider’s deviation.) The payoff from deviation is thus \( -\hat{c} \) (if the deviation is to \( e_i = \hat{e} \)) or \( -\bar{c} \) (if the deviation is to \( e_i = \bar{e} \)), both of which are less than zero.

\[ Q.E.D. \]

In this equilibrium, parties are larger when collective action is difficult (\( k \) is large), costly (\( m \) is small), and effective (\( q \) is small). With respect to \( k \), anecdotal evidence suggests that in some autocracies ruling parties have indeed been smaller during periods when the regime was particularly vulnerable to collective action by a few individuals (i.e., when \( k \) was small). In China, for example, plans to permit members of the private sector to enter the Communist Party were shelved following the demonstrations at Tiananmen Square, and not resurrected until Jiang Zemin announced in July 2001 that private entrepreneurs would be allowed to join the party (Huang, 2003, pp. 130–31). Similarly, the Czechoslovak Communist Party shrank drastically following the Warsaw Pact intervention in 1968 (Gawdiak, 1987), while the ebbs and flows of party membership under Stalin seem to have followed the perception of threats against the regime (Gregory, Schröder, and Sonin, 2006).

A small \( mq \), on the other hand, raises the cost to the autocrat of collective action, and so increases the credibility of his promise not to expropriate cadres. In particular, \( m \) might be smaller in economies that are more capital-intensive: political instability poses a greater threat to the complex economic relations of capitalist economies than to the relatively simple relations of agrarian economies.

The next proposition assumes that all investors respond to an unexpected choice of \( s \) by choosing \( e_i = \hat{e} \) rather than \( e_i = 0 \). In this case, for the autocrat to want to create an institutionalized ruling party, the payoff to the autocrat from expropriation of \( k \) (randomly selected) cadres, each of whom chooses \( e_i = \bar{e} \) and none of whom contest expropriation, must be greater than expropriation of all investors, each of whom chooses \( e_i = \hat{e} \) and all of whom contest expropriation.

**Proposition 5.** If \( \frac{k}{mq} \bar{h} - \hat{h} \geq (mq - k) \tilde{g} \), then there exists an equilibrium in which

1. the autocrat chooses a party of size \( s = \frac{k}{mq} \);
2. cadres choose \( e_i = \bar{e} \) if \( s = \frac{k}{mq} \), and \( e_i = \hat{e} \) otherwise; and
3. outsiders choose \( e_i = 0 \) if \( s = \frac{k}{mq} \), and \( e_i = \hat{e} \) otherwise.

In this equilibrium, the autocrat expropriates \( k \) of \( \frac{k}{mq} \) cadres and all expropriated cadres choose \( p_i = 0 \).

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8 Although the latter examples do not neatly fit our baseline model of party institutionalization as a way of promoting private investment, they are consistent with the idea that institutionalization may also function as a way of encouraging bureaucratic effort, an extension to the model that we provide in the appendix and sketch below. This alternative formulation produces identical comparative statics with respect to party size.
Proof. The optimality of investment behavior follows the proof to Proposition 4. To see that
\[ s = \frac{k}{mq} \]
is optimal for the autocrat, observe that in equilibrium the autocrat’s payoff is
\[ k\tilde{g} + \frac{k}{mq}\bar{h}, \]  
where the first term is the gains from expropriation of \( k \) cadres, and the second is the benefit to the autocrat of high investment by all \( \frac{k}{mq} \) cadres. In contrast, if the autocrat deviates to some \( s \neq \frac{k}{mq} \), then all investors choose \( e_i = \hat{e} \), the autocrat expropriates all investors, and all investors choose \( p_i = 1 \), for a payoff to the autocrat of
\[ mq\tilde{g} + \hat{h}. \]  
Comparing Expressions 2 and 3 and simplifying gives the premise of the proposition.  \( Q.E.D. \)

The premise of the proposition has an intuitive interpretation: the benefit to the autocrat of high investment must be large relative to the sacrificed gains from expropriation to justify building a party that protects cadres from expropriation. Recalling our earlier interpretation of \( \bar{h} \) and \( \hat{h} \) as the political impact of wage spillovers, we might expect \( \bar{h} \) to be large relative to \( \hat{h} \) when increasing wages through investment is the least costly way of maintaining popular support. In particular, autocrats whose ability to repress popular uprisings is less, or who cannot rely on foreign aid and resource rents to guarantee popular support, may be more inclined to try to create institutionalized ruling parties. This effect is magnified to the extent that large institutionalized ruling parties can be created, which as discussed above is the case when collective action is difficult (\( k \) is large), costly (\( m \) is small), and effective (\( q \) is small). In particular, social fractionalization may affect citizens’ ability to overcome their collective-action problems, a point to which we return in the empirical section below. The same conditions guarantee that the autocrat does not sacrifice too much by partially expropriating cadres rather than expropriating all investors.

The prediction that autocrats will be less likely to institutionalize party rule when they can more cheaply maintain control by preventing popular revolt through force suggests an instrumentation strategy for the cross-dictatorship empirical work that we report below. Intuitively, dictators who comes to power with the backing of the military may be in less need of institutionalized ruling parties to promote investment and thus ensure popular support. We therefore use control of government by a military officer at the beginning of a non-democratic episode as an instrument for age of the ruling party, the proxy for ruling-party institutionalization that we introduce below. As we show there, control by a military officer is indeed strongly and negatively correlated with this proxy after controlling for other regime and country characteristics.

With respect to the sacrificed gains from expropriation, the opportunity cost to the autocrat of protecting cadres from expropriation is greater when the share of the private benefit that is potentially expropriable (\( \tilde{g} \)) is large. Because resource extraction is particularly easy for state authorities to monitor, institutionalized ruling parties may therefore be less likely in resource-rich states. More generally, economic structure may affect the incentives to create institutionalized ruling parties, as certain economic sectors, including services and
small business, are particularly hard to tax and expropriate (e.g., Gehlbach, 2006). Further, expropriation may be more difficult when investors are exporters who can more easily send profits abroad. To the extent that this is the case, globalization may encourage the development of institutionalized ruling parties in nondemocratic states.

Together, Propositions 4 and 5 suggest that investment should in general be higher in the presence of institutionalized ruling parties. To see this, consider two types of countries. In the first type, corresponding to Propositions 1 and 4, no one invests in the absence of ruling-party institutionalization; institutionalization then unambiguously increases investment. In the second type, corresponding to Propositions 2 and 5, a broad group of investors invests at a low level in the absence of institutionalization; institutionalization then reduces the fraction of individuals who invest while increasing the level at which those remaining do so. The second effect dominates the first so long as the benefits of investment to the investor and autocrat are roughly proportional to each other, i.e., so long as \( \hat{g} \approx f \hat{h} \) and \( \bar{g} \approx f \bar{h} \), where \( f > 0 \). To see this, assume that these relationships hold precisely. Then the premise of Proposition 5, \( \frac{k}{mq} \bar{h} - \hat{h} \geq (mq - k) \hat{g} \), implies \( \frac{k}{mq} \bar{g} - \hat{g} > \frac{(mq - k)}{f} \hat{g} > 0 \), which says that investment with institutionalization (\( \frac{k}{mq} \bar{g} \)) is greater than investment without (\( \hat{g} \)).

The conditions for autocrats to create institutionalized ruling parties generally coincide with the conditions for democratization identified, e.g., by Boix (2003) and Acemoglu and Robinson (2006). A key prediction of such models is that democracy is more likely when economic structure and globalization limit the incentives of non-elites to tax elite assets, i.e., when elites are harder to “expropriate.” In our model, an autocrat also similarly decide whether to create an institution (an institutionalized ruling party) that “expands the franchise.” As we have shown, however, this decision is more likely when non-elites have fewer assets to expropriate, as then the opportunity cost of creating such institutions is smaller. The rationale for creating an institutionalized ruling party is also different than for democratization: autocrats use institutionalized ruling parties to elicit investment or bureaucratic effort rather than to avert revolution. Finally, the institutional arrangements that solve credibility problems in the democratization literature are distinct from those we analyze: the former emphasize electoral institutions, whereas we focus on institutions that mitigate collective-action problems among a more limited group of citizens.

The model here is “static,” in the sense that actions are taken only once, and thus abstracts from the consequences of capital accumulation on autocratic behavior. At some level, this issue is implicit in all models of self-enforcing property-rights protection: pressure to expropriate increases as capital accumulates. Our theoretical framework demonstrates the potential consequences of this dynamic for property-rights protection in autocracies: in a fully dynamic model, the largest party that satisfies the expropriation constraint (the requirement that the autocrat prefer partial expropriation of cadres and no collective action to expropriation of all cadres and collective action) would be smaller, the less that capital depreciates from one period to the next. To the extent that depreciation rates differ across sectors, this further underscores the role that economic structure may play in determining ruling-party institutionalization.

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9 Consistent with this hypothesized relationship, the value-added of services as a fraction of GDP is significantly, positively associated among non-democratic episodes with the proxy for ruling-party institutionalization that we discuss below, a correlation that is not explained by differences in income per capita.
It is important, finally, to emphasize that our focus on a specific obstacle to collective action, information, captures key elements of autocratic behavior from which other analyses abstract. As the earlier quote from Lenin illustrates, the manipulation of information available to party insiders and outsiders is a crucial means by which autocrats both facilitate and prevent collective action. The Chinese case, which we discuss below, provides a further demonstration of this. At the same time, autocrats may also manipulate collective action through other mechanisms. To the extent that those mechanisms serve to protect party cadres but not others, as in Lemmas 1 and 2, our key arguments should hold.

Similarly, we might retain the informational perspective but assume that each investor receives a private signal about the threshold $k$ at which collective action becomes optimal. Such a “global games” approach (Carlsson and van Damme, 1993; Morris and Shin, 2003) would be complicated by our partitioning of the population into cadres and outsiders (each of whom may contribute to overcoming the threshold $k$ but who face different collective-action problems), as well as by the multiplicity of decisions made by investors (investment and contestation, each of which may reveal information about $k$). Nonetheless, Lemma 1 would continue to hold—as in the proof above, the autocrat could always deviate to a higher expropriation of outsiders without changing investors’ contestation behavior—suggesting that other results in the paper may also generalize.

### 2.5 Credible bonus schemes

Just as non-democracies vary substantially with respect to private investment, so also do they vary with respect to bureaucratic performance. Ruling-party institutionalization may help to explain these differences. In the appendix, we show that the model can be extended to incorporate incentives in bureaucracies. Here, we sketch that extension.

Formally, consider a population of bureaucrats, analogous to the investors of the baseline model. At the beginning of the game, the autocrat names a bonus $b \in [0, \infty)$, which he promises to provide in return for effort $e_i \neq 0$. Implicitly, this formulation captures an environment in which the autocrat observes whether or not a bureaucrat has exerted effort, but not whether he has exerted “moderate” ($e_i = \hat{e}$) or “high” ($e_i = \bar{e}$) effort. The autocrat may renege on his promise to provide the bonus in return for $e_i \neq 0$, though that decision is contestable as in the baseline model. Effort is costly, but provides a private rent to the bureaucrat that partially offsets that cost; contestation destroys some of that rent.

For a bureaucrat to exert high effort, a participation constraint must be satisfied (so that the bureaucrat prefers $e_i \neq 0$ to $e_i = 0$), as well as an incentive-compatibility constraint (so that the bureaucrat prefers $e_i = \bar{e}$ to $e_i = \hat{e}$). Contestation (i.e., choosing $p_i = 1$ following expropriation) helps to satisfy the participation constraint by forcing the autocrat to provide the promised bonus. However, because contestation is costly, and in particular because it destroys some of the private rent from effort, the incentive-compatibility constraint is violated in equilibria (such as the non-party equilibrium of Proposition 2) where investors contest expropriation. Thus, when contestation is anticipated, bureaucrats never provide high effort. Institutionalized ruling parties induce high effort among cadres by satisfying the participation constraint without violating the incentive-compatibility constraint. The routinization of rewards—secured by the threat but not practice of collective action, as in Propositions 4 and 5—provides cadres with the assurance that they will be compensated for.
their effort without having to fight for that compensation. With that assurance, they and only they exert maximal effort.

While this extension appears to abstract from the autocratic leader’s private investment problem, bureaucratic effort is essential for private investment. Outside of the stylized world in which rulers and governments are the same, rulers must rely on government officials to implement their decisions. If those decisions include greater private investment, then rulers must rely on officials to provide public goods, refrain from corruption, and otherwise create conditions to attract that investment. The extension of the model to credible bonus schemes points to ruling party institutionalization as a key vehicle through which rulers could persuade officials to exert such effort.

3 Implications of the analysis

The analysis presented in the previous section predicts that non-democracies should exhibit higher levels of private investment and bureaucratic effort when ruling parties are institutionalized. In this section, we illustrate the role of party institutionalization in promoting investment in post-Mao China, focusing on the particular mechanisms by which that institutionalization took place, following which we use cross-country data to test the prediction that ruling-party institutionalization increases private investment and bureaucratic effort.

3.1 Party institutionalization and growth in China

Among economically successful autocracies, China’s experience is perhaps most remarkable and has attracted correspondingly great attention from researchers. Though we obviously do not claim to offer a complete understanding of the China growth miracle, the Chinese case does illustrate many features of our theoretical analysis. This is especially true of the boom in investment in township and village enterprises (TVEs) in the 1980s, the initial trigger of Chinese growth and the focus of substantial subsequent investigation.

Our baseline model offers an explanation of these cadre-controlled investments. In our interpretation, cadres invested in TVEs rather than diverting TVE returns to dividends and consumption because of changes in party institutions after Mao’s death. These lowered the costs of collective action for a chosen elite, including the barriers to information transmission emphasized by our analysis, and also coordinated expectations among cadres and outsiders regarding investment. These institutional changes encouraged cadres to (re-)invest in TVEs without fear that the resulting profits would be taxed away or otherwise expropriated.

From 1952–1980, average individual incomes in China increased by less than 2.5 percent per year; growth tripled in the years that followed (Shirk, 1993, p. 28). The proximate cause of Chinese success was a sea change in economic policies that allowed private production in agriculture and industry where, before, private activity was entirely forbidden. Farm households were allowed to be the residual claimants of production on their collectively owned plots; to invest profits in farm machinery, trucks, industrial equipment; and to engage in private marketing and manufacturing. Collectively-owned township and village enterprises could be leased to individuals and groups (Shirk, 1993, p. 38). Rural investment loomed large: private firms in the rural sector accounted for 19 percent of total fixed asset investment in
the 1980s and TVEs, another 13 percent (Huang, forthcoming). The central government also decentralized the administration of foreign trade and investment, allowing localities to deal directly with foreign interests.

These changes unleashed unprecedented investment and growth. Most of this investment was initially the product of decisions by local officials, who were the residual claimants of TVE profits and so correspond to the private investors in our model. As Oi (1999, p. 25) observes, TVEs were usually contracted out by town and village governments to private managers, but local governments and the party officials who ran them retained control of personnel, investments, and product lines. Whiting (2006a, p. 204) writes: “Indeed, township officials themselves approved the number of employees and the total wage bill of each enterprise.” They had legal control of TVE assets, including the ability to influence directly management decisions to borrow, to invest, and to issue dividends. They could influence as well whether the dividends flowed to local government coffers, to managers, to employees, or to themselves and family members.

Why, though, did cadres use retained earnings and loans from state-owned banks to make investments in TVEs rather than distribute them in the form of earnings to local workers, or as dividends to benefit themselves, family members, or the local population? They enjoyed no formal institutional guarantees that higher-level governments would not dramatically increase taxes on the future fruits of these investments; nor did they have any formal guarantees that they themselves would continue to be the residual claimants on TVE profits.

One influential set of explanations center points to a variant of federalism as the explanation for TVE investment (e.g., Che and Qian, 1998a,b; Qian and Weingast, 1996; Montinola, Qian, and Weingast, 1996). The central government encouraged local governments to invest in TVEs by implementing fiscal reforms in 1980 that allowed them to keep all revenues above a pre-set amount. It then reduced risks of expropriation (higher taxes) by transferring to local officials the responsibility for financing and providing local public goods. Che and Qian (1998a,b) argue that these two reforms, in tandem, were credible because local, provincial, and central governments had similar incentives with regard to the provision of local public goods such as roads and—especially—the maintenance of order. Consequently, the central government had little incentive to raise taxes opportunistically. This strategy could not have worked with private investors because they did not have the same interests as local governments with respect to local public goods.

Two developments suggest that these reforms do not fully explain the credibility puzzle in China. First, there has actually been significant conflict between local and central governments regarding local public good provision. If the governments’ interests were aligned with respect to spending on public goods, the central government would not have needed to specify promotion and bonus criteria that required local officials to provide them. Even in the early 1980s, though, these agreements emphasized the provision of education and the maintenance of social order. Second, the fiscal reforms of the 1980s did not last long: they

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10 Cai and Treisman (2006) also revisit the role of decentralization in China’s economic success.
11 Conflicts between local and central government interests have had especially high visibility since the 1990s. For example, local officials have increased social disorder by selling off collectively-owned land without fully compensating farmers for their usufruct rights, and by allowing local firms to ignore environmental restrictions.
were reversed in the early 1990s when it became clear that they sharply reduced central-government revenues (Wong, 1992).

Ruling-party institutionalization offers an alternative explanation for cadre investments in the 1980s. Under Mao—when China grew slowly—there were large obstacles to collective action and the party offered no protection from depredations by party leaders. “Mao Zedong attempted to sustain his revolutionary charisma and stem the trend of institutionalization . . . by launching mass campaigns such as the Great Leap Forward and the Cultural Revolution” (Shirk, 1993, p. 8). In terms of our theoretical perspective, Mao actively discouraged coordination among party members. Those who appeared to be focal points of coordination were suppressed, and two of Mao’s “chosen successors” died politics-related deaths (Whiting, 2006a, p. 11). During the Cultural Revolution, Mao used the Red Guards, whom he directly controlled and which lay outside the party hierarchy, to attack his opponents within the party. Many thousands of party officials were transferred to lower-level jobs, sent to the countryside for re-education, or imprisoned during the Cultural Revolution (e.g., Shirk p. 15).

After Mao’s death, Deng Xiaoping undertook numerous actions to build institutions within the Chinese Communist Party, abolishing the Red Guard and introducing personnel reforms in 1980 that shifted promotion and cadre evaluation to systems “governed by rules, clear lines of authority, and collective decision-making institutions to replace the over-concentration of power and patriarchal rule that had characterized China under Mao” (Shirk, p. 9). Mao had explicitly opposed intra-party institutionalization of this kind. In addition, consistent with our model, greater attention was paid to finding the optimal party size. Under Deng, the Party eliminated lifetime tenure and instituted mandatory retirement for almost 20 million cadres (Manion, 1992, p. 11).

A clear effect of these reforms was to increase information among party cadres about their collective treatment by the party leadership, the prerequisite for collective action on which we focus in Section 2. (In terms of our model, under Mao “cadres” had little capacity for collective action—specifically, little access to information—and therefore are better understood as “outsiders.”) The process of cadre evaluation became observable by other party members, though not by the general public. As part of the regular evaluation process, colleagues of cadres are consulted through a process of “democratic appraisal” (minzhu píngyì) (Edin, 2003). At the same time, oversight of and participation in the process of cadre evaluation by the relevant people’s congress “facilitates the flow of information about cadre performance within the CCP hierarchy” (Whiting, 2006b). This process establishes easily observed benchmarks for how cadres can expect to be treated, making arbitrary treatment of some cadres easier for other cadres to detect.\footnote{Such procedures may also extend to the illegal acquisition of rents by party members: as Manion (2004) observes, party discipline trumps criminal law for cadres accused of corruption.} Moreover, these benchmarks have been explicitly related to investment and growth. By 1983, the Organization Department had implemented concrete and tangible criteria in cadre evaluations. These ranged from gross output and investment in the early years to finer measures of economic growth and social stability in the 1990s (Whiting, 2006a, p. 3).

Concurrently with these changes in cadre management, the process by which “internal news” was distributed among party officials also changed. Exiled journalist He Qinglian

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12 Such procedures may also extend to the illegal acquisition of rents by party members: as Manion (2004) observes, party discipline trumps criminal law for cadres accused of corruption.
(Qinglian, 2004) reports that the Xinhua News Agency’s “Second Editorial Office” produces daily and weekly news reports that are distributed only to key party officials. Under Mao, the most sensitive of these, the “domestic situation final proofs,” were available only to the central leadership. During the 1980s, circulation of these documents expanded to include provincial leaders. Other less sensitive reports were also increasingly available to party leaders at all levels. As with the cadre reforms, these changes had the effect of providing information that could facilitate collective action to a narrow—but increasingly large—elite.

Propositions 1 and 2 demonstrate that institutions that promote intra-party transparency are necessary but not sufficient to generate high levels of investment by insiders. In addition, the ruling party must create expectations that establish high investment as a focal point for cadres, but not for non-cadres, as in Propositions 4 and 5. The party leadership established this focal point by adopting formal rules that clearly limited the legal rights attached to non-cadre private investments and explicitly subordinated them to those of cadre-directed (TVE) investments.

This explanation of the Chinese economic miracle of the 1980s, like earlier research, stresses information and institutions, but with important differences. Qian and Weingast (1996), for example, point out that by refraining from collecting information about local government revenues, the central government could more plausibly commit not to expropriate them. In this story, opacity increases credibility, whereas in our analysis, transparency (among party cadres) is key. In addition, our perspective points to the synergistic role of policy and institutional change: policy change (allowing decentralized or private investment) would not have succeeded without measures that reduced coordination costs inside the Chinese Communist Party. However, those institutional changes were insufficient to increase investment without a corresponding change in policy that created the expectation that cadres would be treated differently than outsiders.

Our baseline model helps to explain TVE and other cadre investment in the 1980s and early 1990s, the critical period when Chinese growth first took off. However, by the mid-1990s, non-TVE private investment, including foreign direct investment (FDI), grew to be far more important than TVE investment in China. Direct party connections, though still important for some types of private enterprises, are now by no means necessary (Nee and Opper, 2006). On its face, this development seems inconsistent with our theoretical perspective, which stresses the impact of ruling-party institutionalization on insider but not outsider investment. However, China’s experience with outsider investment—between 1990 and 1993, Chinese FDI soared from one percent of GDP (less than the average autocracy) to six percent of GDP (more than four times greater than the average autocracy)—is atypical. As we show in the following section, ruling party institutionalization is generally uncorrelated with foreign direct (i.e., outsider) investment in autocracies, but has a strong and positive effect on private investment overall.

Explaining the Chinese foreign-investment anomaly is an important subject for future research. The starting point for such research is recognizing the sheer size of the potential Chinese market, which clearly sets China apart from other non-democracies. Indeed, Fan, et al. (2007) conclude that foreign investment into China can be largely accounted for by the country’s large population and prior economic performance. On the one hand, foreign investors may have been willing to tolerate a greater risk of expropriation for the sake of access to the Chinese market. On the other, the possibility of enormous foreign-investment inflows
may have convinced the Chinese government that the future benefit of foreign investment outweighed any immediate gains from expropriation. In the latter case, it would simply have been necessary to convince foreign investors that their property rights were reasonably secure, especially from predation by lower-level bureaucrats who might not have shared the central leadership’s preference for foreign investment.

The extension of the model to bureaucratic effort in Section 2.5 shows the role that institutionalization of the Chinese Communist Party may have played in solving this agency problem. It is well-known that Chinese officials (mayors, governors) are rewarded by the leadership for income and employment growth in their areas, and therefore for attracting investment, domestic or foreign (e.g., Keefer, 2007b). Ruling-party institutionalization helps to make these promises credible. Failure to provide bonuses would violate commitments to cadres and trigger collective action against the leadership; foreign investors therefore feel secure in their investments because protection of property rights is rewarded through bonuses.

A second, complementary explanation for the credibility of promises not to expropriate foreigners extends our informational perspective beyond the Party itself. In generating the predictions of our theoretical model, we assume that outsiders have no information about the expropriation of other outsiders. This assumption accurately describes China in the early 1980s, when outsiders had little or no access to information about the level of expropriation among other outsiders. By the 1990s, though, outsiders had access to more information, ranging from the information gleaned from a vastly greater number of private transactions and from sources that were unknown in the 1980s (the Internet) to more transparent fora for dispute resolution (Clarke, Murrell and Whiting, 2006). We conjecture that if outsiders have access to partial information (less than cadres), then the prediction of Lemma 1 that outsiders are always expropriated would hold less sharply, without fundamentally changing the nature of the party and non-party equilibria.

3.2 Investment in non-democracies

The formal analysis also yields predictions that can be tested with cross-national data. Most centrally, private investment should generally be greater in non-democracies with institutionalized ruling parties than in those without, with the benefits concentrated among “insider” investments. We also examine whether autocracies with institutionalized ruling parties exhibit more secure property rights and less shirking by bureaucrats.

Data and specification

The most direct test of our analysis would examine the effect of ruling-party institutionalization on cadre and non-cadre investment. Unfortunately, systematic data on the investments of party officials are unavailable. We can, however, explore two related predictions. First, Propositions 4 and 5 imply that party institutionalization should generally increase private investment in non-democracies. Second, party institutionalization should have differential

\footnote{As we discuss above, for countries in which investors choose }
effects on private investment by insiders and outsiders. In particular, party institutionalization should lead to greater insider investment—cadres are encouraged to invest at a high level and are protected from expropriation—but have an ambiguous and likely weaker effect on outsider investment. With respect to the latter, note that in the baseline model there is no outsider investment when the ruling party is institutionalized (as in Propositions 4 and 5), whereas such investment is possible when there is no institutionalization (as in Proposition 2). This implies that institutionalization should reduce outsider investment. On the other hand, ruling-party institutionalization may encourage the provision of public goods on which outside investors rely, as in the analysis of bureaucratic effort and credible bonus schemes in Section 2.5. Similarly, as our case study of Chinese growth suggests, ruling-party institutionalization may help autocrats who want to avoid expropriation gain the necessary cooperation of lower-level officials. Together, these opposing influences suggest that any relationship between party institutionalization and outsider investment is likely to be weaker than with private investment more generally, with the direction of the effect uncertain.

Tests of these predictions confront four empirical challenges: measuring private investment; defining non-democratic episodes; defining and measuring party institutionalization; and properly identifying the effects of party institutionalization. With respect to the first, our primary measure is private investment/GDP, a standard measure from the IMF’s International Financial Statistics database. In addition, to capture the degree to which autocratic leaders can extend the benefits of party institutionalization to outsider investors, we assume that foreign investors are more likely than domestic investors to be “outsiders” and so employ a measure of foreign direct investment FDI/GDP from the World Bank’s World Development Indicators database.

The second empirical challenge is to characterize non-democracies. Our arguments apply to all countries where leaders are not selected in competitive elections, consistent with the discussions in Przeworski, et al. (2000) and Keefer (2007a), among others, in which democracies are defined as countries in which leaders are elected in competitive elections. In the case of Keefer (2007a), for example, democratic episodes are all those consecutive country-year observations in which legislators and the executive are elected, multiple candidates or parties contest the elections, and no candidate or party receives more than 75 percent of the vote. In our baseline analyses below, we therefore define non-democratic episodes as the converse of this: consecutive country-year observations in which either legislators or the executive do not meet the threshold of democratic elections (no elections are held; they are held but only one candidate is allowed to run; or multiple candidates run, but one receives more than 75 percent of the vote). The elections data are the Legislative and Executive Indices of Electoral Competitiveness (LIEC and EIEC, respectively) from the Database of Political Institutions (Beck, et al., 2003), available from 1975–2004. LIEC and EIEC range from one to seven, and we define non-democracies as those countries for which either LIEC or EIEC is less than seven. We also report results for a more stringent definition of non-democracy, where both LIEC and EIEC are less than seven.

The third empirical challenge is to identify a proxy for ruling-party institutionalization. Keefer (2007a) concludes that the age of democracy (the number of continuous years of competitive elections) captures whether democratically elected leaders can make credible
pre-electoral promises to citizens. For analogous reasons, the age of the ruling party from the Database of Political Institutions is a useful proxy for ruling-party institutionalization (the DPI defines the age of the party as the time it has existed under a particular name). This proxy is appropriate to the extent that the two features of party institutionalization of concern here— intra-party transparency and coordinated expectations about who should and should not invest—are more likely to be found in older than in younger ruling parties. There are three reasons to believe that this is the case.

First, leaders may not be able to quickly create institutions that ensure transparency, such as the personnel reforms introduced by Deng that we discuss above. Party age may therefore be a necessary condition for these formal institutions to develop. Second, insiders and outsiders must have appropriate expectations regarding each others’ investment behavior, which may be especially difficult to establish to the extent that party institutionalization does not Pareto dominate the status quo.\(^{14}\) Ceteris paribus, older parties are more likely to have established these informal institutions. Third, institutionalization itself may contribute to the longevity of the ruling party. The mere fact that ruling parties have successfully developed institutions that facilitate collective action and focus expectations makes it more difficult for opponents (inside and outside of the party) to remove it. Keefer (forthcoming), for example, argues that ruling parties that can make credible promises to followers are also better able to mount counter-insurgency efforts against potential challengers.

The fourth empirical challenge is to properly identify the effects of ruling-party institutionalization. In principle, unobserved factors unrelated to our analysis could influence both ruling-party longevity and investment. Alternatively, investment could promote ruling-party longevity rather than the reverse. We address these possibilities in four ways. First, we compare the effects of party age on private investment generally and on FDI specifically. Any finding of differential effects would be evidence against unobserved variables expected to influence insider and outsider investment equally.

Second, we control for three regime characteristics that should themselves be influenced by and capture the effects of these unobserved factors: the years in office of the country’s leader; the length of the non-democratic episode; and a measure of turnover among the governing elite, which we refer to as “intra-elite turnover.” All three variables are taken from the Database of Political Institutions. The first two measures control for major forms of political instability (of ruler and regime type), each of which may be associated with both ruling-party age and investment. The inclusion of leader tenure in particular controls for the presence of (unobserved) long-lived charismatic rulers who actively discourage party institutionalization. The third variable, defined as the proportion of parties and the executive who control the government in year \(t - 1\) who no longer occupy these positions in year \(t\), captures two residual forms of instability. First, non-competitive elections are held in some of the non-democracies under investigation here. The parties that win these elections, although under the control of the ruler, may change over time, even if the ruler does not. Second, non-democracies vary in the conditions under which a non-democratic episode begins and

\(^{14}\)In particular, outsiders prefer the equilibrium in Proposition 2, where all investors choose \(e_i = \hat{e}\) and outsiders earn positive payoffs equal to \(m(\hat{g} - q\hat{g}) - \hat{c}\), to those in Propositions 4 and 5, where only insiders invest and outsiders receive a payoff of zero. Analogously, insiders prefer the equilibria in Propositions 4 and 5 to that in Proposition 2.
ends, and in particular in the turnover of governing elites during the transition period.\textsuperscript{15}

Third, if greater investment increases popularity, then causality could run from investment to longer-lived parties rather than the opposite. If true, then party age measured at the end of the non-democratic episode should have a stronger association with investment averaged over the episode than does party age measured at the beginning. If, on the other hand, causality runs from party age to investment as hypothesized, then no such effect should be present. We test for this effect.

Fourth, we estimate the effects of ruling-party institutionalization using two-stage least squares, drawing upon our theoretical framework for an exogenous source of variation in party institutionalization. As Proposition 5 demonstrates, autocrats who can easily suppress popular uprisings may be less likely to attempt ruling-party institutionalization as a way of maintaining popular support. In particular, repression may be relatively attractive for autocrats who come to power with the backing of the military, implying that military leaders may be reluctant to form institutionalized political parties. Geddes (2008) makes this point explicitly: ruling parties are less likely to be institutionalized when the autocrat is a military leader, regardless of whether militaries are professionalized (in which case the military command discourages party creation to assure its hold on power) or disorganized and unprofessional (in which case parties are structured more as patronage vehicles than as a way of making credible commitments). Similarly, Wright (2007) provides evidence that the incentives to create binding constraints—in his case, legislatures rather than parties—may be lower for military than for non-military dictatorships. As an instrument for ruling-party institutionalization, we therefore use a dummy variable equal to one if the country’s executive in the first year of the non-democratic period was an active-duty military officer.

As we show below, the dummy variable for military leadership has an economically large (negative) effect on ruling-party age in first-stage regressions that is very precisely estimated. Thus, the instrument satisfies the condition of high correlation with the potentially endogenous variable. However, it is possible that military government might affect private investment through channels other than ruling-party institutionalization, in which case our exclusion of the military variable from the second-stage regression would be improper. In particular, military government may pose a threat to private investment above and beyond the insecurity created by the absence of an institutionalized ruling party, in which case our estimates of the effect of party age on investment would be biased upward. If anything, however, the opposite seems likely, at least in countries with professionalized militaries: military government could spur investment, as may have been the case in Chile under Pinochet, since military institutionalization provides security for military investors in the same way that party institutionalization provides security for cadres. Military government in countries with militaries that are not professionalized, in contrast, may reduce investment by generat-

\textsuperscript{15}For example, in countries in which a new ruling party wrests control from a democratic government, the instability variable takes a value of one in the first year of the non-democratic episode. In contrast, when ruling parties—such as ZANU in Zimbabwe—participated in democratic government just prior to taking autocratic control of the country, political instability takes a lower value, as prior veto players continue to exercise veto player in the current (now autocratic) government. With respect to transitions to democracy, most non-democratic periods end with the sudden replacement of the autocrat. In some countries (such as Haiti), however, prior to elections the autocrat is compelled to share power with another party. The entry of this new party increases the instability variable in the last years of the non-democratic episode.
ing political instability (e.g., because of frequent coup attempts), which would be a problem if we failed to adequately control for the effect of political instability on investment. As we discuss above, however, we include three separate controls for political instability in our core specification.

We examine the predictions of the model by first estimating $\text{inv}_i = \beta_1 + \beta_2 \text{inst}_i + X_i' \beta_3 + \epsilon_i$ using both ordinary least squares and two-stage least squares, where $i$ indexes non-democratic episodes (one country could have several episodes); $\text{inv}_i$ is a variable measuring investment; and $\text{inst}_i$ is age of ruling party, our proxy for party institutionalization. Our main prediction is that $\beta_2 > 0$ when $\text{inv}_i$ is private investment/GDP, for which we find substantial support across different subsamples and with different sets of control variables. We also anticipate that $\beta_2$ may be larger (more positive) when $\text{inv}_i$ is private investment/GDP than when $\text{inv}_i$ is foreign direct investment/GDP. The vector $X_i$ captures other potential determinants of investment: the percent of the population that is young or rural, respectively; total population; the land area of the country; and income per capita (in PPP-adjusted, 2000 US dollars). Because private investment might be sensitive to a country’s position in global trade, we also control for the Frankel-Romer trade instrument (Frankel and Romer 1999). Social fractionalization might also influence incentives to invest; three measures of social fractionalization from Alesina, et al. (2002) are therefore taken into account. As we discuss below, the results are also robust to controls for the economic structure of countries. All variables are averages over the non-democratic episode.

**Investment-institutionalization results**

Our core results appear in Tables 1 and 2. Each examines the relative effects of party age on private investment and foreign direct investment using both OLS and IV estimates. Table 1 focuses on all non-democracies, i.e., those non-democratic episodes for which LIEC or EIEC are less than seven, whereas Table 2 presents results for a more autocratic subset of non-democracies, those for which LIEC and EIEC are less than seven. The tables report estimated coefficients and $p$-values calculated from heteroskedasticity-robust standard errors that correct for correlation of error terms across non-democratic episodes within countries.

Consistent with the central theoretical prediction of the baseline model, the age of the ruling party is associated with a statistically significant and large increase in private investment in both Tables 1 and 2, i.e., for both the looser and more stringent definitions of non-democracy, and with both OLS and instrumental-variable estimates. For example, the specification in the first column of Table 1 predicts that a non-democratic episode with a ruling party that is ten years older (the median party age is approximately ten years) attracts one percentage point more private investment as a fraction of GDP (median private investment is approximately 12.5 percent of GDP). Neither ruler longevity nor regime duration, two variables stressed by the existing literature, has a statistically significant effect on investor behavior.

Frankel and Romer (1999) estimate the contribution to total trade flows/GDP of the geographic circumstances of a country (distance from all possible trading partners, common borders, whether countries are landlocked), conditioned on the population and relative area of trading partners. Their measure is the fitted value of this equation.
In both tables, the estimated effect of ruling-party age is greater in the instrumental-variables regressions, with ruling-party age strongly predicted by military government in the first stage of these regressions. This attenuation of the estimated effect in the OLS regression is consistent with the idea that party age measures ruling-party institutionalization with error. Nonetheless, as the Hausman $\chi^2$-statistics reported in the tables demonstrate, in neither case can we reject the null hypothesis of exogeneity of ruling-party age ($p$-values range from 0.15 to 0.85). Although the Hausman test is conditioned on the validity of the instrument, an assumption that we cannot test with only one instrumental variable, this result does provide some additional support for our econometric strategy.

The estimates in the two tables also reflect the offsetting predictions of our theory regarding ruling party age and outsider investment. FDI is larger in non-democracies with more institutionalized ruling parties. However, the magnitude of the estimated effect is much smaller than on investment generally, and with one exception the estimated coefficient is not statistically significant. Thus, as suggested by our theoretical model, ruling-party institutionalization appears to have a stronger effect on insider than outsider private investment. This result complements a large literature on the effect of regime type on FDI. Jensen (2006), for example, finds that democratic institutions significantly reduce expropriation risk and attract multinational investment. The results in Tables 1 and 2 indicate that the logic of lower expropriation risk in autocracies may be different: autocratic institutions that reduce expropriation threats appear not to encourage FDI significantly.

Our controls for ethnic, religious and linguistic fractionalization capture the idea that these variables may affect leader incentives to institutionalize, through the effect of fractionalization on citizens’ ability to coordinate ($k$ in our model; see Proposition 5), and may also exert an independent impact on investment. As Tables 1 and 2 show, the estimated effect of ruling party age on private investment is large even with these controls. Moreover, while ethnic fractionalization has a significant negative effect on private investment, religious and linguistic fractionalization have no significant effect in these regressions.

The insignificant effect of other regime characteristics—ruler years in office, length of non-democratic episode, and intra-elite turnover—also reduces the likelihood that omitted variable bias drives the observed relationship between investment and our proxy for ruling-party institutionalization, since the most theoretically plausible of such influences should operate through these measures of political instability. It is also unlikely that omitted effects simultaneously explain the association of investment and party age in Tables 1 and 2; the difference in the effect of ruling party age on private and foreign direct investment in the two tables; and the association of party age with expropriation and corruption that we document below.

Finally, any problem of reverse causality—where investment drives party age, rather than the reverse—should be mitigated by our instrumentation strategy, where we use the military

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17Government regulations also frequently suppress FDI directly, often to increase rents of local incumbent producers. Although our theory does not capture this effect, it could be that the influence of local incumbents rises with ruling party institutionalization. In this case, the results in Table 1 might capture regulatory prohibitions on FDI rather than fear of expropriation. To explore this hypothesis, we examined one plausible proxy for FDI prohibitions, the Chinn-Ito measure of capital-account openness (Chinn and Ito, 2007). In fact, this measure is uncorrelated with ruling party age, and its inclusion as a regressor has no effect on the estimated coefficients in Table 1.
affiliation of the leader in the first year of the non-democratic episode. As an additional check, we re-estimated the OLS regressions, defining party age at the beginning and end of the non-democratic episode, respectively, and comparing the estimated coefficients from these two specifications. As we discuss above, if reverse causality is present, then party age at the end of the non-democratic episode should have a greater association with investment than does party age at the beginning of the episode. If anything, however, the opposite is true. Using the specification from the first column of Table 1, and substituting values for age of ruling party in this way, the estimated coefficient on party age evaluated at the beginning of the period is 0.095 (with a $p$-value of .02), whereas the estimated coefficient on party age evaluated at the end of the period is 0.079 (with a $p$-value of .01).

Other robustness checks

The foregoing analysis demonstrates that ruling-party institutionalization has large effects on private investment in a variety of specifications (different definitions of autocracy, ordinary or two-stage least squares) and employing a variety of controls (regime and leader survival, economic and demographic characteristics that might simultaneously explain both party age and investment). Still, concerns about robustness might remain. One is that the underlying structure of the economy might affect both party survival and investment. To check that this is not driving the results, in other regressions (not reported), we include the contribution of value-added in agriculture, manufacturing, and services to GDP (from World Development Indicators). The inclusion of these covariates leaves the magnitude and significance of the coefficients on ruling party age almost unchanged from Tables 1 and 2, although the role of agriculture in the economy is significantly negatively associated with investment.

It is also possible that, although our conclusions are robust to multiple identification strategies, the omission of unobserved time-invariant country characteristics may bias our results. Fixed-effects specifications would control for these omitted variables, but would spuriously bias our tests against finding an association between investment and party age, as many non-democratic episodes are “born” with ruling parties that have already institutionalized; such countries would exhibit no relationship between increments to party age and private investment. However, our results are highly robust to controls for continent dummies: in both OLS and IV regressions, and in both the more and less autocratic samples, ruling-party age has a large, significant effect on private investment, but no significant effect on foreign direct investment.

Besley and Kudamatsu (2007) employ a different conceptualization of party institutionalization than ours and, correspondingly, different proxies for institutionalization and for autocracies. For example, they exclude autocracies that are less than five years old from their analysis. Our results are robust to this same cut-off. They also define autocracies as those countries that score zero or less on the Polity IV democracy scale (Marshall and Jaggers, 2000). Our results are robust to removing autocratic episodes from the sample that score greater than zero on this variable. Finally, ruling-party age remains a robust determinant of private investment after controlling for the three variables from Polity IV.

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18Thirty-two percent of the non-democratic episodes in our sample begin with ruling parties that are at least 14 years old. To the extent that these parties institutionalize at all, they are likely to have done so prior to the non-democratic episode.
that Besley and Kudamatsu use to characterize party institutionalization: whether executive succession is regulated; whether there are constraints on the executive; and the degree of political competition (the Polity IV variables $x_{\text{reg}}$, $x_{\text{const}}$, and $\text{polcomp}$).\textsuperscript{19}

In these last regressions, among the Polity variables only $x_{\text{reg}}$ has independent explanatory power. This pattern may constitute further support for our theory, as hereditary systems receive the highest possible score on $x_{\text{reg}}$. In such systems, the extended family may act as an institutionalized “party,” with significantly more transparency within the family than among outsiders. However, such countries have low scores on the party-age variable that we use to proxy ruling-party institutionalization. Hence, $x_{\text{reg}}$ may capture a related type of institutionalization that is also associated with private investment.

3.3 Property rights, corruption, and autocracy

The theoretical analysis presented above suggests two specific channels through which party institutionalization should increase investment: it should reduce the risk of expropriation and, by increasing the credibility of government promises to civil servants, lessen bureaucratic incentives to extract rents (i.e., reduce corruption).\textsuperscript{20} We find evidence for both of these propositions, using two widely-employed measures from Political Risk Services’ International Country Risk Guide: Expropriation Risk (collected from 1984–1997) and Corruption (available from 1984–2004). For each of these, larger values imply better governance, i.e., lower expropriation risk and lower corruption.

To examine these effects, we regress each of these governance variables in turn on the control variables used in Tables 1 and 2, using three different samples: all non-democratic episodes; the more autocratic subsample of episodes; and the subsample of episodes with private investment data. Table 3 reports the estimated coefficient on the age of the ruling party in each set of six regressions (expropriation risk and corruption, respectively), displaying results for both OLS and IV estimates.

Consistent with our predictions, the estimated coefficient on ruling-party age is positive and statistically significant at conventional levels in all cases for expropriation risk and in all but one of the six corruption regressions. As in the investment regressions, the estimated effect of ruling-party age is greater when instrumented on control of government by a military leader, consistent with a measurement-error interpretation of our proxy for party institutionalization. In contrast to the investment regressions, the null hypothesis of exogeneity of ruling-party age is occasionally rejected (in one out of three cases for each dependent variable) at conventional significance levels, with the difference between the OLS and IV estimates particularly large in these regressions. As with the investment results earlier, these estimated effects of ruling-party age on expropriation risk and corruption are robust to inclusion of a variety of additional controls, including continent dummies and the Polity variables used by Besley and Kudamatsu (2007) as proxies for their conceptualization

\textsuperscript{19}Only OLS is used for this robustness check, since instruments are not available for all four of these variables.

\textsuperscript{20}There may be some complementarity between these two effects. In the absence of a transparent framework for cadre management, leaders cannot easily demonstrate that they are punishing corrupt cadres as opposed to engaging in excessive expropriation. Party institutionalization simultaneously reduces expropriation and makes it easier for leaders to punish corruption.
of party institutionalization (the latter are never significant in the regressions of Table 3).

An additional notable finding from these regressions, consistent with the investment results reported above, is that neither ruler years in office nor length of the non-democratic episode has a statistically significant effect on governance. Previous research has attached strong importance to leader longevity in autocracies, arguing that leaders with long horizons are more likely to pursue policies that increase current investment and future growth (e.g., Clague, et al., 1996, and Olson and McGuire, 1996). The results here shift the explanation for investment in autocracies away from the ruler’s time horizon and toward ruling-party institutionalization, i.e., toward the horizons of the ruler’s supporters.21

4 Conclusions

The analysis and evidence presented here point to ruling-party institutionalization as a solution to problems of credible commitment in autocracies. Autocracies that institutionalize a ruling party can attract high levels of investment by a designated elite without creating the democratic institutions that would jeopardize autocratic rule. Nonetheless, the conditions under which leaders of non-democracies accede to the institutionalization of a large ruling party need not, in general, be met. Moreover, even when it is in the autocrat’s interest to facilitate the collective action of party insiders to persuade them to invest, these institutions alone do not guarantee that party cadres will be protected. The designation of a party elite must also establish the norm that investment is primarily the responsibility of a narrow elite, thus reducing the autocrat’s temptation to expropriate all investors, cadres included.

We illustrate our theoretical model with a discussion of China’s effort to attract private investment in the 1980s, in which ruling-party institutionalization played a critical role. We also test the key predictions of the model in statistical comparisons across a broad sample of non-democracies. Using age of the governing party as a proxy for ruling-party institutionalization, and instrumenting ruling-party age on a variable capturing control of government by a military officer, we find that investment is greater and governance better in autocracies with more institutionalized ruling parties.

Our analysis reveals various areas in which further research is needed. First, protected members of the party elite may have incentives to treat outsiders as a common pool from which they over-predate at the expense of the party as a whole. This seems to have been a paramount concern in China, for example, where increased investment has gone hand-in-hand with efforts by local officials to increase their rents. To some extent, as the extension to the model we outline in Section 2.5 demonstrates, such shirking by party members can be addressed through the same party institutions that promote investment. At the same time, there may be a tension between the two roles played by institutionalized ruling parties: if the leadership pursues internal corruption too vigorously, it runs the risk of excessively cutting the rents of party insiders, undermining the perception that they will not be treated arbitrarily by the leadership. An extended model might consider this tradeoff.

The analysis might also be extended to incorporate the role of economic and other shocks. Much of the literature emphasizes the role that shocks play in transitions between non-democracy and democracy, but they are likely as well to affect decisions about the appro-

21For a related argument, see Debs (2007).
appropriate degree of institutionalization within non-democracies. Any such extension is likely to yield ambiguous results, as shocks may simultaneously increase the risk of coups by party insiders and of revolution by outsiders. The model here suggests that these may have contradictory influences: increased coup risk discourages autocrats from facilitating collective action, while the threat of revolution increases the political benefit of institutionalization.

Appendix

Just as non-democracies vary substantially with respect to private investment, so also do they vary with respect to bureaucratic performance. The extension to the model outlined in Section 2.5 suggests that ruling-party institutionalization helps to explain these differences. In the extension, which we provide here, bureaucrats exert effort only if they expect the autocrat to carry through on his promise to provide compensation in return for such effort. As in the baseline model, institutionalized ruling parties help to make these promises credible, though only for party cadres.

Formally, consider a population of bureaucrats, analogous to the investors of the baseline model. At the beginning of the game, the autocrat names a bonus \( b \in [0, \infty) \), which he promises to provide in return for effort \( e_i \neq 0 \). Implicitly, this formulation captures an environment in which the autocrat observes whether or not a bureaucrat has exerted effort, but not whether he has exerted “moderate” \( (e_i = \hat{e}) \) or “high” \( (e_i = \bar{e}) \) effort. Effort is costly as before, and produces a private rent of \( \hat{r} \) and \( \bar{r} \) for effort choices of \( e_i = \hat{e} \) and \( e_i = \bar{e} \), respectively, where \( \hat{r} < \bar{r} \).

The autocrat may renege on his promise to provide the bonus in return for \( e_i \neq 0 \), a decision analogous to the expropriation decision of the model of the previous section. As before, this decision is contestable, with proportion \( 1 - m \) of both the bonus and private rent destroyed if the bureaucrat chooses \( p_i = 1 \); proportion \( q \) and \( 1 - q \) of the remaining bonus going to the autocrat and bureaucrat, respectively; and a cost of participation \( d \) arbitrarily large if the mass of bureaucrats who choose \( p_i = 1 \) is less than or equal to \( k \), with zero cost otherwise. Thus, we may define \( \tilde{g} \equiv b, \tilde{\gamma} \equiv \hat{r} + b, \) and \( \tilde{g} \equiv \bar{r} + b. \) We also assume \( \hat{r} - \hat{c} < \bar{r} - \bar{c} < 0 \), so that if the bonus is not credible all bureaucrats choose \( e_i = 0 \), and \( m\bar{r} - \bar{c} > m\hat{r} - \hat{c}, \) which implies that enough of the private rent is destroyed in the process of contestation that bureaucrats prefer moderate to high effort if they anticipate choosing \( p_i = 1 \).

Given these assumptions, Propositions 1 and 3 of the previous section go through as before: for any party (and bonus) choice by the autocrat, there is a “coordination-failure” equilibrium, where all bureaucrats choose \( e_i = 0 \), and there is no equilibrium in which all bureaucrats choose \( e_i = \bar{e}. \) Proposition 2 holds so long as the autocrat has chosen a bonus \( b \) large enough that bureaucrats prefer \( e_i = \hat{e} \) to \( e_i = 0 \), i.e., so long as

\[
m [\hat{r} + (1 - q) b] - \hat{c} \geq 0.
\]

\(^{22}\)Przeworski, et al. (2000, p. 112) find empirically that short-term crises are irrelevant for authoritarian survival, but that long-term crises matter. Magaloni (2006) argues that fiscal crisis under Miguel de Madrid made it difficult to maintain transfers to PRI loyalists, leading to a drop in support.
If the autocrat anticipates that all bureaucrats will behave as in Proposition 2 for any \( b \) that satisfies this condition, then he chooses the \( b \) that satisfies the condition with equality. Denoting this bonus as \( \hat{b} \), we may derive \( \hat{b} = \frac{\hat{c} - m\hat{r}}{m(1 - q)} \). Intuitively, the bonus that induces moderate effort is higher when the cost of that effort is large and when the associated private rents are small. In addition, the autocrat must promise a larger bonus—must put more money on the table—when fighting for that bonus is costly (\( m \) is small) and relatively ineffective for the bureaucrat (\( q \) is large).

In addition, there exist equilibria with equilibrium-path behavior as in Propositions 4 and 5, where institutionalized ruling parties focus the expectations of bureaucrats, cadres exert high effort, and outsiders exert no effort. Interestingly, the bonus necessary to induce high effort by cadres in such equilibria is less than that necessary to induce moderate effort by bureaucrats in non-party equilibria: not only is the bonus more credible, so that less need be promised, but the private rents from high effort offset the increased cost of such effort. To see this, let \( \bar{b} \) be the bonus \( b \) such that for all \( b \geq \bar{b} \) cadres weakly prefer \( e_i = \bar{e} \) to \( e_i = 0 \), i.e.,

\[
\bar{r} + (1 - mq) \bar{b} - \bar{c} = 0,
\]

where we recall that \( mq \) is the probability in equilibrium that any cadre is “expropriated.” Solving for \( \bar{r} \) gives

\[
\bar{b} = \frac{\bar{c} - \bar{r}}{(1 - mq)} < \frac{\hat{c} - m\hat{r}}{m(1 - q)} = \hat{b}.
\]

Consequently, if the autocrat chooses \( b \) to leave cadres indifferent between exerting high and no effort, then the only behavior that is optimal off the equilibrium path has all cadres choosing \( e_i = 0 \), as in Proposition 4.

Nonetheless, as in the baseline model, the optimality of institutionalized party rule may depend on whether the autocrat prefers high effort by a small ruling elite to moderate effort by all bureaucrats, as by choosing \( b \geq \hat{b} \) the autocrat may be able to induce \( e_i = \bar{e} \) by all bureaucrats. The autocrat prefers the best party equilibrium (with \( s = \frac{k}{mq} \) and \( b = \bar{b} \)) to the best non-party equilibrium (with \( b = \hat{b} \)) so long as

\[
\frac{k}{mq} \left[ \hat{h} - (1 - mq) \hat{b} \right] \geq \hat{h} - (1 - mq) \hat{b},
\]

where we recall that when all bureaucrats choose \( p_i = 1 \), the autocrat retains proportion \( mq \) of the bonus that he promised. Analogously to the baseline model, institutionalized ruling parties are more attractive to the autocrat when the benefit of high bureaucratic effort is relatively large.

In contrast to the baseline model, however, where the autocrat sacrifices some gains from expropriation by building an institutionalized ruling party, the cost of inducing effort is always less in the party equilibrium:

\[
\frac{k}{mq} (1 - mq) \hat{b} < (1 - mq) \hat{b}.
\]

Not only is the bonus offered to bureaucrats less in the party equilibrium, but the mass of individuals to which it is paid is smaller, as only cadres exert effort. The optimality of
institutionalized party rule thus reduces to whether the benefits of such rule—high effort among cadres, smaller bonuses—are sufficient to compensate for the fact that only cadres exert effort. As in the baseline model, this is more likely the case when there are sizeable barriers to collective action, i.e., when $k$ is large, as then autocrat may build a larger party.

The formulation here suggests a useful interpretation of the model. For a bureaucrat to exert high effort, a participation constraint must be satisfied (so that the bureaucrat prefers $e_i \neq 0$ to $e_i = 0$), as well as an incentive-compatibility constraint (so that the bureaucrat prefers $e_i = \bar{e}$ to $e_i = \hat{e}$). Collective action helps to satisfy the participation constraint by forcing the autocrat to provide the promised bonus. However, because collective action is costly, and in particular because it destroys some of the private rent from effort, the incentive-compatibility constraint is violated in non-party equilibria. Institutionalized ruling parties induce high levels of effort among cadres by satisfying the participation constraint without violating the incentive-compatibility constraint. The routinization of rewards provides cadres with the assurance that they will be compensated for their effort without having to fight for that compensation. With that assurance, they and only they exert maximal effort.

References


Debs, Alexandre. 2007. “Political Strength and Economic Efficiency in a Multi-Agent State.” Mime. MIT.


Table 1: Party Institutionalization and Investment in Non-Democracies

<table>
<thead>
<tr>
<th></th>
<th>Private investment/GDP</th>
<th>FDI/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>IV</td>
</tr>
<tr>
<td>REGIME CHARACTERISTICS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of ruling party</td>
<td>0.095</td>
<td>0.191</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.11)</td>
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<tr>
<td>Ruler years in office</td>
<td>0.093</td>
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</tr>
<tr>
<td></td>
<td>(0.36)</td>
<td>(0.74)</td>
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<td>Length of non-democratic episode</td>
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<tr>
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<tr>
<td>Intra-elite turnover</td>
<td>1.454</td>
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<tr>
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<td>(0.51)</td>
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</tr>
<tr>
<td>Ethnic fractionalization</td>
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<td>-7.503</td>
</tr>
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<td>(0.02)</td>
<td>(0.06)</td>
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<tr>
<td>Religious fractionalization</td>
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<td>(0.52)</td>
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<td>(0.27)</td>
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<td>(0.09)</td>
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<td>Percent population young</td>
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<td>-0.273</td>
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<td></td>
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<td>(0.15)</td>
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<tr>
<td>Percent population rural</td>
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<td>-0.032</td>
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<td>(0.49)</td>
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<td>-0.014</td>
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<td>(0.03)</td>
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<td>Land area, millions</td>
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<td>0.287</td>
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<td>(0.36)</td>
<td>(0.65)</td>
</tr>
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<td>GDP (PPP) per capita, 1000 USD</td>
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<td>-0.029</td>
</tr>
<tr>
<td></td>
<td>(0.76)</td>
<td>(0.88)</td>
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<tr>
<td>Constant</td>
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<td>30.681</td>
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<td>(0.00)</td>
</tr>
<tr>
<td>Military leader (first stage)</td>
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<td>-11.089</td>
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<td>$F$ statistic (first stage)</td>
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<td>2.16</td>
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<td></td>
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</tr>
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<td>Hausman $\chi^2$ (H$_0$ = age exogenous)</td>
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<td>0.04</td>
</tr>
<tr>
<td></td>
<td>(0.33)</td>
<td>(0.85)</td>
</tr>
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Notes: Ordinary and two-stage least squares estimates, with heteroskedasticity-robust standard errors corrected for clustering at country level; p-values reported in parentheses. Unit of observation is non-democratic episode, defined as continuous years in which countries exhibit LIEC < 7 or EIEC < 7. Instrumental variable is dummy variable equal to one if regime headed by military leader at beginning of non-democratic episode.
Table 2: Party Institutionalization and Investment in Non-Democracies: More Autocratic Sample

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Private investment/GDP</th>
<th>FDI/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>IV</td>
</tr>
<tr>
<td><strong>REGIME CHARACTERISTICS</strong></td>
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<td></td>
</tr>
<tr>
<td>Age of ruling party</td>
<td>0.125</td>
<td>0.260</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Ruler years in office</td>
<td>-0.003</td>
<td>-0.087</td>
</tr>
<tr>
<td></td>
<td>(0.98)</td>
<td>(0.59)</td>
</tr>
<tr>
<td>Length of non-democratic episode</td>
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<td>0.111</td>
</tr>
<tr>
<td></td>
<td>(0.55)</td>
<td>(0.58)</td>
</tr>
<tr>
<td>Intra-elite turnover</td>
<td>2.039</td>
<td>4.741</td>
</tr>
<tr>
<td></td>
<td>(0.75)</td>
<td>(0.49)</td>
</tr>
<tr>
<td><strong>COUNTRY CHARACTERISTICS</strong></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>Religious fractionalization</td>
<td>-2.293</td>
<td>-4.334</td>
</tr>
<tr>
<td></td>
<td>(0.46)</td>
<td>(0.19)</td>
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<td>Linguistic fractionalization</td>
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<td>Percent population young</td>
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<td>Percent population rural</td>
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<td>-0.026</td>
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<tr>
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<td>Population, millions</td>
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<tr>
<td></td>
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<td>F statistic (first stage)</td>
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<td>0.31</td>
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<td>N, countries</td>
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<td>79, 72</td>
</tr>
<tr>
<td>R-squared</td>
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<td>0.16</td>
</tr>
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Notes: Ordinary and two-stage least squares estimates, with heteroskedasticity-robust standard errors corrected for clustering at country level; p-values reported in parentheses. Unit of observation is more autocratic non-democratic episode, defined as continuous years in which countries exhibit LIEC < 7 and EIEC < 7. Instrumental variable is dummy variable equal to one if regime headed by military leader at beginning of non-democratic episode.
Table 3: Party Institutionalization and Governance in Non-Democracies

<table>
<thead>
<tr>
<th>Dependent variable: (no) expropriation risk (ICRG)</th>
<th>Base sample</th>
<th>More autocratic</th>
<th>Private investment data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS IV</td>
<td>OLS IV</td>
<td>OLS IV</td>
</tr>
<tr>
<td>Age of ruling party</td>
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<td>.071 (.03)</td>
<td>.022 (.10)</td>
</tr>
<tr>
<td></td>
<td>.051 (.05)</td>
<td>.044 (.00)</td>
<td>.071 (.01)</td>
</tr>
<tr>
<td>Military leader (first stage)</td>
<td>-14.302 (.01)</td>
<td>-16.182 (.00)</td>
<td>-15.414 (.00)</td>
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<tr>
<td></td>
<td>1.39 (.19)</td>
<td>2.04 (.03)</td>
<td>1.94 (.05)</td>
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<td>$F$ statistic (first stage)</td>
<td>1.39 (.19)</td>
<td>2.04 (.03)</td>
<td>1.94 (.05)</td>
</tr>
<tr>
<td>Hausman $\chi^2$ ($H_0 = \text{age exogenous}$)</td>
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<td>2.10 (.15)</td>
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<td>N, countries</td>
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<td>77, 73</td>
<td>69, 67</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.36</td>
<td>0.40</td>
<td>0.46</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Dependent variable: (no) corruption (ICRG)</th>
<th>Base sample</th>
<th>More autocratic</th>
<th>Private investment data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS IV</td>
<td>OLS IV</td>
<td>OLS IV</td>
</tr>
<tr>
<td>Age of ruling party</td>
<td>.011 (.10)</td>
<td>.036 (.09)</td>
<td>.015 (.07)</td>
</tr>
<tr>
<td></td>
<td>.025 (.16)</td>
<td>.017 (.04)</td>
<td>.044 (.02)</td>
</tr>
<tr>
<td>Military leader (first stage)</td>
<td>-14.117 (.00)</td>
<td>-16.662 (.00)</td>
<td>-14.798 (.00)</td>
</tr>
<tr>
<td></td>
<td>1.66 (.09)</td>
<td>2.08 (.03)</td>
<td>2.26 (.02)</td>
</tr>
<tr>
<td>$F$ statistic (first stage)</td>
<td>1.66 (.09)</td>
<td>2.08 (.03)</td>
<td>2.26 (.02)</td>
</tr>
<tr>
<td>Hausman $\chi^2$ ($H_0 = \text{age exogenous}$)</td>
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<td>0.57 (.45)</td>
<td>3.16 (.08)</td>
</tr>
<tr>
<td>N, countries</td>
<td>84, 73</td>
<td>83, 73</td>
<td>74, 68</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.20</td>
<td>0.18</td>
<td>0.26</td>
</tr>
</tbody>
</table>

Notes: Dependent variables ordered such that higher values indicate better governance, i.e., lower expropriation risk and corruption. Ordinary and two-stage least squares estimates, with heteroskedasticity-robust standard errors corrected for clustering at country level; p-values reported in parentheses. Unit of observation is non-democratic episode, defined as in Tables 1 and 2. Instrumental variable is dummy variable equal to one if regime headed by military leader at beginning of non-democratic episode. Control variables not reported.