Dictatorship, Democratic Transitions, and Development

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Abstract

In this paper, employing the political agency framework, we revisit the comparison between autocracy and democracy with respect to their effect on growth outcomes. We find that ability to replace an incumbent political leader through election is no guarantee in itself for the welfare superiority of the latter regime; in fact, the opposite consequence may result. Legislative constraints on expropriation are shown to have the potential to enhance the welfare advantage of election, whereas moral hazard reduces the ability of election to effectively screen incumbent political leaders and thereby reduces welfare. Endogenous initiation of democratic transitions will be done by autocratic rulers under the threat of removal from office. Implications of the latter result are discussed in the light of recent democratization episodes in Africa.

Keywords: autocracy, democracy

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Acknowledgments to be added
1. Introduction

In a series of influential studies, Mancur Olson provided taxonomy of political regimes, drawing their implications for economic performance (see the seminal paper Olson, 1993, and follow up work McGuire and Olson, 1996, Olson, 2000). One important distinction introduced there is between myopic and far sighted autocrats (or, using Olson’s terminology, between roving and stationary bandits). This literature argues that the latter, having in mind long term objectives, have better incentives than the former to promote economic development by restraining expropriation; Grossman and Noh, 1990, and 1994, represent a sample of work in this tradition. Its additional (and, arguably, main) contribution is in emphasizing the advantages of democracy, even relative to far sighted autocracy. With an eye on election, politicians under democracy have an incentive to cater to the interests of a majority of voters; consequently, their policies, while potentially also in part expropriative, at least benefit the majority. This argument also implies that, with homogenous electorate, democracy is unambiguously more pro-development than and is welfare superior to autocracy.¹

There is now a substantial and still growing body of work inquiring about the effect of democracy on economic outcomes. This literature comes up with ambiguous conclusions.²

Summarizing this body of work, Besley and Kudamatsu, 2008, state thus: “The evidence that

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¹ See Olson, 1993; this point is also made in the formal analysis presented in McGuire and Olson, 1996. Note, however, that these contributions are inherently static making it difficult to directly interpret their original findings in growth terms. In contrast, a formal model offered here does contain growth related insights.

² For example, Barro, 1996, Przeworski and Limongi, 1993, and Przeworski et al., 2000, suggest that the correlation between democracy and economic growth is overall generally weak. Papaioannou and Siourounis, 2008, Persson and Tabellini, 2009, Rodrik and Wacziarg, 2005, in contrast, find some support for the proposition that democracy leads to improvements in economic performance. Mulligan et al., 2004, look at
democracy promotes prosperity is neither strong nor robust.” Further, as pointed out in Gehlbach and Keefer, 2009, “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).”3 These observations imply, therefore, that the belief in an unambiguous superiority of election-based democracy could be overly optimistic, and that additional considerations have to be brought in to carry out a meaningful comparative analysis.

To cast new light on the ambiguous relationship between democracy and economic outcomes, therefore, in this paper we revisit Olson’s approach by employing the political agency paradigm with adverse selection (introduced in this manner in Besley, 2006, which is, in turn, based on Barro, 1973) to think about politicians’ incentives under the different political regimes. This enables us to endogenize policy choices and leaders’ planning horizon, as a function of prevailing political constraints. An election-based democracy presents an expropriative ruler with a dilemma. She can initially adopt good policies, in order to mislead the voters and get reelected (in the pooling equilibrium); or – if this is too costly in the sense of giving up on immediate gains – she can play it expropriative right from the beginning, revealing true identity and giving up on the possibility of getting reelected and reaping gains in the future; this is the separating equilibrium. The disciplining effect of election implies that the pooling equilibrium is welfare superior to autocracy; however, the

3 In this regard, the comparison of recent growth performance of China and India is a good illustration. While both comparably poor beginning three decades ago, the former, under an authoritarian regime, has managed to generate the fastest pace of growth averaging more than eight percent annually. The latter, being the largest democracy, has only recently begun to grow fast, and its growth rate still lags behind China’s.
separating equilibrium may be inferior to it, whenever the autocrat has a sufficiently long horizon, as the incumbent purposefully adopts a myopic perspective. This result introduces an important qualification into Olson’s argumentation about the superiority of election-based democracy.

Several ramifications of this basic result are then considered. Thus, in the presence of legislative constraints on leader’s expropriation election becomes relatively more attractive. In contrast, incorporating moral hazard by letting random shocks, in addition to policies, affect the voters, we show that this facilitates bad rulers masking themselves as good ones through pooling, but, consequently welfare is reduced. We then endogenize the decision to have election and find that weak autocrats, with low chances of survival, will opt for this alternative, especially so in the presence of moral hazard. Evidence from the recent wave of democratic transitions in several African countries is consistent with some of the model predictions.

Some emerging work has started introducing institutional features into the analyses of autocracies, see Besley and Kudamatsu, 2008, and the references therein. Maskin and Tirole, 2004, address inefficiencies of democracies whereby political leaders pander to public opinion. The ultimate goal of this research agenda is to provide guidance for empirical work that aims to explain the heterogeneous performance of seemingly similar political regimes. This study complements by offering comparative analysis of autocracy and democracy, emphasizing various features of the latter system. Additional related literature that is relevant to the part that explores endogenous democratization includes Acemoglu and Robinson, 2000, Bertocchi, 2006, Cervellati et al., 2008, Justman and Gradstein, 1999, and Gradstein,
The autocrat’s motive for such democratization “from above” presented here, namely, to retain power through election in the context of political agency framework, has, to the best of our knowledge, not featured in the literature and is novel.

The paper proceeds as follows. The next section introduces the basic model with autocratic rulers and contains its preliminary equilibrium analysis. Section 3 presents the political agency framework, which enables us, in particular, to compare autocracy with democracy and to study the effects of legislative constraints and of moral hazard. Section 4 endogenizes democratic transition by considering an autocratic ruler contemplating initiation of elections and discusses evidence in the light of the obtained results, and Section 5 concludes with brief remarks.

2. Basic analytical framework

2.1. Autocratic rulers

Consider an economy that operates over two periods. It is populated by a political leader, in this section an autocratic ruler, and a measure one of citizens, the initial income of each of whom is exogenously given, \( y_1 \), and the second period income, \( y_2 \), will be endogenously determined. In each period \( t \), a ruler expropriates through taxation the amount \( e_t, \ 0 \leq e_t \leq y_t \). We restrict the expropriation rule by assuming that the amount of expropriation is proportional to income.\(^4\) In each period, the individuals allocate their disposable income, \( y_t \). 

\(^4\) This assumption, while not crucial, significantly simplifies the analysis.
between consumption, $c_t$, and investment, $k_t$, according to the budget constraint:\(^5\)

$$y_t - e_t = c_t + k_t$$  \hspace{1cm} (1)

The next-period income, $y_2$, is generated using the “$Ak$” technology,

$$y_2 = Ak_j$$  \hspace{1cm} (2)

(When there is no ruler, the production technology could well be inferior, $y_2 = ak_j$, $a<A$, which is also an element emphasized in Olson, 1993, that views one of the ruler’s role as enhancing the productivity of investment by restraining violent struggle among the individuals, for example.)

We will assume logarithmic preferences over consumption, so that $u_t = \ln(c_t)$, and will impose parameter restrictions ensuring that $\ln(c_t) \geq 0$ throughout. The individual intertemporal utility is given by:

$$U = u_1 + \delta u_2 = \ln(c_1) + \delta \ln(c_2)$$  \hspace{1cm} (3)

where $0<\delta<1$ is the discount rate.

The ruler derives utility from expropriated income, $e_t$, as well as from individual welfare, and from being in power; a rulers’ utility when in power is

\(^5\) Since the individuals are identical, their choices will be identical as well; at the risk of slight confusion, we
\[ v_t = \gamma u_t + (1 - \gamma) \ln(e_t) + r \]  

(4)

where \(0 \leq \gamma \leq 1\) represents the extent of benevolence, and is \(r\) the ego-rent component.\(^6\)

The ruler’s intertemporal utility is written as follows:

\[ V = v_1 + \delta v_2 \]  

(5)

In this basic variation, the events evolve as follows. In period 1, the ruler determines the amount of expropriation. The individuals allocate then their disposable income between consumption and investment, which generates second period income. In period 2, the events repeat themselves, first the ruler setting the tax, thus determining the extent of expropriation, and the individuals allocating disposable income between consumption and investment. We will be interested in the resulting subgame perfect equilibrium of the game.

2.2. Equilibrium analysis

The analysis proceeds backwards. Clearly in period 2 – the last in this game – the individuals will consume all their disposable income, so that \(c_2 = y_2 - e_2 = Ak_1 - e_2\). The second period level of expropriation to maximize that ruler’s utility satisfies the first order condition

\[-\gamma(Ak_1 - e_2) + (1 - \gamma) / e_2 = 0\]

\(^6\) The assumption of logarithmic preferences is made for simplicity, and at the cost of added complexity the basic results go through for more general class of preferences as well, such as, for example, CES functions.
and it clearly decreases in the ruler’s benevolence; substitution yields:

\[ e_2 = (1-\gamma)A_k \]  

(6)

The equilibrium amount of first period investment maximizes the individual expected intertemporal utility and is given by the first order condition

\[ -\frac{1}{(y_1 - e_1 - k_1)} + \delta k_1 = 0 \]

or,

\[ k_1 = \delta(y_1 - e_1)/(1+\delta), \text{ and } c_1 = (y_1 - e_1)/(1+\delta) \]  

(7)

Anticipating this, the ruler chooses the first period level of expropriation, to maximize the expected intertemporal utility, which upon substitutions can be written as follows:

\[
V = \gamma \ln[(y_1 - e_1)/(1+\delta)] + (1-\gamma)\ln(e_1) + \delta \gamma A \ln(\gamma A \delta (y_1 - e_1)/(1+\delta)) + \\
(1-\gamma)\ln((1-\gamma)A \delta (y_1 - e_1)/(1+\delta)] + (1-\gamma)r(1+\delta)
\]
The equilibrium choice, again to maximize (5), is given by

\[ e_1 = (1-\gamma) \gamma_1 / (1 + \delta) \] (8)

so that \( e_1 \) decreases in \( \gamma \) and in \( \delta \). These results are intuitive and imply that the equilibrium tax, or the level of expropriation, is negatively related to the extent of the ruler’s benevolence and to her expected discount rate of the future.

Several limitations of this simple model are dictated by considerations of simplicity and could in principle be subsumed in the analysis. For example, the assumed homogeneity of individual initial income is immaterial here, as individual income differences do not play any role in the analysis. A richer structure would consider infinite horizon, as well as stipulate that taxes may be used for the provision of public goods as well as for expropriation. The latter assumption would have an added component of the need for the allocation of tax proceeds between public goods and ruler’s expropriation. The essence of the results, however, is the same, as is shown in the appendix; see also Grossman and Noh, 1990, 1994, for examples of work along these lines.

3. Democratic elections

3.1. Basic model and analysis

In this section, the above framework is extended to include the possibility of actions affecting the chances of the political leader’s staying in power via elections. To do so, we adopt the by now standard political agency perspective (see Besley, 2006, for seminal work in this area).
Thus, assume that the political leaders come in two types, indexed \( j \), differing with respect to their benevolence, or, for brevity, bad and good, \( j = \{ \text{bad}, \text{good} \} \), with respective benevolence parameters \( 0 < \gamma_{\text{bad}} < \gamma_{\text{good}} = 1 \), and that the proportion of the latter in the population is \( q \); note, therefore, that good leaders are perfectly benevolent, whereas bad leaders are in part selfish and also derive ego-rents from being in office. Instead of assuming an exogenous probability of a leader’s replacement, we now assume a democratic political system, whereby between periods election takes place. The incumbent leader can be reelected; or, else, she can be replaced, in which case a new leader is randomly drawn from the population. This setup enables endogenization of political outcomes, depending on first period policy choices by an incumbent political leader.

Specifically, the sequence of events is now as follows. In period 1, the ruler’s type is drawn. Then the incumbent ruler determines the amount of expropriation. The individuals allocate then their disposable income between consumption and investment, which generates second period income. They also update their prior beliefs, and decide whether or not to replace the leader in election; if replacement occurs, a new leader is selected at random. In period 2, the ruler again sets the tax, and the individuals allocate disposable income between consumption and expropriation. We will study the perfect Bayesian equilibrium of this game.

Clearly, good leaders never expropriate, \( e_{1}^{\text{good}} = e_{2}^{\text{good}} = 0 \). From the previous analysis it follows that the equilibrium choice of the expropriation level in period 2 for bad leaders will be given by (6), or \( e_{2} = (1 - \gamma_{\text{bad}})Ak_{1} \). The individual investment choices are given by (7).

Further, upon observing \( e_{1} = 0 \) the voters always reelect. In a perfect Bayesian
equilibrium, citizens’ posterior beliefs assign probability zero to the good type at any information set whereby the first period expropriation is different from zero.\(^7\) Letting \(Q\) denote the posterior probability that the observed \(e_1 = 0\) was determined by a good ruler, the period 1 incumbent is reelected with a positive probability if and only if \(Q \geq q\), where \(Q\) is derived as follows. Let \(\alpha = \Pr(e_1^{bad} = 0| j=bad)\) be the probability that a bad ruler chooses to moderate her expropriation; then \(Q = q / [q + (1-q)\alpha]\), so that the incumbent will get reelected if \(q / [q + (1-q)\alpha] \geq q\), or \(\alpha \leq 1\).\(^8\) Given that the good rulers’ choices in period 1 are as described above, a bad ruler will only get reelected, therefore, if she implements this same choice; or, else, she gets detected and then replaced. In other words, a pure strategy pooling equilibrium (\(\alpha=1\), and reelection takes place) is obtained when

\[
e_1^{bad}(pooling) = 0; \ k_i(pooling) = \delta y_i/(1+\delta), \ c_i(pooling) = y_i/(1+\delta)
\]

(9)

In contrast, in the separating equilibrium, with a zero probability of reelection, \(\alpha=0\),

\[
e_1^{bad}(separating) = e_1^{bad} = (1-\gamma^{bad})y_i; \ k_i(separating) = \delta y_i y_i^{bad} / (1+\delta),
\]

\[
c_i(separating) = y_i y_i^{bad} / (1+\delta)
\]

The individual expected welfare in each case is as follows:

\(^7\) While the beliefs are generally not restricted by the Bayes’ rule at nodes not reached in equilibrium, since the good type’s action is determined, it suffices to impose the minimal restriction on out-of-equilibrium beliefs that the probability of a good type is zero whenever the observed level of first period tax rate is different from zero.
\[ U(\text{pooling}) = \ln(c_1) + \delta \ln(c_2) = \ln[y_1/(1+\delta)] + \delta \ln [\gamma^{\text{bad}} A \delta y_1/(1+\delta)] \quad (10a) \]

and

\[ U(\text{separating}) = \ln[y_1^{\text{bad}}/(1+\delta)] + \delta \ln[A \delta y_1^{\text{bad}}/(1+\delta)] + \delta(1-q) \ln [\gamma^{\text{bad}} A \delta y_1 / (1+\delta)] \quad (10b) \]

The welfare differential is

\[ U(\text{pooling}) - U(\text{separating}) = -(1+\delta - \delta q) q \ln(\gamma^{\text{bad}}) > 0 \]

implying that the pooling equilibrium welfare dominates the separating equilibrium. The reason for this is the disciplining effect of elections on the incumbent leaders’ incentives to expropriate in period 1. Under separating equilibrium, expropriation by bad incumbents takes place in period 1 and, possibly (depending on the identity of the randomly chosen leader then) in period 2 as well; under pooling, no expropriation takes place in period 1.

We then calculate the bad incumbent’s utility under each scenario:

\[ V^{\text{bad}}(\text{pooling}) = (1-\gamma^{\text{bad}}) A \ln[(1-\gamma^{\text{bad}}) A \delta y_1 / (1+\delta)] + (1+\delta)r + \gamma^{\text{bad}} U(\text{pooling}) = (1-\gamma^{\text{bad}}) A \ln[(1-\gamma^{\text{bad}}) A \delta y_1 / (1+\delta)] + (1-\gamma^{\text{bad}}) (1+\delta)r + \gamma^{\text{bad}} \{\ln[y_1/(1+\delta)] + \delta \ln [\gamma^{\text{bad}} A \delta y_1/(1+\delta)]\} \quad (11a) \]

and

\(^\text{8}\) To break the indifference when \(\alpha=1\), assuming a negligible cost of replacement would suffice.
\[ V_{bad}^{\text{separating}} = (1-\gamma_{bad}^{bad}) \ln[(1-\gamma_{bad}^{bad}) y_i] + (1-\gamma_{bad}^{bad}) r + \gamma_{bad}^{bad} u_i^{\text{separating}} = (1-\gamma_{bad}^{bad}) \ln[(1-\gamma_{bad}^{bad}) y_i] + (1-\gamma_{bad}^{bad}) r + \gamma_{bad}^{bad}\ln[y_i y_{bad}^{bad}/(1+\delta)] \] (11b)

and the utility differential is

\[ V_{bad}^{\text{pooling}} - V_{bad}^{\text{separating}} =
(1-\gamma_{bad}^{bad}) \partial \ln[(1-\gamma_{bad}^{bad}) A \delta y_i / (1+\delta)] + (1-\gamma_{bad}^{bad}) (1+\delta) r +
\gamma_{bad}^{bad} \ln[y_i/(1+\delta)] + \delta \ln[A^\gamma_{bad}^{bad} \delta y_i / (1+\delta)] -
\{(1-\gamma_{bad}^{bad}) \ln[(1-\gamma_{bad}^{bad}) y_i] + (1-\gamma_{bad}^{bad}) r + \gamma_{bad}^{bad} \ln[y_i y_{bad}^{bad}/(1+\delta)]\} =
(1-\gamma_{bad}^{bad}) \delta r - (1-\delta)(1-\gamma_{bad}^{bad}) \ln(1-\gamma_{bad}^{bad}) +
\delta \ln[A^\gamma_{bad}^{bad} \delta y_i / (1+\delta)] + \delta \gamma_{bad}^{bad} \ln(y_{bad}^{bad}) - (1-\gamma_{bad}^{bad}) \ln(y_i) \] (12)

From the differentiation of (12) it follows that, in particular, when productivity, represented by the parameter \( A \) and the ego-rent from being in office, \( r \) become higher pooling becomes relatively more attractive for the incumbent ruler. In general, therefore, either pooling or separating equilibrium may materialize, depending on parameter values.

### 3.2. Comparison with autocracy

It is of interest to compare the two political systems studied above, from the citizen perspective – in fact, this was one of the main objectives in Olson, 1993, and McGuire and Olson, 1996, who were interested in studying the benefits of democracy. To carry out the comparison, we assume that, in the context of the model of section 2, the population of
autocratic rulers is divided into good and bad ones, with the distribution of types as in the previous section.

Consider now the pooling equilibrium under democracy. We would like to argue that it welfare dominates autocracy. For the second period ruler’s choices will clearly be identical under the two political systems. The first period choices will be identical too, provided that the ruler is good; if, in contrast, the ruler is bad, her choices under pooling will be welfare superior to those under autocracy – and will generate a higher growth rate. It then follows that the pooling equilibrium outcome welfare dominates autocracy.

Our next observation is that autocracy welfare dominates the separating equilibrium under democracy. If the first period leader is good, she will be retained under the separating equilibrium, so that the welfare outcome in this case is identical to that under autocracy. If the first period ruler is bad, the expected welfare under the separating equilibrium is given by (10b). In contrast, under autocracy with a bad first period ruler, substituting the equilibrium values, the expected welfare is given by:

\[ U^{\text{bad autocracy}} = \ln[(\delta + \gamma^{\text{bad}}) y_1 / (1+\delta)^2] + \delta \ln [\gamma^{\text{bad}} A \delta (\delta + \gamma^{\text{bad}}) y_1 / (1+\delta)^2] \] (13)

and direct comparison reveals that it exceeds (10b). It then follows that the expected welfare is higher under autocracy than under the separating equilibrium.

Summarizing the above results, we therefore obtain

**Proposition 1.** The pooling equilibrium welfare dominates autocracy, which in turn
dominates the separating equilibrium. A higher productivity and a greater ruler’s ego-rent from being in power make the realization of the pooling equilibrium more likely.\(^9\)

Given that the welfare superior pooling equilibrium may or may not be realized, it then follows that elections as such do not necessarily imply that democracy is welfare superior to autocracy. In this sense, Olson’s, 1993, insight on the universal superiority of democracy solely based on elections is misleading. In principle, it is possible that a short term perspective will be adopted under election-based democracy, leading to a welfare inferior separating equilibrium. The intuition here is as follows. Election introduces an element of competition between the leaders. It may spur bad leaders to adopt good policies so as to mimic good leaders and win election; but if the cost of forgone profits is high relative to the prize of sticking to power, bad leaders may give up on power struggle and expropriate, thus adopting a myopic perspective. The selection effect of elections may reduce, therefore, the encompassing interest of incumbent leaders.

3.3. Legislative constraints and moral hazard

We now study the effect of legislative or constitutional constraints on the above results. The simplest way to do this is by stipulating a maximal level of expropriation by the leader.\(^{10}\)

Suppose, therefore, that in each period there is an upper bound of \(\varepsilon\) on the share of expropriated income; we further assume that it constitutes a constraint, in particular, \(\varepsilon < 1-\)

\(^9\) In the sense that the range, for which separating equilibrium exists, shrinks.
\(^{10}\) And alternative would be to assume that the leader has to take the citizen interests into account by imposing a larger weight of their utility in own objective function.
\( \gamma_{\text{bad}} \). Smaller values of \( \varepsilon \) are interpreted as softer legislative constraints. Employing previous results we can then write the respective incumbent leader’s utilities as follows:

\[
V_{\text{bad}}^{\text{(pooling)}} = (1-\gamma_{\text{bad}}) \ln (\varepsilon A y_1 / (1+\delta)) + (1-\gamma_{\text{bad}}) (1+\delta) r + \gamma_{\text{bad}} \ln (y_1/(1+\delta)) + \\
\delta \ln [(1-\varepsilon) A \, \delta y_1/(1+\delta)]
\]

(14)

and

\[
V_{\text{bad}}^{\text{(separating)}} = (1-\gamma_{\text{bad}}) \ln (\varepsilon y_1) + (1-\gamma_{\text{bad}}) r + \gamma_{\text{bad}} \ln (y_1(1-\varepsilon)/(1+\delta))
\]

(15)

Differentiating the utility difference, we obtain

\[
d[V_{\text{bad}}^{\text{(pooling)}} - V_{\text{bad}}^{\text{(separating)}}]/d\varepsilon = \gamma_{\text{bad}} (1-\delta)/(1-\varepsilon) - (1-\gamma_{\text{bad}}) (1-\delta)/\varepsilon
\]

which – recalling that \( \varepsilon < 1-\gamma_{\text{bad}} \) – is negative. It then follows that stricter legislative constraints - that correspond to smaller values of \( \varepsilon \) - make the pooling equilibrium more likely. Further, comparing (14) and (15) it can be verified that when \( \varepsilon \) is small enough pooling equilibrium emerges. The intuition here is clear: tighter legislative constraints reduce the relative value for the incumbent leader of separating herself through expropriation in the first period.

In the previous analysis, first period policy could be ascertained by the voters: it determined the individual disposable income and was a signal of the ruler’s type. We now modify this assumption by incorporating moral hazard, which scrambles the relationship
between expropriation and the individual disposable income. To do so, we introduce noise into this relationship in the following manner. Suppose that in period 1, the individuals get a noisy signal about expropriation, \( s_1 = e_1 + \Theta \), where \( \Theta \) is a random noise distributed according to a known distribution. The individual voters only observe \( s_1 \), not the actual expropriation. While these are the crucial features for the ensuing analysis, we also make further simplifying assumptions as follows. We assume that bad rulers are (almost) fully selfish, \( \gamma_{bad} \) is small and close to 0. We also assume that \( \Theta = \theta \), or \( \Theta = -\theta \), with equal probabilities.\(^{11}\) An increase in \( \theta \) represents, therefore, a mean preserving spread, or an increase in the volatility of the noise. This noise can have several interpretations. One is that it pertains to objective economic conditions. Another interpretation, however, perhaps more in line with the paper’s flavor, is that it captures the lack of transparency by the electorate in regard to policies pursued by the incumbent leader.

After the incumbent chooses the amount of first period expropriation and the individuals observe its signal, they decide on reelection. Then the magnitude of expropriation – hence, the actual net incomes – becomes known, and the individuals allocate their budget. The rest proceeds as above.

Clearly, in both periods good rulers choose no expropriation, and bad rulers choose to (almost) fully expropriate in period 2. And the equilibrium individual first period allocation is:

\[
k_1 = \frac{\delta (y_1 - e_1 + \Theta)}{(1+\delta)}, \quad c_1 = \frac{(y_1 - e_1 + \Theta)}{(1+\delta)}
\]

\(^{11}\) The precise nature of the noise distribution is immaterial, see the appendix for an extension.
Further, if \( s_1 = e_1 - \theta \), or \( s_1 = e_1 + \theta \), then the inference is that the individuals face a good political leader with a positive probability, hence reelection will follow; otherwise, the inference is that they face a bad leader with the probability one, and hence they will vote for replacement. With these assumptions, clearly bad rulers can pool with good ones by either choosing \( e_1^{bad} = 0 \), or \( e_1^{bad} = 2\theta \) (assumed to be less than \( y_1 \), so as to satisfy the budget constraint), and clearly, the latter – yielding a positive level of expropriation in the first period - dominates from their perspective. Specifically, if \( s_1 = y_1 - \theta \), letting \( \alpha = \Pr(e_1^{bad} = 2\theta \mid j=bad} \) be the probability that a bad ruler chooses to moderate her expropriation, the individuals assign posterior probability \( Q = (q/2) / [q/2 + (1-q)\alpha/2] = q / [q + (1-q)\alpha] \), to being faced with a good ruler; this probability exceeds the prior \( q \), implying that the ruler will be reelected whenever \( s_1 = e_1 - \theta \) is observed. As pooling enables reelection only when \( \Theta = -\theta \) is realized and since \( k_1^{pooling} = \delta(y_1 - 2\theta + \Theta) / (1 + \delta) \) – the expected utility of bad incumbents is

\[
V^{bad^{(pooling)}} = \ln(2\theta) + \delta \ln[A \delta(y_1 - \theta) / (1 + \delta)]/2 + (1 - \gamma^{bad}) r + \delta r 
\]

(17)

Alternatively, they can separate themselves as before by choosing \( e_1^{bad} \) close to \( y_1 = 1 \), in which case their utility is given by (11b) with \( \gamma^{bad} \) approaching zero there; this utility level at the limit equal \( \ln(y_1) + r = r \). Clearly, recalling that \( \theta < y_1/2 \), \( V^{bad^{(pooling)}} \) is seen to be increasing in \( \theta \), implying that pooling becomes more likely in the presence of large volatility; and, further, when \( \theta \) is large enough, the utility under pooling dominates the one when
separating.

Consider now the effect of an increase in $\theta$ on the expected individual welfare under a bad incumbent, given by

$$EU(\text{pooling}) = E[\ln(c_1) + \delta \ln(c_2)] = E\ln[(1-2\theta+\Theta)/(1+\delta)] + \delta \ln[A^{\text{bad}}(1-\theta)/(1+\delta)]/2 + \delta q \ln[A(1-3\theta)/(1+\delta)]/2 + \delta (1-q) \ln[A^{\text{bad}}(1-3\theta)/(1+\delta)]/2$$

The first term is the expected value of the first period consumption; the second term in the above expression represents the utility from the second period consumption level when $\Theta=-\theta$, and the incumbent ruler gets reelected; and the third and the fourth terms represent that value when $\Theta=\theta$, and, consequently, the incumbent gets replaced by a good and a bad ruler, respectively. Differentiation reveals that (18) decreases in $\theta$, implying that volatility has an adverse welfare effect in the context of the pooling equilibrium.

To sum up the above results,

**Proposition 2.** Imposition of legislative constraints on the extent of expropriation makes pooling more likely. Increased noise, by enhancing moral hazard, makes pooling – hence reelection of bad political leaders - more likely, but at the same time it also reduces welfare achieved under the pooling equilibrium.

Noise increases the amount of expropriated first period income under pooling, reducing both current consumption and investment, ensuring the reelection of a bad leader, and hence
making the individuals worse off. These latter results indicate that elections can have limited value in the presence of noise that scrambles the link between politicians’ actions and outcomes. They are well consistent with empirical work that documents the value of transparency, such as through free and active media, for economic outcomes, see e.g., Besley and Burgess, 2002, Brunetti and Weder, 2003, and Leeson, 2008. More specifically, perhaps, Ferraz and Finan, 2008, find that publicly released audits of corrupt politicians in Brazil significantly lower their reelection prospects.

4. Endogeneity of election

The above analysis has treated election as an exogenous event. It is now extended to endogenize the ruler’s decision to initiate democratic transition through election. To this end, we now assume that an autocratic ruler stays in power in the second period with an exogenously given probability $\rho$, $0 < \rho < 1$, and is removed from office – as a consequence of external threats, for example - with the probability $(1-\rho)$. It then follows that her intertemporal utility is now modified as follows:

$$V = v_1 + \rho \delta v_2 \quad (5')$$

In period 1 the incumbent autocratic leader, in addition to making the expropriation decision, also determines whether election will be held between the periods. In the case of no election,
the leader stays in power with the above probability; otherwise, the voters determine whether or not the incumbent leader is replaced. The individuals allocate their income between consumption and investment, and expropriation is determined in period 2 as above.

Democratic transitions “from above”, specifically, decisions by autocratic rulers to have regular multiparty elections were important historically, whereby it was one of the landmarks of mass democratization in Europe and elsewhere in the course of the nineteenth century, see e.g., Acemoglu and Robinson, 2000, and Justman and Gradstein, 1999. They have also featured more recently in various autocracies, as discussed below.

Note that, taking into account the envelope theorem, the expected utility of an autocratic leader increases in the survival probability $\rho$. As decisions in period 2 as well as period 1’s individual allocation decisions follow from the above analysis, we focus on the incumbent leader’s decisions in period 1. Recall that now she needs to decide on expropriation as well as whether or not to conduct an election. Clearly, a good leader will not expropriate and will opt for election, as she is ensured of reelection. A bad leader then may choose to pool by refraining from expropriation and opting for election, in which case her utility is given by (11a); or he can separate by making any alternative choices.

One such possibility is to expropriate while not allowing election – in which case the incumbent stays in power in period 2 with probability $\rho$. Another possibility would be to expropriate while allowing election to go ahead – but the outcome is clearly dominated by the previous alternative. In fact, the highest utility than a bad leader can possibly attain when separating is by not allowing election and expropriating. Clearly, this utility is higher than under pooling when $\rho=1$ (as in both cases the incumbent continues into second period, but
makes better expropriation choices when separating); and it is lower than under pooling when \( \rho = 0 \). Utility continuity with respect to \( \rho \) then implies that the incumbent leader will opt for pooling (election and no first period expropriation) if and only if \( \rho \) is small enough, in other words, when the incumbent is weak with little chances to stick to power as an autocratic leader.\(^{12}\)

Moral hazard as in the previous sub-section can also be incorporated in this model variation. For, as was shown there, the bad incumbent’s utility when pooling is an increasing function of moral hazard. As her utility when separating increases in \( \rho \), it then follows that, in the presence of moral hazard, the critical value below which an incumbent favors election, \( \rho^*(\theta) \), is an increasing function of moral hazard. The intuition for this is clear: moral hazard blurs the relationship between policies and outcomes, hence making election less effective in ascertaining the leader’s benevolence type. Clearly, when election is introduced, there is a positive probability for the incumbent leader’s reelection.\(^{13}\)

To sum up,

**Proposition 3.** If and only if the incumbent leader is weak enough (in the sense of facing a low probability to stay in power) will she opt for a democratic transition by initiating election. Moral hazard, by blurring the link between the incumbent leader’s actions and outcomes, further increases the propensity to introduce election – in which case the incumbent leader is reelected with a positive probability.

\(^{12}\) A previous version of the paper contains more detailed equilibrium derivations, omitted here for brevity.
This argument is related to, but is different from, the one presented in existing literature, see e.g., Acemoglu and Robinson, 2000, Cervellati et al., 2008, Justman and Gradstein, 1999. As in that literature, the decision to opt for election by an autocrat is made in the light of potential removal from office through other means, such as revolution or insurgency. But whereas there democratization is viewed as a commitment to directly restrain expropriation (see also Gradstein, 2007, for a related but different argument, whereby democratization occurs peacefully, to induce greater investment), here it is used as a mean for the autocrat to enhance her chances of staying in power. Further, in the presence of moral hazard, election is an imperfect screening device, so there is little reluctance to introduce it by bad leaders under threat to their power.

Democratization episodes in African countries in the course of the third wave of democratization (they mainly took place in the 1990s) are consistent with these results. During that period, there were more than a dozen of relatively stable democratic transitions, which resulted not from a civil war or a coup, but were initiated instead by the ruling autocracy (see Papaioannou and Siourounis, 2008, for definitions and Table 1 there, as well as Golder and Wantchekon, 2004, for the data). In a half of these cases, Benin, Burkina Faso, Djibouti, the Gambia, Ghana, Nigeria, and Tanzania, autocracy (typically, former military dictators) ultimately managed to return to power through elections deemed by international bodies as free and fair.

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13 This is consistent with Michels’, 1915, “Iron law of oligarchy”.
14 Peaceful transitions were identified using the Archigos dataset, Goemans et al., 2009, as well as by consulting respective Wikipedia and other online sources, notably www.worldstatesmen.org – a comprehensive encyclopedia of world leaders. The appendix in Papaioannou and Siourounis, 2008, also provides a useful brief description of relevant democratic transitions. The list of countries includes Benin, Burkina Faso, Cape Verde,
Thus, in Ghana, a military commander Jerry Rawlings assumed political power in 1981, after a sequence of coups. Having first banned political parties, Rawlings set up a new party, the National Democratic Congress, which under his leadership, won 58.3% of the votes (the largest percentage won by a presidential candidate in Ghana's political history) in the 1992 multiparty elections, judged by international observers as “largely free and fair.” In 1996, Rawlings won again by 57 percent, and elections were again judged free and fair by international observers.

In the Gambia, in 1994, the Armed Forces Provisional Ruling Council (AFPRC) having assumed power through a coup, banned opposition political activity. Lieutenant Yahya A.J.J. Jamme, chairman of the AFPRC, became head of state. The AFPRC announced a transition plan for return to democratic civilian government, and the Provisional Independent Electoral Commission (PIEC) was established in 1996 to conduct national elections. In late 2001 and early 2002, the Gambia completed a full cycle of presidential, legislative, and local elections, which foreign observers deemed free, fair, and transparent. President Yahya Jammeh, who was elected to continue in the position he had assumed during the coup, took the oath of office again, and his Alliance for Patriotic Reorientation and Construction (APRC) maintained its strong majority in the National Assembly.

In the Republic of Djibouti, the country's first president Hassan Gouled Aptidon turned the country into a one party state by declaring in 1981 that his party, the Rassemblement Populaire pour le Progrès (RPP) (People's Rally for Progress), was the sole legal one. He was elected without opposition for a six-year term as President on receiving

Gambia, Malawi, Mali, Sao Tome and Principe, South Africa, Djibouti, Ghana, Nigeria, Senegal, Tanzania,
84.58% of the vote. After the breakout of a civil war in 1991, he allowed for a constitutional referendum on multiparty politics, with four parties being permitted; in the parliamentary elections held in 1992, however, only two parties competed, and the RPP won all 65 seats in the National Assembly. Gouled was reelected for a fourth term in 1993 with 60.7% of the vote. He resigned as president 1999, at the age of 83, after being elected to a fifth term in 1997; his nephew Ismail Omar Guelleh having succeeded him in that role.

Finally, Benin is an interesting case where a former dictator, Mathieu Kérékou, despite losing first democratic election that he introduced, managed to retain power base and come back to presidential office. A mid-rank military commander, Mathieu Kérékou, assumed dictatorial powers as a head of the People's Revolutionary Party of Benin (PRPB) after a series of coups, in the mid 1970s. In early 1990s, with international pressure, Kérékou, introduced a new democratic constitution and held presidential and legislative elections – which he lost. Still, having remained popular, especially in certain parts of Benin, Kérékou managed to win in a close race in next election, in 1996, and he repeated this success in the 2001 election.

5. Concluding remarks

In this paper we revisit the comparison between democracy and autocracy in their relationship to economic growth and welfare. This is accomplished by viewing policy makers as political agents of the voters. Further, the offered framework is cast in growth

Zambia.
terms, thus enabling the establishment of a direct link between political regimes and economic growth. This paper suggests important qualifications in regard to Olson’s comparison between autocracy and democracy. Specifically, we conclude that election – a feature of democracy implicitly emphasized in Olson’s writings – is not enough to ensure the superiority of democracy. While election has the potential to discipline incumbent political leaders, it may also cause them to adopt short sighted policies, which may even make the individuals worse off relative to autocracy. This effect is shown to be reduced, making election relatively more advantageous, in the presence of legislative constraints and in the context of larger transparency in regard to government policies. And we endogenize the election decision by autocrats, showing that those whose grip on power is threatened most will opt for this option, to increase chances to stay in power through democratic election.

Our results are generally consistent with empirical literature that is ambiguous in regard to the beneficial effects of democracy on economic outcomes. They suggest that, to perform meaningful comparative analyses, specific features of political regimes as well as of economic environment have to be brought into picture. Future empirical work would likely benefit from incorporating some of these features, and, indeed, some detailed cross country data on specific ingredients of political regimes have emerged in recent years. The presented results are also consistent with recent studies that emphasize the role of better information, as provided by the media, for politicians’ accountability and political selection. Finally, it is argued that the analysis of episodes of democratic transitions in Africa reveals that they are consistent with the presented results on democratization “from above” that enabled ruling autocracies to return to power through seemingly democratic elections.
**Appendix**

**A1. Infinite horizon extension**

Consider the extension of the basic autocracy framework to infinite horizon. Equation (1) in the text represents the individual budget constraint here as well; and the production function is now

\[ y_{t+1} = A k_t \]  \hspace{1cm} (A1)

The individual intertemporal utility is

\[ U = \sum_{i=1}^{\infty} \delta^{i-1} \ln(c_i), \ 0 < \delta < 1 \]  \hspace{1cm} (A2)

The ruler’s intertemporal expected utility is\(^{15}\)

\[ V = \gamma \sum_{t=1}^{\infty} (\delta)^{t-1} \ln(c_t) + (1-\gamma) [ \sum_{t=1}^{\infty} (\delta)^{t-1} \ln(e_t) + \sum_{t=1}^{\infty} (\delta)^{t-1} r ], \ 0 \leq e_i \leq y_i \]  \hspace{1cm} (A3)

In each period \( t \), the ruler determines the level of expropriation, upon which the individuals allocate their disposable income between consumption and investment respecting (1). We are interested in the resulting subgame perfect equilibrium.

Suppose that all individuals consume (and invest) a fixed share of disposable income, so that \( c_i = \beta (y_i - e_i) \). The ruler’s objective function then is

\[ V = \gamma \sum_{t=1}^{\infty} (\delta)^{t-1} \ln[\beta (y_t - e_t)] + (1-\gamma) [ \sum_{t=1}^{\infty} (\delta)^{t-1} \ln(e_t) + \sum_{t=1}^{\infty} (\delta)^{t-1} r ] \]  \hspace{1cm} (A4)

and

\(^{15}\) For this part, we assume away the ego-rent from being in power, for simplicity.
\[ y_{t+1} = A(1-\beta)(y_t - e_t) \tag{A5} \]

Formulating and solving the associated Bellman equation, we then obtain:

\[ e_t = (1-\gamma)(1-\delta)y_t \tag{A6} \]

implying that the disposable income is \((\gamma+\delta\gamma+\delta)y_t\). The individuals then plan their consumption stream so as to maximize (1), while respecting the budget constraint

\[ (\gamma+\delta\gamma+\delta)y_t = c_t + k_{t+1} \tag{A7} \]

This is a standard optimal saving problem, and its solution is

\[ k_{t+1} = \delta(\gamma+\delta\gamma+\delta)y_t, \quad c_t = [1-\delta(\gamma+\delta\gamma+\delta)]y_t \tag{A8} \]

Note that the ruler’s expropriation trajectory and the individual consumption-investment plans, (A6)-(A8), are mutually consistent, hence constitute the subgame perfect equilibrium.

The economy’s growth rate is

\[ g_t = (y_{t+1} - y_t) / y_t = A\delta(\gamma+\delta\gamma+\delta) - 1 \tag{A9} \]

and it follows from its differentiation that political stability increases the growth rate.

Consider now the individual welfare at the equilibrium,

\[ U = \sum_{t=1}^{\infty} \delta^{t-1} \ln(c_t) = \sum_{t=1}^{\infty} \delta^{t-1} \ln[f(\delta,\gamma)y_t] = \sum_{t=1}^{\infty} \delta^{t-1} \ln[h(\delta,\gamma)A^{t-1}h^{t-1}(\delta,\gamma)y_t] \]

(A10)

where \(f(\delta,\gamma) = [1-\delta(\gamma+\delta\gamma+\delta)]\) and \(h(\delta,\gamma) = \delta(\gamma+\delta\gamma+\delta) = 1-f(\delta,\gamma)\).

To briefly see how these conclusions can be further extended to include spending on public goods, suppose now that, in each period, the ruler decides on the level of taxes, \(T_t\); these are then allocated between expropriation \(e_t\) and public goods provision \(G_t\):

\[ T_t = e_t + G_t \tag{A12} \]
The individual utility now also includes the public goods, \( u_t = \omega \ln(c_t) + (1-\omega)\ln(G_t), \ 0<\omega<1, \)
and the intertemporal utility function is

\[
U = \sum_{t=1}^{\infty} \delta^{t-1} [\omega \ln(c_t) + (1-\omega)\ln(G_t)]
\]

(A13)

The ruler’s intertemporal expected utility is

\[
V = \gamma \sum_{t=1}^{\infty} (\delta)^{t-1} [\omega \ln(c_t) + (1-\omega)\ln(G_t)]+ (1-\gamma)\left[ \sum_{t=1}^{\infty} (\delta)^{t-1} \ln(e_t) + \sum_{t=1}^{\infty} (\delta)^{t-1} r \right]
\]

(A14)

In each period, the ruler determines the level of taxes as well as their allocation between expropriation and public good provision; upon which the individuals allocate disposable income, \( y_t - T_t \), between consumption and investment as above. It is easy to see then that the above analysis extends in a straightforward manner, as in each period a constant fraction of tax revenues is allocated between expropriation, public goods provision, and private consumption.

**A2. Extension of the model with moral hazard.**

Suppose that the noise is now uniformly distributed in the interval \([-\nu, \nu]\), which implies that the signal \( s_t \) is distributed uniformly in the interval \([e_t - \nu, e_t + \nu]\). Letting \( P \) denote the posterior probability of a benevolent leader, reelection will take place if and only if \( P > p \). Applying the Bayes’ rule, we obtain that reelection takes place if and only if whenever \( \theta < \nu - e_t \) (in which case \( P = 1 \)). It follows that the probability that such effort will take place is \( (\nu - e_t)/2\nu \). It decreases with the expropriated amount and increases with the magnitude of the noise.
The bad incumbent’s expected utility then is:

\[ V = \gamma^{bad} \ln[(y_1-e_1)/(1+\delta)] + (1-\gamma^{bad})\ln(e_1) + \delta[(\alpha - e_1)/2\alpha] \{ \gamma^{bad} \ln \delta A(y_1-e_1)/(1+\delta) + (1-\gamma^{bad})\ln[\delta A(y_1-e_1)/(1+\delta)]\} + (1-\gamma^{bad})r = \gamma^{bad} \ln[(y_1-e_1)/(1+\delta)] + (1-\gamma^{bad})\ln(e_1) + \delta[(\alpha - e_1)/2\alpha] \ln[\delta A(y_1-e_1)/(1+\delta)] + (1-\gamma^{bad})r \]

And differentiation reveals that \(dV/d\nu > 0\), so that noise is advantageous for bad incumbents.

The first order condition with respect to \(e_1\) is

\[-\gamma^{bad} / (y_1-e_1) + (1-\gamma^{bad})/e_1 - \delta[(\nu - e_1)/2\nu] / (y_1-e_1) - \delta[1/2 \nu] \ln[A(y_1-e_1)/2] = 0\]

and the second order condition holds. This, along with the Bayesian updating as described above, the individual budget allocation choices, and the second period expropriation as described in the main text, constitute the unique equilibrium in this game, thus extending the framework in the text.
References


