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The dictator effect: how long years in office affect economic development

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Abstract. This paper contributes to the growing literature on the links between political regimes and economic development by studying the effects of years in office on economic development. The hypothesis is that dictators who stay in office for a long time period will find it increasingly difficult to carry out sound economic policies. We argue that such economic policies are the result of information asymmetries inherent to dictatorships (known as the 'dictator dilemma') and of changes in the personality of dictators (known as the 'winner effect'). We call the combination of these two terms the '*dictator effect*'. We present evidence to suggest that long years in office impacts on economic growth (which is reduced), inflation (which increases) and the quality of institutions (which deteriorates). The negative effect of long years of tenure (i.e. the '*dictator effect*') is particularly strong in young states and in Africa and the Near East.

1. Introduction

One of the most important reasons why people marched in the streets of the Arab world in 2011–2012 was that the presidents they wanted to depose were in power for far too long. Tunisia's Ben Ali had been in office since 1987, Yemen's Saleh since 1978, Mubarak since 1981 and Gaddafi since 1969 – the Libyan president ruled for an amazing forty-two years. During these long years their regimes had become increasingly corrupt, at least that was the perception by the population. Some, like Gaddafi, started as young and promising reformers of the 'old regime' but gradually became the personification of the malpractices of such a regime themselves. Growing corruption and patronage had begun to suffocate the economy, resulting, finally, in the mass protests that deposed (some of) them.

Long years of tenure are not a feature of the Arab world only. In Sub-Sahara Africa, the number of presidents who ruled their country for many, many years is even much larger: names like Mobutu (Zaire/Congo: 1965–1997) and Mugabe (Zimbabwe: since 1980) immediately spring to mind, but there are dozens similar stories.[1] In his recent 'The State of Africa', Meredith (2005) recounts the lives and policies of these 'big men' who dominated Africa in the years since independence.

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1 See for example the long list of dictators at http://conservapedia.com/List_of_dictators.

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Only rarely they stepped down after free elections–instead, most of them clung to power and continue to do so until the present day, often to the detriment of their countries. Even Museveni, the 'enlightened' president of Uganda who was in the 1990s welcomed by Bill Clinton as a representative of a new generation of politicians, has found pressing reasons to stay in power much longer than the original constitutional term limits, which mandate presidents to be elected no more than two terms of four years. Long tenure of dictators does not uniquely appear in Arica and the Middle east. North Korea with its hereditary 'Marxist' dictatorship, immediately springs to mind. And the Russian President Putin, in power since 2000, has already 'promised' to stay in office until 2024.

This paper sets out to explore what are the effects of such long tenures on the economies of the countries concerned. It aims to systematically test the relationship between a number of economic and institutional variables (GDP per capita growth, inflation, quality of institutions) and the years in office of a 'successful' leader; that is a dictator who remains in power for more than 8 or 10 years. This is done in two different ways. First, we borrow ideas from McGuire and Olson (1996); Olson (1993); Wintrobe (1998) among others to explain how dictators affect the economy. These scholars argue that a new regime may initially have a moderately favourable effect on the economy, but after some time the dictator will turn from 'enlightened and promising', to 'corrupt and tainted'. Moreover, they argue that at the beginning of his tenure, the dictator may be successful in the economic and institutional spheres of the country, but later on he will plunder the economy and impose much less successful and more repressive policies. Policies which eventually will lead to less economic growth and/or even to an economic disaster. Finally, the calamitous effects of his tenure in most cases may lead to his rapid downfall–economic mismanagement will increase the likelihood of a successful coup d'état–while in some other cases it may not, as long as he is constantly able to suppress opposition (a contemporary and 'interesting' example in this respect is, obviously, Mugabe). Second, we will econometrically test this idea that predicts that long dictator tenures have a large impact on growth, inflation and the quality of institutions. We will especially focus on the Near East and Africa, the region in the world where these problems are most significant–but we will also test these ideas on data from Latin America and South-East Asia.

2. The dictator effect

This paper contributes to the larger debate about the effects of political institutions on economic performance. For the recent period, this debate has mainly focused on *democratic regimes* and their effects on economic growth (Barro, 1996a; Chang, 2011; Przeworski *et al.*, 2000; Tavares and Wacziarg, 2001). Rodrik (2002) for example argues that democracies produce more stable growth paths and are better at dealing with adverse shocks. Total factor productivity

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is also, according to Rivera-Batiz (2002), positively affected by the higher quality of institutions under democracy. Much of this literature assumes that democratization is a one-dimensional process–as measured by (for example) the PolityIV dataset. However, the literature on the economic effects of *dictatorships* is much more limited. This limitation can be explained by the enormous diversity the authoritarian regimes exhibit–from e.g. the North-Korean one-party-system to personalistic regimes in Africa dominated by 'big men' such as Mugabe or Mobutu. This wide diversity makes it much more difficult to generalize about the impact of authoritarian regimes on economic outcomes.

Nevertheless, two sets of papers considerably contributed to our understanding of dictators and their regimes. The first set can be found in the studies of McGuire and Olson (1996) and Olson (1993), through which they developed a model that portrays the dictator as a 'stationary bandit', and the second set can be found in the work of Wintrobe (1990, 1998), in which he developed a number of models covering different aspects of dictatorships. In the former set of papers, the basic idea of McGuire and Olson (1996) and Olson (1993) is that dictators–even if they have unlimited power, which they are assumed to have in this approach–are constrained in their actions because increasing the level of taxation (or reducing spending on public goods) will have negative effects on the economy, and therefore, via taxation, on the income of the dictator. An absolute ruler, who is assumed to maximize his income via rent extraction, is therefore constrained by the Laffer curve effect. In short, "*an 'invisible' hand gives a roving bandit an incentive to make himself a public-good-providing king*" (McGuire and Olson, 1996: 71). In fact, the higher the tax rate, the more an autocrat will be interested in spending on public goods.[2] There is however, one important qualification; the time horizon of the dictator has to be quite long to get this benevolent result. When his time horizon is short, he will not care anymore about the effects of increased taxation on economic growth; the discipline of the Laffer-curve will disappear, and he will become a 'roving bandit' who will plunder the economy.

The Olson-McGuire approach, however, assumes that dictators are economically rational and – even more problematic – have access to full information about the consequences of their choices in the long run. These assumptions have been criticized in the literature (Wintrobe, 1998). In his comprehensive and thorough analysis of dictatorships Wintrobe (1990, 1998) was able to highlight the information problems faced by rulers of this kind. Given that dictators are the source of all power, people are reluctant to share their information with them, because the messenger of the bad news may well fall in disgrace. People will therefore tell the dictator what he wants to hear – and the dictator, knowing this, will not trust the information given to him by

2 They then go on to show that the equilibrium rate of taxation and spending on public goods under autocracy is different than under democracy is, but we will not pursue this further.

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his assistants and ministers. This is Wintrobe's 'dictator's dilemma': since he is 'almighty', he will never know how loyal his entourage, let alone his subject population is, because they do not dare to signal disloyalty to him. A dictator is therefore caught in information asymmetries. People will try to flatter him by presenting too optimistic information about the state of the economy while suppressing the bad news, also because bad news may mean that they – as for example cabinet ministers – are not doing the expected good job. Once such a disinformation campaign has started, it is difficult to return to reality. The result of this 'disinformation trap' is that the president lacks a basis for sound economic decision making, which eventually will lead to adverse long term economic performance. Finally, a dictator has good reasons to distrust everybody: as Machiavelli famously remarked, a ruler is almost bound to die at the hands of somebody close to him.

There is a social-psychological dimension to the aforementioned dilemma as well. The experience of winning – of being 'the strongest', the one who successfully rose to power – will lead to the release of powerful drugs (testosterone, dopamine) in the brain, to which people may become addicted and which may change their behavior. Robertson (2012) reviewed the various dimensions of this 'winner-effect', which makes those involved smarter and more focused, but also less emphatic and more egocentric, less open to outside criticism and poorer at decoding other people's emotions and expressions. Experiments with rats and mice have demonstrated that such addictions may even change the structure of the brain (Robertson, 2012). Such effects of power are well-known from social psychology. Powerful CEOs were, for example, more likely than business students to view other people as instruments of their own goals (Gruenfeld *et al.*, 2008). Much of this research builds on Kipnis (1976) and Kipnis *et al.* (1976) 'metamorphic model' of the effects of power on behavior asserting that 'through the repeated exercise of power individuals adopt more vainglorious self-concepts and as a consequence denigrate the less powerful' (Keltner *et al.*, 2003: 266). Power also reduces inhibitions and increases the likelihood of socially inappropriate behavior – also because those in power become less sensitive to threat and punishment. Summing up, these studies confirm that power corrupts (Kipnis, 1972).

This also has effects for the entourage of the powerful. Many dictators start their career as team players, leaders of a group of often military men who have staged a coup or won a contentious election. The logic of the dictator's dilemma and the winner-effect is that he will gradually eliminate other, more or less independent members of his team and increasingly rely on (for example) family members who are (in his view) more trustworthy or more willing to tell the ruler the stories he wants to hear. He may become increasingly lonely and paranoiac, and the quality of his (economic) decision making will decline accordingly.

The 'dictator's dilemma' can be solved in two ways: by repression or by loyalty/popularity – both are costly, however. Thus, "successful" dictators

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need a mix of repression and loyalty (or popularity) to survive in office, and this mix largely determines the character of the regime. Hence, it is possible to divide the authoritarian regimes into the following groups: 1. Military regimes, based on (following Mao's famous quote) 'the barrel of the gun' (high repression and low loyalty); 2. Monarchic/ Personalistic/Dynasty regimes, based on 'traditional' rule by a family (low repression and high loyalty); and 3. Single-Party/Totalitarian regimes, often based on ideology (communism), which makes possible the combination of high repression and high loyalty (Ellman, 2008; Geddes, 2003; Wright, 2008). Similarly, Chang and Golden (2010) have analyzed the determinants of corruption in authoritarian polities and the effects that corruption has on growth in different autocratic regime types. Their results show that personalistic and personalistic-hybrid (monarchies) regimes are more prone to corruption than military and single-party ones, implying that rulers who have longer time horizons are less corrupt.

Authoritarian regimes may however be embedded in states with very different levels of institutionalization, often linked to the history of the state involved. The more rulers and their regimes are constrained by 'independent' bureaucracies and by institutions such as parties, legislatures and elections, the more durable they tend to be (Gandhi and Przeworski, 2006), and the more balanced their economic policies will be (Boix, 2003; Geddes, 1999). The best proxy for testing these constraints is probably the 'antiquity' of the state involved: in young African states with almost no traditions and checks and balances the freedom of action of an autocrat is clearly different from 'ancient' states that do have created such constraints (Putterman, 2007).

3. Data and variables[3]

In order to assess the 'dictator effect', we analyze annual data on economic, political and institutional variables for the period 1960–2009, for all countries that had a dictatorship for at least a four year time period. Given the restriction that we want to investigate the 'dictator effect', we had to exclude countries where no dictators ruled during this period. The outcome of this restriction was a sample of 100 countries located in Sub-Saharan Africa (45), Asia (21), Latin America (20) and the Near East (14). We used various sources to find out when and why a regime was classified as a dictatorship and, in turn, a leader as a dictator (Beck *et al.*, 2001; Charron and Lapuente, 2011; Geddes, 2003; Marshall and Jaggers, 2004; Przeworski *et al.*, 2000; Teorell *et al.*, 2011). Our selection of dictators follows similar classifications as previous studies (Gandhi,

3 The paper has an online supplementary appendix that includes additional figures and tables (indicated by the format A-1,2,.. etc.), a detailed data summary, the classification tables with a full list of the countries in use, and additional results from various robustness tests. The appendix is available online at http://www.millennium-economics.com/supplementary-material.htm.

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2008; Goemans *et al.*, 2009; Wright, 2008).[4] Hence, a country was included for the entire fifty-year period (1960–2009) only if it was ruled by a dictator for at least four years.[5]

The **dependent** variables for the three different models are:

- *GDP per capita growth*: data were taken from *Penn World Table version 7* (PWT) (Heston and Summers, 2011).
- *Quality of Political Institutions:* data were taken from both the Polity IV project (Marshall and Jaggers, 2004) and the Vanhanen (2011) dataset.[6]
- *Inflation rate*: data were taken from the *World Development Indicators* (World Bank, 2012)

The **control** variables used in the regressions as well as their expected outcome coefficients are:

- *Initial GDP per capita (log)*: log of real GDP per capita (taken from PWT), a negative coefficient is expected here because of the existence of conditional convergence across countries (Barro, 1991; Sala-i-Martin, 1994; Solow, 1956).
- *Investment (percent of GDP):* (taken from PWT) larger investment shares illustrate better economic performance, hence economic growth (Grabowski, 2008; Mankiw *et al.*, 1992; Perotti, 1996). Thus, a positive coefficient is anticipated here.
- *Primary School enrollment (percent of population, gross):* (taken from WDI) higher educational attainment indicates greater accumulation of human capital which, in turn, has been emphasized as a critical determinant of economic growth (Barro and Lee, 2001; Mankiw *et al.*, 1992); hence, a positive correlation is expected between this variable and the dependent one.
- *Population growth*: (taken from WDI) larger population growth will usually lead to lower GDP per capita growth rates. Thus, a negative relation is expected (Barro, 1996b; Grier and Tullock, 1989).
- *Trade Openness (exports+imports/GDPpercapita,%)*: (taken from PWT) the literature suggests a strong positive effect of international trade on economic growth (Frankel and Romer, 1999; Rodriguez and Rodrik, 2001).
- *Share of Government in GDP (percent)*: (taken from PWT) various studies have demonstrated that a relatively large government is likely to be have adverse effects on economic growth due to inefficiency of government activities (Afonso and Furceri, 2010), or due to restrictions on private investments (Bjørnskov *et al.*, 2007). Hence, a negative coefficient is expected.
- *Quality of Political Institutions:* (taken from PolityIV and Vanhanen (2011)) we acknowledge the fact that both datasets have their weaknesses (Munck

4 Additionally, a significant contribution into classifying political leaders has been made by Goemans *et al.* (2009) under the project of *ARCHIGOS*, in which they provide systematic data by coding when and how dictators came into power, their age and their personal fate one year after they lost office.

5 The use of another criterion (for example a minimum of two years or more than five years of a dictatorship instead of four), had a marginal impact on the number of countries included, and almost no impact on the regression results.

6 See discussion below for the reason why we selected these two variables.

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and Verkuilen, 2002), therefore we have run each regression separately using both variables. The former intends to focus on the political constraints (constraints on the executive) and ranges from strongly autocratic (−10) to strongly democratic (10). The principal advantage of the index is that it examines concomitant qualities of democratic and autocratic authority in governing institutions, rather than discreet and mutually exclusive forms of governance. The polity variable provides a convenient avenue for examining general regime effects, therefore we include this variable to control for the quality of institutions in the baseline model. However, this index has been criticized by the Glaeser *et al.* (2004) paper, in which they argue that the Polity variables are highly volatile and do not reflect durable constraints on the executive, but political outcomes (2004: 7–9). The latter index is formed by a combination of two basic indicators of democratization; i.e. competition and participation. The degree of competition indicates the smaller parties' share of the votes cast in parliamentary or presidential elections, or both. For example, if the largest party gets 40 percent of the votes, the share of the smaller parties is 60 percent. The degree of participation indicates the percentage of the population which actually voted in the same elections. These two indicators are combined to create the Index of Democratization which we use in the regressions. This index differs from the other measures of institutional quality in two crucial points: (1) it uses only two indicators (competition and participation) and (2) both of them are solely based on quantitative data. Two points that highlight at the same time the strength and weakness of this indicator. Nevertheless, many researchers have recognized and examined the importance of institutions on economic growth (Acemoglu, 2003; Glaeser *et al.*, 2004; Rodrik *et al.*, 2004; Ros, 2011). Taking these studies into consideration a significant and positive correlation is expected between the quality of institutions and economic growth.

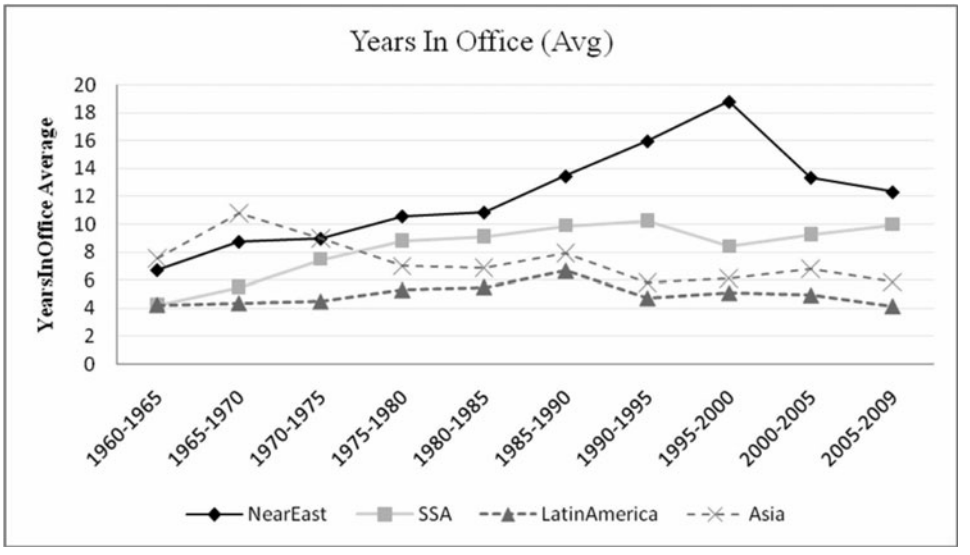
- *Religious fractionalization:* Reflects probability that two randomly selected people from a given country will not belong to the same religious group. The higher the number, the more fractionalized society (taken from Alesina *et al.* (2003)). Scholars usually use ethnic, linguistic or religious fractionalization in order to capture social cohesion. Easterly *et al.* (2006), argue that a higher level of homogeneity leads to a higher growth rate. However, Gandhi and Przeworski (2006) find that religious fractionalization is a stronger determinant of political and social cohesion in authoritarian regimes.[7] A negative sign is expected.

The key variable of the regressions is Years in Office (YRSOFFC), the number of years a ruler is in office since his rule began, taken from *ACLP* (Alvarez *et al.*, 1996) combined with *DPI* dataset (Beck *et al.*, 2001). The *ACLP* database's covers the period 1960–1994; the *DPI* dataset starts in 1975 and continues until 2010. Hence, the combination of these two databases allowed us to cover the whole period of interest; i.e. 1960–2009. The value of YRSOFFC increases each

7 The regressions were also carried out using the Ethnic fractionalization variable for robustness. However, the results did not change in a significant way.

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Figure 1. Years in office change over time.



year when the leader remains in power, and starts at one again when a new ruler takes office.

Figure 1 provides a graphic illustration of the evolution of the average years in office across the four different regions of the world included in this study. It seems that the remarkable high longevity of the dictators is to a large extend concentrated in Africa and in the Near East. Both of them show strong increases overtime; in Africa for instance, from a low of 4 years in 1960–1965 (partly due to their independence) to 10 years at present, and in the Near East from almost 7 in 1960–1965 to an amazing 19 in the 1995–2000 period, after which decline followed to 12 years in 2005–2009. Unlike them, Asia has the highest average in the 1960s and a declining trend is visible from 1970s onwards. Finally, Latin American countries do not seem to suffer from a similar trend of long lasting dictators, where the average remains around 5 years throughout the period of interest. A point which is confirmed by the econometric results (Table A-2, supplementary appendix).

Political scientists have studied the determinants of the years in office variable in order to explain why some rulers remained in power very long, whereas others were kicked out quickly (Acemoglu, 2006; Baker *et al.*, 2010; Geddes, 1999; Weingast and Wittman, 2008). Rulers leave office in many ways. Some of them die while in office by natural causes, sometimes to be succeeded by their sons. This is usually the case in monarchies. Some are deposed by a popular revolution, like Gaddafi in Libya. Military dictators usually are overthrown by another coup. According to Geddes (1999) the probability to oust a dictator rises

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in the first two decades because of the economic shocks, scandals and corruption, and then decreases over the next periods. Then, after 35 years in office the likelihood of regime breakdown starts increasing again. This is however not confirmed by our data, which show a log-linear distribution of years in office, which points to stability in the chance to end rule (Figure A-1, supplementary appendix).

Finally, we use a number of classifications of states and regimes in order to further explore the relationship between economic growth and years in office. We try to investigate how varying determinants, for instance different regime types, impact on the outcome of the dictator effect. Do they mitigate it? Do they increase the explanatory power of the model? Therefore, three different sets of interaction terms were included in the regressions:

- we coded *three types of authoritarian regimes* following Geddes (2003) and Wright (2008) in order to examine the different effects that each type of autocracy has on economic growth. We created separate dummies for the three different regimes: military, monarchy and single-party. The interaction term between the regime dummy and the Years in Office variable was then entered in the regression to find out what effect different regimes had on economic performance.
- we investigate whether *state antiquity* interacted with years in office has an effect on economic growth; in young states, such as almost all Sub-Saharan countries, without a certain institutionalization of power will probably be more 'personalistic', implying that the 'dictator effect' is stronger there; 'old' states, such as Egypt, or Ethiopia, may have developed stronger institutions to constrain the power of the executive; we used the "State Antiquity Index" (Putterman, 2007) to measure this effect, but divided the sample of countries into two groups, the young states (independent since the 1960s) and the older states (and created a dummy to the latter states).
- another obvious factor that we would like to include in the analysis is whether a country is *oil producing* or not;[8] the Olson model assumes that a dictator is constrained by the Laffer curve effect (Laffer, 2004), but once oil – or another, similar natural resource – enters the picture a ruler can simply extract his rents from this the proceeds of oil, without hurting the economy very much (Wright, 2008).Therefore we identified the oil producing countries (see classification table, Appendix (C)), and analyze the interaction between 'oil' and Years in Office.

Descriptive statistics of the variables used in the baseline and extended model are illustrated in the following table (see Table 1). These statistics can provide the context in which to assess the magnitudes of the econometric results.

8 Classification following Hesse and Poghosyan (2009), Klare and Volman (2006) and Ratner (2011), additional source: Statistical Review of World Energy (Petroleum, 2011).

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Table 1. Descriptive statistics

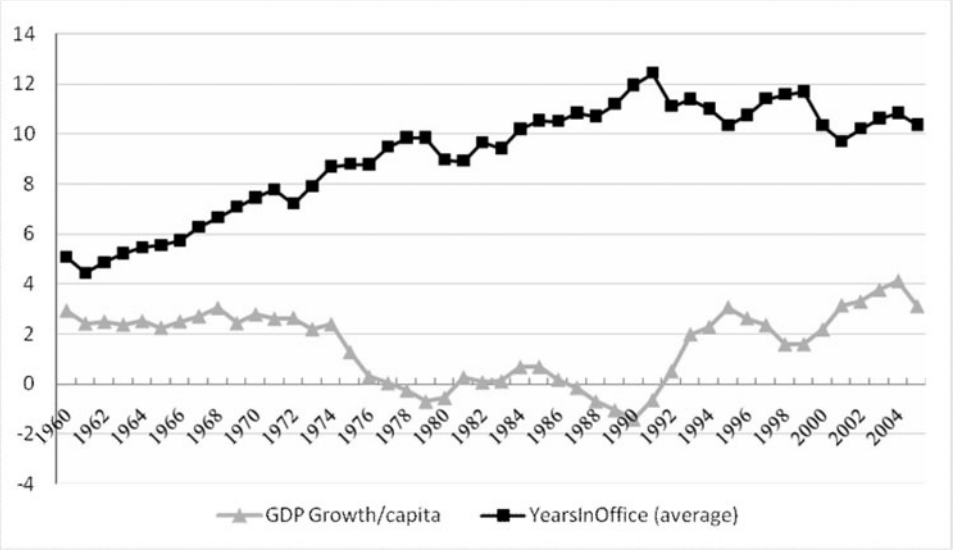
Variable	Obs.	Mean	Std. Dev.	Min	Max	Sources
Growth of GDP per capita	4623	1,98	8,09	− 65,00	88,74	PWT
Initial GDP per capita(log)	4950	7,31	0,94	5,17	11,08	PWT
Investment (% of GDP)	4679	21,77	12,57	33,21	111,35	PWT
Trade openness (% of GDP)	4690	66,47	47,51	1,03	393,78	PWT
Population growth	4850	2,46	1,29	− 8,27	17,74	WDI
School enrollment	3799	68,56	23,71	8,77	211,21	WDI
Years in office	4709	8,01	8,38	1,00	47,00	ACLP &DPI
Inflation(log)	3332	2,12	1,26	− 4,02	10,11	WDI
Government share (% of GDP)	4679	13,35	11,77	0,74	122,14	PWT
Index of democracy (vanhanen)	4950	4,18	7,56	0,00	42,51	Vanhanen, 2011
PolityIV	4618	− 2,06	6,81	− 10,00	10,00	PolityIV
Religion fractionalization	4950	0,56	0,24	0,01	0,93	Easterly *et al.*, 2003
State antiquity index	4399	0,41	0,25	0,02	0,96	Putterman, 2007

There is, apart from the protests during the Arabic Spring, some prima facie evidence that dictators, who stay in office for a long time, may have a poor economic record. If we set out the 'years in office' of the dictators of a number of African countries against the development of their GDP per capita we get a picture as presented in Figure A-2, online appendix. Most dictators do rather well during the first part of their tenure (although in the case of Libya this was perhaps sheer luck: the oil crisis of the 1970s improved things a lot for the country). But after a while, the economy of these countries began to go down: GDP per capita declined dramatically in all four of them. This was also independent of the year in which they took office, because the four countries of Figure A-2 were selected such that the start of these regimes was spread in time (Ivory Coast's HoupHouët Boigny: 1960; Zaire's Mobutu: 1965; Libya's Gadaffi: 1969 and Zimbabwe's Mugabe: 1980). Only Gadaffi managed to turn his economy around after a disastrous slide during the 1980s and 1990s, but this was mainly due to oil exports and high oil prices. Moreover, the level of real income remained quite low compared to the situation of Libya when he seized power: its GDP per capita in 2008 was only a third of the level of the mid-1960s. This example also demonstrates how important oil may have been for the countries concerned – we therefore also look at this factor in our regressions.

Turning to economic growth, Figure 2 shows the average per year value of the YRSOFFC variable scatter-plotted with average per year GDP per capita growth. After independence, in the early 1960s, the average YRSOFFC value obviously started at a relatively low level, but it increased until the early 1990s when the average ruler was in office for about 12 years. It has slightly declined since then – obviously the democratic wave of the 1990s did have some impact on it (Bratton *et al.*, 1997) – but on average the decline is quite small (to 11 years in 2009). Figure 2, provides a good illustration about the connection we

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Figure 2. Average value of years in office and the average rate of growth, 1960–2009.



are trying to establish: long years in office do seem to be correlated with slow economic growth.

4. The method

This section explains the empirical method we follow in our attempt to assess the 'dictator effect' on the three different indicators that we described above. We first estimate the link with GDP per capita growth and, in order to help explain the patterns found, we next examine if years in office also affect inflation and the quality of democratic institutions. Over the last few years several important advances have been occurred in the empirical literature of economic growth. This is due to new, more sophisticated panel data methods emerging to solve the econometric difficulties that growth researchers have faced. The panel data method that currently appears to be the most efficient is the generalized method of moments (GMM) developed by Bond *et al.* (2001). The advantage of this method is that it takes account of the time series dimension of the data, the non-observable country specific effects, the inclusion of a lagged dependent variable among the explanatory variables, and the possibility that all explanatory variables are endogenous (Roodman, 2006; Vieira *et al.*, 2012). Thus, throughout this paper, we employ the system-GMM estimator.

The empirical model for economic growth can be summarized as follows:

$$\Delta Y_{\mathrm{it}} = \gamma Y_{i,t-1} + \beta X'_{\mathrm{it}} + \delta Z'_{\mathrm{it}} + \nu_i + \mu_t + \varepsilon_{\mathrm{it}}$$
$$i = 1, \ldots, N \text{ and } t = 1, \ldots, T \qquad (1)$$

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where ΔY_{it} is the log difference in per capita GDP (i.e. economic growth), $Y_{i,t-1}$ is the logarithm of per capita GDP at the start of the period (initial GDP per capita), $X\prime_{it}$ is a vector of economic determinants of economic growth, $Z\prime_{it}$ is a set of control variables (both political and institutional ones) measured during the period. ν_i controls for all time-invariant country fixed effects and μ_t controls for factors that may affect levels of economic growth across countries at the same year, and ε_{it} is the error term.

Most scholars use a five-year average time period in order to address their hypothesis. They argue the dynamic panel model is designed for less time periods (T) than cross sections (N) in order to control for dynamic panel bias (Arellano and Bond, 1991). However, Hayakawa (2012) argues that even though system-GMM was originally developed for relative small T and large N, the two step system-GMM estimator, which is our case, has consistency and supports large time and cross section dimensions. Therefore, annual data were used to investigate the main hypothesis.[9]

Since most of the explanatory variables can be affected by economic growth and raise concerns of endogeneity, all of the variables are treated as endogenous ones. We use lagged levels of these variables as instruments for the current differences—lagged two or more periods, and their once lagged first-differences in the levels equation, in order to control for any potential endogeneity and to avoid reverse causality bias. This is a standard procedure in the empirical literature (Aisen and Veiga, 2013; Dreher, 2006; Jong-A-Pin, 2009). An important and common mistake that growth scholars make is that they fall into the trap of generating too many instruments, which is called the instrument proliferation problem (Roodman, 2009). Numerous instruments may seem individually valid, but can be collectively invalid because they overfit endogenous variables. Therefore, Mehrhoff (2009) and Roodman (2009) offer a solution to control and limit the number of instruments in order to get consistent estimates. Even though they both agree that there are no clear rules for the exact number of lags and instruments in the estimator, they propose two techniques to reduce the instrument count and obtain reliable results. One of them is by limiting the lag depth and the other one is by "collapsing" the instrument set. They strongly recommend to the researchers not to use more instruments than observations and to check whether the Hansen J-statistic indicates a perfect p-value of 1.00, which should not be the case. Thus, in the tables presenting our results we mention all the above diagnostic tests. Finally, we use Windmeijer (2005) finite sample correction of standard errors in order to increase robustness.

9 For robustness, we also use five year averages to test if the 'dictator effect' still holds (Table A-1, columns 3–6, supplementary appendix).

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5. Empirical results

(A) Years in office and economic growth

The main testable hypothesis is the following: does long tenure affect economic growth? Is there, more generally, a relationship between years in office of rulers and economic performance? Table 2 presents the first set of results. Firstly, we estimated the baseline model in column (1). The years in office variable is highly statistically significant and adversely affects economic growth. This correlation implies that when there is an additional year in office by the same leader, the annual growth rate decreases by 0.088%, after 20 years of rule the dictator depresses growth by more than 1.77% per year. The control variables yield the expected signs and confirm our expectations: initial GDP per capita is negatively correlated with growth; investment and trade openness have a positive effect on growth and both appear to be significant. Population growth does have the expected negative coefficient, although it is not statistically significant, and, finally, school enrollment has a small positive effect (depending on the specification significant or not).[10] In column (2) we include the square term of yrsoffc (YRSOFFCSQ),[11] which we created to examine if the relationship was linear or not.[12] However, the results verify that there is not a non-linear relationship between YRSOFFC and economic growth.[13]

In column (3) we added a proxy for the quality of institutions, i.e. *index of democracy* by Vanhanen (2011),[14] and the index of religious fractionalization. The results show that the quality of political institutions has a positive and significant effect on growth, even though it is only statistically significant at a 10% significance level. Nevertheless, this gives support to the institutionalist literature supporting that more democratic institutions enhance economic growth. Additionally, Religious fractionalization variable yields the expected negative coefficient and is statistically significant, confirming previous findings by Easterly *et al.* (2006). Nevertheless, the coefficient of YRSOFFC is not really

10 The results remain roughly similar when secondary enrollment is used instead of primary enrollment. We chose to report the latter, since we have more observations available for it.

11 We also tested for YRSOFFC in the power of three.

12 Moreover, we tested for a monotonic or not relationship between the key variable and economic growth; still the results do not indicate any non-monotonic relationship.

13 An additional empirical approach was used here to account for the possibility that years in office and economic growth are simultaneously determined. Clearly, we might expect that dictators' tenures in office are affected by their economic performance. This can be addressed by using the econometric specification of the *simultaneous equations model* (SEM), where both leader's duration and growth are treated as endogenous variables. However, the impact of the 'dictator effect' does not change in a significant way. This finding provides enough evidence to argue that the longevity of the dictators is the one driving this causality and not the other way around. Results are not presented here and are available upon request from the authors.

14 When we substitute the index of democracy variable with the polityIV variable we get similar results.

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Table 2. Years in office and economic growth

Dependent variable: GDP growth per capita	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Initial GDP per capita(log)	−0.4093	−0.3735	−0.3911	−0.4678	−0.6328	−0.3668	−0.2497
	[−2.04]**	[−1.97]**	[−1.77]*	[−2.02]**	[−1.71]*	[−2.31]**	[−1.33]
Investment	0.1683	0.1703	0.1949	0.2243	0.2154	0.1682	0.1657
	[3.07]***	[3.30]***	[3.33]***	[2.81]***	[4.13]***	[3.41]***	[3.06]***
Trade openness	0.0331	0.0327	0.0231	0.0365	0.0430	0.0324	0.0304
	[1.73]*	[1.74]*	[1.21]	[1.34]	[1.67]*	[1.96]**	[1.67]*
Population growth	−0.2204	−0.2087	−0.0945	−0.3914	0.1088	−0.1456	0.1667
	[−1.09]	[−0.99]	[−0.55]	[−1.72]*	[0.83]	[0.13]	[−1.01]
School enrollment	0.2210	0.2249	0.2258	0.1119	0.2747	0.1731	−0.1955
	[1.17]	[1.23]	[1.77]*	[0.75]	[1.67]*	[1.05]	[0.89]
Years in office	−0.0884	−0.1774	−0.1197	−0.1007	−0.1306	−0.1192	−0.2016
	[−2.61]**	[−2.12]**	[−3.43]***	[−2.76]***	[−2.59]**	[−2.15]**	[−2.72]***
Years in office square		0.0031					
		[1.08]					
Quality of political institutions~			0.0547				
			[1.88]*				
Religion fractionalization			−0.0013				
			[−2.00]**				
Inflation(log)				−0.0009			
				[−4.28]***			
Government share				−0.0224			
				[−0.50]			
Oil [Yrsoffc*NaturalResources]^					0.1072		
					[1.56]		
DummyOil					−0.0685		
					[−0.05]		
Single-party/communist^^						−0.0397	
						[−0.37]	
DummySingleParty						0.1546	
						[0.14]	

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Table 2. Continued.

Dependent variable: GDP growth per capita	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Military^^						0.8110	
						[2.81]***	
DummyMilitary						−1.3710	
						[−2.35]**	
Monarchy/personalistic^^							
DummyMonarchy/Personalistic							
High state antiquity^^^							0.2460
							[2.12]**
DummyHighStateAntiquity							−1.6970
							[−1.47]
Number of observations	4328	4328	4328	3008	4328	4280	4329
Number of countries	96	96	96	74	96	96	96
Number of instruments	114	115	116	84	107	118	120
AR1 statistics (*p*-value)	0	0	0	0	0	0	0
AR2 statistics (*p*-value)	0.256	0.139	0.346	0.626	0.445	0.248	0.242
Hansen test (*p*-value)	0.848	0.815	0.827	0.249	0.366	0.859	0.945

Notes: [a]System GMM estimation for dynamic panel data-model. Sample period: 1960–2009.
[b]Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
[c]Second (and latter) lags were used as instruments in the first-differenced equations and their once-lagged first differences were used in the levels equation.
[d]Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)) Time dummies are included in all regressions.
[e](~) In the regressions both variables of institutional quality have been included separately. In this table we only present the Index of Democracy from Vanhanen (2011).
[f](^) We constructed two interaction terms to capture the effects that each region multiplied by the years in office variable has on economic growth with respect to oil production. Those interaction terms, such as oil countries and non-oil countries are created out of one continuous variable (YRSOFFC) and one dummy variable (REGION*).
[g](^^) We constructed three interaction terms to capture the effects that different types of regimes multiplied by the years in office variable have on economic growth. Those interaction terms, such as Single Party/Communist, Monarchy/Personalistic and Military are created out of one continuous variable (YRSOFFC) and one dummy variable (REGIME*).
[h](^^^) We constructed two interaction terms to capture the effects that the state antiquity index multiplied by the years in office have on economic growth. Those interaction terms, such as Low and High Antiquity are created out of one continuous variable (YRSOFFC) and one dummy variable (STATEHIST*).

affected by adding these variables; it is reassuring that this coefficient became slightly larger and more significant. Column (4) shows similar results after adding macro-economic stability variables; inflation (log) has a statistically significant negative coefficient, the share of government in GDP does not seem to affect growth.

Next, we interacted YRSOFFC with an oil-dummy to find out if the effect presented before can be found in both oil and non-oil producing countries (column 5). The results suggest that in oil producing countries long tenure does not seem to impact that much (the coefficient of the interaction term is positive but insignificant), which is probably explained by the fact that the state is not dependent on extracting rents from the indigenous economy.[15] What perhaps also plays a role is that the ups and downs of oil producing countries are so much determined by the big swings in oil production and prices, that domestic-political matters do not seem to have much of an impact on the economy.[16]

Second, several political scientists have argued that varying regimes impact considerably different on the economy (Gandhi, 2008; Geddes, 2003; Wintrobe, 1990, 1998; Wright, 2008). Hence, a question arises from these previous findings; does 'the dictator effect' impact similarly on different authoritarian regimes? Column (6) of Table 2 shows that the kind of regime did not matter considerably: only military regimes do not seem to suffer, in relative terms, from the 'dictator effect', because the interaction effect is positive and compensates for the negative effect of the YRSOFFC variable. However the military-dummy is strongly negative, suggesting a depressing effect on growth independent of years in office. Finally, the estimated coefficients of the constructed interaction terms with the *State Antiquity Index* (Putterman, 2007) are reported in the last column. The idea was that younger states are more plagued by the dictator effect than old ones. This is confirmed: the interaction term of high state antiquity and years in office has a positive coefficient that compensates the negative coefficient of YRSOFFC. Apparently, the 'dictator effect' is a problem of young states.

(b) Robustness tests/alternative explorations

Several robustness tests were performed with the purpose of checking whether the empirical results, indicating adverse effects of years in office on economic growth, remain significant and reliable. *First*, we test whether the results are driven by the selected econometric specification (i.e. the system-GMM). Hence, we ran the same regressions of the same model with OLS, which basically produce

15 However, we did get a significant impact of oil countries on the deterioration of institutional quality in the next set of regressions where we used the 'quality of institutions' as the dependent variable. This finding confirms the resource curse reasoning (Humphreys *et al.*, 2007; Ross, 1999).

16 As another test of this we regressed the oil and non-oil dummies with YRSOFFC, without including the latter variable in the regression; this produced a strong negative effect for the non-oil producing countries but no effect for the oil producing countries.

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the same results – a consistent negative YRSOFFC coefficient of about the same magnitude.

Second, we examine if the "steady-state" assumption holds as suggested by Roodman (2009). He argues that this check can be used to examine the validity of the instruments used in the system-GMM estimator. In other words, the estimated coefficient of the lagged dependent variable in all our models should be less than unity, indicating convergence; otherwise the GMM estimator is invalid. Bond (2002) argues that additional checks for the dynamic panel estimate's validity can be made, by regressing the same model in a different specification, i.e. Ordinarily Least Squares (OLS) and Fixed Effects (FE) estimators. The estimated coefficient of system-GMM should lie between those two; something that holds in our case (results are not reported).

Third, we examine whether the link between economic growth and years in office changed over time. To achieve that, we divided the sample into two periods, 1960–1991 and 1992–2009. The purpose behind this division is twofold: (a) the period of the Cold War, before the final disintegration of the USSR in 1991, and (b) the wave of democratic change/transition in Africa and Europe during the 1990s. We find a sizable negative effect in both periods; the coefficient of YRSOFFC did decline a bit however (Table A-1, column 1&2).

Fourth, when we, instead of taking annual observations, convert all variables into (non-overlapping) five-year averages, we again get results which are very close to the baseline model; years in office variable has a strong negative link with economic growth, but the coefficient is somewhat smaller here (Table A-1, columns 3–6). To sum up, there is enough evidence to suggest that our findings for the 'dictator effect' are quite strong.

Alternatively, as it is illustrated in Table A-2, we investigate whether there is a different regional 'dictator effect' on economic growth, by adding dummy variables and interaction terms into the regressions. The effects are striking. At first, in column 1, the regional dummy variables do not add any additional explanatory value to the model; apparently, there are no significant regional patterns in per capita growth. However, when the region dummies are interacted with YRSOFFC in column 2, they have a considerable effect: SSA and Near East countries seem to suffer remarkably more from the 'dictator effect'. This effect even increases when quality of institutions is also taken into account (column 3). On the other hand, the coefficient for Latin America (the reference category in these regressions) is positive and insignificant.

It is important to note here that the net 'dictator effect' in Asia is driven by the statistical significance effect of its dummy variable, which is 0.0358 and after calculations one can see that the net 'dictator effect' of Asian countries (coefficient: −0.1360 and *p*-value: −1.92) is statistically significant at 10% significance level. This does not imply that the 'dictator effect' is absent in this part of the world, rather that the Asian and Latin American countries are less affected, in relative terms, as compared to the ones in Sub-Saharan Africa

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and the Middle East. To shed more light on the varying regional effects, we divided our dataset in 3 different sub-samples (Latin America, Asia and Sub-Sahara Africa/Middle-East) and re-estimated the model. The results show that all regions suffer, to various degrees, by the 'dictator effect'(see Table A-4). Finally, the estimated coefficients in column 4 did not alter significantly when we controlled for any macroeconomic stability (inflation & government share) and state antiquity effect. It is worth noting here, that the state antiquity index by itself does not exhibit explanatory power to the model, and hence, does not account for cross-country growth variations. It only adds explanatory value when it is interacted with the YRSOFFC variable (see Table 2, column 7).

(B) Years in office and institutions

Good governance is now generally considered to be a driver of economic development. We already saw that the regressions presented so far suggest that there is a negative correlation between economic growth and the years in office variable. We now want to investigate the impact of the 'dictator effect' on the quality of democratic institutions, measured by the Vanhanen (2011) dataset and by the PolityIV variable. Many studies describe the effects of authoritarian regimes on state capacity and the quality of government (Charron and Lapuente, 2011; Geddes, 2003; Wintrobe, 1990, 1998; Wright, 2008). For instance, Charron and Lapuente (2011), investigated the differential impact of those regimes on the quality of government and identified the mechanisms through which different authoritarian rulers (such as military, monarchy and civilian) affect the quality of government. Our results provide considerable support to their theoretical reasoning, that single-party regimes are more responsive to citizens' demands than the other two types of authoritarian rule because they have a structured mechanism to channel citizens' "voices" (Table 3, column 3).

Figure A-3a & A-3b, in the online appendix, show the patterns that we are trying to explain, the development of the weighted average of the PolityIV variable (in this figure rescaled to 0 to 20) and the similar graphs based on the Vanhanen dataset (2011). These two independent measures of the quality of political institutions show very similar patterns, which is reassuring: Latin America is the most democratic region, especially from the mid-1980s onwards, whereas the Middle East has on average the lowest scores. Both datasets show a moderate decline during the 1960s and 1970s, and much progress in democratic institutions from the mid-1980s onwards. But there are also clear differences, such as the decline in Middle-eastern scores in recent years in the Vanhanen which are not paralleled by the PolityIV data, which, given the problems with these kind of data, imply that the best strategy is probably to use both and compare the results.[17]

17 Moreover, we used two additional measures of government quality following Charron and Lapuente (2011). These are the 'Quality of Government' variable from the International Country Risk

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Table 3. Institutions and years in office

Dependent variable:	(1)	(2)	(3)	(4)
Index of Democracy-Vanhanen (2011)				
IndexDemocracy (t-1)	0.9438	0.9466	0.9386	0.9542
	[29.99]***	[29.47]***	[32.58]***	[30.70]***
GDP per capita (log) (t-1)	0.5506	0.6961	0.3516	0.4487
	[4.97]***	[5.07]***	[3.29]**	[2.67]**
Years in office	− 0.4116	− 0.4978	− 0.31812	− 0.5469
	[− 3.50]***	[− 1.89]*	[− 1.99]**	[− 4.92]***
School enrollment	0.0047	0.0073		
	[3.41]***	[2.08]**		
Oil [Yrsoffc*NatouralResources]^		− 0.1688		
		[− 3.11]***		
DummyOil		− 3.2252		
		[− 1.74]*		
Single-Party/Communist^^				
DummySingle-Party				
Monarchy^^			− 0.2962	
			[− 1.98]**	
DummyMonarchy			− 3.3141	
			[1.62]	
Military^^			0.2131	
			[1.83]*	
DummyMilitary			− 1.4248	
			[− 1.53]	
High state antiquity^^^				0.2079
				[1.99]**
DummyStateAntiquityIndex				2.4408
				[1.63]
Number of observations	4368	4381	4393	4442
Number of countries	96	99	98	99
Number of instruments	82	103	73	81
AR1 statistics (*p*-value)	0	0	0	0
AR2 statistics (*p*-value)	0.164	0.258	0.375	0.209
Hansen test (*p*-value)	0.489	0.799	0.624	0.714

Notes: [(a)]System GMM estimation for dynamic panel data-model. Sample period: 1960–2009.
[(b)]Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
[(c)]Second (and latter) lags were used as instruments in the first-differenced equations and their once-lagged first differences were used in the levels equation.
[(d)]Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)). Time dummies are included in all regressions.

Guide (ICRG) and 'Government Effectiveness' from the World Bank Governance Indicators (WBGI). It is very reassuring that all four indicators of government quality show similar patterns (see figures A-4a and A-4b, in the supplementary appendix). The latter two indicators have a more limited time frame and

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Does long tenure of a ruler have an effect on the quality of institutions? One would expect that the logic explaining the effect of years in office on growth would result in a similar causal link between long tenure and institutional quality. The question is: how could one model the determinants of the democratic quality of institutions? There is obviously a link with GDP per capita (Acemoglu *et al.*, 2005; Rodrik *et al.*, 2004; Sachs, 2003). Moreover, institutions are relatively stable, which is also clear from a visual inspection of the *Democratization Index* (Vanhanen, 2011) as well as of the *PolityIV* dataset: usually the quality of institutions does not change from year to year. So including the lagged of the dependent variable makes it possible to concentrate on changes only. Taking into consideration previous findings, we begin by considering the following dynamic framework which is common practice now in the growth and institutional literature (Levine *et al.*, 2000). Hence, the econometric linear regression model can be summarized as follows:

$$D_{i,t} = \alpha D_{i,t-1} + \gamma Y_{i,t-1} + X'_{i,t-1}\beta + \mu_t + \delta_i + u_{\mathrm{it}} \qquad (2)$$

where $D_{i,t}$ is an index of the quality of institutions in country i in period t. The lagged value of the dependent variable ($D_{i,t-1}$) is included to capture the persistence in the quality of institutions and also the slow change in the political structure of a country. Moreover, $Y_{i,t-1}$ is a proxy for economic development such as the one period lag of GDP per capita (log).[18] Therefore, the parameter γ measures the effect of GDP per capita on democracy. In addition, μ_t and δ_i are respectively time-specific and country-specific effects. Finally, other institutional or political variables are captured by the vector $X\prime_{i,t-1}$.

Since it is once again a dynamic panel data model, the OLS (either fixed or random effect) specification is unreliable. Therefore, the system-GMM estimator is also preferred in this case. In Table 3 the results are reported using the Vanhanen data (*Democratization Index*) as the dependent variable.[19] As expected, there is strong persistence; GDP per capita (log) and school enrollment both contribute to higher levels of institutional quality. Years in office has a strong negative effect on the *Democratization Index:* 20–25 years in office imply a lowering of the variable with about ten units, which given the scale from 0 to 42 is quite sizeable.[20]

country coverage (it drops our sample's time frame from 50 to 25 years and the country sample from 98 to 72), and this can lead to higher standard errors in the results and may rise concerns of estimation reliability. Therefore, we only present results with the Vanhanen (2011) and PolityIV datasets as the dependent variables.

18 We also used the school enrollment among population as an alternative indicator of economic development.

19 Table A-5 reports the results of the PolityIV and the 'Quality of Government' as the dependent variables. The results are considerably similar, confirming the adverse effect of dictators on the quality of institutions. Even though the coefficients vary in magnitude, the impact is similarly adverse.

20 This is computed with the following formula: $0.411 \times 25 = 10.29$ units.

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The institutions of both oil and non-oil-producing countries are negatively affected by long tenure, but the effect for oil-producing countries is larger, confirming the resource curse literature that stresses the negative effect of oil on governance (column 2). The interaction term of YRSOFFC with regime types (column 3) imply a strong negative effect induced by the monarchic regimes, when compared with the communist/single-party ones. This result corroborates previous findings by Charron and Lapuente (2011) who argue that some types of dictatorship (i.e. single-party) produce higher quality of government than others (i.e. monarchy and military). A crucial point stemming from this result is that monarchic regimes are more detrimental for the development of democratic institutions over time. Finally, we again find that especially young states suffer from the 'dictator effect'– the consequences in this case, are felt through the deterioration of democratic institutions.

(C) Years in office and inflation

One of the most 'convenient' ways for a ruler to acquire rents from a country is via the printing press. But printing money will result in inflation, which is therefore not only a proxy of 'rent extraction' by the state (McChesney, 1997), but it has also been linked to national socio-economic conflict (Collier and Hoeffler, 2005) –if unions are strong they will demand higher wages, resulting in a wage-price-spiral (Blanchard, 1986). We expect that inflationary pressures will build up with years in office, which appear to be confirmed by a first look at the data. Figure A-5, online appendix, presents a selection of dictators (Mugabe in Zimbabwe, Jawara in Gambia, Stevens in Sierra Leone and Mobutu in Zaire) and their track record in terms of inflation (in log-scale). In all four cases there is a clear upward trend – the data on Zimbabwe even end after 27 years because inflation went through the roof.

The objective of this section is to investigate the effects of long tenure on inflation levels. This is done by estimating a dynamic panel data model for annual inflation levels. In order to avoid the high variability problem, which inflation in those countries exhibit, we use the logarithm of inflation as the dependent variable.

The empirical inflation model can be summarized as follows:

$$(\log)\ \text{Inflation}_{i,t} = \alpha(\log)\ \text{Inflation}_{i.t-1} + X'_{i,t}\beta + W'_{i,t\gamma} + \delta_i + \mu_t + u_{i,t}$$
$$i = 1, \ldots, N \quad t = 1, \ldots, T_i \tag{3}$$

where $X\prime_{i,t}$ is a vector of strictly exogenous variables and $W\prime_{i,t}$ a vector of endogenous covariates, μ_t and δ_i are time-specific and country-specific effects respectively, and $u_{i,t}$ is the error therm.

It has been argued that one determinant that could explain different inflation outcomes across countries is the occurrence of crisis at the government level (Aisen and Veiga, 2006); therefore we use a relevant variable taken from CNTS to capture this effect and avoid omitted variable bias issues.

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- *Government Crises* (taken from CNTS): indicates any rapidly developing situation that threatens to bring the downfall of the present regime, excluding situations of revolt aimed at such overthrow. We expect this variable to have a positive and significant coefficient on inflation.

Political scientists have long argued about the existence of political business cycles (Nordhaus, 1975; Rogoff, 1990). This literature predicts that opportunistic policy making is particularly likely to occur in the run-up to elections. It has been demonstrated that incumbents induce good economic conditions just before an election in order to stay in power. Myopic voters, as Nordhaus (1975) first named them in his seminal paper, have the tendency to observe the current performance of the incumbent instead of the incumbent's policies throughout his years in office. Therefore, just before elections the incumbent uses monetary and fiscal policies (well-known Phillips curve effect) to manipulate the economy to win more votes (Martinez, 2009).

The existence of political business cycles has been investigated by economists and political scientists, primarily in the context of developed democracies (Alesina, 1997; Block, 2002; Shi and Svensson, 2006). These cycles predict that inflation may decrease prior to elections, but will increase with a lag the following year. Cases such as the Sub-Saharan Africa or other nascent democracies provide fertile ground for investigation, where voters in these regions are easier manipulated due to lack of information, and leaders act more opportunistic, relatively to what is happening in well-established democracies. Hence many dictators, in their attempt to stay in power, usually go to elections in an institutional environment more favorable to them than to their challengers. Decisions on fiscal policies are highly centralized in rulers' hands and monetary authority is also often strictly controlled by them. Therefore, they can unrestrictedly expand the money supply in the year prior to elections, for instance, to temporarily increase employment.

As Bratton *et al.* (1997: 63) pinpoint, the political power is systematically concentrated in the hands of one individual, who resists delegating all but the most trivial decision-making tasks. Consequently, in our analysis we chose to include presidential elections where the impact might be stronger. For instance, between the early 1990s and 2009, more than 100 presidential elections involving more than one candidate were held in sub-Saharan Africa. It is expected that presidential elections in the following year will have a negative -temporary though significant- impact on inflation rates. A potential significant PBC-effect through elections, may pinpoint the increased importance of elections in the politics of these regions. Therefore, to control for this effect on inflation we use the following variable:

- *Elections* (taken from CNTS): elections held for the presidency in a given year.[21]

21 As a robustness test we used an alternative source to retrieve elections data, that is from Hyde and Marinov (2011) dataset, which also provides the dates of the elections. Results did not change in a significant way.

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Table 4. Inflation and years in office

	Dependent variable:				
Inflation(log)	(1)	(2)	(3)	(4)	(5)
Log inflation (t-1)	0.6723	0.6694	0.5912	0.6608	0.6381
	[11.45]***	[11.17]***	[8.04]***	[12.66]***	[12.78]***
Growth of real GDP	− 0.0196	− 0.0058	− 0.0038	− 0.0058	− 0.0031
per capita (t-1)	[− 1.77]*	[− 1.68]	[− 0.41]	− 0.87	[− 1.83]*
Years in office	0.0431	0.0434	0.0357	0.0502	0.0451
	[5.39]***	[5.08]***	[3.30]***	[4.65]***	[4.79]***
Quality of political	− 0.0159		− 0.1074		
institutions~	[− 2.25]**		[− 3.12]***		
Government crises		0.2683	0.3625	0.2686	0.1741
		[5.37]***	[4.31]***	[5.64]***	[4.39]***
Elections (t-1)		− 0.2868	− 0.2536	− 0.2017	− 0.1569
		[− 2.53]**	[− 3.02]***	[− 2.35]**	[− 0.75]
Oil				− 0.0466	
[Yrsoffc*Natoural					
Resources]^				[− 2.32]**	
DummyOil				0.4369	
				[0.81]	
High state antiquity^^					− 0.0501
					[− 3.44]***
DummyHigh					0.8464
Antiquity					[4.45]***
Number of	4263	4263	4122	4263	4263
observations					
Number of countries	92	93	91	93	93
Number of	71	79	79	106	105
instruments					
AR1 statistics	0	0	0	0	0
(*p*-value)					
AR2 statistics	0.659	0.791	0.729	0.729	0.512
(*p*-value)					
Hansen test (*p*-value)	0.337	0.372	0.929	0.924	0.931

Notes: [(a)]System GMM estimation for dynamic panel data-model. Sample period: 1960–2009.
[(b)]Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
[(c)]Second (and latter) lags were used as instruments in the first-differenced equations and their once-lagged first differences were used in the levels equation.
[(d)]Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)) Time dummies are included in all regressions.
[(e)](~) In the regressions both variables of institutional quality have been included separately. In this table we only present the Index of Democracy from Vanhanen (2011).

The results of the regressions shown in Table 4, point to a strong positive effect of years in office on inflation. The quality of democratic institutions is as expected negatively linked to inflation (column 1&3). We also find that elections in the previous year (t-1) have a dampening effect on inflation, pointing to a PBC effect. In order to add reliability to the finding, we also tested if elections in the same

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year (t) affect inflation, but could not find a significant result. However, when we included elections in the following year (t+1) the variable becomes significant again and this time, positively associated with inflation rates, confirming our hypothesis (results are not reported). Moreover, including elections in the growth regressions did not produce any significant result, an outcome which suggests that it is much easier for a dictator to manipulate inflation rates (and fiscal policies in general) than GDP per capita growth. Oil producing countries are less affected by the years-in-office-effect (column 4). Finally, it appears that young states show this link between tenure and inflation more consistently than old states (column 5).

6. Conclusion

We began writing this paper when people were marching on the streets of Cairo and fighting their way to Tripolis; we finish writing this draft when Putin has announced that he intends to stay in office until 2024. This paper was designed to determine the effects on growth, inflation and institutions of such a decision by a ruler; in the 24th year of Putin's rule, we estimated that Russian growth will be depressed by 1.7 to 3.2 percent, that institutional quality will be lowered by between 8 and 12 points (and perhaps even more because Russia is an oil producing country), and that inflation will be increased by between 4.31 and 5.02 percent. These are large 'dictator-effects', which make it clear how long tenure of rulers can seriously affect economic development.

In this paper we have summarized various theoretical ideas that help to understand the gradual deterioration of economic performance during long periods of rule by a single, powerful individual. There are basically two factors which help to explain this. Firstly, the 'dictator-dilemma' (Wintrobe, 1998): the information asymmetries inherent to dictatorship result in a gradual deterioration of the quality of the information to which the ruler has access. This, in turn, leads to increasingly erratic and counterproductive decision making. Secondly, the 'winner effect' (Robertson, 2012), the addictive effects of winning may (or will) change the personality of the dictator, making him (for example) less open to new information. The combination of dictator-dilemma and winner effect will result in the typical career of the dictator, characterized by the cliché that 'power corrupts'. The net effect of this is that the expectations of the McGuire and Olson model (1996), that a dictator will be disciplined by the Laffer-curve effects of his behavior, and that therefore a 'stationary bandit' may have limited effects on growth, are not confirmed by our empirical results. Instead, long-lasting dictators seem to act as 'roving bandits', with detrimental effects on growth, inflation and institutions.

This is the most significant result to emerge from this paper; in all specifications we find a strong negative coefficient linking years in office to economic growth and the quality of institutions, and a positive coefficient relating years in office

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and the rate of inflation. In particular, there is enough evidence to suggest that the young states of Africa and the Near East are the ones more severely affected by the 'dictator effect'. The average country in this region saw its GDP per capita double between 1960 and 2009, implying an average growth rate of almost 1,5% per year; had there been no 'dictator-effect' as estimated here, average growth would have at least been 2,38% per year, and GDP per capita in 2009 75% higher than its current level.

Finally, this paper can also be read as another contribution to the big debate about the links between democratic institutions and economic development. It demonstrates that 'absolute' power, as we find in many of the countries studied here, leads to long years of tenure and results in bad economic performance – low growth and high inflation. It is part of one of the vicious circles of underdevelopment: poor governance will restrict economic and institutional change, which will limit potential improvements in governance structures. However, we also found some evidence that things might be changing: in the Near East years in office has declined from the very high scores attained in the 1990s and the quality of institutions has been slowly improving, a trend which already started in the 1990s in Sub-Saharan Africa, and which seems to influence the Near East now as well. Seen from this perspective, the Arabic Spring is not just an isolated event, but part of much broader processes of change that are now manifesting itself (even) in this region.

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