

The Dictator Effect

How long years in office affects economic development in Africa and the Near East

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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 become increasingly corrupt, and that their poor governance will impact on economic growth (which is reduced), inflation (which increases) and the quality of institutions (which deteriorates). This is because their time horizon is shrinking: they develop (in the terminology developed by Olson) from ‘stationary bandits’ into ‘roving bandits’. We test this ‘dictator cycle’ and indeed find strong evidence for its existence. It is stronger in young states and in ‘personalistic’ regimes. The interaction with having oil is quite interesting: years in office does not affect economic growth in oil-rich countries, but does have a negative effect on institutional quality. The negative effect of years in office was almost constant in time (and did not disappear after about 1992). We did also find some evidence for a ‘political business cycle’, which may point to the increased importance of elections in the political system of these countries.

Introduction

One of the most important reasons why people marched in the streets of the Arab world last year 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 42 years. During the long years their regimes they 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 personifications of the malpractices of such a regime themselves. And 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

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

Africa' Martin Meredith recounts the lives and policies of these 'big men' who dominated Africa in the years since independence in the 1960s. Only rarely did they step down after free elections – most clung to power and continue to so until the present day, often to the detriment of their countries. Even Museveni, the 'enlightened' president of Uganda who was hailed by (a.o.) Bill Clinton as a representative of a new generation of politicians in the 1990s, has found pressing reason to stay in power much longer than the original Constitution with its limitation to two terms allowed for.

This paper sets out to explore what the effects of such long tenures are on the economies of the countries concerned. It aims to systematically test the relationship between a number of economic and institutional variables (GDP growth, inflation, corruption) and the 'life cycle' of a 'successful' dictator, that is a president who remains in power for more than 8 or 10 years. This is done in a number of ways. First we borrow ideas from Olson, McGuire, Wintrobe and others to explain how dictators affect the economy. We develop the idea of a dictator's cycle (a bit similar to the political business cycle): initially a new regime may have a moderately favourable effect on the economy, but after some time – when the time horizon of the dictator shrinks - he will turn from 'young and promising', perhaps even successful in the economic and institutional spheres at the start of his career, to much less successful and more repressive policies, leading to increased corruption and less economic growth, or even economic disaster. This may lead to his downfall – economic mismanagement will increase the likelihood of a successful coup d'état – or it may not, if he is able to suppress of opposition (a contemporary, 'interesting' example in this respect is, obviously, Mugabe). Secondly, we will test this idea that 'years in office' of a president/dictator has a large impact on growth, inflation and institutions. The empirical part of the paper will focus on the Near East and Africa, the region in the world where these problems are most significant – but we will also test our ideas on data from Latin America and South-East Asia.

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, 1996; Przeworski et al., 2000; Acemoglu & Robinson 2001; Tavares & Wacziarg, 2001, Acemoglu et al., 2005). Rodrik (2002) for example argues that democracies produce more stable growth paths and are better at dealing with adverse shocks. Total factor productivity 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. This may be correct, but one of the problems is that there is an

enormous diversity in authoritarian regimes – from eg. the North-Korean one-party-system to personalistic regimes in Africa dominated by ‘big men’ such as Mugabe or Mobutu (and this is just one aspect of its diversity). This makes it much more difficult to generalize about the impact of authoritarian regimes on economic outcomes.

Literature on the economic effects of dictatorship is much more limited. Two sets of papers pioneered this: Olson (1993) and McGuire and Olson (1996) developed a model of the dictator as ‘stationary bandit’, and Wintrobe (1990; 1998) published a series of papers and a book developing a number of models covering different aspects of dictatorship. The basic idea of the Olson and Olson and McGuire papers 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: 73). In fact, the higher the tax rate, the more an autocrat will be interested in spending on public goods.² There is one important qualification, however: 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.

This is in essence of the dictator cycle: at the start of his career a ‘successful’ dictator – who is able to see the ‘big picture’ – will have a long time horizon and act as Olson’s stationary bandit (that is, limit taxation and spend on public goods), but when he gets older, his time horizon will become shorter, which will have negative effects on policies and their outcomes. Our paper can therefore be seen as the first attempt (as far as we know) to empirically test the Olson and McGuire model of dictatorship.³

One of the limitations of the Olson and McGuire model is that it assumes that a dictator is omnipotent – not constrained by anything and anybody. This, obviously, is not true

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.

³ A factor not mentioned in McGuire and Olson but quite relevant in our simulations with a dynamic version of the model is the interest rate, which captures the time effect; low interest rates result in long time horizons, a heavy weighting of future (tax) incomes and therefore increase the chance at benevolent policies; the problem with Africa is that interest rates are very high, reducing the time horizon of all actors, including dictators.

in practice: a dictator needs others to carry out his orders. As Wintrobe (1990; 1998) argues, dictators always experience insecurity about how much support they really have. The ‘dictator’s dilemma’ can be solved in two ways: by repression or by loyalty/popularity – both are costly, however. Thus, “successful” dictators 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 (Geddes, 2003; Wright 2008). Similarly, Chang & Golden (2010) have analysed the determinants of corruption in authoritarian polities and the effects that corruption has on growth in the 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.

A related issue is that authoritarian regimes may have very different levels of institutionalization; the more rulers and their regimes are embedded in institutions such as parties, legislatures and elections, the more durable they tend to be (according to Gandhi & Przeworski 2006), and the more favorable their economic policies will be (Boix, 2003; Gandhi & Przeworski, 2006; Geddes, 1999). Therefore, autocrats have an interest in maintaining ‘democratic’ institutions, using legislatures, to solicit cooperation and to neutralize potential threat of revolt from larger groups within society (Gandhi & Przeworski, 2006; Wright 2008).

We will test these ideas by finding out which type of regime produces the ‘dictator cycle’. Such a cycle points to low levels of institutionalisation of power – which we expect to be correlated with ‘antiquity’ of the state (measured by the ‘state antiquity’ dataset) – and will probably occur in military and/or monarchic regimes, where power is personalistic and not embodied in a party and its ideology. We hypothesize that young states, as those in sub-Saharan Africa, have not developed a dense network of institutions that constrain the behaviour of rulers.

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 1. 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 1 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 will therefore also look at this factor in our regressions.

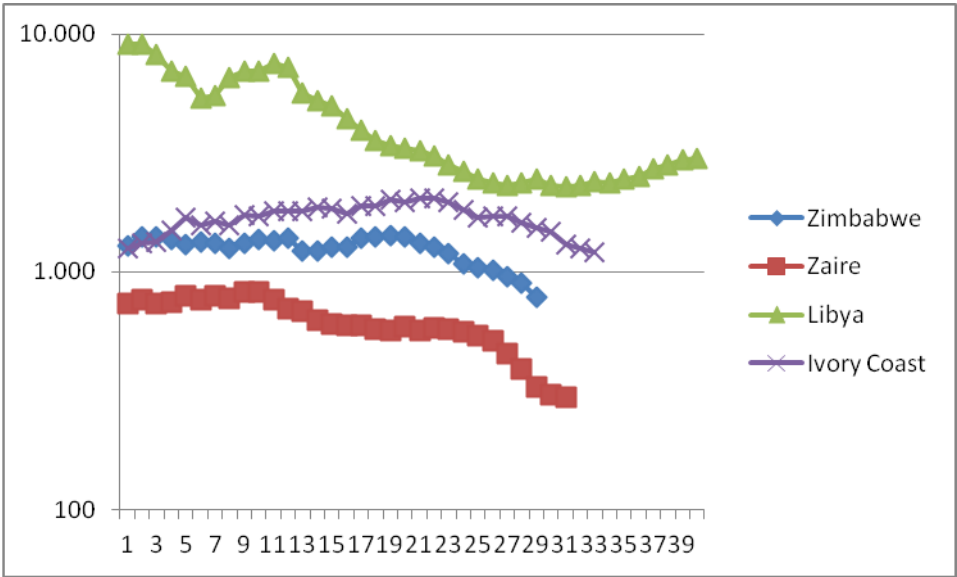


Figure 1. Years in Office and GDP per capita, four countries

Empirical tests: the method and the data

In this section we test the effect the long tenure of a ruler has on economic performance of the country concerned. We will first analyse the link with GDP growth and, in order to help to explain the patterns found, next see if years in office also affect inflation and the quality of democratic institutions. The main testable hypothesis is the following: does the fact that a ruler remains in office for many years affect economic growth? In our attempt to tackle this we analyze annual data on economic, political and institutional variables for the period 1960

to 2009 for 58 countries in Africa and the Near East (we later expand the dataset by including Latin American countries). We use system-GMM estimation applied to dynamic panel data covering the period 1960-2009 with annual data for these 58 countries. Over the last few years several important advances have been occurred in the empirical literature on growth and convergence. This is due to new, more sophisticated panel data methods emerging to solve the econometric difficulties that growth researchers face. The most popular panel data method that currently appears to be the most efficient is the generalized method of moments (GMM). We tackle the effects of years in office on economic growth by using this state-of-the-art dynamic panel data technique, i.e. system-GMM estimator.

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

$$\begin{aligned} \Delta Y_{it} &= \gamma Y_{i,t-1} + \beta X'_{it} + \delta Z'_{it} + v_i + \varepsilon_{it} \\ i &= 1, \dots, N \text{ and } t = 1, \dots, T \end{aligned} \quad (1)$$

where ΔY_{it} is the log difference in per capita GDP, $Y_{i,t-1}$ is the logarithm of per capita GDP at the start of the period (initial GDP per capita), X'_{it} is a vector economic determinants of economic growth, Z'_{it} is a vector of political and institutional determinants of economic growth measured during this period, v_i is the unobserved country-specific effects and ε_{it} is the error term. If we set $\alpha = 1 + \gamma$, then equation (1) becomes:

$$\begin{aligned} Y_{it} &= \alpha Y_{i,t-1} + \beta X'_{it} + \delta Z'_{it} + v_i + \varepsilon_{it} \\ i &= 1, \dots, N \text{ and } t = 1, \dots, T \end{aligned} \quad (2)$$

There is a problem estimating this model using OLS, the reason is that the $Y_{i,t-1}$ is endogenous to the fixed effects (v_i), which gives rise to “dynamic panel bias”. This implies that the OLS estimates will be inconsistent. Regardless of whether we use fixed or random effects specifications the $Y_{i,t-1}$ will be correlated with the error term ε_{it} . One prominent way to get rid of this bias is to take the first difference of equation (2).

$$\begin{aligned} \Delta Y_{it} &= \alpha \Delta Y_{i,t-1} + \beta \Delta X'_{it} + \delta \Delta Z'_{it} + \Delta \varepsilon_{it} \\ i &= 1, \dots, N \text{ and } t = 1, \dots, T \end{aligned} \quad (3)$$

However, when the variables are not strictly exogenous and they are first-differenced, they become endogenous, since the first difference will be correlated with the error term.

The specification in equation (3) can instead be estimated with difference-GMM and system-GMM estimators for linear dynamic panel data models developed respectively by Arellano and Bond (1991) and Blundell and Bond (1998), which eventually solved this problem. Those estimators difference away time-invariant, country specific effects and provide consistent and efficient results. In particular Arellano and Bond (1991) used lagged levels of the right-hand-side variables as instruments for the current differences, lagged two or more periods. A

problem of this difference-GMM estimator is that lagged levels are weak instruments for first-differences when the persistency of the series is strong. Therefore, following Arrelano and Bover (1995), who argue that efficiency can be increased by adding valid instruments in the equation in levels, Blundel and Bond (1998) originally developed the system-GMM estimator by involving additional moment conditions; they used lagged differences as instruments for current levels and modeled the lagged dependent variable in the right hand side as well. Another advantage of system-GMM is that it allows parameters to be estimated consistently in models which include endogenous independent variables, for instance, investment rates. Therefore, this is the preferred current estimator in the literature for dynamic panel models.⁴ To sum up there are two main reasons for the popularity of system-GMM estimator in empirical studies. First, the first-difference GMM estimator suffers from weak instruments problem, whereas system-GMM estimator does not, and second, is that the latter is more efficient.

In studying economic growth and in an attempt to tackle dynamic growth panel models the system-GMM estimator has given significant advantages. More notably, it allows us to model the lagged dependent variable and country fixed effects. In our case, one crucial fixed effect might be the ethnic fractionalization within a country or its specific geographical location; both these variables are time invariant and may have significant effects on economic growth.⁵ Moreover, in our specification we use initial conditions as explanatory variables; i.e. the GDP per capita in 1960. By using the difference-GMM estimator this time invariant variable would disappear. In other words, any attempt of differencing variables in the regressions, either in the baseline model or in the sensitivity tests, would remove any variable that is constant.

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 (Bond, 2002; Roodman, 2009a). However, Hayakawa (2006) 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. An important and common mistake that growth scholars usually make is that they fall into the trap of generating “too” many instruments, which is

⁴ For further discussion on those estimators, and their econometric properties for dynamic panel applications, see Hauk and Wacziarg (2009).

⁵ For a detailed discussion on economic growth determinants see Durlauf et al., (2005)

called the instrument proliferation problem⁶. Numerous instruments may seem individually valid, but can be collectively invalid because they overfit endogenous variables (Roodman, 2009a). Hence, the solution is to control and limit the number of instruments used in the regressions. Currently, there are two techniques in use to reduce the instrument count. One of them is limiting the lag depth, the other one is “collapsing” the instrument set. The former implies a selection of certain lags to be included in the instrument set. The latter illustrates a different idea about the orthogonality condition: it no longer needs to be valid for any one time period but still for each lag (Roodman, 2009a). Moreover, we use Windmeijer (2005) finite sample correction of standard errors in order to increase robustness. In all our regression we apply the two-step estimator in an attempt to obtain the Hansen J-test, which is one crucial diagnostic in GMM estimation for the validity and suitability of the model (Roodman, 2009a; Baltagi, 2008).

Furthermore, we examine if the “steady-state” assumption holds as suggested by Roodman (2009a), he argues that this check can be also 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 two⁷.

Finally, it is strongly recommended to mention the number of instruments used in the dynamic panel, in order to avoid the weak instruments bias. Roodman (2009b) claims that there are no clear rules for the number of lags and instruments used in the estimator, just some rules of thumb, i.e. firstly, not to use more instruments than observations and secondly, to check whether the Hansen J-statistic indicates a perfect p-value of 1.00, which should not. Therefore, in tables of results we mention all the above.

In this model specification, investment, trade openness, school enrollment and inflation rates are treated as endogenous variables. 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 the potential endogeneity and to avoid reverse causality bias. Initial conditions proxied by GDP per capita in 1960 and the

⁶ For evidence on how instrument proliferation could lead to unreliable estimations see Roodman (2009a) and Bowsher (2002).

⁷ We tested for that as well, results are not reported.

remaining explanatory variables are treated as exogenous. When applying the system-GMM estimator the exogenous regressors ordinarily instrument themselves (Roodman, 2009b); thus, all explanatory variables are instrumented.

The economic data are obtained from the *Penn World Table version 7- PWT* (Heston et al., 2011) and World Bank's *World Development Indicators –WDI*. Institutional data are gathered from the *Polity IV Database* (Marshall et al., 2010), from the database of political institutions (DPI) (Beck et al., 2011), ACLP (Alvarez et al., 1996) and GoC database (Teorell et al., 2011). Finally, political data are obtained from the Cross National Time Series Data Archive – CNTS (Databanks International, 2011).

We briefly discuss the data entered in the regressions:

- *GDP per capita growth* is the dependent variable in the first set of regressions (taken from PWT).

The control variables 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 convergence⁸ across countries.
- *Investment (percent of GDP)*: (taken from PWT) larger investment shares illustrate better economic performance, hence economic growth (Perotti, 1996; Mankiw et al., 1992). Thus, a positive coefficient is anticipated here.
- *Primary School enrollment⁹ (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 (Mankiw et al., 1992; Barro & Lee, 2000); 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. Thus, a negative relation is expected (Mankiw et al., 1992, Barro, 1997).
- *Trade Openness*: (taken from PWT) the literature suggests a strong positive effect of international trade on economic growth (Frankel & Romer, 1999; Rodriguez & Rodrik, 2001; Schneider, 2005).

⁸ Sala-I-Martin (1994) demonstrates evidence of β -convergence (conditional convergence); see also for a detailed discussion Solow (1956), Barro (1991) and Mankiw et al., (1992)

⁹ First difference of this variable is used in the regressions

Additionally, we can also add the following control variables (not included in all regressions as this limits the number of observations):

- *Inflation rate (WDI)*: a negative coefficient is expected, as high inflation has been found to negatively affect growth.
- *Share of Government in GDP (percent) (PWT)*: an exceptionally large government is expected to restrain resources floating in from the private sector and be harmful to economic growth. Hence, a negative coefficient is expected.
- *Quality of Political Institutions*: (taken from Polity IV) ranges from strongly autocratic (-10) to strongly democratic (10). The polity variable provides a convenient avenue for examining general regime effects, therefore we include this variable here to control for the quality of institutions in the baseline model. Many researchers have recognized and examined the importance of institutions on economic growth (Acemoglu et al., 2001; Acemoglu, 2003; de Haan, 2007; Glaeser et al., 2004, Rodrik, 2004; Helpman, 2004; Acemoglu et al., 2005). Taking those studies into consideration a significant and positive coefficient is expected for *polity IV* variable.
- *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 an authoritarian regime. Therefore, we use the latter control variable. 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)¹⁰ combined with DPI dataset (Beck et al., 2011). The value of YRSOFFC increases each year when the leader remains in power, and starts at one again when a new ruler takes office.

¹⁰ The ACLP document describes all the variables created for and used in the project *Democracy and Development: Political Institutions and Material Well-Being in the World, 1950-1990*. The data set covers 135 countries observed between 1950 or the year of independence or the first year for which data on economic growth are available.

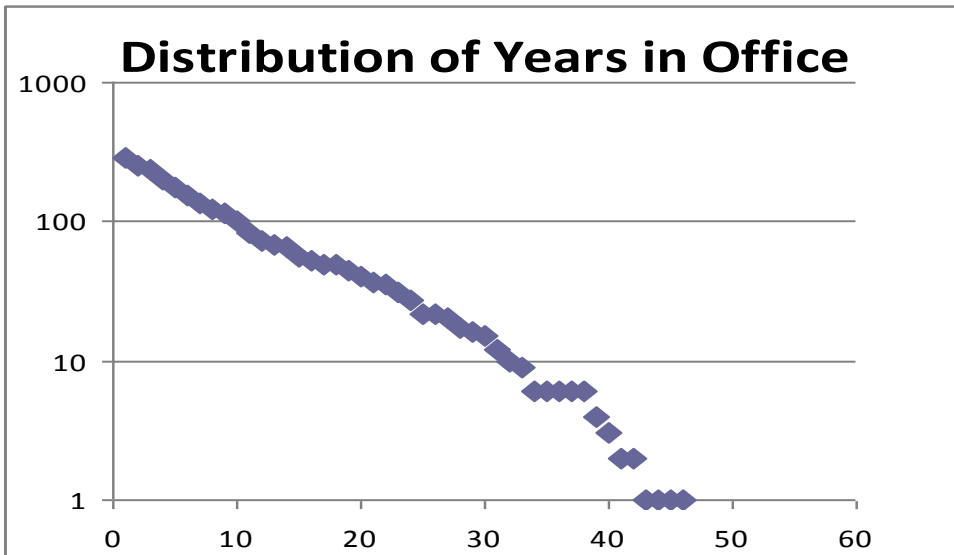


Figure 2 The Distribution of Years in Office

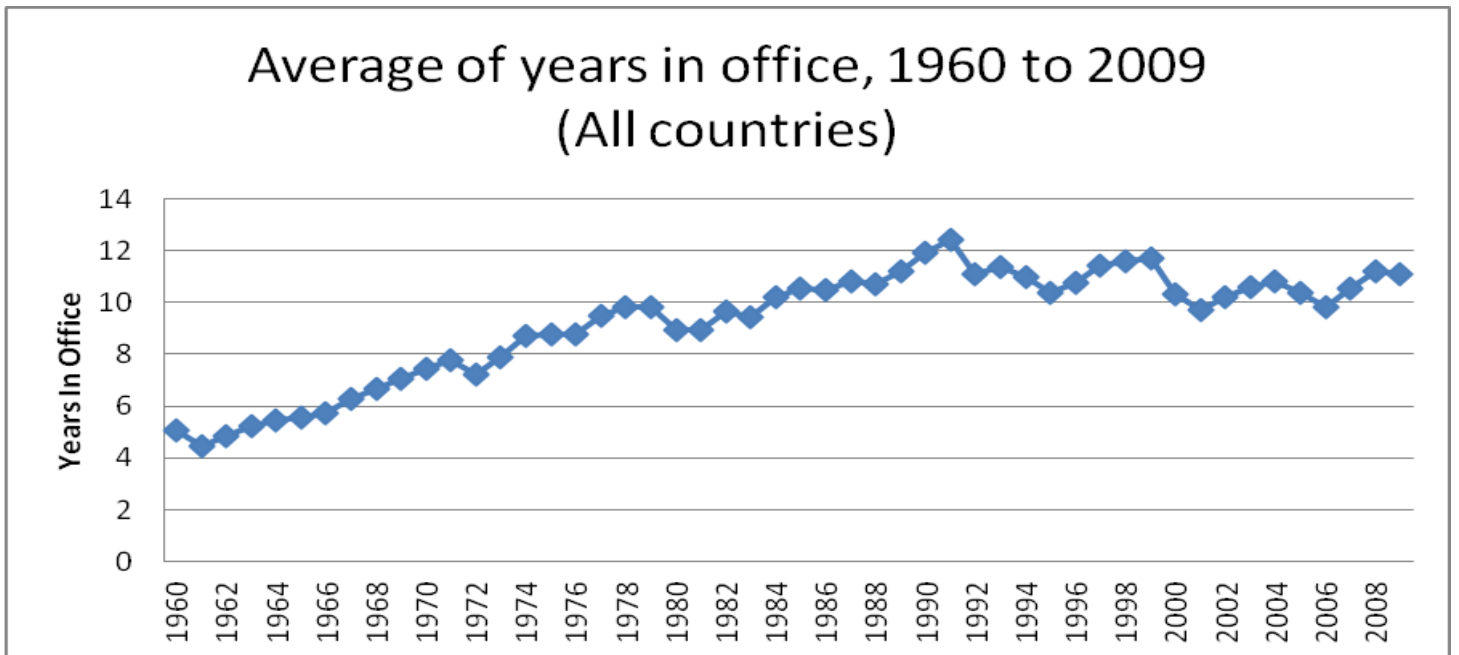


Figure 3 Average value of years in office, 1960-2009

The distribution of this variable in our dataset is presented in Figure 2. It shows the pattern that can be expected, a gradual decline which can be simulated by assuming that each successive year 89% of the rulers continue to be in office. There are three extreme examples where the leaders managed to remain in office for more than four decades. The first is Omar Bongo in Gabon, who after the Cuban President Fidel Castro stepped down in February 2008 became the world's longest-serving non-monarch ruler. The second example is the king of Jordan, Hussein bin Talal, from 1952 until his death in 1999; thirdly, of course, Libya's

leader, Gaddafi (1969-2011). In the region we focus on – Africa and the Near East - 40 leaders stayed in office for over twenty years and 12 leaders for over thirty!

The average value of the YRSOFFC variable is shown in Figure 3. After independence in the early 1960s the average value of the variable started at a relatively low level, but it increased until the early 1990s when the average ruler was in office for about 12 years! Since it has declined a bit – the democratic wave of the 1990s did have some impact – but on average the decline is quite small (to 11 years in 2009). Political scientists have studied the determinants of this variable in order to explain why some rulers stayed in office very long, whereas others were kicked out quickly (McGuire & Olson, 1996; Geddes, 1999; Bueno de Mesquita et al. 2003; Gandhi, 2008; Acemoglu & Robinson, 2006, Haber, 2006). Rulers leave office in many ways. Some of them die while in office by natural causes, to be succeeded by their sons. This is driven by the force of tradition from religious heritage; this is usually the case of monarchs. Some are deposed by a popular revolution, like Gaddafi in Libya. Military dictators usually are overthrown by another coup. Another reason might be the ignorance that the autocrats face while in office. Although secret police – a well known authoritarian institution – still does its job to keep an eye on potential threats against the regime, sometimes might be inefficient to capture the true unpopularity of the leader and the lack of loyalty to him.

According to Geddes (1999) the probability to oust a dictator rises 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.

Finally, we used a number of classifications of political and economic regimes, in order to see how they interact with Years in Office:

- we coded *three types of authoritarian regimes* following Geddes (1999) so as to examine the different effects that each type of autocracy has on economic growth. We created separate dummies for the three different regimes: military, monarchic and single-party (classification is included in the Appendix). 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 have 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.

- another obvious factor that we would like to include in the analysis is whether a country is *oil producing* or not; the Olson model assumes that a dictator is constrained by the Laffer curve effect, 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, and analyse 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.

Table 1. Descriptive Statistics

Descriptive Statistics					
Variable	Obs	Mean	Std. Dev.	Min	Max
Growth of GDP per capita	2691	1,56	9,65	-65,00	120,34
Initial GDP per capita(log)	2750	6,99	0,852	5,17	9,47
Investment (% of GDP)	2730	21,77	13,51	0,51	111,35
Trade Openness (% of GDP)	2730	70,77	39,99	1,03	393,78
Population Growth	2900	2,72	1,47	-8,27	17,74
School Enrollment	2532	66,64	19,81	11,75	211,21
Years in Office	2684	9,45	8,38	1,00	46,00
Inflation(log)	2226	0,12	0,31	-0,19	5,51
Government Share (% of GDP)	2730	11,87	8,93	0,74	58,61
PolityIV	2621	-3,81	5,97	-10,00	10,00
Ethnic/Religion Fractionalization	2799	0,45	0,27	0,01	0,86
State Antiquity Index	2399	0,35	0,23	0,03	0,96

Regression results: Years in Office and Growth

The central hypothesis to be tested is: *how does “years in office” affect economic growth?*

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. It implies that when there is an additional year in office by the same leader, the

annual growth rate decreases by 0.13% after 20 years of rule the dictator depresses growth by more than 2.6% per year! The control variables show the expected signs: initial GDP per capita is negatively correlated with growth; investment and trade openness have a positive effect on growth, but the latter appears to be insignificant. Population growth does not seem to matter (which is somewhat unexpected) and school enrollment has a small positive effect (depending on the specification significant or not). In column (2) we include the square (YRSOFFCSQ) variable which we created to examine if the relationship was linear or not; it again has the 'right' (negative) sign, and the p-value is even slightly higher than in column 1, indicating that at extreme values of YRSOFFC the effect is even stronger (we will test this below). The regressions with both YRSOFFC and YRSOFFCSQ are not shown as they did not produce useful results due to high multicollinearity between the two variables. In column (3) we add a proxy for the quality of institutions, i.e. POLITYIV variable, and the index of religious fractionalization. The results show that the quality of institutions has a positive effect on growth; religious fractionalization does not seem to impact on growth, however. The coefficient of YRSOFFC is not really affected by adding these variables. Column (4) shows similar results after adding macro-economic variables; inflation (log) has a statistically significant negative coefficient, the share of government in GDP does not seem to matter a lot.

Table 2. Years in Office and Economic Growth

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP growth per capita							
Initial GDP per capita(log)	-0.6674 [-2.18]**	-0.7397 [-2.37]**	-0.5160 [-1.75]*	-0.4065 [-1.00]	-0.5501 [-1.96]**	-0.6628 [-2.1]**	-0.7407 [-2.13]**
Investment	0.2130 [3.89]***	0.2165 [3.74]***	0.2012 [3.54]***	0.2037 [2.29]**	0.2052 [3.80]***	0.2179 [3.04]***	0.2177 [3.99]***
Trade Openness	0.0366 [1.57]	0.0365 [1.51]	0.0287 [1.26]	0.0308 [0.67]	0.0309 [1.40]	0.0387 [2.00]**	0.0375 [1.54]
Population Growth	-0.0048 [-0.03]	-0.0224 [-0.14]	0.0025 [0.02]	0.0777 [0.34]	0.0260 [0.19]	-0.0355 [-0.7]	0.0021 [0.01]
School Enrollment	0.3174 [1.54]	0.2691 [1.45]	0.3319 [1.36]	0.3270 [0.85]	0.3360 [1.50]	0.3393 [1.76]*	0.3663 [1.42]
Years in Office	-0.1318 [-3.31]***		-0.1246 [-3.21]***	-0.1431 [-3.15]***	-0.1301 [-3.81]***	-0.1283 [-2.71]***	-0.1322 [-2.78]***
Years in Office Square		-0.0042 [-3.39]***					
PolityIV			0.0928 [1.80]*		0.1044 [2.14]**		
Inflation(log)				-0.4159 [-2.03]**			
Government Share				-0.0371 [-0.59]			
Ethnic/Religion Fractionalization			-0.1500 [-0.13]				
Oil [^]					-0.0052 [-0.11]		
NonOil [^]					-0.1598 [-3.87]***		
Single-Party/Communist ^{^^}						-0.1731 [-3.18]***	
Monarchy/Personalistic ^{^^}						-0.0985 [-2.07]**	
Military ^{^^}						0.0086 [0.07]	
Low State Antiquity ^{^^^}							-0.1331 [-2.61]**
Medium State Antiquity ^{^^^}							-0.1148 [-1.86]*
High State Antiquity ^{^^^}							-0.0631 [-0.93]
Number of Observations	2128	2128	2092	1632	2091	2079	2128
Number of Countries	55	55	54	55	54	54	55
Number of Instruments	62	62	63	60	64	64	64
AR1 statistics (p-value)	0	0	0	0	0	0	0
AR2 statistics (p-value)	0.501	0.505	0.633	0.303	0.636	0.512	0.501
Hansen test (p-value)	0.723	0.681	0.811	0.671	0.858	0.881	0.825

Notes:

- System GMM estimation for dynamic panel data-model. Sample period: 1960-2009.
- Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
- 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.
- Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)) Time dummies are included in all regressions.
- (^) 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*).
- (^^) 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*).
- (^^^) We constructed three 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, Medium and High Antiquity are created out of one continuous variable (YRSOFFC) and one dummy variable (STATEHIST*).
- The "nlcom" command is used to capture the marginal effect of each interaction term on the dependent variable (Wooldridge, 2002).

Summing up, years in office appears to have a strong negative effect on economic growth. Is this the same for all authoritarian regimes? This question was addressed in Table 2 as well. First 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. The results clearly show that in oil producing countries long tenure does not seem to matter (column 5), which is probably explained by the fact that the state is not dependent on extracting rents from the indigenous economy. 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. For non-oil producing countries we find an even stronger effect of YRSOFFC. Column (6) of Table 2 shows that the kind of regime did indeed matter: military regimes did not have the negative years in office effect, whereas it was particularly strong for single party/communist regimes. This is a bit unexpected. Most military dictatorships are formed after a successful coup d'état which has overthrown the previous government. In the past, those military juntas have justified their rule as a way of temporary solution to crisis, or bringing "political stability", as they claim, for the national interest or rescuing the nation from "dangerous" ideologies. However, after their work is done, they transform either into another type of autocracy (single-party or personalistic) or they are deposed by a new coup d'état. In Nigeria for instance, the latter occurred over the period from 1966 until 1975, where three different military juntas ruled the country. In Rwanda, Habyarimana seized power in 1973, and then, just two years after being in office he created a party; the *National Revolutionary Movement for Development* (MRND), as the country's only legal party, which in the 1978's referendum, a new constitution was approved giving his party "legitimacy". In Democratic republic of Congo, general Mobutu - The Great Plunderer - seized power in 1965 by staging a coup. His motive, as he claims, was to prevent Congo from sliding into chaos and corruption. His motivational speech after seizing power was in line with what we mentioned before. "The existence of the nation itself was threatened. Threatened on all sides, from the interior and the exterior...the politicians had ruined the country...". Yet again, the military government ended on the 10th of April in 1967, a day marking the debut of the *Popular Movement for the Revolution* (MPR) as the sole legal party. Summing up, military regimes have only limited legitimacy and therefore do not last long.

This is confirmed by our data: the average duration of a military regime is 'only' 3.6 years (st dev. 2.6) – the maximum is 13 years (General Seyni Kountche ruled Niger as

military head of state from 1974 to 1987). Monarchies last longest, on average a dictator's life span in a monarchy is 11.4 years, three times the duration of a military regime (st.dev. 9.3 years). Single-party regimes fall in between with an average duration of 9.1 years (st.dev. 7.5). Finally, the estimated coefficients of the constructed interaction terms with the State Antiquity Index 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: only for the young and the 'medium-aged' states is the years in office variable significant, and the size of the coefficient clearly declines with the increase of the state antiquity index.

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 (Table 3). We extended the sample by including Latin American countries. The estimated coefficient of the years in office variable had a similar, but smaller negative value as before, supporting the hypothesis that YRSOFFC adversely affects economic growth. All other estimated coefficients and significance levels are similar to the ones estimated for the Africa/Middle East sample; the openness variable and the religious fractionalization variables become significant, however. The effect of state antiquity becomes even more striking: we now only find evidence for the dictator effect in young states (Table 3, column 6). 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: both years in office and years in office squared have a strong negative link with economic growth, but the coefficients of both YRSOFFC and YRSOFFCSQ are somewhat smaller here (Table 4, columns 3-8). Another check was to see if the link between growth and years in office changed over time. For this we divided the sample into two periods, 1960-1991 (before the democratic changes in Africa during the 1990s) and 1992-2010 (after those changes). The results were in a way disappointing: we find a sizable negative effect in both periods; the coefficient of YRSOFFC did decline somewhat however (from -0.1048 to -0.0867) (Table 4, column 1-2).

TABLE 3. Years in Office and Economic Growth: including Latin American Countries

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth per capita						
Initial GDP per capita(log)	-0.4985 [-2.01]**	-0.5185 [-2.04]**	-0.4101 [-1.46]	-0.4890 [-1.57]	-0.5129 [-2.12]**	-0.5415 [-2.04]**
Investment	0.1559 [2.43]**	0.1527 [2.39]**	0.1837 [3.29]***	0.2631 [2.63]***	0.1684 [2.45]**	0.1480 [2.27]**
Trade Openness	0.0444 [1.91]*	0.0405 [1.77]*	0.0277 [1.16]	0.0224 [0.56]	0.0409 [1.8]*	0.0444 [1.91]*
Population Growth	-0.2341 [-1.01]	-0.2578 [-1.09]	-0.0822 [-0.58]	-0.3120 [-1.61]	-0.1940 [-0.85]	-0.1358 [-0.68]
School Enrollment	0.2661 [1.55]	0.2748 [1.60]	0.2308 [1.05]	0.3360 [1.34]	0.3066 [1.96]*	0.2598 [1.58]
Years in Office	-0.0910 [-2.22]**		-0.1257 [-3.32]***	-0.0854 [-2.21]**	-0.0917 [-2.17]**	0.1034 [2.25]**
Years in Office Square		-0.0018 [-1.37]				
PolityIV			0.0498 [2.07]**			
Ethnic/Religion Fractionalization			-0.0014 [-2.02]**			
Inflation(log)				-0.0012 [-1.99]**		
Government Share				-0.0640 [-1.02]		
Single-Party/Communist^^					-0.1154 [-1.91]*	
Monarchy/Personalistic^^					-0.0661 [-1.82]*	
Military^^					-0.0955 [-0.59]	
Low State Antiquity^^^						-0.1365 [-3.05]***
Medium State Antiquity^^^						-0.0305 [-0.39]
High State Antiquity^^^						0.0001 [0.00]
Number of Observations	2735	2091	2072	1930	2686	2735
Number of Countries	78	78	64	73	77	78
Number of Instruments	74	74	76	83	76	76
AR1 statistics (p-value)	0	0	0	0	0	0
AR2 statistics (p-value)	0.277	0.281	0.639	0.638	0.285	0.277
Hansen test (p-value)	0.251	0.251	0.893	0.642	0.266	0.249

Notes:

- System GMM estimation for dynamic panel data-model. Sample period: 1960-2009.
- Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
- 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.
- Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)). Time dummies are included in all regressions.
- (^^) 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*).
- (^^^) We constructed three 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, Medium and High Antiquity are created out of one continuous variable (YRSOFFC) and one dummy variable (STATEHIST*).
- The "nlcom" command is used to capture the marginal effect of each interaction term on the dependent variable (Wooldridge, 2002).

Table 4. Growth and Years in Office: two periods and five year averages

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth per capita	1960-1991	1992-2009	5-year Averages			
Initial GDP per capita(log)	-0.5243 [-1.79]*	-0.8160 [-1.15]	-0.7404 [-2.11]**	-0.7789 [-2.15]**	-0.5342 [-0.77]	-0.7363 [-2.00]**
Investment	0.0268 [0.22]	0.3184 [2.27]**	0.1376 [2.12]**	0.1299 [2.01]**	0.2038 [1.21]	0.1658 [3.37]**
Trade Openness	0.0837 [1.96]**	0.0058 [0.11]	0.0635 [1.93]*	0.0655 [1.96]**	0.0432 [1.94]*	0.0513 [1.51]
Population Growth	-0.1482 [-1.16]	0.4823 [1.38]	-0.0212 [-0.14]	-0.0491 [-0.31]	-0.6364 [-0.67]	0.1824 [1.14]
School Enrollment	-0.0666 [-0.34]	0.4819 [1.37]	0.0002 [2.16]**	0.0002 [2.18]**	0.0001 [1.02]	0.0001 [1.69]*
Years in Office	-0.1048 [-2.00]**	-0.0867 [-2.16]**	-0.0850 [-2.07]**		-0.0895 [-2.09]**	-0.0959 [-2.12]**
Years in Office Square				-0.0027 [-2.5]**		
PolityIV						0.0599 [1.11]
Ethnic/Religion Fractionalization						0.0274 [0.02]
Inflation(log)					-0.0015 [-2.03]**	
Government Share					0.0335 [0.29]	
Number of Observations	1254	928	509	509	368	469
Number of Countries	55	58	55	55	52	51
Number of Instruments	72	52	30	30	56	28
AR1 statistics (p-value)	0	0	0.009	0.009	0.002	0.011
AR2 statistics (p-value)	0.369	0.432	0.907	0.898	0.961	0.987
Hansen test (p-value)	0.959	0.405	0.115	0.109	0.469	0.163

Notes:

- System GMM estimation for dynamic panel data-model. Columns (1) and (2) illustrate results taken from annual data. Columns (3) - (6) illustrate results taken from 5-year (non-overlapping) averages.
- Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
- 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.
- Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)). Time dummies are included in all regressions.
- We used a different variable for school enrollment in the 5-year regressions. Data for this variable were obtained from CNTS database.

Regression Results: Institutions and Years in Office

Good governance is now generally considered to be a major precondition for economic development. We already saw that also our regressions suggest that the quality of democratic institutions – as measured by the PolityIV dataset – has a significant positive effect on growth, and below we will also demonstrate that the same variable dampens inflation. The development of the weighted average of the PolityIV variable (rescaled for econometric reasons to 1 to 21) shows that in the Near East (the region west of Afghanistan, including Turkey) the average score did not improve in the last 60 years, but that Africa has seen a strong increase in its institutional quality since the early 1990s (this was until recently almost exclusively concentrated in sub-Saharan Africa) (Figure 4). The world average is also presented: it shows the same upward trend during the third wave of democratization since the mid 1980s.

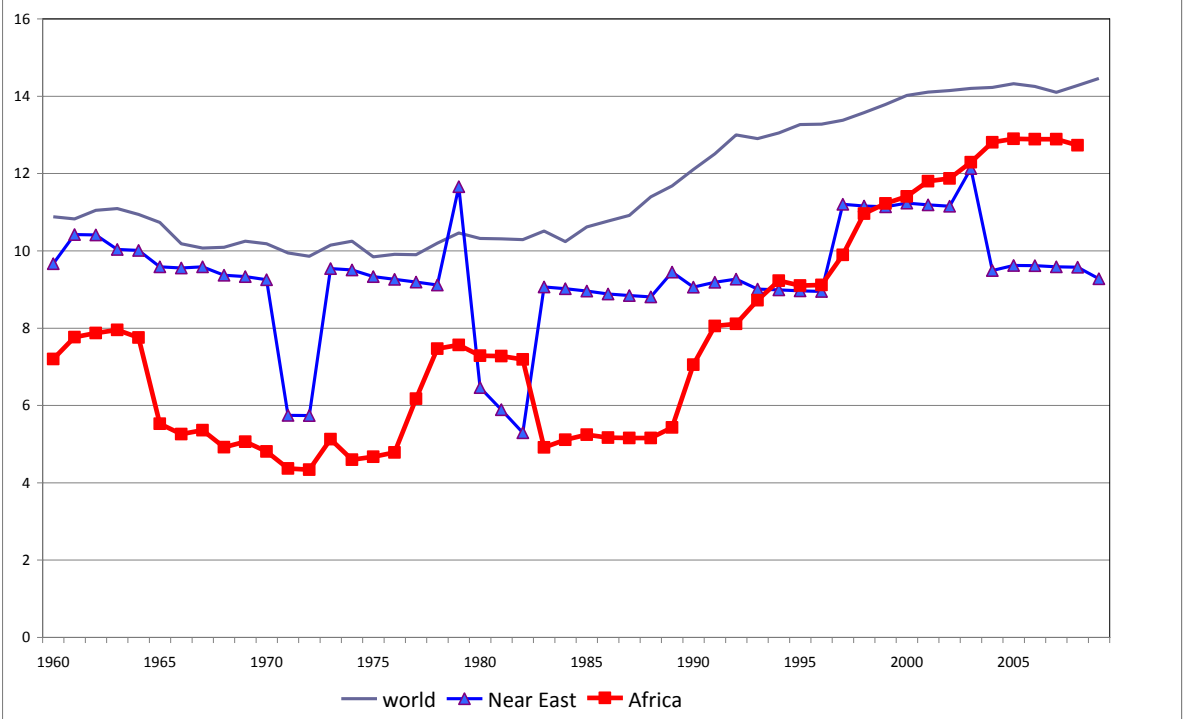


Figure 4 The quality of democratic institutions in Africa and Near East (and the world as a whole) according to the PolityIV dataset (population weighted averages for all countries for which there are observations), 1960-2009.

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. But how to model the determinants of the democratic quality of institutions. There is obviously a link with GDP per capita (Rodrik et al.

(2004); Sachs (2003); Acemoglu et al. (2009)). Moreover, institutions are relatively stable, which is also clear from a visual inspection of the PolityIV dataset: usually the quality of institutions does not change from year to year. So including the lagged PolityIV variable makes it possible to concentrate on changes only. Take into consideration previous findings, we begin by considering the following dynamic framework and the econometric linear regression model can be summarized as follows:

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

where D_{it} is an index of the quality of institutions (PolityIV variable)¹¹ in country i in period t , ranging from -10 to 10. 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)¹². 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 $X'_{i,t-1}$. The sample period is again 1960-2009, and we concentrate in Africa and the Near East.

Since it is once again a dynamic panel data model, fixed effect specification is unreliable. Therefore, the system-GMM estimator is used also in this case. In Table 5 the results are reported. As expected, there is strong persistence; GDP growth and school enrollment both play a positive role. Years in office has a strong negative effect on PolityIV: 20-25 years in office imply a lowering of the variable with about one unit, which given the scale from -10 to + 10 is quite sizeable.

The institutions of both oil and non-oil-producing countries are negatively affected by long tenure, but the effect for non-producing countries is larger (column 3). Remember that for oil producing countries we did not find a negative effect on growth; so long-sitting rulers in oil producing countries do not harm their economy by do harm the quality of institutions, which can be seen as another proof of the resource curse effect. Interaction with regime types (column 4) show a strong negative effect from both a monarchic and a military regime (but not from one-party rule). Military interaction term has a strong negative effect because once a coup is taking place, all the constraints on the executive are disrupted and the generals can do whatever they want to in the next two-three years they are in power. Finally we find that young states especially suffer from this the dictator-effect on institutions.

¹¹ PolityIV variable is our proxy for the quality of institutions.

¹² We also used the school enrollment among population as an alternative indicator of economic development.

Table 5. Institutions and Years in Office

Dependent variable:	(1)	(2)	(3)	(4)	(5)
Institutions-Polityiv variable					
Polityiv (t-1)	0.8346 [29.99]***	0.8351 [29.47]***	0.8364 [32.58]***	0.8481 [33.66]***	0.8251 [29.36]***
GDP per capita growth (t-1)	0.0095 [2.08]**		0.0093 [2.09]**	0.0096 [2.13]**	0.0095 [2.16]**
Years in Office	-0.0416 [-3.50]***	-0.0441 [-4.34]***	-0.0405 [-3.56]***	-0.0384 [-3.44]***	-0.0395 [-3.38]***
School Enrollment		0.0005 [3.53]***			
Oil [^]			-0.0304 [-3.11]***		
NonOil [^]			-0.0506 [-4.36]***		
Single-Party/Communist ^{^^}				-0.0225 [-1.42]	
Monarchy/Personalistic ^{^^}				-0.0441 [-2.21]**	
Military ^{^^}				-0.0449 [-4.65]***	
Low State Antiquity ^{^^^}					-0.0387 [-3.09]***
Medium State Antiquity ^{^^^}					-0.0485 [-3.37]***
High State Antiquity ^{^^^}					-0.0192 [-0.56]
Number of Observations	2417	2372	2417	2417	2417
Number of Countries	56	56	56	56	56
Number of Instruments	60	60	80	57	75
AR1 statistics (p-value)	0	0	0	0	0
AR2 statistics (p-value)	0.512	0.307	0.513	0.513	0.504
Hansen test (p-value)	0.637	0.541	0.989	0.535	0.928

- Notes:**
- System GMM estimation for dynamic panel data-model. Sample period: 1960-2009.
 - Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
 - 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.
 - Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)). Time dummies are included in all regressions.
 - (^) 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*).
 - (^^) 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*).
 - (^^^) We constructed three 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, Medium and High Antiquity are created out of one continuous variable (YRSOFFC) and one dummy variable (STATEHIST*).
 - The "nlcom" command is used to capture the marginal effect of each interaction term on the dependent variable (Wooldridge, 2002).

Regressions: Inflation and Years in Office

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, but also linked to social-economic conflict in a country (if unions are strong they will demand higher wages, resulting in a wage-price-spiral). 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 5 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.....

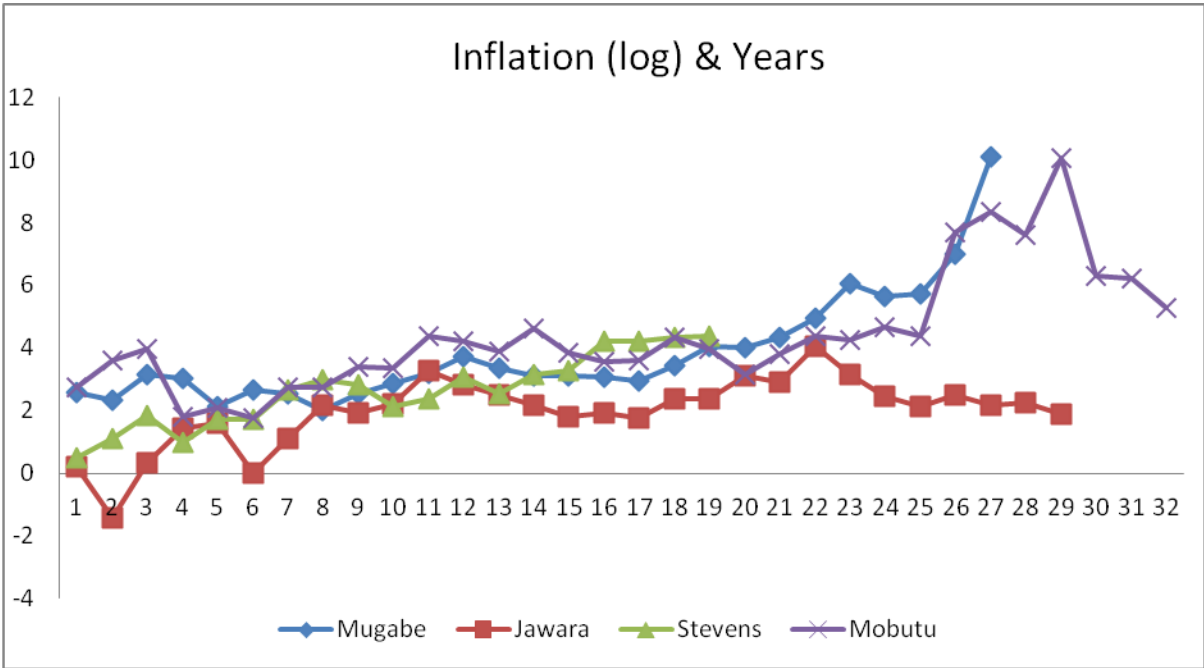


Figure 5 Inflation and Years in Office, four examples.

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

The empirical inflation model can be summarized as follows:

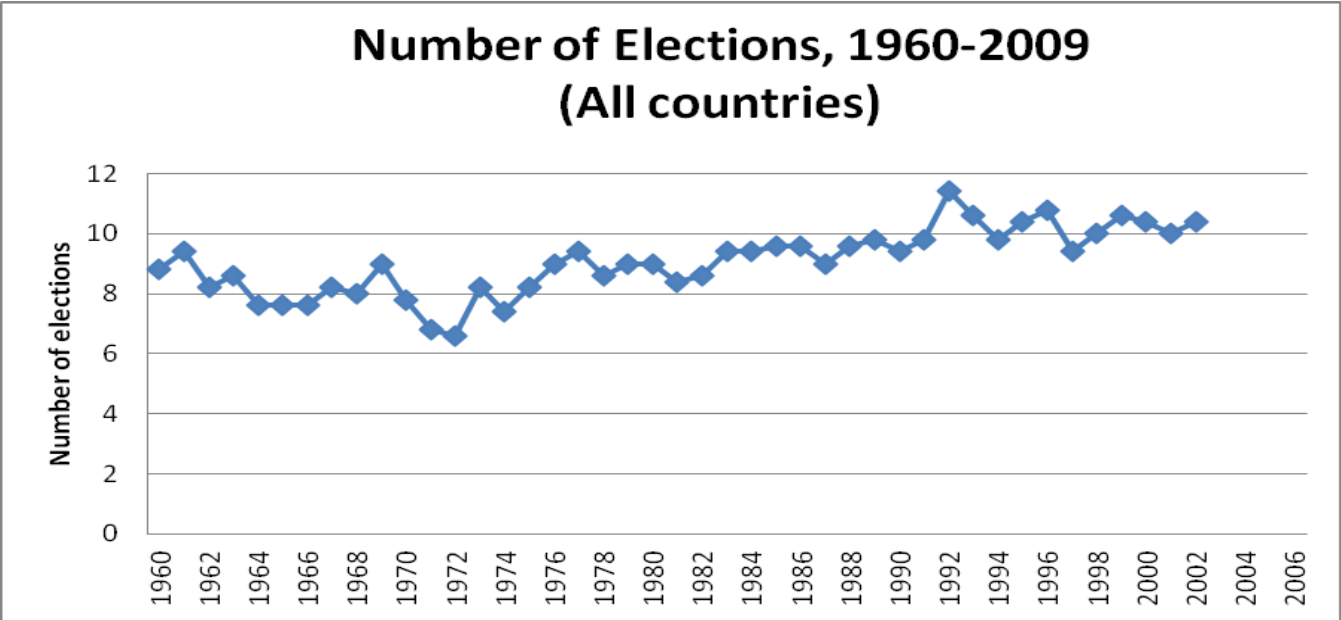
$$(\log)\text{Inflation}_{it} = \alpha(\log)\text{Inflation}_{i,t-1} + X'_{it}\beta + W'_{it}\gamma + \delta_i + \mu_i + u_{it} \tag{3}$$

$$i = 1, \dots, N \quad t = 1, \dots, T_i$$

where X'_{it} is a vector of strictly exogenous variables and W'_{it} a vector of endogenous covariates, μ_i and δ_i are country-specific and time-specific effects respectively, and u_{it} is the error term.

One determinant that could explain different inflation outcomes is a crisis at the government level, therefore we use a variable taken from CNTS to capture this effect.

- *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.
- *Elections* (taken from CNTS): elections held for the lower house of a national legislature in a given year.



There is a link with the theory of the political business cycle (PBC) here as well. The literature on PBC has shown that opportunistic policy making is particularly likely to occur in the run-up to elections (Nordhaus, 1975; Rogoff & Sibert, 1988; Rogoff, 1990). It is

demonstrated that incumbents induce good economic conditions just before an election in order to stay in power. Myopic voters then, as Nordhaus (1975) called them in his seminal paper, have the tendency to observe the current performance of the incumbent instead of the incumbent's ability while he was in office. Therefore, just before elections the incumbent uses monetary and fiscal policies (well-known Phillips curve effect, inverse relationship between inflation and unemployment) to manipulate their decisions and win votes. In other words, the myopic voters observe good current economic performance by the incumbent and are convinced that he could secure good economic performance in the future as well, hence they re-elect him. The idea is, that voters re-elect the incumbent if they think he is going to perform similarly well in the future (Martinez, 2009).

Traditional PBC theory assumes on one hand that incumbents-politicians are identical and opportunistic, implying that their only goal is to remain in power. On the other hand, voters are described as myopic and naïve, easily manipulated with policy tricks, having as a result a favorable vote to the incumbent's party, when expectations for future performance are good (Nordhaus, 1975). This theory was criticized for both its assumptions (Hibbs, 1977; Rogoff, 1990; Persson & Tabellini, 1990), which eventually led to a new formulation of PBC theory, the rational partisan voting cycle by Alesina (1991). The existence of political business cycles has been investigated by economists and political scientists, primarily in the context of developed democracies (Alesina et al., 1997; Drazen, 2000; Shi & Svensson, 2003). However, according to Block (1999), there is no rational partisan voting cycle (clearly, the right/left ideology is not the case for Africa) but an opportunistic/traditional one, which predicts 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 this region are easier manipulated due to lack of information, and leaders act more opportunistic, relatively to what is happening in well-established democracies.

In their attempt to stay in power, African leaders (it is the case also for some in the Middle East), 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, it is expected that elections to have a negative -temporary- impact on inflation rates. So in a way it would be good news if we would find a significant PBC-effect: it may point to the increased importance of elections in the politics of these regions.

Table 6. Inflation and Years in Office

Dependent variable: Inflation(log)	(1)	(2)	(3)	(4)	(5)
Log Inflation (t-1)	0.4031 [6.14]***	0.4131 [5.02]***	0.3913 [5.13]***	0.4923 [7.20]***	0.4617 [5.61]***
Growth of real GDP per capita (t-1)	-0.0002 [-0.09]	-0.0131 [-1.12]	-0.0112 [-0.70]	-0.0003 [-0.04]	-0.0193 [-1.63]*
Years in Office	0.0575 [5.59]***	0.0661 [6.02]***	0.0602 [5.13]***	0.0582 [5.45]***	0.0588 [5.20]***
Polityiv	-0.0335 [-1.89]*		-0.0391 [-1.99]**		
Government Crises		0.3359 [3.30]***	0.3376 [2.98]***	0.4473 [4.1]***	0.4655 [3.62]***
Elections (t-1)		-0.3188 [-2.10]**	-0.3342 [-2.28]**	-0.5545 [-3.64]***	-0.7099 [-3.09]***
Oil				0.0253 [1.51]	
NonOil				0.0219 [2.15]**	
Low State Antiquity^^^					0.0276 [2.07]**
Medium State Antiquity^^^					0.0206 [1.28]
High State Antiquity^^^					0.0343 [1.19]
Number of Observations	1686	1537	1514	1537	1537
Number of Countries	56	58	56	58	58
Number of Instruments	58	59	60	66	52
AR1 statistics (p-value)	0	0	0	0	0
AR2 statistics (p-value)	0.718	0.516	0.433	0.339	0.451
Hansen test (p-value)	0.472	0.523	0.544	0.681	0.507

Notes:

- System GMM estimation for dynamic panel data-model. Sample period: 1960-2009.
- Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.
- 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.
- Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)) Time dummies are included in all regressions.
- (^) 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*).
- (^^) We constructed three 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, Medium and High Antiquity are created out of one continuous variable (YRSOFFC) and one dummy variable (STATEHIST*).
- The "nlcom" command is used to capture the marginal effect of each interaction term on the dependent variable (Wooldridge, 2002).

The results of the regressions shown in Table 6 point to a strong effect of years in office on inflation, which is however 'not significant' for oil producing countries (note that in column (4) the estimated coefficient for those countries is higher than for the non-oil-producing nations!). We also find that elections in the following year have a dampening effect on

inflation, probably pointing to some PBC effect.¹³ Finally it appears that young states show this link between tenure and inflation more consistently than old state – however, again we find quite big coefficients in the latter case which are not significant.

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 just been elected for a third term of 6 years as president of Russia (by changing role with Medvedev for one term, he cleverly solved the constitutional constraint which allowed him only two terms). In Senegal a similar discussion raged about the re-election of Abdoulaye Wade, who found another way to ignore a similar rule in the constitution of the country (because when he came to power in 2000 this rule had not been included in the constitution he argued that it did not apply to his being re-elected for another term of 7 years). This paper explains why such rules exist and make sense: economic performance of countries in Africa and the Near East is seriously affected by rulers staying in power far too long. The variable years in office is consistently related to less economic growth, more inflation, and poorer institutions. And this effect is particularly strong (and/or significant) in young states, and in non-oil producing countries. There is a significant exception to this, however: in oil producing countries we do see a strong negative effect of years in office on institutions, but not on growth (which is apparently independent from the resulting policies and more strongly affected by oil-related events).¹⁴

The 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, bad economic policies and poor institutions. 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. But we also found some evidence that things might be changing: much more elections are now taking place, which appear to have an effect on government policies (albeit in the short run), and the quality of institutions is slowly

¹³ We also tested if elections in the same year affected inflation, but could not find a significant result. Including elections in the growth regressions also did not produce results, which suggests that it is much easier to manipulate inflation than growth.

¹⁴ Testing for this by including real oil price in regressions for oil-producing countries....

improving, a trend which already started in the 1990s in Sub-Saharan Africa, and which seems to hit 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.

Appendix

A Cycle?

So far we have demonstrated that there is a negative effect of years in office (and years in office squared) on economic performance and institutional quality. It is a bit more difficult to test for the cyclical character of the phenomenon. By dividing the years in office variable into groups of years (1-4, 5-8, 9-14, 15-21, 22-46), which are entered into the regressions as dummies, we can find out if the effect is the same for different time periods. In this way we test the hypothesis that growth in these sub-periods was systematically different from growth in the 'standard' period (we selected two different periods as standards, 5-8 years and 9-14 to control for this as well). The regressions shown below confirm that during the first four years – compared with the standard period – growth is faster than explained by the rest of the model (the control variables); the other time dummies show increasingly negative coefficients, confirming the fact that high values of years in office lead to slow economic growth.

We get similar results when we apply this approach to the model explaining institutions.

Table 7 Growth and Years in Office, time

dummies

Dependent variable: GDP growth per capita	(1)	(2)
Initial GDP per capita(log)	-0.0450 [-3.18]***	-0.7397 [-2.11]**
Investment	0.2179 [4.45]***	0.2182 [4.07]***
Trade Openness	0.0413 [1.57]	0.0317 [1.24]
Population Growth	0.0963 [0.69]	0.1187 [0.82]
School Enrollment	0.2437 [1.24]	0.2367 [1.11]
Polityiv		0.10708 [2.09]**
Years in Office		
Time Class [1-4]	2,6832 [3.83]***	0.9302 [1.21]
Time Class [5-8]	1,6344 [2.01]**	
Time Class [9-14]		(-1,6901) [-2.04]**
Time Class [15-21]	-0.0712 [-0.09]	(-1,3224) [-1.17]
Time Class [21-46]	-0.3632 [-0.36]	(-1,5138) [-1.22]
Number of Observations	2128	2085
Number of Countries	55	54
Number of Instruments	61	62
AR1 statistics (p-value)	0	0
AR2 statistics (p-value)	0.586	0.729
Hansen test (p-value)	0.572	0.584

Alternative Time Dummies

Dependent variable: GDP growth per capita	(1)	(2)
Initial GDP per capita(log)	-0.8596 [-2.68]***	-0.7397 [-3.07]***
Investment	0.2251 [4.31]***	0.2241 [4.34]***
Trade Openness	0.0462 [1.76]*	0.0446 [1.71]*
Population Growth	-0.1845 [-0.99]	-0.2046 [-1.05]
School Enrollment	0.2798 [1.51]	0.2367 [1.46]
Years in Office		
Time Class [1-4]	1,0629 [1.39]	2,4698 [3.34]***
Time Class [5-8]		1,4377 [2.04]**
Time Class [9-14]	-1,3655 [-1.84]*	
Time Class [15-46]	-1,6481 [-1.74]*	-0.2541 [-0.33]
Number of Observations	2128	2128
Number of Countries	55	55
Number of Instruments	57	57
AR1 statistics (p-value)	0	0
AR2 statistics (p-value)	0.586	0.589
Hansen test (p-value)	0.572	0.417

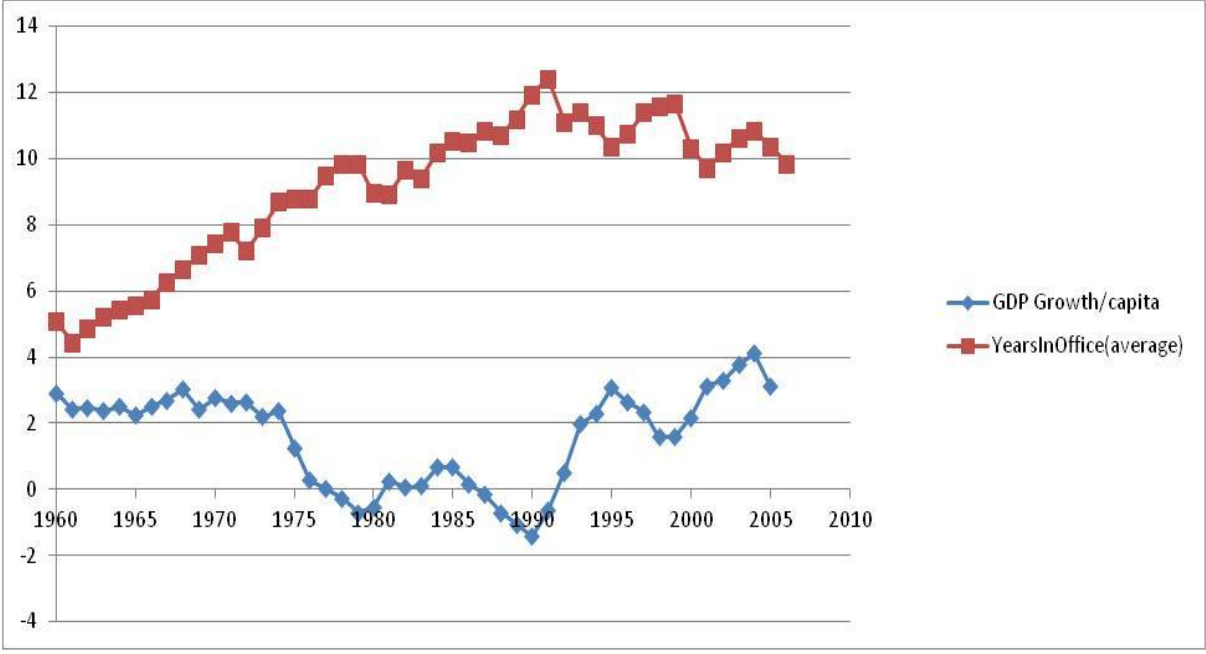
Institutions

Dependent variable:	(1)	(2)
Institutions-Polityiv variable		
Polityiv (t-1)	0.8359 [29.99]***	0.8191 [30.2]***
GDP per capita growth (t-1)	0.0086 [2.08]**	0.0115 [2.57]**
Years in Office		
Time Class [1-4]	0.0195 [0.15]	-0.1799 [-1.26]
Time Class [5-8]		-0.7972 [-3.07]***
Time Class [9-14]	-0.6219 [-3.95]***	-0.7851 [-4.06]***
Time Class [15-21]	-0.9359 [-4.37]***	-0.8729 [-2.69]**
Time Class [21-46]	-0.8019 [-3.11]***	
Number of Observations	2407	2407
Number of Countries	56	56
Number of Instruments	58	58
AR1 statistics (p-value)	0	0
AR2 statistics (p-value)	0.572	0.572
Hansen test (p-value)	0.505	0.435

Alternative Time Dummies [4 classes] Institutions!

Dependent variable:	(1)	(2)
Institutions-Polityiv variable		
Polityiv (t-1)	0.8355 [33.90]***	0.8345 [32.89]***
GDP per capita growth (t-1)	0.0089 [1.91]*	0.0101 [2.35]**
Years in Office		
Time Class [1-4]	0.0409 [0.23]	
Time Class [5-8]		-0.7444 [-3.28]***
Time Class [9-14]	-0.6139 [-3.96]***	-0.7471 [-4.35]***
Time Class [15-46]	-0.8512 [-4.20]***	-0.8776 [-3.89]***
Number of Observations	2407	2407
Number of Countries	56	56
Number of Instruments	57	58
AR1 statistics (p-value)	0	0
AR2 statistics (p-value)	0.575	0.601
Hansen test (p-value)	0.483	0.396

Figure. Strong negative correlation between Years In office and GDP per capita Growth



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