# DISCUSSION PAPER SERIES

No. 8962

## THE DICTATOR EFFECT: HOW LONG YEARS IN OFFICE AFFECTS ECONOMIC DEVELOPMENT IN AFRICA AND THE NEAR EAST

Jason Papaioannou and
Jan Luiten van Zanden

***DEVELOPMENT ECONOMICS***

Centre for Economic Policy Research

www.cepr.org

**Available online at:** **www.cepr.org/pubs/dps/DP8962.asp**

*ISSN 0265-8003*

# THE DICTATOR EFFECT: HOW LONG YEARS IN OFFICE AFFECTS ECONOMIC DEVELOPMENT IN AFRICA AND THE NEAR EAST

**Jason Papaioannou,** Universiteit Utrecht
**Jan Luiten van Zanden,** Universiteit Utrecht and CEPR

Discussion Paper No. 8962
May 2012

Centre for Economic Policy Research
77 Bastwick Street, London EC1V 3PZ, UK
Tel: (44 20) 7183 8801, Fax: (44 20) 7183 8820
Email: cepr@cepr.org, Website: www.cepr.org

This Discussion Paper is issued under the auspices of the Centre's research programme in **DEVELOPMENT ECONOMICS**. Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as an educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: Jason Papaioannou and Jan Luiten van Zanden

CEPR Discussion Paper No. 8962

May 2012

# ABSTRACT

## The Dictator Effect: How Long Years in Office Affects Economic Development in Africa and the Near East

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 may be related to the fact that their time horizon is shrinking: they develop (in the terminology developed by Olson) from 'stationary bandits' into 'roving bandits'. Or they may get caught into a 'disinformation trap', caused by the 'dictator dilemma'. We test these hypotheses and indeed find strong evidence for the existence of a dictator effect: the length of the rule is negatively related to economic growth and the quality of democratic institutions, and positively related to inflation. This effect is particularly strong in young states and in 'single-party' regimes. The negative effect of years in office was almost constant in time and did not disappear after about 1992.

JEL Classification: H7, O2 and O55
Keywords: africa, dictatorships, economic growth and political institutions

Jason Papaioannou
Economic and Social History Department
University of Utrecht
Utrecht 3512 BS
THE NETHERLANDS

Jan Luiten van Zanden
Economic and Social History Department
University of Utrecht
Drift 10
Utrecht 3512 BS
THE NETHERLANDS
Email: jvz@iisg.nl

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=175431

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=161704

Submitted 25 April 2012

## 1. 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 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 per capita growth, inflation, polityiv) 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

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

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.

## 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, 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 as 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.

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. The political literature about dictatorship stresses the information problems faced by rulers of this kind. Because they 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 his assistants & ministers. This is the dictator's dilemma: because 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 (Wintrobe 1990, 1998). A dictator is therefore surrounded by information asymmetries. People will try to flatter him by presenting too optimistic information about the state of the economy and ignoring the bad news about it. Also because bad economic news may mean that they – the minister of economic affairs for example – is not doing a good job, or that the policies of the dictator himself have failed. Once such a disinformation campaign has started, it is difficult to return to reality. Moreover, 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. So a dictator can easily be caught into a disinformation trap: he does not trust anybody anymore and therefore lacks a basis for sound economic decision making. Many dictators start their career as team players, leaders of a team that has staged a coup or won a contentious election. The logic of the dictator's dilemma implies that he will gradually eliminate others, 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 want to hear. He may become

[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.

increasingly lonely and paranoiac, and the quality of his (economic) decision making will decline accordingly.[3]

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-

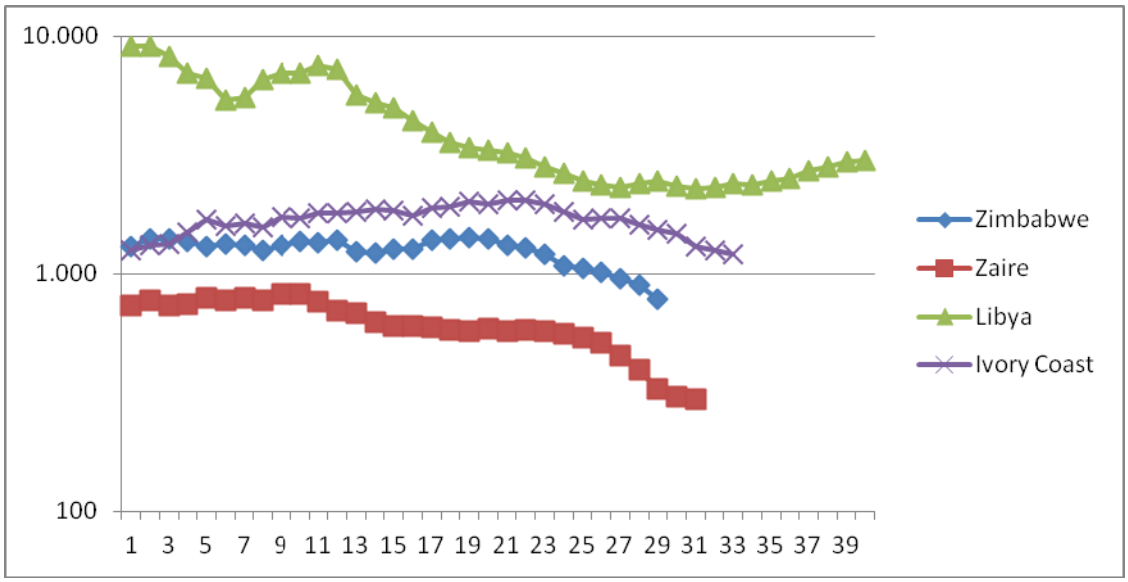
[3] A factor not mentioned in McGuire and Olson but quite relevant in our simulations with a dynamic version of the model is the interest rate, which captures the time effect; low interest rates result in long time horizons, a heavy weighting of future (tax) incomes and therefore increase the chance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

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*



## 3. 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 1960-2009, 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:

$$\Delta Y_{it} = \gamma Y_{i,t-1} + \beta X'_{it} + \delta Z'_{it} + \nu_t + \varepsilon_{it}$$

$$i = 1,...,N \text{ and } t = 1,\ldots,T \qquad (1)$$

where $\Delta Y_{it}$ 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, $\nu\iota$ is the unobserved country-specific effects and $\varepsilon it$ is the error term. If we set $\alpha = 1 + \gamma$, then equation (1) becomes:

$$Y_{it} = \alpha Y_{i,t-1} + \beta X'_{it} + \delta Z'_{it} + \nu_t + \varepsilon_{it}$$

$$i = 1,...,N \text{ and } t = 1,\ldots,T \qquad (2)$$

There is a problem estimating this model using OLS, the reason is that the $Y_{i,t-1}$ is endogenous to the fixed effects ($\nu_t$), 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 $\varepsilon_{it}$ . One prominent way to get rid of this bias is to take the first difference of equation (2).

$$\Delta Y_{it} = \alpha \Delta Y_{i,t-1} + \beta \Delta X'_{it} + \delta \Delta Z'_{it} + \Delta \varepsilon_{it}$$

$$i = 1,...,N \text{ and } t = 1,\ldots,T \qquad (3)$$

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 Arrelano 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

[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)

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 called the instrument proliferation problem[6]. 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

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

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[7].

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 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* (Marshal 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 convergence[8] across countries.

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

- *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 enrollment*[9] *(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).

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.

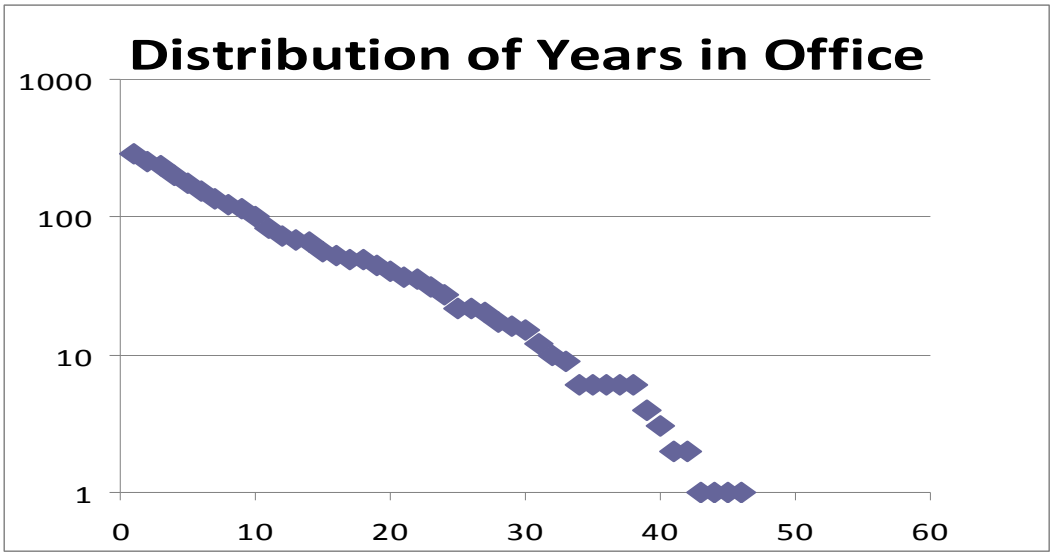
[8] Sala-I-Martin (1994) demonstrates evidence of β-convergence (conditional convergence); see also for a detailed discussion Solow (1956), Barro (1991) and Mankiw et al., (1992)
[9] First difference of this variable is used in the regressions.

- *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.

Figure 2

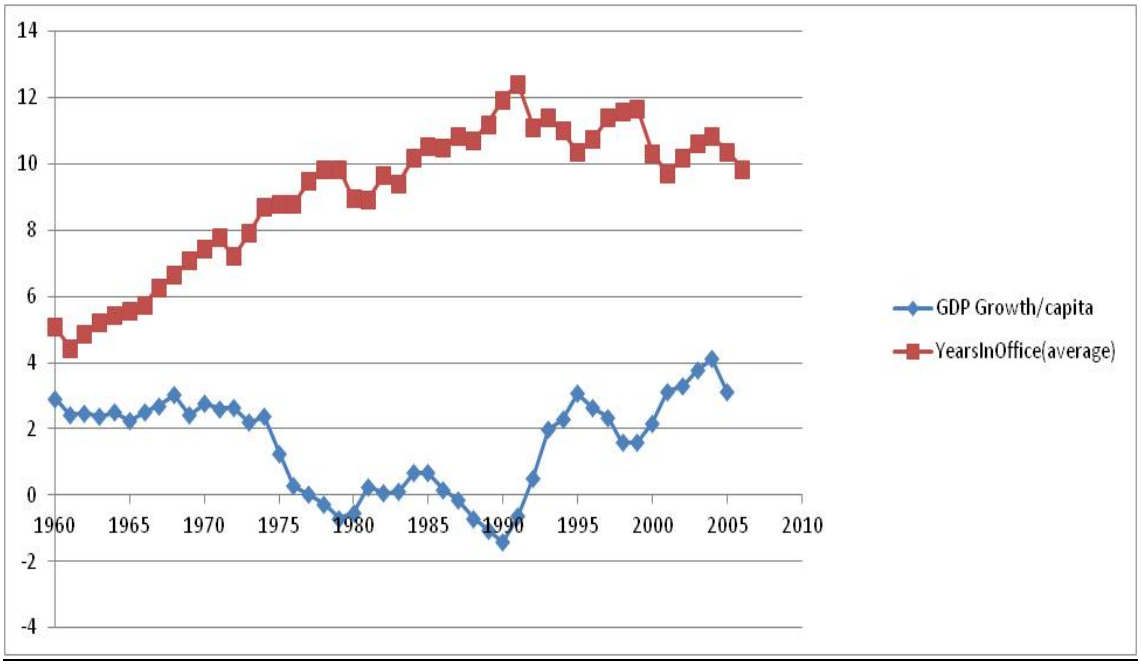
*The Distribution of Years in Office*




[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 3

*Average value of years in office and the average rate of growth, 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, for the African and Near Eastern countries that are in our sample, more or less coincides with an annual succession-rate of 89% (we get an almost identical figure if it is assumed 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 it 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! 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). We also show the average rate of per capita GDP in Figure 2, to

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

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 (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, 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 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, monarchy 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, 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; 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. Those statistics can provide the context in which to assess the magnitudes of the econometric results.

**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 | 0,85 | 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 |

## 4. Empirical results

### *4.1 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[11] 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 stability variables; inflation (log) has a statistically significant negative coefficient, the share of government in GDP does not seem to matter a lot.

[11] 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.

## 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) | -0.6674 | -0.7397 | -0.5160 | -0.4065 | -0.6328 | -0.6242 | -0.6816 |
| | [-2.18]** | [-2.37]** | [-1.75]* | [-1.00] | [-1.71]* | [-2.31]** | [-2.41]** |
| Investment | 0.2130 | 0.2165 | 0.2012 | 0.2037 | 0.2154 | 0.1815 | 0.1940 |
| | [3.89]*** | [3.74]*** | [3.54]*** | [2.29]** | [4.13]*** | [3.41]*** | [3.94]*** |
| Trade Openness | 0.0366 | 0.0365 | 0.0287 | 0.0308 | 0.0430 | 0.0451 | 0.0448 |
| | [1.57] | [1.51] | [1.26] | [0.67] | [1.67]* | [1.96]** | [1.97]** |
| Population Growth | -0.0048 | -0.0224 | 0.0025 | 0.0777 | 0.1088 | 0.0190 | 0.1444 |
| | [-0.03] | [-0.14] | [0.02] | [0.34] | [0.83] | [0.13] | [1.18] |
| School Enrollment | 0.3174 | 0.2691 | 0.3319 | 0.3270 | 0.2747 | 0.2360 | 0.1072 |
| | [1.54] | [1.45] | [1.36] | [0.85] | [1.64] | [1.12] | [0.57] |
| Years in Office | -0.1318 | | -0.1246 | -0.1431 | -0.1491 | -0.1024 | -0.2185 |
| | [-3.31]*** | | [-3.21]*** | [-3.15]*** | [-2.74]*** | [-2.15]** | [-4.35]*** |
| Years in Office Square | | -0.0042 | | | | | |
| | | [-3.39]*** | | | | | |
| PolityIV | | | 0.0928 | | | | |
| | | | [1.80]* | | | | |
| Inflation(log) | | | | -0.4159 | | | |
| | | | | [-2.03]** | | | |
| Government Share | | | | -0.0371 | | | |
| | | | | [-0.59] | | | |
| Ethnic/Religion Fractionalization | | | -0.1500 | | | | |
| | | | [-0.13] | | | | |
| Oil [Yrsoffc*NaturalResources]^ | | | | | 0.0461 | | |
| | | | | | [0.31] | | |
| Single-Party/Communist^^ | | | | | | -0.1080 | |
| | | | | | | [-1.81]* | |
| Monarchy/Personalistic^^ | | | | | | | |
| Military^^ | | | | | | -0.0359 | |
| | | | | | | [-0.19] | |
| High State Antiquity^^^ | | | | | | | 0.2839 |
| | | | | | | | [2.15]** |
| Number of Observations | 2128 | 2128 | 2092 | 1632 | 2127 | 2079 | 2128 |
| Number of Countries | 55 | 55 | 54 | 55 | 55 | 54 | 55 |
| Number of Instruments | 62 | 62 | 63 | 60 | 68 | 70 | 71 |
| AR1 statistics (p-value) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AR2 statistics (p-value) | 0.501 | 0.505 | 0.633 | 0.303 | 0.497 | 0.511 | 0.504 |
| Hansen test (p-value) | 0.723 | 0.681 | 0.811 | 0.671 | 0.895 | 0.881 | 0.857 |

**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 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, 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 suggests that in oil producing countries long tenure does not seem to matter 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. 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.[12] Column (6) of Table 2 shows that the kind of regime did indeed matter: the YRSOFFC effect was particularly strong for single party/communist regimes. What matters here as well is the different duration of these regimes: a military regime lasts on average '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). This is probably related to the low legitimacy of such regimes – and the chance that they are succeeded by another military regime. Therefore, the years-in-office-effect does not have time to take effect. Monarchies, the standard in this regression, last longest, on average a ruler's life span in a monarchy is 11.4 years, three times the duration of a military regime (st.dev. 9.3 years). They are probably often characterized by relatively high levels of legitimacy and therefore do no 'extra' harm to the economy. Single-party regimes do; they 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: 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.

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). In the appendix we present OLS-regressions of the same model (with fixed and random effects specifications), which basically produce the same result – a consistent negative YRSOFFC coefficient. Next, we extended the sample by including Latin

[12] 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.

American countries. The estimated coefficient of YRSOFFC had a similar, but smaller negative value as before, supporting the hypothesis that long tenure 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 both coefficients are somewhat smaller here (Table 4, columns 3-6). 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: GDP growth per capita | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Initial GDP per capita(log) | -0.4985 | -0.5185 | -0.4101 | -0.4890 | -0.5028 | -0.6016 |
| | [-2.01]** | [-2.04]** | [-1.46] | [-1.57] | [-2.11]** | [-2.41]** |
| Investment | 0.1559 | 0.1527 | 0.1837 | 0.2631 | 0.1613 | 0.1619 |
| | [2.43]** | [2.39]** | [3.29]*** | [2.63]*** | [2.31]** | [2.87]*** |
| Trade Openness | 0.0444 | 0.0405 | 0.0277 | 0.0224 | 0.0448 | 0.0505 |
| | [1.91]* | [1.77]* | [1.16] | [0.56] | [1.95]* | [2.32]** |
| Population Growth | -0.2341 | -0.2578 | -0.0822 | -0.3120 | -0.2706 | -0.1533 |
| | [-1.01] | [-1.09] | [-0.58] | [-1.61] | [-1.03] | [-0.60] |
| School Enrollment | 0.2661 | 0.2748 | 0.2308 | 0.3360 | 0.3041 | 0.3120 |
| | [1.55] | [1.60] | [1.05] | [1.34] | [1.71]* | [1.74]* |
| Years in Office | -0.0910 | | -0.1257 | -0.0854 | -0.0718 | -0.1307 |
| | [-2.22]** | | [-3.32]*** | [-2.21]** | [-2.05]** | [-2.34]** |
| 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^^ | | | | | -0.0505 | |
| | | | | | [-1.78]* | |
| Monarchy/Personalistic^^ | | | | | | |
| Military^^ | | | | | 0.0152 | |
| | | | | | [0.09] | |
| High State Antiquity^^^ | | | | | | [0.1618] |
| | | | | | | [1.81]* |
| 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 | 72 | 90 |
| AR1 statistics (p-value) | 0 | 0 | 0 | 0 | 0 | 0 |
| AR2 statistics (p-value) | 0.277 | 0.281 | 0.639 | 0.638 | 0.286 | 0.274 |
| Hansen test (p-value) | 0.251 | 0.251 | 0.893 | 0.642 | 0.226 | 0.789 |

**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 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, 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 | -0.8160 | -0.7404 | -0.7789 | -0.5342 | -0.7363 |
| | [-1.79]* | [-1.15] | [-2.11]** | [-2.15]** | [-0.77] | [-2.00]** |
| Investment | 0.0268 | 0.3184 | 0.1376 | 0.1299 | 0.2038 | 0.1658 |
| | [0.22] | [2.27]** | [2.12]** | [2.01]** | [1.21] | [3.37]*** |
| Trade Openness | 0.0837 | 0.0058 | 0.0635 | 0.0655 | 0.0432 | 0.0513 |
| | [1.96]** | [0.11] | [1.93]* | [1.96]** | [1.94]* | [1.51] |
| Population Growth | -0.1482 | 0.4823 | -0.0212 | -0.0491 | -0.6364 | 0.1824 |
| | [-1.16] | [1.38] | [-0.14] | [-0.31] | [-0.67] | [1.14] |
| School Enrollment | -0.0666 | 0.4819 | 0.0002 | 0.0002 | 0.0001 | 0.0001 |
| | [-0.34] | [1.37] | [2.16]** | [2.18]** | [1.02] | [1.69]* |
| Years in Office | -0.1048 | -0.0867 | -0.0850 | | -0.0895 | -0.0959 |
| | [-2.00]** | [-2.16]** | [-2.07]** | | [-2.09]** | [-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.

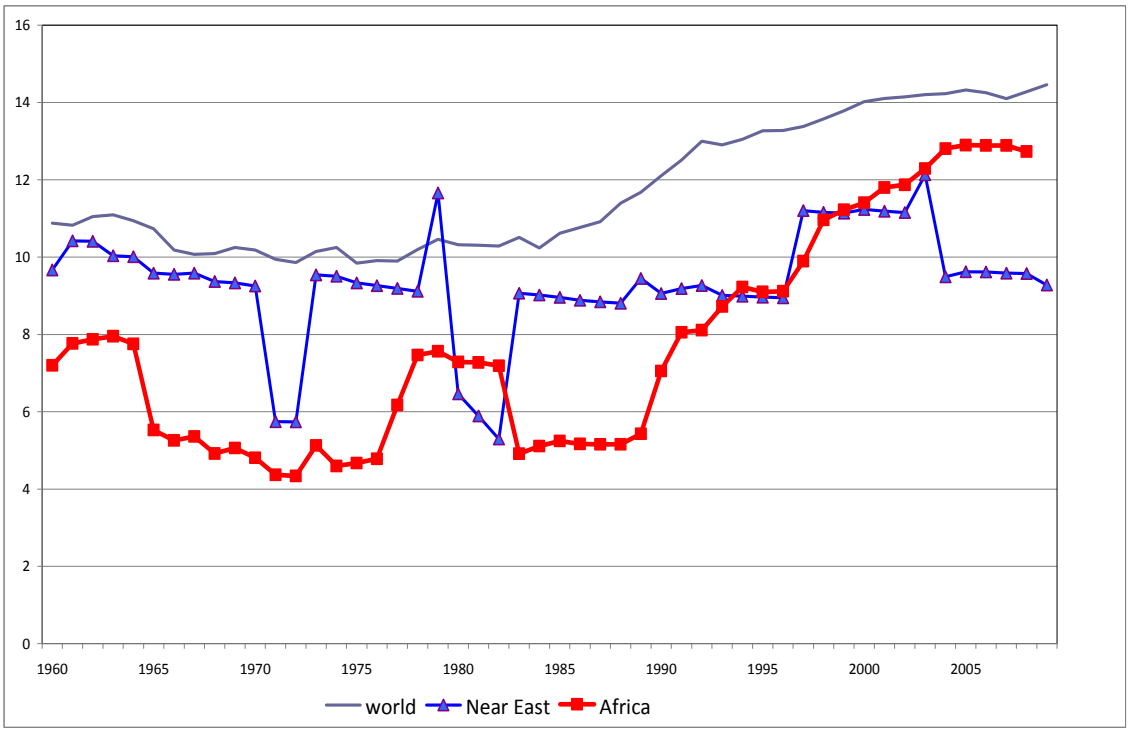
### *4.2 Institutions and Years in Office*

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 (in this figure rescaled 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. Taking into consideration previous findings, we begin by considering the following dynamic framework and the econometric linear regression model can be summarized as follows:

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

where $D_{it}$ is an index of the quality of institutions (PolityIV variable)[13] 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)[14]. Therefore, the parameter $\gamma$ measures the effect of GDP per capita on democracy. In addition, $\mu_t$ and $\delta_i$ 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 much larger, confirming the resource curse literature that stresses the negative effect of oil on governance (column 3). Interaction with regime types (column 4) show a strong negative effect from both a monarchic and a military regime, but not from single-party rule (whereas the effect of one party-rule on growth was particularly strong). Finally we again find that young states especially suffer from this the dictator-effect – in this case on institutions.

[13] PolityIV variable is our proxy for the quality of institutions.
[14] We also used the school enrollment among population as an alternative indicator of economic development.

## Table 5

### *Institutions and Years in Office*

| Dependent variable: Institutions-Polityiv variable | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Polityiv (t-1) | 0.8346 | 0.8351 | 0.8364 | 0.8443 | 0.8201 |
| | [29.99]*** | [29.47]*** | [32.58]*** | [30.70]*** | [28.01]*** |
| GDP per capita growth (t-1) | 0.0095 | | 0.0093 | 0.0087 | 0.0101 |
| | [2.08]** | | [2.09]** | [1.87]* | [1.56] |
| Years in Office | -0.0416 | -0.0441 | -0.0212 | -0.0469 | -0.0466 |
| | [-3.50]*** | [-4.34]*** | [-1.99]** | [-4.92]*** | [-3.90]*** |
| School Enrollment | | 0.0005 | | | |
| | | [3.53]*** | | | |
| Oil [Yrsoffc*NatouralResources]^ | | | -0.0378 | | |
| | | | [-3.11]*** | | |
| Single-Party/Communist^^ | | | | 0.0201 | |
| | | | | [1.88]* | |
| Monarchy/Personalistic^^ | | | | | |
| Military^^ | | | | -0.0815 | |
| | | | | [-1.68]* | |
| High State Antiquity^^^ | | | | | 0.0279 |
| | | | | | [1.82]* |
| Number of Observations | 2417 | 2372 | 2407 | 2358 | 2026 |
| Number of Countries | 56 | 56 | 56 | 55 | 46 |
| Number of Instruments | 60 | 60 | 59 | 64 | 61 |
| AR1 statistics (p-value) | 0 | 0 | 0 | 0 | 0 |
| AR2 statistics (p-value) | 0.512 | 0.307 | 0.565 | 0.573 | 0.749 |
| Hansen test (p-value) | 0.637 | 0.541 | 0.644 | 0.827 | 0.921 |

**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 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, 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).

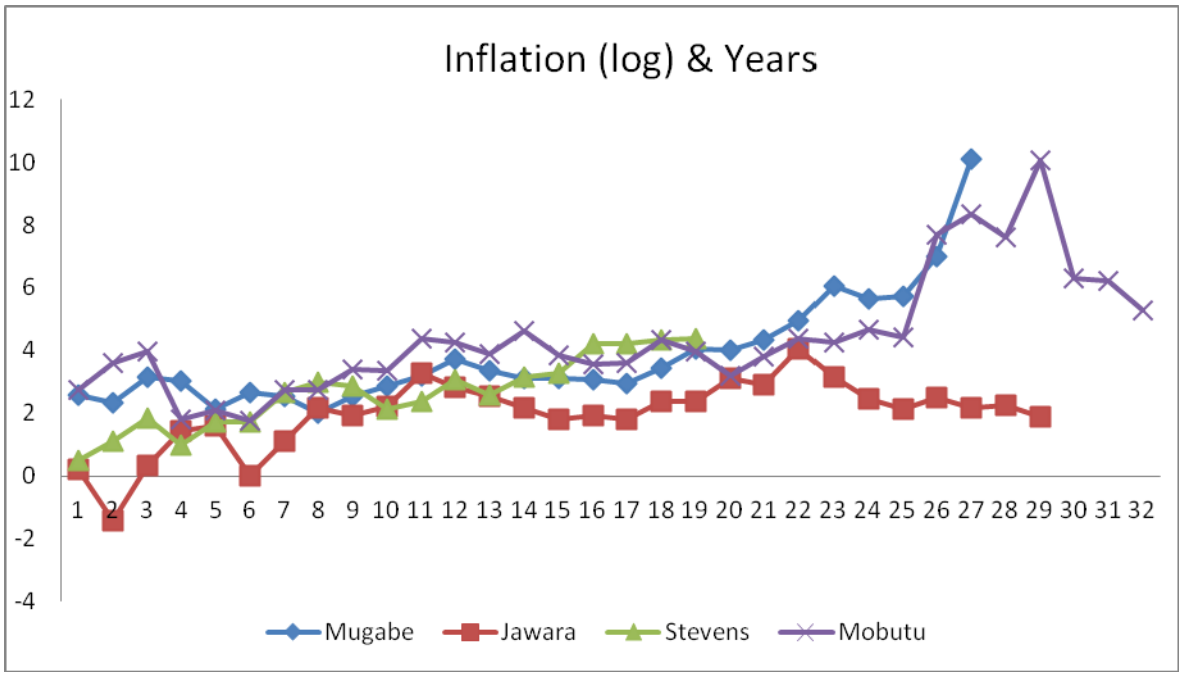
### *4.3 Inflation and Years in Office*

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 (in logs) 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 a dynamic panel data model 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:

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

$$i = 1,\ldots,N \qquad t = 1,\ldots,T_i$$

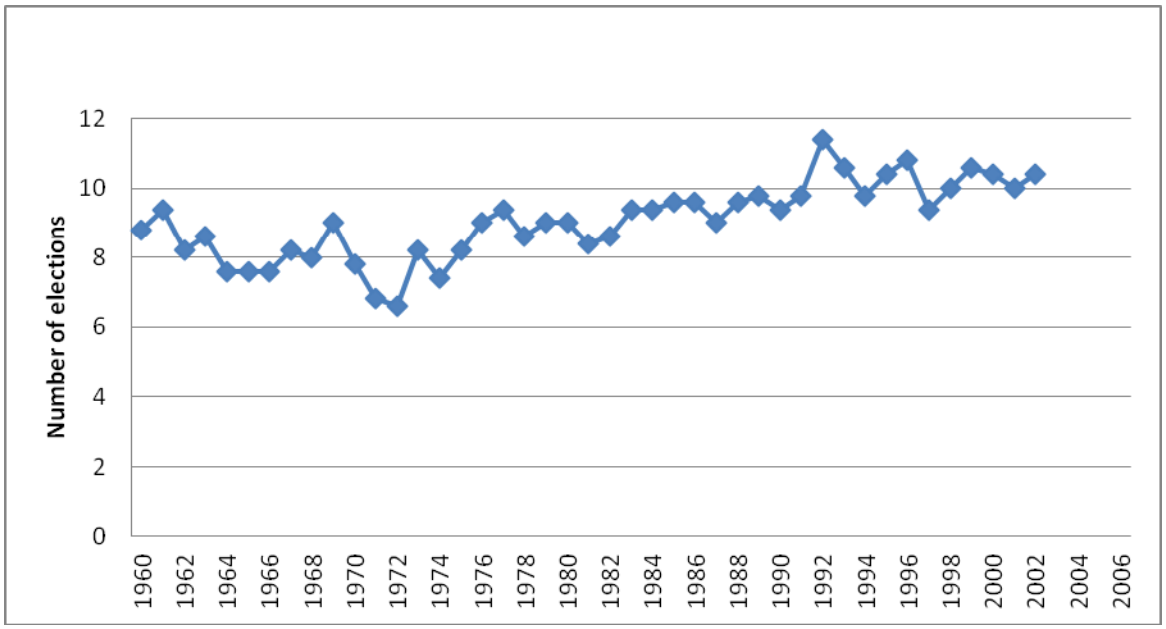
where $X'_{it}$ is a vector of strictly exogenous variables and $W'_{i,t}$ a vector of endogenous covariates, $\mu_i$ and $\delta_i$ are country-specific and time-specific effects respectively, and $u_{it}$ is the error therm.

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.

Figure 6

*Number of Elections, 1960-2009*




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 results 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. As Bratton and van de Walle also claim, the political power is systematically concentrated in the hands of one individual, who resists delegating all but the most trivial decision-making tasks (1997, p. 63). Therefore, in our analysis we chose to include presidential elections where the impact might be stronger. Between the early 1990s and 2002, more than 70 presidential elections, involving more than one candidate, were held in sub-Saharan Africa (across the 48 countries of the region). As a result, it is expected that presidential elections 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 | 0.4131 | 0.3913 | 0.4205 | 0.4341 |
| | [6.14]*** | [5.02]*** | [5.13]*** | [6.54]*** | [6.21]*** |
| Growth of real GDP per capita (t-1) | -0.0002 | -0.0131 | -0.0112 | -0.0031 | -0.0102 |
| | [-0.09] | [-1.12] | [-0.70] | [-0.32] | [-1.04] |
| Years in Office | 0.0575 | 0.0661 | 0.0602 | 0.0808 | 0.0718 |
| | [5.59]*** | [6.02]*** | [5.13]*** | [6.41]*** | [5.57]*** |
| Polityiv | -0.0335 | | -0.0391 | | |
| | [-1.89]* | | [-1.99]** | | |
| Government Crises | | 0.3359 | 0.3376 | 0.3399 | 0.3358 |
| | | [3.30]*** | [2.98]*** | [3.44]*** | [3.7]*** |
| Elections (t+1) | | -0.3188 | -0.3342 | -0.3153 | -0.2984 |
| | | [-2.10]** | [-2.28]** | [-2.46]** | [-1.77]* |
| Oil [Yrsoffc*NatouralResources]^ | | | | -0.0476 | |
| | | | | [-1.94]* | |
| High State Antiquity^^ | | | | | -0.0259 |
| | | | | | [-1.86]* |
| Number of Observations | 1686 | 1537 | 1514 | 1484 | 1484 |
| Number of Countries | 56 | 58 | 56 | 57 | 57 |
| Number of Instruments | 58 | 59 | 60 | 62 | 60 |
| AR1 statistics (p-value) | 0 | 0 | 0 | 0 | 0 |
| AR2 statistics (p-value) | 0.718 | 0.516 | 0.433 | 0.452 | 0.422 |
| Hansen test (p-value) | 0.472 | 0.523 | 0.544 | 0.956 | 0.614 |

**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))
- (^) 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 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, 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 positive effect of years in office on inflation. The quality of democratic institutions is as expected negatively linked to inflation. We also find that elections in the following year have a dampening effect on inflation, pointing to a PBC effect.[15] Oil producing countries are less affected by the years-in-office-effect. Finally it appears that young states show this link between tenure and inflation more consistently than old states.

## 5. Conclusion

[15] 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.

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 roles 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 negatively 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).

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, leading to long years of tenure, 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. But we also found some evidence that things might be changing: 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 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: robustness checks

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 | -0.7397 |
| | [-3.18]*** | [-2.11]** |
| Investment | 0.2179 | 0.2182 |
| | [4.45]*** | [4.07]*** |
| Trade Openness | 0.0413 | 0.0317 |
| | [1.57] | [1.24] |
| Population Growth | 0.0963 | 0.1187 |
| | [0.69] | [0.82] |
| School Enrollment | 0.2437 | 0.2367 |
| | [1.24] | [1.11] |
| Polityiv | | 0.10708 |
| | | [2.09]** |
| Years in Office | | |
| Time Class [1-4] | 2,6832 | 0.9302 |
| | [3.83]*** | [1.21] |
| Time Class [5-8] | 1,6344 | |
| | [2.01]** | |
| Time Class [9-14] | | (-1,6901) |
| | | [-2.04]** |
| Time Class [15-21] | -0.0712 | (-1,3224) |
| | [-0.09] | [-1.17] |
| Time Class [21-46] | -0.3632 | (-1,5138) |
| | [-0.36] | [-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 | -0.7397 |
| | [-2.68]*** | [-3.07]*** |
| Investment | 0.2251 | 0.2241 |
| | [4.31]*** | [4.34]*** |
| Trade Openness | 0.0462 | 0.0446 |
| | [1.76]* | [1.71]* |
| Population Growth | -0.1845 | -0.2046 |
| | [-0.99] | [-1.05] |
| School Enrollment | 0.2798 | 0.2367 |
| | [1.51] | [1.46] |
| Years in Office | | |
| Time Class [1-4] | 1,0629 | 2,4698 |
| | [1.39] | [3.34]*** |
| Time Class [5-8] | | 1,4377 |
| | | [2.04]** |
| Time Class [9-14] | -1,3655 | |
| | [-1.84]* | |
| Time Class [15-46] | -1,6481 | -0.2541 |
| | [-1.74]* | [-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: Institutions-Polityiv variable | (1) | (2) |
|---|---|---|
| Polityiv (t-1) | 0.8359 | 0.8191 |
| | [29.99]*** | [30.2]*** |
| GDP per capita growth (t-1) | 0.0086 | 0.0115 |
| | [2.08]** | [2.57]** |
| Years in Office | | |
| Time Class [1-4] | 0.0195 | -0.1799 |
| | [0.15] | [-1.26] |
| Time Class [5-8] | | -0.7972 |
| | | [-3.07]*** |
| Time Class [9-14] | -0.6219 | -0.7851 |
| | [-3.95]*** | [-4.06]*** |
| Time Class [15-21] | -0.9359 | -0.8729 |
| | [-4.37]*** | [-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: Institutions-Polityiv variable | (1) | (2) |
|---|---|---|
| Polityiv (t-1) | 0.8355 | 0.8345 |
| | [33.90]*** | [32.89]*** |
| GDP per capita growth (t-1) | 0.0089 | 0.0101 |
| | [1.91]* | [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 | -0.7471 |
| | [-3.96]*** | [-4.35]*** |
| Time Class [15-46] | -0.8512 | -0.8776 |
| | [-4.20]*** | [-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 |

We performed a second set of robustness checks and did the most growth-regression also with OLS, to see if this produced similar results. With both fixed effects and random effects one gets again a significantly negative coefficient of years in office on growth, confirming the GMM results. These coefficients are somewhat lower than those resulting from the GMM regressions, but that is expected: we know that OLS-regressions are downward biased (and inconsistent).

**Table OLS** -Fixed and random effects specifications-

| Dependent variable: GDP growth per capita | (1) Fixed Effect | (2) Random Effect | (3) Random Effect |
|---|---|---|---|
| Initial GDP per capita(log) | (omitted) | -0.0740 | -0.1798 |
| | - | [-0.6] | [-1.03] |
| Investment | 0.1034 | 0.0969 | 0.0817 |
| | [3.64]*** | [3.21]*** | [2.31]** |
| Trade Openness | -0.0314 | -0.0320 | -0.0420 |
| | [-1.76]* | [-2.78]*** | [-2.44]** |
| Population Growth | -0.3552 | -0.3059 | -0.2326 |
| | [-1.59] | [-1.47] | [-0.96] |
| School Enrollment | 0.0703 | 0.0436 | 0.1671 |
| | [0.81] | [0.47] | [1.67]* |
| Years in Office | -0.1110 | -0.0819 | -0.0742 |
| | [-3.93]*** | [-3.02]*** | [-2.52]** |
| PolityIV | | | 0.1173 |
| | | | [2.08]** |
| Inflation(log) | | | -0.5636 |
| | | | [-2.76]*** |
| Number of Observations | 2128 | 2128 | 1606 |
| Number of Countries | 55 | 55 | 54 |
| Country Specific Effects | Yes | Yes | Yes |
| Time Specific Effects | Yes | Yes | Yes |

## References


Acemoglu, D., & Robinson, J. (2001). "A Theory of Political Transitions," *American Economic Review*, 91: 938–963.

Acemoglu, D. (2003). "Why not a Political Coase Theorem?," *Journal of Economic Literature*, 40: 7-72.

Acemoglu, D., Johnson, S., & Robinson, J.A. (2005). "Institutions as a Fundamental Cause of Long-run Growth." *In Handbook of Economic Growth*, edited by Philippe Aghion and Steven N. Durlauf. Amsterdam: North Holland: 385-472.

Acemoglu, D. & J. Robinson, J. (2006). "De Facto Political Power and Institutional Persistence," *American Economic Association Papers and Proceedings,* 96(2): 325-330.

Acemoglu, D., Johnson, S. & Mitton, T. (2009). "Determinants of Vertical Integration: Finance, Contracts and Regulation," *Journal of Finance*, 64(3): 1251-1290.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003), "Fractionalization," *Journal of Economic Growth*, 8, (2): 155-194.

Alvarez, M., Cheibub, J.A., Limongi, F. & Przeworski, A. (1996). "Classifying Political Regimes." *Studies in Comparative International Development*, 31: 3-36.

Arellano, M. & Bond, S. (1991). "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations," *The Review of Economic Studies* 58: 277–297.

Arellano, M. & Bover, O. (1995). "Another look at the instrumental variable estimation of error-component models," *Journal of Econometrics*, 68: 29–51.

Baltagi, B. H. (2008). *Econometric Analysis of Panel Data*, Chichester: John Wiley & Sons (4th ed.).

Banks, A., S. (2011). Cross-National Time-Series Data Archive. Databanks International. Jerusalem, Israel.; see http://www.databanksinternational.com.

Barro, R. J. (1996). "Democracy and Growth," *Journal of Economic Growth*,1: 1-27.

Barro, R. J. (1997). *Determinants of Economic Growth*, Cambridge: MIT Press.

Barro, R. J., & Lee, J.W. (2000). "International Data on Educational Attainment: Updates and Implications," Working Paper, No. 42, Harvard University Center for International Development.

Beck, T., Clarke, G., Groff, A., Keefer, P. & Walsh, P. (2001). "New tools in comparative political economy: The Database of Political Institutions," *World Bank Economic Review*, 15(1): 165-76.

Blundell, R. & Bond, S. R. (1998). "Initial conditions and moment restrictions in dynamic panel data models," *Journal of Econometrics*, 87: 115–143.

Boix, C. (2003). *Democracy and Redistribution*, Cambridge: Cambridge University Press.

Bond, S. R., (2002). "Dynamic Panel Data Models: A Guide to Micro Data Methods and Practicem" *Portugese Economic Journal*, 1: 141-162.

Bowsher, C. G. (2002). "On testing overidentifying restrictions in dynamic panel data models," *Economics Letters*, 77: 211-220.

Bratton, M., and Van de Walle, N. (1997). *Democratic Experiments in Africa: Regime Transitions in Comparative Perspective*, Cambridge, UK: Cambridge University Press.

Bueno de Mesquita B., Smith A. B., Siverson, R. M., and Morrow J. D. (2003). *The Logic of Political Survival*. Cambridge: MIT Press.

Chang, E., & Golden, M. A. (2010). "Sources of corruption in authoritarian regimes," *Social Science Quarterly*, 91: 1-20.

De Haan, J. (2007). "Political institutions and economic growth reconsidered," *Public Choice*, 131: 281–292.

Easterly, W., Ritzen J., & Woolcock, W. (2006). "Social Cohesion, Institutions and Growth." *Economics & Politics*, 18(2): 103-120.

Frankel, J. A., & Romer, D. (1999). "Does Trade Cause Growth?" *American Economic Review*, 89(3): 379-399.

Gandhi J. (2008). *Political Institutions under Dictatorship*, Cambridge, UK: Cambridge University Press

Gandhi, J., & Przeworski, A. (2006). "Cooperation, cooptation, and rebellion under dictatorships," *Economics and Politics*, 18: 1-26.

Geddes, B. (1999). "What do we know about democratization after twenty years? "*Annual Review of Political Science*, 2: 115-144.

Geddes, B. (2003). *Paradigms and Sandcastles: Theory Building and Research Design in Comparative Politics*. Ann Arbor: The University of Michigan Press.

Glaeser, E.L., La Porta, R., Lopez-de-Silanes, F. & Shleifer, A. (2004). "Do Institutions Cause Growth?," *Journal of Economic Growth* 9: 271-230.

Haber, S. (2006). "Authoritarian Government." *In The Oxford Handbook of Political Economy*, edited by Barry Weingast and Donald Wittman. Oxford University Press: 693-707.

Hauk, W. R. & Wacziarg, R. (2009). "A Monte Carlo study of growth regressions," *Journal of Economic Growth*, 14(2): 103-147.

Hayakawa, K. (2006). "The Asymptotic Properties of the System GMM Estimator in Dynamic Panel Data Models when both N and T are large," Hi-Stat Discussion Paper Series No.129. Hitotsubashi University.

Helpman, E. (2004). *The Mystery of Economic Growth,* Cambridge, MA: Belknap Press of Harvard University Press.

Heston, A., Summers, R. & Aten, B.(2011). *Penn World Table Version 7.0*, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.

Mankiw, N. G., Romer, D. & Weil, D. (1992)."A contribution to the empirics of economic growth," *Quarterly Journal of Economics*, 107: 407–437.

Marshall, M. & Jaggers, K. (2005). *Polity IV Project: Political Regime Characteristics and Transitions, 1800.–2004.* Center for Global Policy, George Mason University.

McGuire, C., & Olson, M. (1996). "The Economics of Autocracy and Majority Rule: The invisible Hand and the Use of Force," *Journal of Economic Literature*, 34 (1): 72-96.

Olson, M., (1993). "Dictatorship, democracy, and development," *American Political Science Review*, 87: 567-576.

Perotti, R. (1996). "Growth, Income Distribution and Democracy: What the Data Say," *Journal of Economic Growth*, 1:149-187.

Rivera-Batiz, F. L. (2002). "Democracy, Governance, and Economic Growth: Theory and Evidence," *Review of Development Economics*, 6(2): 225–247.

Przeworski, A., Alvarez, M., Cheibub, J. A., & Limongi, F. (2000). *Democracy and development: Political institutions and well-being in the world, 1950-1990,* New York: Cambridge University Press.

Rodríguez, F., & Rodrik, D. (2001). "Trade policy and economic growth: A skeptic's guide to the cross-national evidence". *In: Bernanke, B., Rogoff, K.S. (Eds.), Macroeconomics Annual 2000*. MIT Press for NBER, Cambridge, MA.

Rodrik, D. (2002). "Feasible globalizations," NBER Working Paper, No. 912, National Bureau of Economic Research

Rodrik, D. (2004). "Getting Institutions Right," mimeo, Harvard University, April

Rodrik, D., Subramanian, A., & Trebbi, F. (2004). "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development," *Journal of Economic Growth*, 9: 131-165.

Roodman, D. (2009a). "How to do Xtabond2: An Introduction to Difference and System GMM in Stata," *Stata Journal*, 9(1): 86-136.

Roodman, D. (2009b). "A Short Note on the Theme of too Many Instruments," *Oxford Bulletin of Economics and Statistics*, 71(1): 135-158.

Sachs, J. (2003). "Institutions Don't Rule: Direct Effects of Geography on Per Capita Income," Working Paper, No. 9490, National Bureau of Economic Research.

Schneider, P.H. (2005). "International Trade, Economic Growth and Intellectual Property Rights: A Panel Data Study of Developed and Developing Countries," *Journal of Development Economics* 78 (2): 529-547.

Tavares, J., & Wacziarg, R. (2001). "How Democracy Affects Growth," *European Economic Review*, 45 (8): 1341-1378.

Teorell, J., Samanni, M., Holmberg, S. & Rothstein, B. (2011). The Quality of Government Dataset, version 6Apr11. University of Gothenburg: The Quality of Government
Institute, available at http://www.qog.pol.gu.se

Windmeijer, F. (2005). "A finite sample correction for the variance of linear efficient two-step GMM estimators," *Journal of Econometrics*, 126: 25–51.

Wintrobe, R. (1990)."The Tinpot and the Totalitarian: An Economic Theory of Dictatorship," *The American Political Science Review*, 84 (3): 849-872.

Wintrobe, R. (1998). *The Political Economy of Dictatorship*, Cambridge University Press; New York.

Wooldridge, R. (2002). *Econometric Analysis of cross section and panel data,* MIT Press.

Wright, J. (2008). "Do Authoritarian Institutions Constrain? How Legislatures Impact Economic Growth and Foreign Aid," *American Journal of Political Science*, 52(2): 322–324.