

The Dictator Effect: How long years in office affect economic development

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Supplementary Appendices

This appendix is intended to be published on the journal's websites. This supplementary appendix includes additional figures in Appendix (A), data summary in Appendix (B), the classification tables with a full list of the countries in use in Appendix (C), and results/tables from various robustness tests Appendix(D).

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Appendix (A)

Figure A-1. *The Distribution of Years in Office in Sub-Saharan African and the near East.*

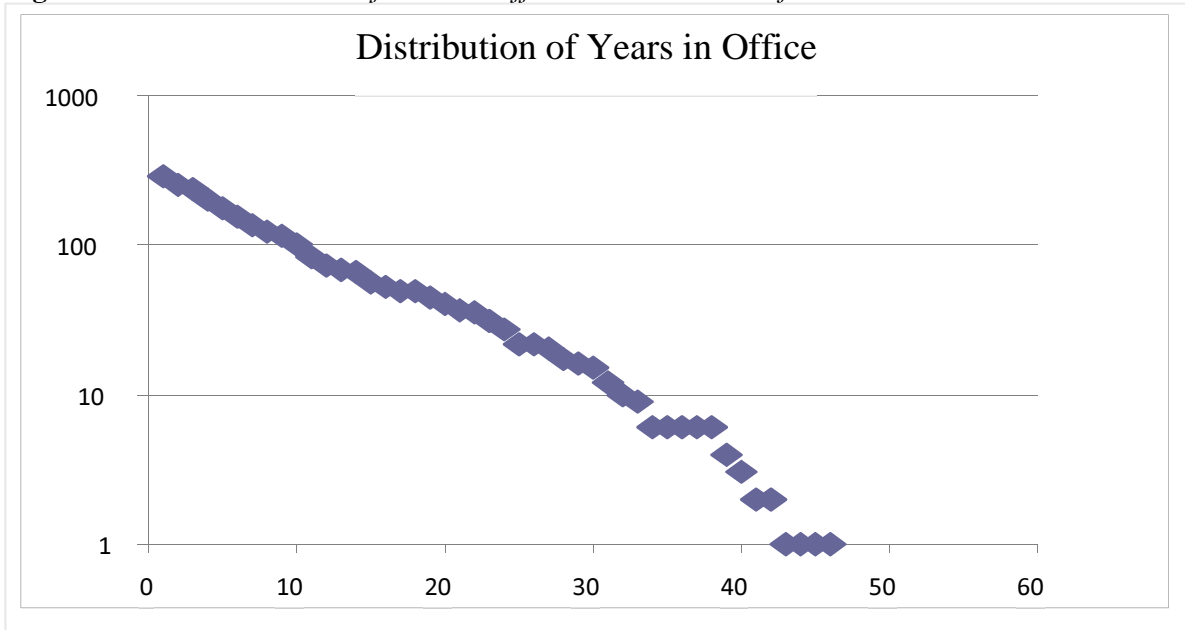


Figure A-2. *Years in Office and GDP per capita, four countries*

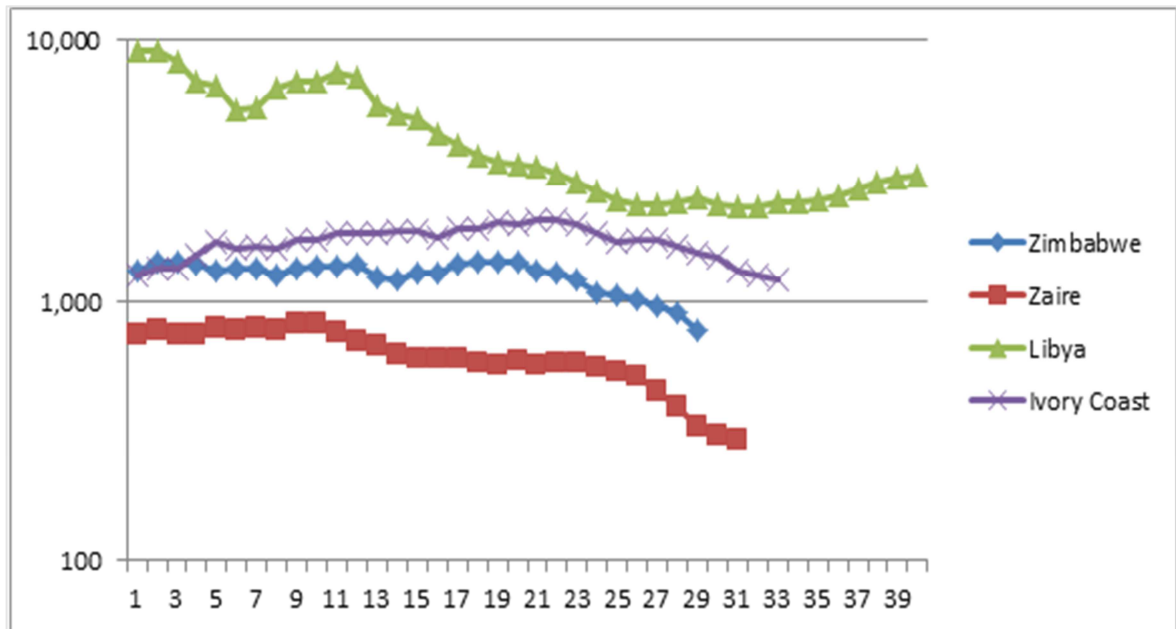


Figure A-3a. *The quality of democratic institutions in four regions according to the PolityIV dataset (population weighted averages for all countries for which there are observations), 1960-2009.*

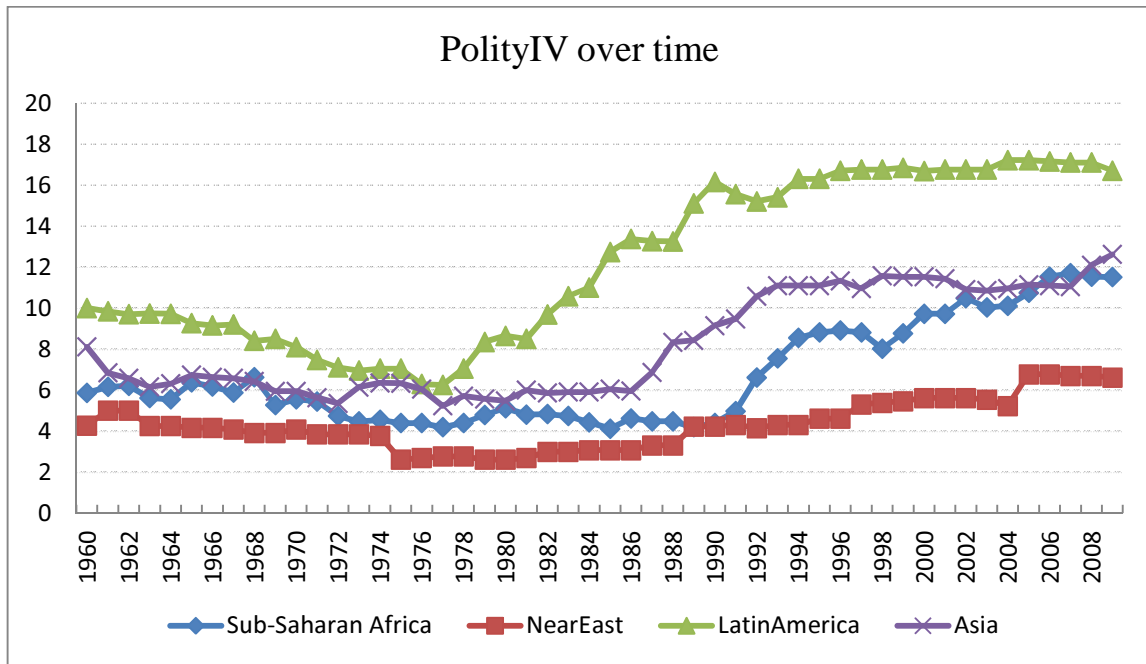
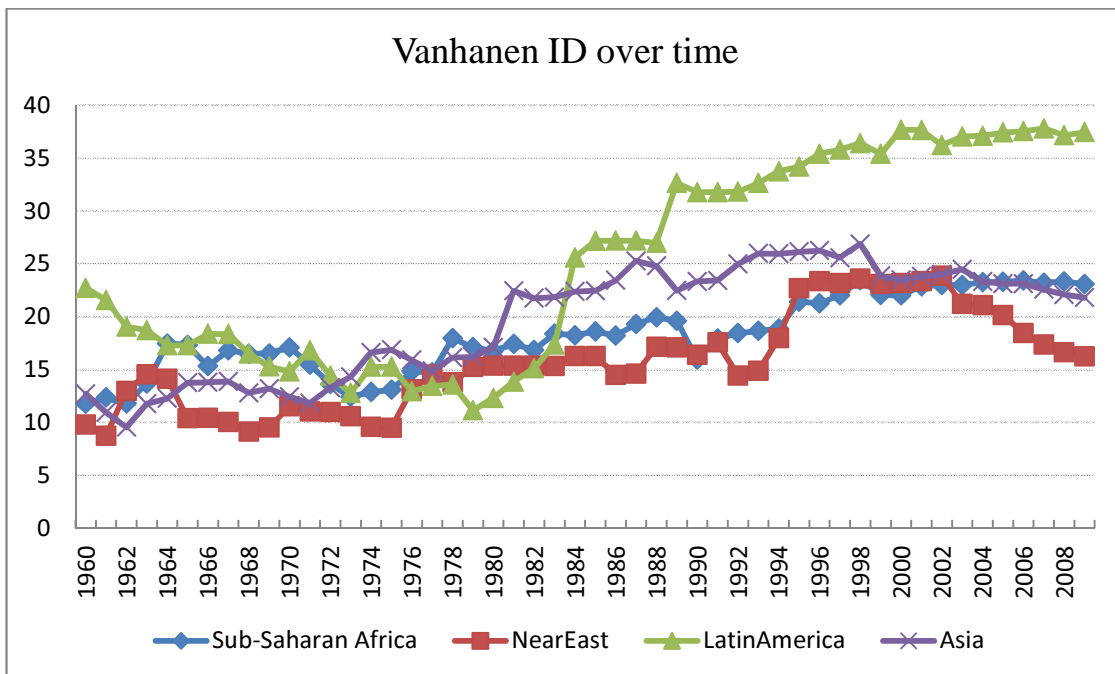


Figure A-3b. *The quality of democratic institutions in four regions according to the Vanhanen dataset (population weighted averages for all countries for which there are observations), 1960-2009.*



Graphic Illustration of all four measures of government quality

Figure A-4a. Sorted by regime

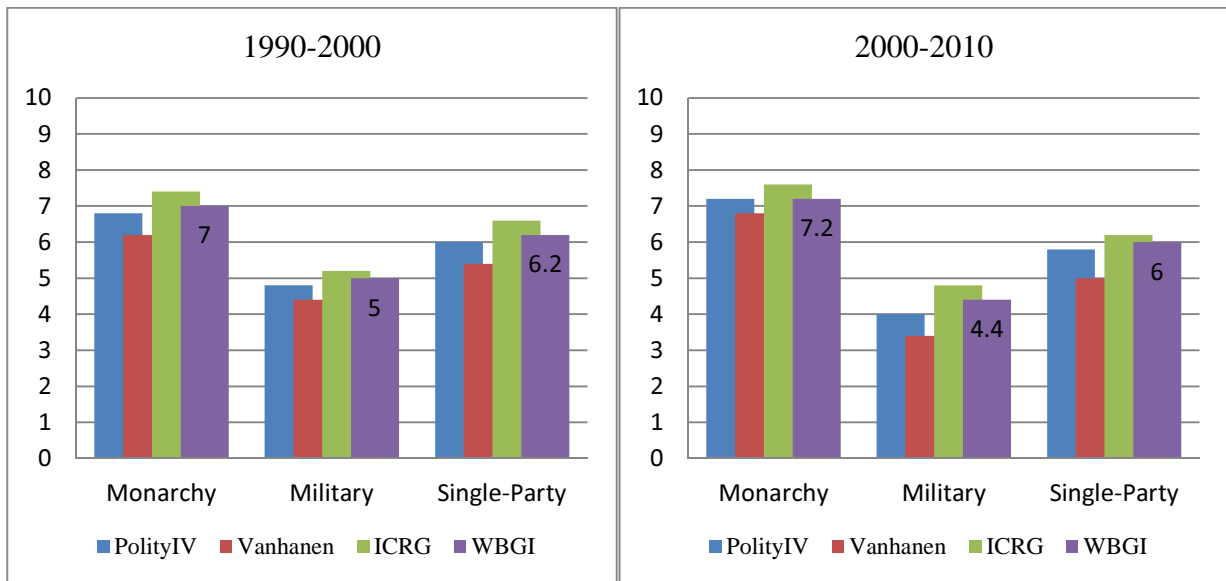
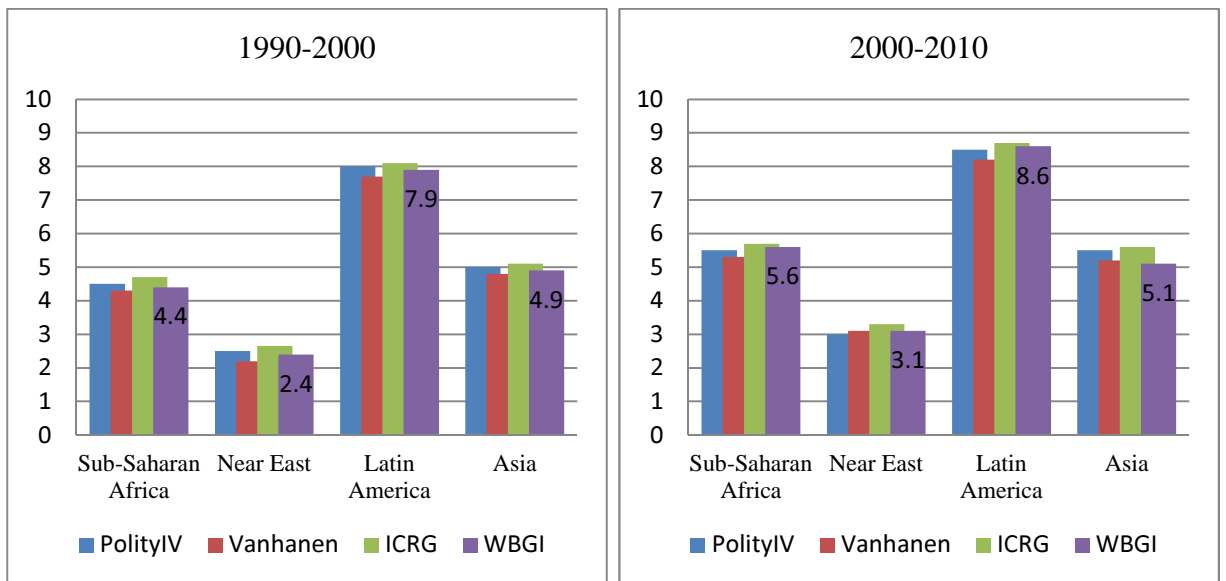
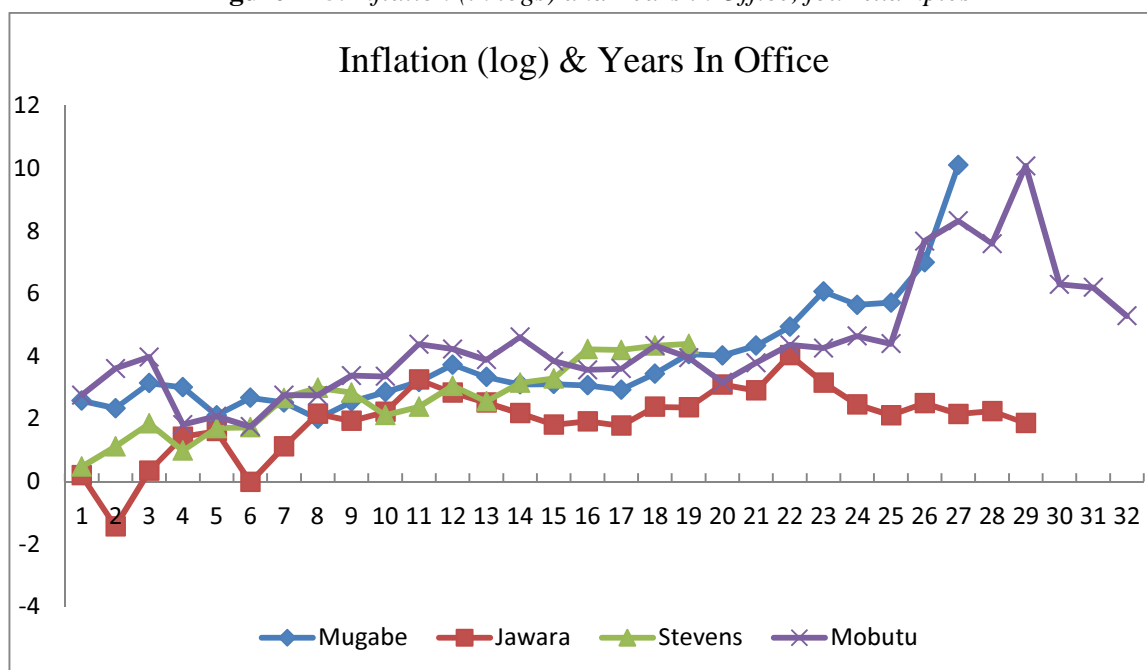


Figure A-4b. Sorted by region



Notes: Each measure has been re-scaled so that they range from 0-10, with higher scores implying better Quality of Government. Average scores are taken on a decade by decade base. We are only able to present two decades of our sample, due to lack of data for the WBGI and ICRG prior to 1984. Authoritarian regime types are according to Geddes (1999) and Wright (2008).

Figure A-5. Inflation (in logs) and Years in Office, four examples



Appendix (B). DATA SUMMARY

Here is a summary of the basic data sources from which we obtained data. The economic data used are obtained from the Penn World Table version 7 (PWT) (Heston & Summers, 2011) and World Bank's World Development Indicators (World Bank, 2012). Institutional data are gathered from the Polity IV Database (Marshall & Jaggers, 2004), from Vanhanen's index of democracy (Vanhanen, 2011), from the World Bank Governance Indicators (WBI) (Kaufmann *et al.*, 2005), from the database of political institutions (DPI) (Beck *et al.*, 2001), ACLP (Alvarez *et al.*, 1996) and from the QoG database (Teorell *et al.*, 2011). Finally, political data (e.g. elections) are obtained from the Cross National Time Series Data Archive –CNTS (Banks, 2011) and from national elections across democracy and autocracy – NELDA (Hyde & Marinov, 2012) for the robustness tests.

APPENDIX (C). CLASSIFICATIONS

Oil Producing Countries

Algeria	Nigeria
Angola	Oman
Congo, Republic of	Saudi Arabia
Equatorial Guinea	Syria
Gabon	United Arab Emirates
Iran	Venezuela
Iraq	

Full list of countries in use

Sub-Sahara Africa	Near East	Latin America	Asia
Angola	Algeria	Argentina	Afghanistan
Benin	Egypt	Bolivia	Bangladesh
Botswana	Iran	Brazil	Bhutan
Burkina Faso	Iraq	Chile	China
Burundi	Israel	Colombia	Indonesia
Cameroon	Jordan	Costa Rica	India
Cape Verde	Lebanon	Cuba	Cambodia
Central African Republic	Libya	Dominican Republic	Laos
Chad	Morocco	Ecuador	Sri Lanka
Congo, Dem. Rep.	Oman	El Salvador	Myanmar
Congo, Republic of	Saudi Arabia	Guatemala	Mongolia
Cote d'Ivoire	Syria	Haiti	Malaysia
Djibouti	Tunisia	Honduras	Nepal
Equatorial Guinea	United Arab Emirates	Mexico	Pakistan
Ethiopia		Nicaragua	Philippines
Gabon		Panama	P. N. Guinea
Gambia, The		Paraguay	Singapore
Ghana		Peru	Thailand
Guinea		Uruguay	Taiwan
Guinea-Bissau		Venezuela, RB	Vietnam
Kenya			South Korea
Lesotho			
Liberia			
Madagascar			
Malawi			
Mali			
Mauritania			
Mauritius			
Mozambique			
Namibia			
Niger			
Nigeria			
Rwanda			
Senegal			
Sierra Leone			
Somalia			
South Africa			
Sudan			
Swaziland			

Tanzania
Togo
Uganda
Zambia
Zimbabwe

Appendix (D). Additional Results & Robustness Tests

Table A-1. Growth and Years in Office: two periods and five year averages

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	1960-1991	1992-2009	5-year Averages			
GDP growth per capita						
Initial GDP per capita(log)	-0.3807 [-2.13]**	-0.6510 [-2.76]***	-0.4321 [-1.98]**	-0.4359 [-2.01]**	-0.5342 [-1.77]*	-0.4932 [-2.00]**
Investment	0.1605 [2.56]**	0.1732 [2.03]**	0.0592 [2.21]**	0.0773 [2.82]***	0.0967 [2.81]***	0.0736 [2.67]**
Trade Openness	0.0469 [1.17]	0.0374 [1.43]	0.0209 [1.86]*	0.0201 [1.91]*	0.0120 [1.41]	0.0154 [2.06]**
Population Growth	-0.4509 [-1.84]*	-0.5711 [-1.75]*	-0.2892 [-1.80]*	-0.3025 [-1.83]*	-0.2237 [-0.67]	-0.1763 [-1.69]*
School Enrollment	0.1223 [0.67]	0.0131 [0.06]	0.0159 [0.19]	0.0005 [0.01]	0.0120 [0.73]	0.0060 [0.07]
Years in Office	-0.0976 [-1.99]**	-0.0706 [-2.01]**	-0.0513 [-2.51]**	-0.0595 [-1.96]**	-0.0665 [-2.62]**	-0.0531 [-2.42]**
Years in Office Square				0.0021 [0.91]		
Quality of Political Institutions~						0.0617 [1.96]**
Ethnic/Religion Fractionalization						-0.0010 [-1.29]
Inflation(log)					-0.0015 [-2.03]**	
Government Share					-0.0114 [-0.28]	
Number of Observations	2714	1632	1667	1667	1549	1520
Number of Countries	94	94	96	96	91	72
Number of Instruments	67	70	85	87	93	82
AR1 statistics (p-value)	0.001	0.001	0.019	0.001	0.02	0.042
AR2 statistics (p-value)	0.245	0.765	0.408	0.478	0.494	0.391
Hansen test (p-value)	0.495	0.391	0.795	0.845	0.895	0.732

Notes: ^(a) 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.

^(b) Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.

^(c) Second (and latter) lags were used as instruments in the first-differenced equations and their once-lagged first differences were used in the levels equation.

^(d) Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)). Time dummies are included in all regressions.

^(e)(~) In the regressions both variables of institutional quality have been included separately. In this table we only present the Index of Democracy from Vanhanen (2011).

^(f) We used a different variable for school enrollment in the 5-year regressions. Data for this variable were obtained from CNTS database.

Table A-2. Regional Effects

Dependent variable:	(1)	(2)	(3)	(4)
GDP growth per capita				
Initial GDP per capita(log)	-0.3601 [-2.12]**	-0.4485 [-2.74]***	-0.5408 [-1.98]**	-0.3558 [-2.09]**
Investment	0.1792 [3.43]***	0.1679 [3.38]***	0.1906 [3.97]***	0.2235 [2.86]***
Trade Openness	0.0257 [1.38]	0.0231 [1.32]	0.0170 [0.88]	0.0214 [0.87]
Population Growth	-0.1250 [-0.67]	-0.1437 [-1.22]	-0.1231 [-1.69]*	-0.3327 [-1.15]
School Enrollment	0.1783 [0.99]	0.2213 [1.33]	0.1641 [0.94]	0.0319 [0.19]
Years in Office	-0.0737 [-2.16]***	0.1031 [1.64]	0.0941 [1.39]	0.0938 [0.66]
Quality of Political Institutions~			0.0538 [1.89]*	
Religion Fractionalization			-0.0021 [-1.99]**	
Inflation(log)				-0.0061 [-2.82]**
Government Share				-0.0382 [-0.67]
State Antiquity				0.0135 [0.81]
SSA [^]		-0.2167 [-4.43]***	-0.2749 [-2.37]**	-0.2270 [-2.28]**
Mideast [^]		-0.1827 [-3.43]***	-0.2454 [-1.97]**	-0.1553 [-2.02]**
Asia [^]		-0.1360 [-1.92]*	-0.2841 [-1.56]	-0.1593 [-0.67]
Latin [^]				
DummySSA	-0.7091 [-0.92]	0.0858 [1.50]	0.0902 [0.87]	0.0763 [0.56]
DummyMideast	-1.0449 [-0.86]	0.0691 [0.51]	0.0812 [0.42]	0.0401 [0.14]
DummyAsia	0.5676 [0.65]	0.0358 [1.82]*	0.1507 [1.77]*	0.0403 [1.43]
DummyLatin				
Number of Observations	3330	3330	3250	2900
Number of Countries	96	96	94	91
Number of Instruments	98	117	105	110
AR1 statistics (p-value)	0	0	0	0
AR2 statistics (p-value)	0.351	0.234	0.273	0.709
Hansen test (p-value)	0.886	0.783	0.867	0.911

Notes: (a) System GMM estimation for dynamic panel data-model. Sample period: 1960-2009.

(b) Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.

(c) Second (and latter) lags were used as instruments in the first-differenced equations and their once-lagged first differences were used in the levels equation.

(d) Two-step results using robust standard errors corrected for finite samples (using Windmeijer's correction (2005)). Time dummies are included in all regressions.

(e) (~) In these regressions both variables of institutional quality have been included separately. In this table we only present the Index of Democracy from Vanhanen (2011).

(f) (^) This symbol denotes the interaction terms. We constructed four different regional interaction terms to capture the varying 'dictator effect' that each region exhibits with respect to economic growth. This was done by

multiplying the years in office (YRSOFFC) variable with four different region dummies. The Latin American interaction and dummy variable were excluded because they were used as the reference category.

1. *Alternative econometric specification*

We performed a second set of robustness tests and ran the growth-regression also with OLS to see if this produced similar results. With both fixed effects and random effects we obtain 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 acknowledging the fact that the OLS may be downward biased.

Table A-3. OLS –Fixed and random effects specifications

Dependent variable:	(1)	(2)
GDP growth per capita	Fixed Effect	Random Effect
Initial GDP per capita(log)	(omitted)	-0.0740
	-	[-0.61]
Investment	0.1034	0.0969
	[3.64]***	[3.21]***
Trade Openness	-0.0314	-0.0320
	[-1.76]*	[-2.78]***
Population Growth	-0.3552	-0.3059
	[-1.59]	[-1.47]
School Enrollment	0.0703	0.0436
	[0.81]	[0.47]
Years in Office	-0.1110	-0.0819
	[3.93]***	[-3.02]***
Number of Observations	4150	4150
Number of Countries	96	96
Controls	Yes	Yes
Country Specific Effects	Yes	Yes
Time Specific Effects	Yes	Yes

Notes: ^(a) OLS regressions. Sample period: 1960-2009.

^(b) Controls include all variables used in Table 2.

^(c) Corrected T-statistics are in brackets. Significance level at which the nulls hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.

2. Varying dictator effects

To shed more light on the varying regional effects, we divided our dataset in 3 different subsamples (Latin America, Asia and Sub-Sahara Africa/ Middle-East) and re-estimated the model. The results show that all regions suffer, to various degrees, by the ‘dictator effect’.

Table A-4. Varying ‘dictator effect’ in 3 different sub-samples.

Dependent variable:	(1) Africa –Middle East	(2) Asia	(3) Latin America
GDP growth per capita			
Initial GDP per capita(log)	-0.6447 [-1.97]**	-0.2882 [-4.37]***	-0.4160 [-2.58]**
Investment	0.2097 [3.34]***	0.4039 [2.34]**	0.1921 [2.54]**
Trade Openness	0.0364 [1.48]	0.0176 [1.81]*	0.0417 [1.86]*
Population Growth	-0.2507 [-1.11]	-0.1462 [-1.47]	-0.2496 [-0.98]
School Enrollment	0.2019 [1.07]	0.3514 [1.71]*	0.2819 [1.82]*
Years in Office	-0.1409 [-3.21]***	-0.1015 [-1.99]**	-0.0654 [-1.96]**
Quality of Political Institutions	0.1021 [1.89]*	0.0381 [1.79]*	0.0628 [1.94]*
Inflation(log)	-0.0018 [-2.48]**	-0.0005 [-2.01]**	-0.0011 [-2.58]**
Government Share	-0.06815 [-0.95]	-0.0185 [-0.58]	-0.0235 [-1.01]
Ethnic/Religion Fractionalization	-0.0033 [-2.21]**	-0.0011 [1.89]*	-0.0017 [-1.73]
Number of Observations	2529	980	945
Number of Countries	58	21	20
Number of Instruments	62	34	28
AR1 statistics (p-value)	0	0	0
AR2 statistics (p-value)	0.551	0.578	0.633
Hansen test (p-value)	0.642	0.488	0.611

Notes: ^(a) System GMM estimation for dynamic panel data-model. Sample period: 1960-2009.

^(b) Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.

^(c) Controls include all variables used in table 2.

^(d) 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.

^(e) Two-step results using robust standard errors corrected for finite samples (using Windmeijer’s correction (2005)). Time dummies are included in all regressions.

3. Alternative quality of government measures

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

Table A-5. *Alternative quality of government measures and Years in Office*

Dependent variable:	(1)	(2)
	PolityIV	ICRG
Lagged_Dependent (t-1)	0.9438 [17.09]***	0.0746 [8.47]***
GDP per capita (log) (t-1)	0.5506 [4.67]***	0.0661 [2.47]***
Years in Office	-0.4116 [-3.50]***	-0.0497 [-1.89]*
School Enrollment	0.0047 [3.41]***	0.0008 [2.08]**
Number of Observations	4368	2018
Number of Countries	96	45
Number of Instruments	82	36
Controls	YES	YES
AR1 statistics (p-value)	0	0
AR2 statistics (p-value)	0.464	0.158
Hansen test (p-value)	0.789	0.299

Notes: ^(a) System GMM estimation for dynamic panel data-model. Sample period: 1960-2009 (column 1), and 1984-2009 (column 2).

^(b) Corrected T-statistics are in brackets. Significance level at which the null hypothesis is rejected: ***, 1 percent; **, 5 percent, and *, 10 percent.

^(c) Second (and latter) lags were used as instruments in the first-differenced equations and their once-lagged first differences were used in the levels equation.

^(d) Two-step results using robust standard errors corrected for finite samples (using Windmeijer’s correction (2005)) Time dummies are included in all regressions.