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Is Democracy Eluding sub-Saharan Africa?[1]

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Abstract

This paper analyses the modernisation hypothesis in the sub-Saharan African region. Using a sample of 48 countries from 1960 to 2010 and dynamic panel data analysis, we find a significant and negative relationship between income and democracy, an indication that the hypothesis may not hold in the region. We also investigate further by distinguishing between exogenous and endogenous democracy. The former explains whether external factors, such as the end of the Cold War, as well as regional influence, play a role in the process of democratisation in sub-Saharan Africa. Results indicate that the end of the Cold War has a significant influence on the democratisation process probably because of the pro-democracy policies advocated by international organisations, while regional organisations play no significant role in the region. We also obtain significant results for democracy when we proxy for international organisations with an IMF programme variable.

Keywords: Democracy, sub-Saharan Africa
JEL Classifications: O10, O55, P16

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1. Introduction

Africa has been in the process of modernising and democratising for over five decades now. Liberalisation agreements were signed during decolonisation periods, signifying the start of new democracies across sub-Saharan Africa. During this transitional phase African states implemented macroeconomic reforms geared to restore economic growth. Labour shifted gradually from the rural to urban areas as the manufacturing sectors expanded, while basic amenities such as water, electricity, schools and clinics became more accessible to the average African.

Yet despite this economic progress taking place, the region continues to be troubled by periods of political instability (recent outbreaks of strife in Central African Republic, Democratic Republic of Congo (DRC) and Sudan) and authoritarianism from ruling parties in several states (Zimbabwe, Gabon, Angola). What is hindering the process of sustainable democracy in sub-Saharan economies?

This paper seeks to answer the above question by revisiting the modernisation hypothesis postulated by Lipset (1959). Wealthier countries are more likely to become democracies and sustain it as compared to poor nations. We therefore investigate whether the current economic development taking place in sub-Saharan Africa in terms of income per capita, education and urbanisation is working in stabilising and sustaining these young democracies. Given the region's track record so far in the development of institutions, both economic and political, it may be important to highlight developmental issues faced by the region, as it may aid policy makers to concentrate on social conditions that are more conducive for promoting a peaceful and democratic state.

We test the above hypothesis using a sample of countries from the region between 1960 and 2010. Estimations include dynamic panel data techniques with fixed effects to control for heterogeneity, instrumental variables to account for statistical and economic endogeneity, as well as the panel corrected standard errors (PCSE) estimator to control for cross-section dependence. We obtain a negative and significant relationship between income and democracy in the region, evidence suggesting that the levels of economic development being experienced by the region may still be relatively low to sustain democracy. We also find a non-linear relationship between regime durability and democracy. This indicates that democracy is sustainable when there are lasting and firmly established political institutions in place (Persson & Tabellini, 2009).

According to Przerworski and Limongi (1997), democracy could be exogenous (influenced by external factors) or endogenous (influenced by internal social conditions that promote democracy as in the modernisation hypothesis). We therefore also investigate whether external factors impact the process of democratisation in the region by including two dummy variables, one capturing the end of the Cold War when communisim fell signifying, in principle, a movement towards more democratic states, and the other capturing the impact on democracy of belonging to a regional organisation, in this case Southern African Development Community (SADC). The dummy for the Cold War is positive and significant indicating that democracy may indeed be exogenous in Africa. The dummy for regional influence is negative and insignificant indicating, rather surprisingly, that being part of this particular bloc of countries has no impact on the democratisation process.

We also include an IMF variable as a proxy for international organisations. We find a positive and significant relationship indicating that international organisations have an impact on democracy in the region.

This paper contributes to the literature by trying to capture both the internal process of democracy which occurs when democracy prospers due to economic development in the country, as well as the external process of democracy which occurs when democracy increases as a result from outside pressures. The literature reviewed so far has made no such attempt.

2. Brief background context to sub-Saharan Africa

The recent politics of democractisation in sub-Saharan Africa have been determined by various intertwined sets of events: the end of the Cold War, the rise of regional powers (ECOWAS – Economic Community of West African States, SADC), and the intensification of internal and often ethnic conflicts (Besley & Persson, 2008).

After their respective liberalisations ruling parties secured electoral support quickly by offering incentives in the form of infrastructure, education subsidies, housing and health plans. In their paper, Burgess *et al.* (2013) find evidence that the districts in Kenya that share the ethniticity of the president received more expenditure on improvement of roads during the tenure of the incumbent, favouritism that is bound to cause tension among the different ethnic groups. Rwanda is another example of ethnic violence between the Tutsis and the Hutus during the genocide. Moreover, Block (2002) provides evidence in support of opportunistic political business cycles in newly democratising countries, especially in Africa. He finds that during election years, politicians are more interested in re-election and tend to manipulate the fiscal and monetary policy instruments in order to win the support of voters. This kind of set-up has triggered conflict within the ruling and opposing parties. The abuse of political power with no checks and balance has led to a lack of persistent stable political institutions, thus hindering the democratisation process.

While African states were trying to deal with internal conflicts and leaders vying for power, they also had to contend with aligning themselves with the ideologies of one of the two superpowers during the Cold War spanning from 1945 to 1990. The Cold War was a non-physical fight between the United States and the Soviet Union due to their different ways of thinking. The United States believed in capitalism and personal freedom, while the Soviet Union lobbied for communism. Although the Cold War never resulted in a direct confrontation between the two parties, it did however spill over into physical violence in countries that were already involved in internal civil wars. Africa was no exception as the Americans and Soviets tussled for political influence on the continent. Countries that were anti-communist received military aid from the United States in exchange for adopting their beliefs, while countries that were pro-communist received support from the Soviet Union (such as Angola, DRC, Ethiopia, Mozambique and Somalia).

The end of the Cold War marked the fall of communism. Financial and military assistance ceased in former Soviet Union allies and democracy and respect for human rights became some of the conditions for receiving aid and loans from international donor countries and organisations such as the European Union, World Bank and International Monetary Fund (IMF): *"On 28 November 1991, the 12 EC member countries adopted a resolution, which stated unequivocally that in the future,* *democracy and respect for human rights would be conditions for receiving aid from Western Europe (Resolution 10107, 1991)."* (Olsen, 1998)

This saw many cash-strapped governments adjusting their political and economic goals, such as holding multi-party elections, reducing censorships on media, reducing inflation and budget deficits, removing trade tariffs, devaluing currencies, in an effort to be perceived as democratic republics and hence qualify for much needed financial assistance. According to Block (2002), there was an increase in the number of African countries holding competitive legislative elections from 1990-1994. This period coincides with when the external reforms were being implemented.

However, expenditures that the international organisations wanted cut were central to protection networks that helped keep incumbents in power. As a result, governments typically responded with varying degrees of partial reform, delivering enough policy change to keep external donors content, while dragging their feet on the most politically sensitive issues (Alence, 2009).

At the same time regional organisations such as ECOWAS and SADC were being formed in an effort to align political and economic goals within blocs of countries and enable governments to work towards promoting democracy, stable growth and development. Within SADC itself a growing concern over regional security and the possibility of an unconstitutional ascension to power in member states led to the launching of a special conflict resolution mechanism in 1996, the Organ for Politics, Defence and Security, also known as the SADC Organ (www.sadc.int). The SADC Organ was established to prevent security threats such as genocides, civil wars, coups, riots and other protests that disable governments and create a climate for violent regime transitions. As such, the SADC Organ was also supposed to guarantee democracy or at least promote and protect it.

Evidence shows that African countries where democracy has been established have tended to perform better as agents of economic development (Alence, 2009). Botswana is a prime example. Of course these effects rely on checks and balances on the government and good political institutions such as multi-party elections, civil and political rights, rule of law, and freedom of speech. Although Africa is lagging behind in terms of democracy and socioeconomic development, there is evidence of progress. Modernisation is after all a lengthy process which also took western societies several centuries to acquire (Huntington, 1971).

3. Literature Review

Modernisation has become a global process, originating in fifteenth and sixteenth century Europe (Huntington, 1971). All societies were at one time traditional but are now either modern or in the process of becoming modern as is the case in developing regions such as sub-Saharan Africa. In his seminal paper that has become the backbone of modernisation hypothesis, Lipset (1959) contends that democracy in a country is supported by economic development. He states that democracy emerges from a set of conditions or institutional characteristics of a society that are already in existence in the country, such as wealth, urbanisation, education and industrialisation. He further states that democracy stabilises and matures because of the improvement of these supporting institutions and values, as well as because of the country's own 'self-maintaining processes'. As countries become richer, democracy develops an inept ability to survive. According to Huntington (1968), economic development would lead to increased education, urbanisation and the emergence of modern values such as rationalism and freedom of speech, thus allowing for corresponding political development.

While Lipset (1959) is primarily concerned with explaining the internal social conditions which serve to support a democratic political system, Przerworski and Limongi (1997) contend that there are two distinct reasons the relationship between democracy and economic development will hold; either democracies emerge as countries develop economically, or democracies are established independent of economic development.

The authors distinguish between exogenous and endogenous democracy and find that emergence of democracy is not a by-product of economic development or that political regimes do not transition as per capita income increases. Democracy inherited or imposed by outside influences is exogenous, that is in the event of war or economic crises such as conflicts, coup d'etats, or death of a dictator. The endogenous explanation encompasses the modernisation hypothesis. Though their evidence finds a negative relationship between democracy and economic development, Przerworski & Limongi (1997) do not dispute the fact that once established, democracies are more likely to survive in wealthier countries than in poor ones (Alence, 2009; Barro, 1996 and Gundlach & Paldam, 2008).

There has also been a growing body of research investigating the influence of external factors, especially international organisations, in the democratisation process of third world countries (Berger, Corvalan, Easterly & Satyanath, 2013; Huntington, 1991; Gleditsch and Ward, 2006 and Pevehouse, 2002). According to Gleditsch and Ward (2006), prospects for democracy are not exclusive to domestic social requisites, but that international events and processes can exert a strong influence on democratisation. Moreover, Pevehouse (2002) confirms that pressure from international and regional organisations can influence the dynamics of political liberalisation, while Huntington (1991) contends that even though external influences were significant causes of third wave democratisations, the processes themselves were 'overwhelmingly indigenous'. In their paper, Berger *et al.* (2013) find that superpower interventions are followed by significant declines in democracy. Both the United States and the Soviet Union have equally detrimental effects (witnessed in Africa) on the subsequent level of democracy suggesting that it doesn't matter whether the intervening power is a democracy or a dictatorship. The Bush administration attempted to implant democracy in Afghanistan and Iraq without first establishing internal security and ensuring that certain social and cultural conditions were in place (Inglehart & Welzel, 2009). Both countries are still struggling to recover.

Evidence of the modernisation hypothesis are however confirmed by Barro (1996) who uses cross-country evidence to examine the relationship and finds that prosperity stimulates democracy and that countries at low levels of economic development fail to sustain democracy, as may be the case in sub-Saharan Africa. In follow up papers, Barro (1999 & 2012) reports similar findings in favour of the modernisation theory, even after using different proxies for democracy.

Other studies that report a positive relationship between democracy and economic development include Benhabib, Corvalan & Spiegel (2011), who find that the statistically significant positive relationship is also robust to the inclusion of country fixed effects. According to Bittencourt (2012), the Latin American region provides strong evidence for the modernisation hypothesis, while Epstein, Bates, Goldstone, Kristensen & O'Halloran (2006) confirm that higher per capita incomes increase the likelihood of movement away from autocracy. Furthermore, Glaeser, La Porta, Lopez & Shleifer

(2004) concur with Lipset that countries which emerge from poverty accumulate human and physical capital under dictatorships, and once they become richer, are more likely to improve their institutions.

In their research, Gundlach & Paldam (2008) find a large long-run positive causal effect of income on the degree of democracy, while Heid, Langer & Larch (2011) also find a statistically significant positive relation between income and democracy after accounting for the dynamic nature and high persistence of the two variables. More evidence is found by Inglehart & Welzel (2009) who confirm that causality runs mainly from economic development to democratisation, and also suggest that beyond a certain level of economic development, democracy becomes increasingly likely to emerge and survive. Research undertaken by Murtin & Wacziarg (2011) finds some strong empirical evidence supporting the modernisation hypothesis over the long run, specifically primary schooling as a better determinant of the quality of political institutions than per capita income.

One of Lipset's (1959) main critics has been Acemoglu *et al.* (2005, 2008 & 2009). They fail to find any significant relationship between income and democracy, and refute studies that find such a relationship. They also argue that these studies fail to control for the presence of omitted variables, do not control for factors that simultaneously affect both variables of democracy and income, and that including fixed effects in a linear model removes the correlation between income and the likelihood of a transition to and from democratic regimes (Acemoglu *et al*, 2009). However Barro (1999) counters their argument by taking these factors into account. He finds that education and income per capita do not have statistically significant causal influences on democracy if fixed effects are not included. He also argues that their quality of institutions lacks explanatory power for economic growth (Barro, 2012).

In another paper, Acemoglu *et al.* (2005) also dispute that education is likely to make countries more democratic. But several papers (Barro, 1999; Przerworski, Alvarez, Cheibub & Limongi, 2000; Glaeser *et al.*, 2004) contest their argument and find a very robust and positive relationship between education and democracy.

Other studies that report a negative relationship between income and democracy include Fayad, Bates & Hoeffler (2011) who decompose income per capita into resource and non-resource component. They discover that the nations whose income is not dependent on resources validate the modernisation hypothesis, while resource rich nations, which are plenty in the sub-Saharan region (DRC, Sierra Leone, Angola and Nigeria, to name a few), hinder democracy due to rentier effects. In another study by Burke & Leigh (2010), they find that more rapid growth reduces the short run likelihood of change towards democracy. However countries are more likely to democratise after a recession than a boom because citizens are discontented and want a change. Hence one needs a catalyst, and an economic crisis may serve as such.

To reiterate, our paper contributes to the above literature by investigating not only the modernisation hypothesis (internal factors), but also the external factors to see the roles they play in the democratisation process in sub-Saharan Africa. The literature reviewed so far has kept the two issues separate.

4. Methodology

4.1 Data

Most studies use global datasets in an effort to have more coverage and tend to include sub-Saharan Africa as a dummy or to take a random number of African countries to represent the region. This may not give an informative estimate of the region because some of the variables get dropped due to missing data. And because this region has some of the poorest countries in the world, such analytical results are biased towards richer countries as they usually have more complete data. (Easterly, 2001:64)

Data used in this paper spans over 48 countries for the period 1960 to 2010. The aim is to have a more informative reflection of the causal effect of development on democracy in the region. This may also help in the future for comparison purposes with other developing regions like Latin America, or developed areas such as Europe.

The dependent variable *polity* is used to measure democracy and is obtained from the Polity IV Project (2010). It is a revised combined score that is computed by subtracting the autocracy score from the democracy score. The resulting unified polity score ranges from +10 (strongly democratic) to -10 (strongly autocratic). This study investigates whether the level of democracy will change due to a change in a country's rate of economic development, hence a decrease in the polity score will indicate a decrease in democracy while an increase will indicate improvement in the country's democracy. The variable is normalised so that the values are between zero and one, and logs are taken which makes it possible to interpret results as changes.

Different proxies for democracy can be used, such as the Freedom House Index, constraints on the executive, or protection against expropriation. While Przerworski and Limongi use a dichotomous classification of political systems, we opt for a continuous variable which captures all categories of democracy from autocracy, partial and full democracies. According to Cheibub, Gandhi & Vreeland (2009), the choice of measure used should be guided by its theoretical and empirical model such that the results can be evaluated in terms of whether they serve to address important research questions, they can be interpreted meaningfully and are reproducible. For the purpose of this study, the polity score variable is more than adequate and the data is available for all countries except Sao Tome & Principe and Seychelles which should not bring in a significant bias to the results.

The main explanatory variable used to measure income is the real gross domestic product (GDP) per capita obtained from the Penn World Tables 7.1. The variable is converted using the purchasing power parity at 2005 constant prices, and logs are taken. A positive and significant coefficient for GDP would validate the modernisation hypothesis that democracy is more likely to mature in countries with high levels of development.

The controls are independent variables which are added to the equation to avoid omitted variable bias. The following variables are therefore included in this model according to Lipset's hypothesis. Education obtained from the Barro-Lee education dataset measures the percentage of population aged 15 years or over with complete primary education. Since the data is taken at 5 year intervals, the variable is interpolated to fill in the missing years, and logs are taken. Education is expected to have a positive effect on democracy according to the modernisation hypothesis. Education teaches people to interact with others and raises the benefits of citizen participation including voting and organising. This raises the support for more democratic regimes relative to dictatorships (Glaeser, Ponzetto & Shleifer, 2006).

The urbanisation variable is obtained from the World Bank and measures urban population as a percentage of total population. It also captures some aspects of industrialisation since people migrate from rural to urban seeking better job opportunities in industries located in the cities, or better facilities in terms of housing, hospitals, schools, banks and access to electricity and water. Lipset (1959) uses percentage of males in agriculture and per capita energy consumed as indices for industrialisation. However data availability for the region poses a limitation in studies and in this case urbanisation was the most suitable index as it had more data covering all 48 countries over the time period under review. Democracy and urbanisation are expected to be positively related. Logs are also taken for the variable.

Since young democracies are prone to political instability in the early transition periods, we include a regime durability variable obtained from the Polity IV Project (2010) to test whether the persistence of a stable regime would sustain a democracy in the long run. This variable records the number of years since the most recent regime change or the number of years the country has remained without any political unrest. The variable is logged and squared to capture the long run. A negative coefficient followed by a positive coefficient would indicate a u-shaped non-linear relationship between democracy and regime durability.

Given Africa's history with decolonisation and its involvement in the Cold war, we expect democracy in the region to be influenced by exogenous factors to a certain extent. We therefore include a dummy variable capturing the political influence at the end of the Cold War from 1991 onwards. This period signified a movement to promote democracy across the world after the collapse of the Soviet Union. A positive and significant coefficient would indicate that democracy in Africa may indeed be exogenous. We also include a dummy variable indicating whether a country belongs to an economic community in the region, in this case SADC, to see if this may have an effect on democracy since all countries within the group have to converge to one common goal given similar guidelines. Again a positive and significant coefficient would indicate that belonging to a regional organisation plays an important role in the state's democratisation process.

In order to capture the influence of international organisations on democracy, we use an IMF variable obtained from the dataset compiled by Boockmann and Dreher, 2003. The dummy variable incorporates IMF Poverty Reduction and Growth Facility Arrangement in effect in a country for at least 5 months in a particular year. A positive and significant coefficient would suggest that international organisations, in particular loans from the IMF, have an impact on the democratisation process in the region.

Political regimes are dynamic processes which happen in the long run, hence we include a lagged democracy variable. We expect a positive and significant relationship to indicate the persistence of democracy.

4.2 A bird's eye view

Although the correlation matrix does not show causality, it does give an indication of the degree of linear relationship between two variables.

Table 1: Correlation Matrix

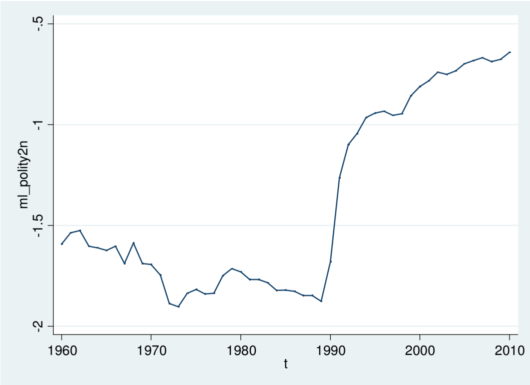
	Polity	GDP	Educ	Urban	Dumcoldwar	Dumsadc	Durable	Durablesq	IMF
Polity	1.0000								
Gdp	0.1096*	1.0000							
Educ	0.3777*	0.1046*	1.0000						
Urban	0.2477*	0.5450*	0.4944*	1.0000					
Dumcoldwar	0.5072*	0.0586*	0.7735*	0.3881*	1.0000				
Dumsadc	0.1628*	0.1071*	0.3272*	0.1231*	0.2807*	1.0000			
Durable	-0.1934*	0.2929*	0.1616*	0.1940*	-0.0778*	0.0882*	1.0000		
Durablesq	-0.1530*	0.3270*	0.1313*	0.2095*	-0.0828*	0.0751*	0.9486*	1.0000	
IMF	0.2910*	-0.1935*	0.4198*	0.0594*	0.4757*	0.0355	-0.1124*	-0.1241*	1.0000

Sources: Polity IV, Penn World, Barro-Lee and World Bank
* significant at 5%

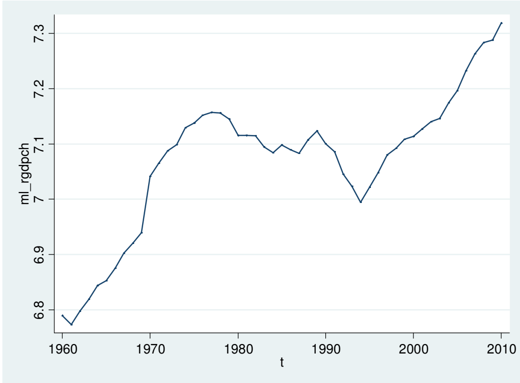
Given the hypothesis the paper is investigating, it is interesting to note that the signs of the correlation coefficients for the democracy variable are in line with expectations. All variables, except the regime durability proxies, are positively and significantly related to democracy indicating that statistically the modernisation hypothesis holds. The two dummies are also positively and significantly correlated with the democracy variable indicating that external factors play some influential role in the democratisation process. International organisations also have a significant effect on democracy as evidenced by the positive coefficient for the IMF variable. The regime durability variables are negatively related to democracy both in the short and long run, although the correlations are low.

A look at the average polity score in Graph 1 over the years shows the rather erratic trend of democracy in sub-Saharan Africa. The macroeconomic instability during the transition phases following the decolonisation process was not conducive to democracy as shown by the decreasing polity index between 1960 and 1990, neither were the internal conflicts that occurred in several states (Angolan war; Rwandan ethnic war; Mozambique's 16-year armed conflict; Ethiopia-Eritrea war). However from 1990 onwards there is a significant spike in the polity score justifying the use of a dummy to capture that period. This may be due to the increase in African states that used to be aligned with the Soviet Union now adopting policies in line with political pluralism.

Graph 1: Mean of Polity score[4]



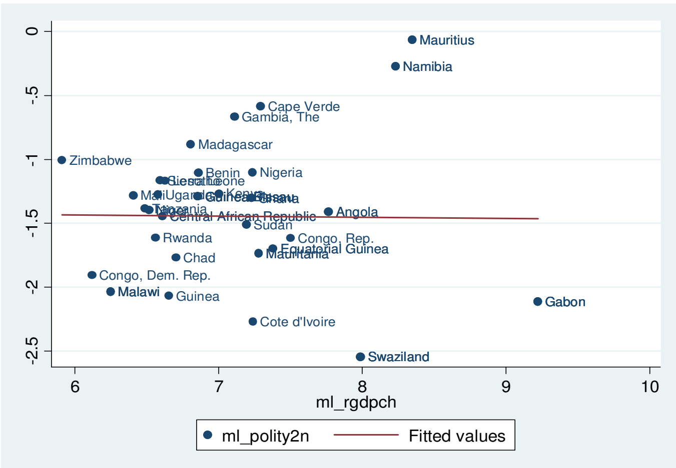
Graph 2: Mean of Real GDP



The graph for income (Graph 2) shows a steady increase as the economies in the region develop and mature. The 1990s show a dip which could be the effects of the Cold War. The increase in GDP after the 1990s could also be an indication of the increase in loans from external donors in an effort to promote growth in the region,

A look at the fitted Graph 3 shows a relatively flat line with a negative mean polity score against mean income for the region. This shows that economic development in the region is falling short of Lipset's (1959) modernisation hypothesis to promote and sustain democracy.

Graph 3: Fitted income on democracy



4.3 Empirical Approach

Since we have a large cross section (N=48) and a long time period (T=51), essentially T>N, we use the panel data approach to investigate the impact of economic development on the level of democracy within the sub-Saharan region. Although panel data has its limitations such as design and data

[4] Individual countries' polity graphs can be found in Appendix A. Close to half of the countries show reversals in polity scores, a sign that the democratisation process is struggling to take hold in the region.

collection problems, its advantages are numerous and include controlling for heterogeneity amongst countries, as well as being able to construct and test for more behavioural models than purely cross section or time series.

We present results for a dynamic one way error component model which is based on Lipset's (1959) theoretical model:

$$polity_{it} = \alpha_i + \beta_1 gdp_{it} + \beta_2 educ_{it} + \beta_3 urban_{it} + \beta_4 dumcoldwar_{it} + \beta_5 dumsadc_{it} + \beta_6 polity_{it-1} + u_{it} \quad (1)$$

The fixed effects α_i control for heterogeneity across countries such as geographic area, population, historical and colonial background, ethnic and religious composition.

Instrumental variables (IV) are used to reduce the problem of possible statistical endogeneity in the form of unobserved heterogeneity, as well as economic endogeneity in the form of reverse causality. Reverse causality may be present in the model through income and education, given that Barro (1996) investigates the effects of democracy on economic growth, while Papaioannou & Siourounis (2008) find evidence that democracy increases growth. Stasavage (2005) maintains that democratic governments have greater incentive than authoritarian states to provide primary education for their populations. The IV method allows consistent estimation when the explanatory variables are correlated with the error terms of a regression relationship. In other words, the instrumental variables used only influence the level of democracy through their impact on income and education respectively. IVs also provide consistent estimates in large samples. The most effective IVs in this model turned out to be the lagged variables of the endogenous variables.

Since a shock to one country may have a spillover effect on another, we also estimate an OLS regression with panel corrected standard errors (Beck & Katz, 1995). Political trends in African states have a knock on effect in neighbouring countries. Following the Rwandan genocide, a civil war erupted in the DRC in 1998 which spilled over the borders into Burundi. The civil war in Liberia was also moved to Sierra Leone. The proliferation of arms in the region and hired freedom fighters further resulted in two rounds of political conflict in Ivory Coast, Togo and internal conflict in Nigeria. The Ivory Coast crisis in 2010 saw many of its citizens crossing over into Liberia for safety. As people migrate to neighbouring countries seeking refuge, there is an impact on the small open economies of these countries receiving war refugees. This represents spatial effects (cross-sectional dependence) between institutions' developments in one country and others in the region.

Parks (1967) and Kmenta (1986) proposed a method for dealing with these problems based on the feasible generalised least squares (FGLS). But this method assumes that the variance-covariance matrix of the errors is known, and not estimated, which can pose a problem for panel models with a large number of parameters. Beck and Katz (1995) show that the overconfidence in the standard errors makes the FGLS estimation unsuitable for panel models with more time points than cross-section units, as is the case in this study, T>N. A more suitable approach would be to use the OLS parameter estimates but replace the OLS standard errors with panel corrected standard errors (PCSE). Equation (2) is estimated by OLS and the standard errors by PCSE in order to take into account contemporaneous correlation of the errors and heteroskedasticity:

$$polity_t = \alpha + \beta_1 gdp_t + \beta_2 educ_t + \beta_3 urban_t + \beta_4 dumcoldwar_t + \beta_5 dumsadc_t + \beta_6 polity_{t-1} + u_t \qquad (2)$$

The sampling variability of OLS estimates is then given by the roots of the diagonal of the following expression:

$$Cov\,(\hat{\beta}) = (X'X)^{-1}(X'\Omega X)(X'X)^{-1} \qquad (2.1)$$

The middle term of the above equation contains the correction for the panel data[5].

5. Results

The following table shows results for the one way error model which factors in differences across countries.

Table 2: Dynamic Model with fixed effects (1960-2010)[6]

Polity	1	2	3	4	5	6
Gdp	-.074** (.032)	-.071** (.031)	-.069** (.030)	-.026* (.014)	-.027* (.014)	-.029** (.014)
Educ	.219*** (.046)	.087* (.049)	.097** (.046)	.026 (.017)	.026 (.016)	.012 (.015)
Urban	.064 (.054)	.017 (.062)	.016 (.059)	.036* (.020)	.036* (.020)	.027 (.017)
Dumcoldwar		.204*** (.044)	.207*** (.043)			.033** (.015)
Dumsadc			-.054 (.047)			-.031** (.014)
Durable				-.001 (.003)	-.009* (.005)	-.008 (.005)
Durablesq					.002* (.001)	.003* (.001)
Polity(-1)	.852*** (.015)	.808*** (.025)	.807*** (.025)	.971*** (.014)	.971*** (.013)	.964*** (.016)
F test	2133.43***	1384.49***	1392.48***	18560.37	16334.66***	11992.09
F test u_i=0	2.07***	3.22***	3.29***	1.15	1.14	1.41**
R^2	0.8863	0.8847	0.8841	0.9835	0.9835	0.9833

Coefficients reported. Robust standard errors in parentheses take care of heteroskedasticity and serial correlation.

***, **, *** Significant at 10%, 5% and 1% respectively.**

A significant but negative relationship is found between income and democracy, results which suggest that the economic development taking place in the region is below what is necessary to support a lasting democracy. According to the World Bank Report (2011), Africa remains the poorest region in terms of national income relative to the rest of the world, averaging at US$1,257. This in turn may lead to a lag in development of social structures and political institutions that would be conducive to promoting stability and peace in the region (Huntington, 1968).

Education is positively and significantly related to democracy, which is in line with the modernisation hypothesis. A more educated population is more likely to put pressure on the government for better

[5] For further explanation on PCSE, see Appendix B.

[6] Static regressions were estimated for the different estimations. Results also showed a negative relationship between income and democracy. They are available on request.

political institutions that protect their rights and private property. This result is consistent with other literature (Barro, 1996; 1999; Bittencourt 2012; Glaeser *et al.* 2004, 2006 & Murtin & Wacziarg, 2011). The variable remains positive but insignificant in columns 4 to 6.

Urbanisation is positive but statistically insignificant, results which are consistent with Barro (1996). The variable may not play a significant role for sub-Saharan African data because the region is largely agricultural and mining based. The result may also indicate that urbanisation has taken place without industrialisation (Gollin, Jedwab & Vollrath, 2013). According to Gollin *et al.* (2013) they fail to find that Africa is relatively urbanised for its level of development. This is characteristic of resource export countries such as in Africa where resource endowments may be used to shift labour away from tradable manufacturing sector to non-tradable services thus slowing down productivity growth. This lowers levels of economic development which in turn hinders the development of political institutions. The variable does become positive and significant, though at a 10% level, in columns 4 to 5.

The dummy capturing the end of the Cold War is positive and significant indicating that more African states may have adopted pro-democracy political reforms after the end of communism in an effort to continue receiving financial assistance from international orgnisations.

The dummy for SADC[7], which captures whether belonging to a regional economic community will impact democracy, is negative and does not have as much influence on democracy in the region as international organisations. This is surprising given that one of SADC's goals is to promote democracy within the southern region of Africa.

It is interesting to note that a significant u-shaped non-linear relationship emerges from the durability variables. This indicates that the longer a stable regime lasts, the more likely democracy will be sustainable. According to Persson and Tabellini (2009) a history of democracy is associated with the persistence of democracy. They contend that past experience with democracy is beneficial for maintaining democracy and how well current institutions work. Given Africa's recurring outbreaks of strife (at present in DRC, South Sudan, Egypt and Libya), it may be worthwhile to investigate these results for future research. They may provide some insight for policy makers and incumbent regimes. This is however beyond the scope of this paper.

The lagged dependent variable is positive and significant, confirming that political regimes are persistent over time. The F-statistic for individual effects is statistically significant indicating that fixed effects are valid. The F-statistic for overall joint significance of the regressors is also statistically significant.

[7] Dummy for ECOWAS was also interchanged with SADC and used in conjunction with SADC. Results were insignificant (available on request).

Table 3 reports results for the instrumental variable estimation to take care of possible endogeneity in the model:

Table 3: Dynamic model with FE-IV (1960-2010)[8]

Polity	1	2	3	4	5	6
Gdp	-.054** (.021)	-.051** 9.021)	-.050** (.021)	-.016** (.008)	-.018** (.008)	-.020** (.008)
Educ	.202*** (.036)	.064* (.038)	.068* (.039)	.016 (.013)	.015 (.013)	.002 (.014)
Urban	.001 (.038)	-.040 (.037)	-.040 (.038)	.018 (.013)	.018 (.013)	.011 (.013)
Dumcoldwar		.203*** (.021)	.204*** (.021)			.028*** (.008)
Dumsadc			-.019 (.029)			-.019* (.010)
Durable				.000 (.003)	-.009 (.007)	-.008 (.007)
Durablesq					.002 (.002)	.003 (.002)
Polity(-1)	.884*** (.009)	.839*** (.010)	.839*** (.010)	.983*** (.004)	.983*** (.004)	.978*** (.004)
F test	3179.41***	2680.60***	2233.21***	21153.26***	17634.52***	13320.29***
F test u_i=0	1.35*	2.42***	2.43***	0.96	0.97	1.16
R^2	0.904	0.9023	0.9022	0.9902	0.9902	0.9901
First Stage Regression Instruments						
Gdp(-1)	.974*** (.006)	.974*** (.006)	.974*** (.006)	.970*** (.006)	.971*** (.006)	.970*** (.006)
Educ(-1)	.934*** (.007)	.926*** (.007)	.925*** (.007)	.927*** (.008)	.927*** (.008)	.915*** (.008)
F test for weak instruments	7451.15***	5962.06***	4967.04***	5951.47***	4965.81***	3740.24***
F test for weak instruments	20741.54***	16650.68***	13873.65***	13486.05***	11236.13***	8481.91***

Coefficients reported. Standard errors in parentheses. *, **, * Significant at 10%, 5% and 1% respectively.**

We find a negative and significant relationship again between income and democracy, confirming our previous results that economic development may be too low to support democracy. Education remains positive and significant, as does the dummy for Cold War and the lagged dependent variable. Urbanisation and the SADC dummy are insignificant with no influence on democracy. The relationship between regime durability and democracy remains non-linear, although it is insignificant.

Coefficients are smaller in absolute terms compared to the one way error estimation indicating the upward bias that was introduced by the endogeneity. The identifying instruments in the first stage regression are statistically significant, as well as the F-test for joint significance which minimises the issues of weak instruments. The F-statistic for individual effects remains significant and valid, as well as the F-statistic for overall significance of the model.

[8] We also estimated a dynamic model with System General Method of Moment (Sys-GMM). The main results are similar to the other estimations. They are available on request.

Table 4 reports the OLS estimation with panel corrected standard errors:

Table 4: Dynamic model with PCSE (1960-2010)

Polity	1	2	3	4	5	6
Gdp	-.036*** (.012)	-.037*** (.012)	-.036*** (.012)	-.012*** .006)	-.012** (.006)	-.013** (.006)
Educ	.271*** (.025)	.104*** (.032)	.102*** (.033)	.049*** (.011)	.051*** (.011)	.027 (.017)
Urban	.021 (.015)	.016 (.015)	.016 (.015)	.014** (.007)	.014** (.007)	.014** (.007)
Dumcoldwar		.212*** (.025)	.213*** (.025)			.029** (.012)
Dumsadc			.009 (.026)			.000 (.008)
Durable				.000 (.004)	-.015 (.009)	-.015* (.009)
Durablesq					.004* (.002)	.005** (.002)
Polity(-1)	.861*** (.011)	.819*** (.012)	.820*** (.012)	.974*** (.005)	.973*** (.005)	.968*** (.006)
Wald Test	8903.17***	9580.68***	9587.67***	38782.45***	38651.92***	41223.91***
R^2	0.8962	0.902	0.9019	0.9862	0.9864	0.9866

Coefficients reported. Standard errors in parentheses. *, **, * Significant at 10%, 5% and 1% respectively.**

Income and democracy remain negatively and significantly related, while education, the Cold War dummy and the lagged dependent variable are positively and significantly related to democracy respectively. Urbanisation has positive coefficients throughout and remains statistically significant in columns 4 to 6. The SADC dummy has no impact on democracy. The regime durability again has a significant non-linear relationship with democracy. The Wald test is statistically significant indicating the overall significance of the model.

The results from the different estimations have all indicated that the wealth aspect of the modernisation hypothesis is missing in the sub-Saharan region. Economic development so far appears to be failing to sustain the wave of democratisation experienced by African nations. And this could well be because of both exogenous and endogenous factors. While the democratisation process may have been influenced by outside parties, the level of economic development in the region may also be below what is necessary to support a lasting democracy. Although human capital through education may validate Lipset's hypothesis, wealth, industrialisation and a lasting stable regime are also key, and in this Africa appears to be lagging.

6. Exogenous democracy

The results given by the dummy for the end of the Cold War indicate strong evidence that factors outside the region may have been an important accelerator for Africa's wave of democratisation. After the Cold War many developed countries started pressing for democracy in third world countries. International organisations have thus played an essential role in supporting African democracies by incorporating goals that promote both economic and political reforms into their policies, for example the Washington Consensus implemented under the IMF and the World Bank guidance, or the Millenium Development Goals initiated by the United Nations. According to Block (2002), nearly every country in the region has entered into at least one adjustment lending agreement with the IMF. This is echoed by Easterly (2001) who states that in the 1980s, the IMF gave an average of six adjustment loans to each country in Africa.

We therefore investigate this hypothesis further by incorporating an IMF variable (Boockmann & Dreher, 2003) that captures the number of structural adjustment programs negotiated by countries in the sub-Saharan region from 1970 to 2010 (our dataset is adjusted to this time period). This dummy variable incorporates IMF Poverty Reduction and Growth Facility Arrangement in effect for at least 5 months in a particular year.

Table 5 reports the fixed effects results:

Table 5: Fixed Effects (1970-2010)

POLITY	1	2	3	4	5
GDP	-.337** (.165)	-.297** (.167)	-.251* (.130)	-.249* (.130)	-.107** (.046)
EDUC	1.27*** (.226)	1.120*** (.198)	.347** (.168)	.375** (.147)	.225*** (.066)
URBAN	.181 (.296)	.045 (.282)	-.262 (.267)	-.255 (.270)	-.013 (.098)
IMF		.390*** (.087)	.167** (.082)	.162** (.078)	.016 (.023)
DUMCOLDWAR			.868*** (.117)	.870*** (.115)	.248*** (.057)
DUMSADC				-.108 (.214)	-.070 (.075)
POLITY(-1)					.733*** (.038)
F test	24.97***	22.31***	19.85***	21.67***	634.69***
F test u_i=0	28.01***	30.06***	37.69***	37.64***	4.86***
R^2	0.143	0.139	0.178	0.177	0.841

Coefficients reported. Robust standard errors in parentheses take care of heteroskdasticity and serial correlation.
***, **, *** Significant at 10%, 5% and 1% respectively.**

Results are consistent with the previous estimations. Income and democracy are still negatively and significantly related, while education and the Cold War dummy continue to have a positive impact on democracy. Urbanisation and the regional dummy remain insignificant. The lagged dependent variable maintains its persistence.

The IMF variable is positive and significant indicating that loan adjustment programs appear to have an impact on democracy in the region. According to Boockmann and Dreher (2003), these programs may be important in changing attitudes in developing countries, either directly through the country participating in the program and complying with the imposed conditions which in effect improve economic development, and hence should also improve political institutions, or indirectly through policy advice by the institutions which is often publicised and may influence politics in the longer run. Another suitable channel is through the transfer of knowledge from national officials who were former staff members of international organisations and could now contribute to policy reform in their countries.

The IMF variable becomes insignificant however when we estimate the dynamic regression. This could possibly be due to the inclusion of the lagged dependent variable which may tend to dominate the regression and remove the effect of other variables (Achen, 2001). The F-statistic for individual effects is statistically significant indicating that fixed effects are valid. The F-statistic for overall joint significance of the regressors is also statistically significant.

In addition, we estimate the fixed effects model with instrumental variables to account for endogeneity. We use the same identifying instruments as in our previous regressions, the lagged variables for income and education. The results are recorded in Table 6 below:

Table 6: Instrumental Variables

Polity	1	2	3	4	5
GDP	-.227*** (.062)	-.195*** (.060)	-.189*** (.054)	-.184*** (.054)	-.161*** (.033)
EDUC	1.838*** (.130)	1.631*** (.131)	.674*** (.147)	.723*** (.152)	-.669*** (.093)
URBAN	-.359*** (.135)	-.416*** (.131)	-.481*** (.116)	-.475*** (.116)	.513*** (.072)
IMF		.351*** (.042)	.166*** (.039)	.159*** (.039)	.030 (.025)
DUMCOLDWAR			.798*** (.050)	.799*** (.050)	.428*** (.033)
DUMSADC				-.154** (.063)	.053 (.040)
Polity(-1)					.746*** (.014)
F test	274.24***	237.65***	325.17***	271.56***	976.03***
F test u_i=0	27.03***	29.08***	36.96***	36.90***	4.73***
R^2	0.102	0.102	0.152	0.150	0.780
First Stage Regression Instruments					
GDP(-1)	.680*** (.012)	.679*** (.012)	.679*** (.012)	.679*** (.012)	.720*** (.011)
EDUC(-1)	.548*** (.014)	.540*** (.014)	.469*** (015)	.457*** (.015)	.492*** (.016)
F test for weak instruments	1247.85***	934.65***	747.30***	623.02***	631.10***
F test for weak instruments	2808.82***	2109.55***	1844.00***	1572.31***	1389.42***

Coefficients reported. Standard errors in parentheses. *, **, * Significant at 10%, 5% and 1% respectively.**

The IMF variable remains positive across the regressions, evidence that the programs have an influence on democratisation in the region. Other estimates remain consistent with previous results. The instruments are valid, as well as the fixed effects and overall joint significance of the regressors.

7. Conclusion

Economic development promotes changes in social structure and values that, in turn, should encourage democratisation. Sub-Saharan Africa is somehow falling short of this modernising theory as the results indicate. Although there is improvement in economic development taking place, the region is still troubled by political instability and social unrest which undermines the development process of the nation's economic and social infrastructures.

This contributes to intensifying the poverty and works against the region's efforts of securing stable democracies. There has been no shortage of uncertainty regarding Africa's young democracies, whether they would last and the contribution they would make to economic recovery and poverty reduction in the region (Alence, 2009). Recent economic crises faced by Zimbabwe for example have led to a regime collapse and a reversal in the democratisation process. The aspect of regime durability in the region may be taking longer than expected to take root. Granted Africa is still relatively poor, the democracies are still considered young and modernisation is a long process.

External pressures have also played their part by helping developing countries in the region with policy reform programmes. However these efforts may have left Africa perhaps too dependent on assistance from international organisations, leaving the region susceptible to misappropriation and corruption which does not promote democracy. According to Easterly (2001:118-120), donors would probably achieve desired growth effects in recipient countries if they were to enforce the conditions on policy performance for receiving financial assistance.

What is the way forward for Africa? Despite facing developmental challenges such as low literacy rates, rising unemployment rates, high inequality, or being landlocked with warring neighbours with consequences which spill over the borders, there is still scope for change. Increasingly a number of African states in the region are showing signs of economic progress through the redistribution of public expenditure to health care, education, and other basic social services. The New Partnership for Africa's Development (NEPAD) initiative formed in 2001 reflects the region's favourable intentions to improve structural reforms and implement better economic policies. If these initiatives could be coupled with increased emphasis on governance, we may witness more stable democracies surviving. Creating democracies is a gradual and time-consuming process in a modernising country, but one needs to remember that modernisation is an irreversible and progressive process (Huntington, 1971). Lasting democracies enjoy better protection of contract and property rights than countries with either stable autocracies or unstable democracies and a democracy that fails to last does not protect the rights of its citizens.

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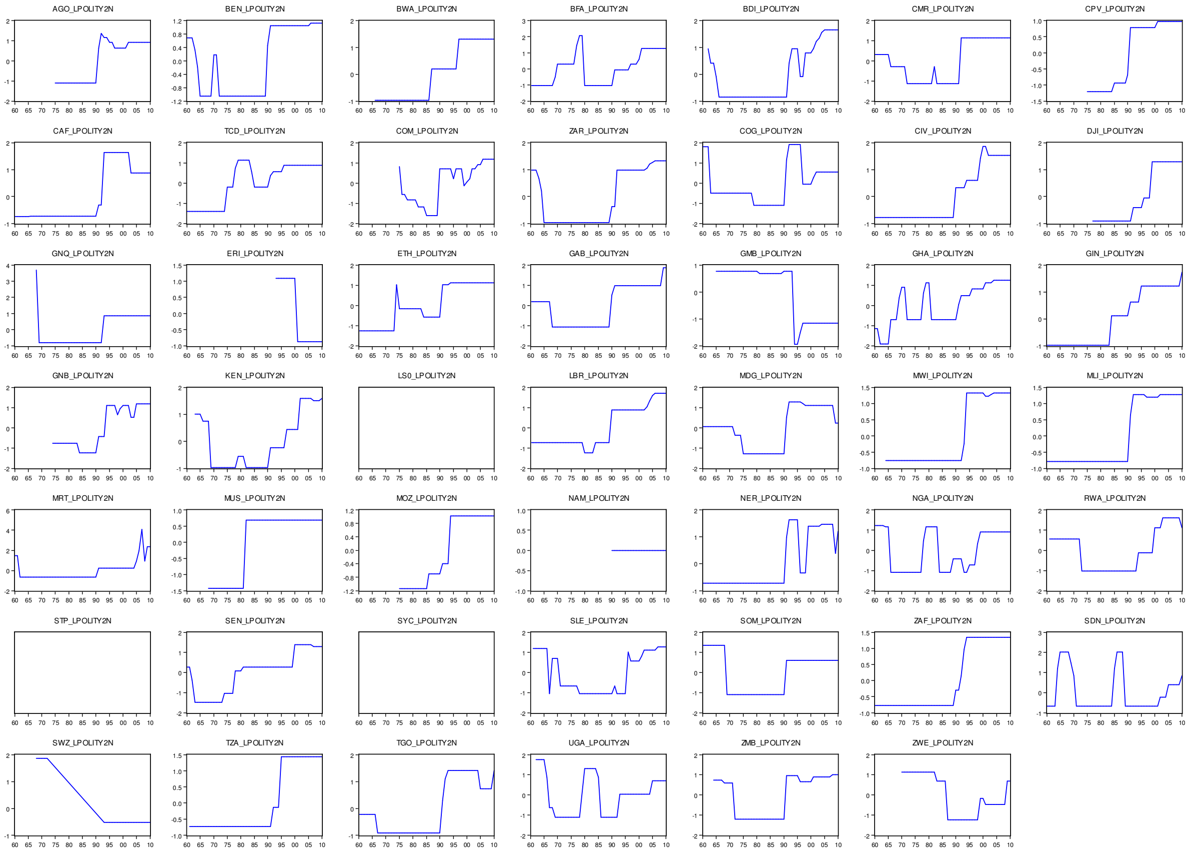
9. Appendix A

The following individual graphs below show evidence of reversal of political regimes in the region. Zimbabwe's polity score has declined given the political tension between incumbent ruling party ZANU and opposition MDC. Wars in Eritrea and Somalia have pushed their polity scores down, while Swaziland remains an autocratic state to date under the Mswati monarch.

Graph 4: Individual Polity Score



Appendix B

For panel models with contemporaneously correlated and panel heteroskedastic errors, the covariance matrix of the errors Ω is an $NTxNT$ block diagonal matrix with an NxN matrix of the contemporaneous covariances, Ɛ, along the diagonal. Thus, to estimate equation (4) we need a consistent estimate of Ɛ. Since the OLS estimates of equation (4) are consistent, we can use the OLS residuals from that estimation to provide a consistent estimate of Ɛ. Therefore if E denotes the TxN matrix of the OLS residuals, we can then estimate Ɛ by:

$$\hat{\mathcal{E}} = \frac{(E'E)}{T} \qquad (4.2)$$

And hence estimate Ω by:

$$\hat{\Omega} = \frac{(E'E)}{T} \otimes I_T \qquad (4.3)$$

where $\otimes$ is the Kronecker product. Panel-corrected standard errors are thus computed by taking the square root of the diagonal elements of:

$$(X'X)^{-1}X'\left(\frac{E'E}{T} \otimes I_T\right)X(X'X)^{-1} \qquad (4.4)$$

As the number of time points increase $\hat{\varepsilon}$ becomes an increasingly better estimator of ε (Beck & Katz, 1995). Monte Carlo analysis shows that these estimates of sampling variability are very accurate, even in the presence of complicated panel error structures and are robust to heteroskedasticity and correlation across cross-sections or periods (Beck & Katz, 1995).