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. Basic amenities such as water, electricity, schools and clinics became more accessible to the average African and labour gradually shifted from the rural to urban areas as the manufacturing sectors expanded.

According to an IMF report in 2013, sub-Saharan Africa has been one of the world’s most rapidly growing regions. This is consistent with the convergence hypothesis that poor countries grow at a faster rate to catch up with the rich countries which grow at a much slower rate (Figure 1).

**Figure 1: Annual GDP growth in Africa vs Europe**

![Graph showing annual GDP growth in Africa vs Europe](image)

*Source: World Development Indicators, World Bank*

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). He states that countries with a certain level of development in place already, such as education, industrialisation and rising income per capita, are more likely to advocate for democracy 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.

Africa is an interesting sample to study because not only is it made up of a diverse group of countries with different geography, population, history, political and economic institutions, but it is also currently undergoing structural reforms in both the social and political arenas which were experienced in Europe or the USA centuries ago. A quick look at the polity data for developed countries shows that leading up to the 20th century, these now developed countries went through their democratisation
processes which included extending voting rights for working class and women, increased taxation for redistribution of income to poorer segments of the society, and extension of education to the masses (Acemoglu and Robinson, 2000). It took them nearly over two centuries to achieve their current stable democracies (Figure 2). According to Gylfason (2013), there were only four democratic states in Europe in 1943: the U.K, Ireland, Sweden and Switzerland. By the 20th century most of Europe had converged to stable democracies.

**Figure 2: Polity data for some developed countries (1800-2011)**

When we include polity data from a sample of African countries for the period under review, the graph (Figure 3) shows the variations in democracy and evidence of a lack of convergence in the democ­ratisation process taking place in the region. This makes our sample relevant for testing our hypothesis to find what is hindering the democratisation process, compared to the developed countries where there has been no variation in the polity data over the same period.

**Figure 2: Polity data for sub-Saharan Africa compared to UK and USA (1960-2011)**

*Source: Polity IV Project*
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.

In order to test the modernisation hypothesis, we use 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.

According to Przeworski 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 communism 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 mostly 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 to further test the exogenous theory for democratisation. We find a positive and significant relationship indicating that international organisations play a significant role in the region’s democratisation process.

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 of outside pressures.

2. Brief background context to sub-Saharan Africa

The recent politics of democratisation 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).

The Cold War which spanned from 1945 to 1990 was a non-physical fight between the United States and the Soviet Union due to their different ideologies. 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, some even received aid from both factions, such as Angola, Ethiopia, Somalia, and Mozambique.

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, and 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 coincided with when the external reforms were being implemented.

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 disabled governments and created a climate for violent regime transitions. As such, the Organ was also supposed to guarantee democracy or at least promote and protect it.

Unfortunately internal and ethnic conflicts within ruling parties to date have continued to undermine the democratisation process in the region. This has led to a lack of persistent stable political institutions. In their study, Burgess et al. (2013) found evidence that the districts in Kenya that shared the ethnicity of the president received more expenditure on improvement of roads during the tenure of the incumbent, favouritism that was bound to cause tension among the different ethnic groups. Rwanda was another example of ethnic violence between the Tutsis and the Hutus during the genocide.

Moreover, Giuliano and Nunn (2013) examined the persistence of democracy and found that past experience with local democracy was associated with more supportive beliefs of national democracy today such as stronger rule of law, less corruption and higher per capita income. Thus intermittent episodes of conflicts in a country, evidenced in several sub-Saharan African countries like Angola, CAR, DRC, Gambia, Sudan and Zimbabwe, can not be conducive to democracy surviving.

Evidence however shows that African countries where democracy has been established have tended to perform better as agents of economic development (Alence, 2009). Botswana and Mauritius are prime examples. Of course these effects rely on adequate 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.

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, Przeworski 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, Przeworski and 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 and
positive relationship 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 (2013) finds some strong empirical
evidence supporting the modernisation hypothesis, 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. Moreover Cervellati, Jung, Sunde and Vischer (2012) find a negative effect on income in former colonies, but a positive effect in countries that have never been colonised. 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.

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.

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 Przeworski and Limongi (1997) 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 and urbanisation.

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. The first couple of years in a democracy may be unstable, but the longer the regime persists the more likely democracy is to survive. According to Persson & Tabellini (2009), democracy is sustainable when there are lasting and firmly established political institutions in place.

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 also indicate the persistence of democracy.
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.

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>
<thead>
<tr>
<th></th>
<th>Polity</th>
<th>GDP</th>
<th>Educ</th>
<th>Urban</th>
<th>Dumcoldwar</th>
<th>Dumsadc</th>
<th>Durable</th>
<th>Durablesq</th>
<th>IMF</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Educ</td>
<td>0.3777*</td>
<td>0.1046*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>0.2477*</td>
<td>0.5450*</td>
<td>0.4944*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dumcoldwar</td>
<td>0.5072*</td>
<td>0.0586*</td>
<td>0.7735*</td>
<td>0.3881*</td>
<td>1.0000</td>
<td></td>
<td></td>
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<tr>
<td>Dumsadc</td>
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<td>0.1071*</td>
<td>0.3272*</td>
<td>0.1231*</td>
<td>0.2807*</td>
<td>1.0000</td>
<td></td>
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<tr>
<td>Durable</td>
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<td>0.2929*</td>
<td>0.1616*</td>
<td>0.1940*</td>
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<td>1.0000</td>
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<tr>
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<td>0.3270*</td>
<td>0.1313*</td>
<td>0.2095*</td>
<td>-0.0828*</td>
<td>0.0751*</td>
<td>0.9486*</td>
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<tr>
<td>IMF</td>
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<td>-0.1935*</td>
<td>0.4198*</td>
<td>0.0594*</td>
<td>0.4757*</td>
<td>0.0355</td>
<td>-0.1124*</td>
<td>-0.1241*</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

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 correlated 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 correlated to democracy both in the short and long run, although the correlations are low.

A look at the average polity score in Figure 4 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. According to Glyfason (2013), following the collapse of communism, the 1990s saw a change in governance with the number of democracies in Africa rising.

**Figure 4: Mean of Polity score**

![Figure 4: Mean of Polity score](image)

**Figure 5: Mean of Real GDP**

![Figure 5: Mean of Real GDP](image)

*Source: Polity IV Project*  
*Source: Penn World Tables 7.1*

The graph for income (Figure 5) 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 (Figure 6a) shows a relatively flat line with a negative mean polity score against mean income for the region. This may indicate that economic development in the region is falling short of Lipset’s (1959) modernisation hypothesis to promote and sustain democracy, as the region may still be poor. However the modernisation hypothesis holds for rich countries (Figure 5b).

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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.
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 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:

\[
polity_{it} = \alpha_i + \beta_1 \text{gdp}_{it} + \beta_2 \text{educ}_{it} + \beta_3 \text{urban}_{it} + \beta_4 \text{dumcoldwar}_{it} + \beta_5 \text{dumsade}_{it} + \beta_6 \text{durable}_{it} \\
+ \beta_7 \text{durable}_{sq}_{it} + \beta_8 \text{polity}_{it-1} + u_{it}
\] (1)

The fixed effects \( \alpha_i \) 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. This is observed by Bates, Block, Fayad and Hoeffler (2012) who find evidence that political reform granger causes increases in GDP per capita rather than the reverse in the African subset of their global data. Barro (1996) also 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 these people migrate to neighbouring countries seeking refuge, there is an impact on the small open economies of the 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) propose 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:

\[
polity_t = \alpha + \beta_1 \text{gdp}_t + \beta_2 \text{educ}_t + \beta_3 \text{urban}_t + \beta_4 \text{dumcoldwar}_t + \beta_5 \text{dumsadc}_t + \beta_6 \text{durable}_t \\
+ \beta_7 \text{durablesq}_t + \beta_8 \text{polity}_{t-1} + u_t
\]  

(2)

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

\[
\text{Cov}(\hat{\beta}) = (X'X)^{-1}(X'\Omega X)(X'X)^{-1}
\]

(2.1)

The middle term of the above equation contains the correction for the panel data\(^5\).

\(^5\) For further explanation on PCSE, see Appendix B.
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)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polity</td>
<td>-0.074** (.032)</td>
<td>-0.071** (.031)</td>
<td>-0.069** (.030)</td>
<td>-0.026* (.014)</td>
<td>-0.027* (.014)</td>
<td>-0.029** (.014)</td>
</tr>
<tr>
<td>Gdp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educ</td>
<td>0.219*** (.046)</td>
<td>0.087* (.049)</td>
<td>0.097** (.046)</td>
<td>0.026 (.017)</td>
<td>0.026 (.016)</td>
<td>0.012 (.015)</td>
</tr>
<tr>
<td>Urban</td>
<td>0.064 (.054)</td>
<td>0.017 (.062)</td>
<td>0.016 (.059)</td>
<td>0.036* (.020)</td>
<td>0.036* (.020)</td>
<td>0.027 (.017)</td>
</tr>
<tr>
<td>Durcoldwar</td>
<td>0.204*** (.044)</td>
<td>0.207*** (.043)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durablesq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durablesq</td>
<td>-0.054 (.047)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durable</td>
<td></td>
<td></td>
<td></td>
<td>-0.001 (.003)</td>
<td>-0.009* (.005)</td>
<td>-0.008 (.005)</td>
</tr>
<tr>
<td>Polity(-1)</td>
<td>0.852*** (.015)</td>
<td>0.808*** (.025)</td>
<td>0.807*** (.025)</td>
<td>0.971*** (.014)</td>
<td>0.971*** (.013)</td>
<td>0.964*** (.016)</td>
</tr>
<tr>
<td>F test</td>
<td>2133.43***</td>
<td>1384.49***</td>
<td>1392.48***</td>
<td>18560.37</td>
<td>16334.66***</td>
<td>11992.09</td>
</tr>
<tr>
<td>F test u_i=0</td>
<td>2.07***</td>
<td>3.22***</td>
<td>3.29***</td>
<td>1.15</td>
<td>1.14</td>
<td>1.41**</td>
</tr>
<tr>
<td>R²</td>
<td>0.8863</td>
<td>0.8847</td>
<td>0.8841</td>
<td>0.9835</td>
<td>0.9835</td>
<td>0.9833</td>
</tr>
</tbody>
</table>

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. Even though the region is experiencing fast growth rates, actual income per capita is still relatively low compared to other regions in the world. 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). The result is also in line with Cervellati et al. (2012) who find evidence that the effect of income is negative in former colonies, more so in those countries that were subject to extractive colonisation strategies and historically displayed lower constraints on the executive. This would be characteristic of the region under review as most of the countries were colonies and are still subject to ruling parties or elite groups with vested interests in remaining in power.

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 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 and Murtin & Wacziarg, 2013). The variable remains positive but insignificant in columns 4 to 6.

---

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

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. 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. This is also consistent with Guiliano and Nunn (2013). Given Africa’s recurring outbreaks of strife (at present in CAR, DRC, South Sudan) 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)**

<table>
<thead>
<tr>
<th>Polity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdp</td>
<td>-.054** (.021)</td>
<td>-.051** (9.021)</td>
<td>-.050** (.021)</td>
<td>-.016** (.008)</td>
<td>-.018** (.008)</td>
<td>-.020** (.008)</td>
</tr>
<tr>
<td>Educ</td>
<td>.202*** (.036)</td>
<td>.064* (.038)</td>
<td>.068* (.039)</td>
<td>.016 (.013)</td>
<td>.015 (.013)</td>
<td>.002 (.014)</td>
</tr>
<tr>
<td>Urban</td>
<td>.001 (.038)</td>
<td>-.040 (.037)</td>
<td>-.040 (.038)</td>
<td>.018 (.013)</td>
<td>.018 (.013)</td>
<td>.011 (.013)</td>
</tr>
<tr>
<td>Dumcoldwar</td>
<td>.203*** (.021)</td>
<td>.204*** (.021)</td>
<td>.028*** (.008)</td>
<td>- .019* (.029)</td>
<td>.000 (.003)</td>
<td>-.009 (.007)</td>
</tr>
<tr>
<td>Dumsadc</td>
<td>.203*** (.021)</td>
<td>.204*** (.021)</td>
<td>.028*** (.008)</td>
<td>- .019* (.029)</td>
<td>.000 (.003)</td>
<td>-.009 (.007)</td>
</tr>
<tr>
<td>Durable</td>
<td>.000 (.038)</td>
<td>-.040 (.037)</td>
<td>-.040 (.038)</td>
<td>.018 (.013)</td>
<td>.018 (.013)</td>
<td>.011 (.013)</td>
</tr>
<tr>
<td>Durablesq</td>
<td>.000 (.038)</td>
<td>-.040 (.037)</td>
<td>-.040 (.038)</td>
<td>.018 (.013)</td>
<td>.018 (.013)</td>
<td>.011 (.013)</td>
</tr>
<tr>
<td>Polity(-1)</td>
<td>.884*** (.009)</td>
<td>.839*** (.010)</td>
<td>.839*** (.010)</td>
<td>.983*** (.004)</td>
<td>.983*** (.004)</td>
<td>.978*** (.004)</td>
</tr>
<tr>
<td>F test</td>
<td>3179.41***</td>
<td>2680.60***</td>
<td>2233.21***</td>
<td>21153.26***</td>
<td>17634.52***</td>
<td>13320.29***</td>
</tr>
<tr>
<td>F test u_i=0</td>
<td>1.35*</td>
<td>2.42***</td>
<td>2.43***</td>
<td>0.96</td>
<td>0.97</td>
<td>1.16</td>
</tr>
<tr>
<td>R²</td>
<td>0.904</td>
<td>0.9023</td>
<td>0.9022</td>
<td>0.9902</td>
<td>0.9902</td>
<td>0.9901</td>
</tr>
</tbody>
</table>

**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 sometimes 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.

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)**

<table>
<thead>
<tr>
<th>Polity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdp</td>
<td>-.036*** (.012)</td>
<td>-.037*** (.012)</td>
<td>-.036*** (.012)</td>
<td>-.012*** (.006)</td>
<td>-.012** (.006)</td>
<td>-.013** (.006)</td>
</tr>
<tr>
<td>Educ</td>
<td>.271*** (.025)</td>
<td>.104*** (.032)</td>
<td>.102*** (.033)</td>
<td>.049*** (.011)</td>
<td>.051*** (.011)</td>
<td>.027 (.017)</td>
</tr>
<tr>
<td>Urban</td>
<td>.021 (.015)</td>
<td>.016 (.015)</td>
<td>.016 (.015)</td>
<td>.014** (.007)</td>
<td>.014** (.007)</td>
<td>.014** (.007)</td>
</tr>
<tr>
<td>Dumcoldwar</td>
<td>.212*** (.025)</td>
<td>.213*** (.025)</td>
<td>.029** (.012)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dumsadc</td>
<td>.009 (.026)</td>
<td>.000 (.004)</td>
<td>-.015 (.009)</td>
<td>-.015* (.009)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durable</td>
<td></td>
<td></td>
<td>.004* (.002)</td>
<td>.005** (.002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durablesq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polity(-1)</td>
<td>.861*** (.011)</td>
<td>.819*** (.012)</td>
<td>.820*** (.012)</td>
<td>.974*** (.005)</td>
<td>.973*** (.005)</td>
<td>.968*** (.006)</td>
</tr>
<tr>
<td>Wald Test</td>
<td>8903.17***</td>
<td>9580.68***</td>
<td>9587.67***</td>
<td>38782.45***</td>
<td>38651.92***</td>
<td>41223.91***</td>
</tr>
<tr>
<td>R²</td>
<td>0.8962</td>
<td>0.902</td>
<td>0.9019</td>
<td>0.9862</td>
<td>0.9864</td>
<td>0.9866</td>
</tr>
</tbody>
</table>

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 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. We therefore investigate this hypothesis further by incorporating an IMF variable 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).

After the Cold War many developed countries started pressing for democracy in developing countries. As a result, international organisations, such as the IMF, the World Bank, or the various
United Nations divisions, played an essential role in supporting African democracies by incorporating goals that promoted both economic and political reforms into their policies. According to Block (2002), nearly every country in the region had entered into at least one adjustment lending agreement with the IMF. This was echoed by Easterly (2001) who stated that in the 1980s, the IMF gave an average of six adjustment loans to each country in Africa.

Over the years, both the World Bank and the IMF have contributed significant loans to Africa, and both have incorporated stringent conditions to loan applications. These conditions have emphasised that the borrowing country adjusts its economic policies to restore viability and macroeconomic stability with an aim to move towards sustained growth and reduced poverty.

In order to capture the influence of international organisations on democracy, we use an IMF variable obtained from a 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.

Table 5 reports the fixed effects results:

**Table 5: Fixed Effects (1970-2010)**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdp</td>
<td>-.337** (.165)</td>
<td>-.297** (.167)</td>
<td>-.251* (.130)</td>
<td>-.249* (.130)</td>
<td>-.107** (.046)</td>
</tr>
<tr>
<td>Educ</td>
<td>1.27*** (.226)</td>
<td>1.120*** (.198)</td>
<td>.347** (.168)</td>
<td>.375** (.147)</td>
<td>.225*** (.066)</td>
</tr>
<tr>
<td>Urban</td>
<td>.181 (.296)</td>
<td>.045 (.282)</td>
<td>-.262 (.267)</td>
<td>-.255 (.270)</td>
<td>-.013 (.098)</td>
</tr>
<tr>
<td>IMF</td>
<td>.390*** (.087)</td>
<td>.167** (.082)</td>
<td>.162** (.078)</td>
<td>.016 (.023)</td>
<td></td>
</tr>
<tr>
<td>Dumcoldwar</td>
<td>.868*** (.117)</td>
<td>.870*** (.115)</td>
<td>.248*** (.057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dumsadc</td>
<td>-.108 (.214)</td>
<td>-.070 (.075)</td>
<td>.733*** (.038)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polity(-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F test</td>
<td>24.97*** 22.31*** 19.85*** 21.67***</td>
<td>634.69***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F test u_i=0</td>
<td>28.01*** 30.06*** 37.69*** 37.64*** 4.86***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.143</td>
<td>0.139</td>
<td>0.178</td>
<td>0.177</td>
<td>0.841</td>
</tr>
</tbody>
</table>

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

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

---

9 We also alternate with a World Bank variable taken from the same dataset. The variable captures the number of World Bank adjustment projects in effect for at least 5 months in a particular year. However results from the World Bank proxy are ambiguous showing no clear robust and statistically significant relationship with democracy. We therefore report results for the IMF variable only. Results for the World Bank proxy are available on request.
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).

Our results for the IMF variable are different to those obtained by Boockmann and Dreher (2003). They find that the number of projects negotiated with the IMF has no effect on economic freedom, while the World Bank has a positive impact. However they use a different dataset covering the years 1970-1997 for 85 countries.

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

<table>
<thead>
<tr>
<th>Polity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdp</td>
<td>-.227***</td>
<td>-.195***</td>
<td>-.189***</td>
<td>-.184***</td>
<td>-.161***</td>
</tr>
</tbody>
</table>
<pre><code>          | (.062)    | (.060)    | (.054)    | (.054)    | (.033)    |
</code></pre>
<p>| Educ       | 1.838***  | 1.631***  | .674***   | .723***   | -.669***  |
| (.130)    | (.131)    | (.147)    | (.152)    | (.093)    |
| Urban      | -.359***  | -.416***  | -.481***  | -.475***  | .513***   |
| (.135)    | (.131)    | (.116)    | (.116)    | (.072)    |
| IMF        | .351***   | .166***   | .159***   | .030**    | .030**    |
| (.042)    | (.039)    | (.039)    | (.025)    |           |
| Dumcoldwar | .798***   | .799***   | .428***   |           |           |
| (.050)    | (.050)    | (.033)    |           |           |
| Dumsadc    | -.154**   | .053 (0.40) |          |           |           |
| (.063)    | (.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***   |
| R²         | 0.102     | 0.102     | 0.152     | 0.150     | 0.780     |</p>

First Stage Regression Instruments

<table>
<thead>
<tr>
<th>Gdp(-1)</th>
<th>.680*** (.012)</th>
<th>.679*** (.012)</th>
<th>.679*** (.012)</th>
<th>.679*** (.012)</th>
<th>.720*** (.011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educ(-1)</td>
<td>.548*** (.014)</td>
<td>.540*** (.014)</td>
<td>.469*** (.015)</td>
<td>.457*** (.015)</td>
<td>.492*** (.016)</td>
</tr>
<tr>
<td>F test for weak instruments</td>
<td>1247.85***</td>
<td>934.65***</td>
<td>747.30***</td>
<td>623.02***</td>
<td>631.10***</td>
</tr>
<tr>
<td>F test for weak instruments</td>
<td>2808.82***</td>
<td>2109.55***</td>
<td>1844.00***</td>
<td>1572.31***</td>
<td>1389.42***</td>
</tr>
</tbody>
</table>

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. 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. However it may not be so much that democracy is eluding sub-Saharan Africa, but that creating democracies is a gradual and time-consuming process in a modernising region, as seen by the West which took several centuries to achieve stable democratic rule. African democracies are just over 50 years in the making and can therefore be considered still young and maturing.

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, 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 significant 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 in the region.
8. Bibliography


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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 $\Omega$ is a $NT \times NT$ block diagonal matrix with a $N \times N$ matrix of the contemporaneous covariances, $\boldsymbol{\Sigma}$, along the diagonal. Thus, to estimate equation (4) we need a consistent estimate of $\boldsymbol{\Sigma}$. Since the OLS estimates of equation (4) are consistent, we can use the OLS residuals from that estimation to provide a consistent estimate of $\boldsymbol{\Sigma}$. Therefore if $\mathbf{E}$ denotes the $T \times N$ matrix of the OLS residuals, we can then estimate $\boldsymbol{\Sigma}$ by:

$$\hat{\boldsymbol{\Sigma}} = \frac{(\mathbf{E}^T \mathbf{E})}{T} \quad (4.2)$$

And hence estimate $\Omega$ by:
\[ \hat{\Omega} = \frac{(E' E)}{T} \otimes I_T \]  

(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:

\[ (X'X)^{-1}X' \left( \frac{E' E}{T} \otimes I_T \right) X(X'X)^{-1} \]  

(4.4)

As the number of time points increase \( \hat{\varepsilon} \) becomes an increasingly better estimator of \( \varepsilon \) (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).