Investigating the Influence of Political Stability of the Aid-Growth Relationship in Sub-Saharan Africa: A Panel Data Approach

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ABSTRACT

This paper examines the inter-relationships among economic growth, foreign aid and political stability for thirty-one Sub-Saharan African (SSA) countries from 1984-2007. The analysis is performed using a unique and reliable index of political stability. The econometric procedure employed corrects for endogeneity due respectively to simultaneity and to time-constant country-specific effects. The preponderance of the evidence suggests that foreign aid and political stability are significantly related to growth and that aid promotes growth when it is allocated to politically stable SSA countries. These findings suggest that in pursuing the UN's Millennium Development Goals in SSA, political stability is a pertinent factor that should not be ignored.

Keywords: Foreign Aid, Political Stability, Economic Growth, and Sub-Saharan Africa

INTRODUCTION

Despite repeated warnings by economists of its futility, the developed world provides considerable aid to Sub-Saharan Africa (SSA) to spur economic growth (Leeson, 2008).[1] SSA has absorbed more than one trillion nominal aid dollars over the last fifty years but the growth record has been unimpressive (Mayo, 2009). The insistence of developed countries to bestow aid on SSA is not so confounding since substantial ambiguity still surrounds the effect of foreign aid on economic growth (Collier, 2007). Recent literature has highlighted the pertinent influence of political stability, defined here to include good governance, on the aid-growth relationship for Least Developed Countries or LDCs (Islam, 2005). Further, since SSA has been racked by political instability, a question emerges about the effect of political stability (or instability) on the aid-growth relationship specifically in this region.

Given the uncertainty about the effect of aid on growth, and the possible consequences of political stability on the aid-growth relationship, this paper seeks to: (1) empirically determine if aid and growth are related, and (2) identify the effects of political stability, which here encompasses good governance, on the aid-growth relationship specifically in SSA.

Foreign aid can augment scarce domestic capital to spur growth, but it can also stifle positive incentives to build wealth, stalling growth (Bauer, 2000). Easterly (2006) argues that previous aid allocations from developed to developing countries has been wasted. In contrast, Collier (2007) asserts that aid has stimulated growth in poor countries whose growth would have stagnated without aid. Other authors have arrived at contrasting conclusions regarding the effect of aid on growth, so the controversy remains unsettled (Easterly, 2006).

[1] Aid is defined here as Official Development Assistance (ODA). In practice, there are two main types of ODA aid: bilateral and multilateral aid. Bilateral aid is given by the government of one country to another directly through an aid agency. Multilateral aid is given to a particular country through international agencies (Mayo, 2009).

Comprehending the relationship between aid and growth is crucial to SSA countries and donors as they seek to realize the UN's Millennium Development Goals (MDGs). By 2015, the aim of the MDGs is to reduce the level of poverty in the world to half the 2000 level. The MDGs posit that aid is growth-promoting only in countries with effective policies, based primarily on Burnside and Dollar's (2000) findings that aid stimulates growth exclusively in countries with favorable economic policies. Recent research has shown that aid is now targeted to countries with good macroeconomic policies (Burnside and Dollar, 2004). If effective macroeconomic policy is insufficient to make aid growth-promoting in SSA then aid is wasted and the MDGs will not be attained. Following Islam (2005), we argue that although Burnside and Dollar (2000) do not emphasize its pertinence, political stability is a vital albeit ignored factor whose influence on the aid growth relationship must be properly investigated. Islam (2005) used data from all developing countries to investigate the effect of political stability on the aid-growth relationship but we focus here just on the SSA region because of the likely stronger consequences of political instability on growth and the aid-growth relationship in the region.

We recognize that the growth process takes time so any aid allocation made in the current period is unlikely to yield much growth instantaneously (Deaton, 2008). Rather the aid allocated today will yield growth in the next period based on political conditions today. We therefore explain the effect of lagged values of aid, political stability and their interactions on current period growth. The use of lagged aid and political stability implies that these variables are pre-determined in the growth equation, mitigating possible simultaneity bias.

This article contributes to the literature in two ways. First, it focuses exclusively on the SSA region and employs recent data. Countries from different continents have very different cultures and institutions, which influences the way in which they utilize aid to advance growth

(Easterly, 2003 and Levy, 1988). Focusing on SSA provides insights into its failure to develop despite significant aid allocations. Second, the paper uses a dependable measure of political stability tracked by the Political Research Service (PRS) to identify the effect of political stability on the aid-growth relationship. The PRS measure is fairly nuanced and allows us to go beyond the obvious impact of extreme instability (for example wars) in order to analyze the effects of milder impacts of instability such as bad governance on the aid-growth relationship.

Using a rigorous econometric procedure that corrects for different kinds of endogeneity bias (simultaneity and unobserved effect endogeneity), and data from 1984-2007, aid is found to be positively and significantly related to growth in SSA conditional on political stability. This result confirms Islam's (2005) finding that aid promotes growth in stable Least Developing Countries (LDCs). Thus, in pursuing the UN's MDG's in SSA, political stability is a pertinent factor that should not be ignored.

LITERATURE REVIEW

The economic literature is yet to reach a consensus about the sign of the effect of aid on growth (Collier, 2007, Easterly, 2006). There are valid theoretical arguments and case evidence as to why the coefficient on aid in aid-growth regressions might be positive, negative or even ambiguous in sign. "Gap theory" contends that aid promotes growth by augmenting the investment and foreign exchange needed for production and growth (Chenery and Strout, 1966; Easterly, 2003). In contrast, countries that receive aid might consume it, leading to aid-dependence (Mayo, 2009; Leeson, 2008; Bauer, 1984, 1991 and 2000). Such countries neither put the aid dollars into productive use nor invest them because of the fungibility of aid and the facility with which it can be consumed (Hansen and Taarp, 2001). Increased aid thus increases

corruption, which diverts aid dollars into unproductive projects crowding out private investment and subduing growth (Bauer, 1984, 1991 and 2000; Mayo, 2009). Aid might hurt or promote growth, so the effect of aid on growth remains an empirical question.

Entangled in the debate on how aid affects growth are differences in the structure of the economic model, the context under which aid is effective, the econometric procedures and the data used. In particular, the effect of aid on growth is likely to be context specific, and therefore identifying the salient features of the context received a lot of attention in the literature. Burnside and Dollar (2000) identified policy as the salient contextual condition for aid to promote growth. They found that the aid-growth relation is positive for countries that maintain efficacious economic policies but negative for countries with bad policies, basing their result on a positive and significant interaction term involving aid and policy. Islam (2005) argues that the aid-growth relationship must be conditioned on political stability, not macroeconomic policy. However, he does not consider the possibility that endogeneity bias may be caused concurrently by unobserved effects (latent time-constant country-specific effects) and simultaneity. We focus on mitigating endogeneity bias due to unobserved effects because although this type of endogeneity bias is typically ignored in aid-growth regressions, it may be the most pertinent cause of endogeneity (Hansen and Tarp, 2001).

Like Islam (2005), our objective is to demonstrate that political stability exerts considerable influence on the aid-growth relationship. However, different from Islam, we limit our dataset just to SSA. By investigating how political stability influences the aid-growth relationship in a neoclassical growth model, by addressing different endogeneity problems that arise, and by focusing on Sub-Saharan Africa, a robust estimate of the returns to aid in Sub-Saharan Africa is developed.

EMPIRICAL MODEL

Following Islam (2005), the empirical growth model presented in (1)-(3) is used to investigate the relationship between economic growth and foreign aid, as well as the effects of political stability on the aid-growth relationship in SSA.

$$(1)\ GROWTH_{it} = \gamma_0 + \gamma_{AID}\, AID_{it-1} + \gamma_{SAID}\, AID^2_{it-1} + \gamma_{PS}\, PS_{it-1} + \gamma_{AIDPS}\, AIDPS_{it-1} + Z_{it}'\gamma_Z + \varepsilon_{it}$$

$$(2)\ \varepsilon_{it} = \varepsilon_i + \nu_{it}$$

$$(3)\ \nu_{it} \sim N(0, \sigma^2)$$

GROWTH is GDP per capita growth, AID, is Overseas Development Assistance (ODA) or foreign aid, AID^2 is the square of AID, PS is political stability, AIDPS is the interactions of PS with AID, and γ_0 is the overall constant. The vector Z includes variables that control for initial conditions affecting growth, and recent literature provides guidance for their selection (Islam, 2005). Z contains variables such as initial level of income (represented by initial GDP or IGDP), standard deviation of aid (STAID), level of education (PRIM), quality of institutions (represented by international country risk guide (ICRG)'s quality of bureaucracy and democratic accountability variables, BQUAL and DACC), government consumption as a portion of GDP (GCONS), and the money supply as proportion of GDP or (M_2).

The use of the lagged endogenous aid and political stability variables in (1) is consistent with the time it takes for aid to manifest in growth and also mitigates simultaneity bias. Further, we estimate equations (1)-(3) by first differences to eliminate bias due to unobserved effects. Different from Islam (2005), we explicitly specify the unobserved time-constant country-fixed effect which may be correlated with the explanatory variables in the error term. Thus, ε_{it} is a composite error consisting of a country-

specific component, ε_i and an *iid* error term, ν_{it} which has variance σ^2. We also include a set of time dummies to account for potential cyclical effects such as upturns or downturns in the world economy that affects the aid-growth relationship.

The theoretical underpinnings as to how lagged aid and political stability affect growth can be derived from a traditional neoclassical growth model. An unconditional gift of aid from a donor should augment growth given positive marginal returns to capital. However, the effect of aid can be conditioned by the political environment. A stable political environment can amplify the returns to aid. To reflect these effects, political stability enters the growth relationship and interacts with aid as in (1), where AIDPS is also lagged and is expected to be positively and significantly related to growth as is the case for LDC countries. Following Easterly, Levine, and Dollar (2004) the square of aid is also included as a regressor in the growth equation to account for other possible forms of non-linearity.

The aid literature has an obvious limitation: how to choose the appropriate specification without guidance from theory, which often means there are more plausible right hand side variables than there are data points in the sample (Easterly, 2003). The growth model specified in (1) does not include all the relevant explanatory variables that can be possibly included so it admits some omitted variable bias. However, since the primary purpose of the research is to demonstrate that political stability has important consequences for the aid-growth relation in SSA, this parsimonious model which was initially proposed and estimated by Islam (2005) suffices and is adequate for our objective.

METHODS

The empirical growth model in (1) is applied to thirty-one SSA countries for which data on political stability from PRS were available. Before estimating (1), the annual data were converted to four-year averages, because not only are one-year intervals too short to capture

growth rates, but convergence effects also disappear and cyclical influences are more pronounced in short panels (Islam, 2005). The use of four-year averages also assumes a four-year planning horizon. From an econometric perspective, a planning horizon of four years strengthens the argument that the regressors are likely to be pre-determined, reducing the likelihood of endogeneity bias in OLS estimation (Hansen and Tarp, 2001).

The possibility that endogeneity bias may arise from different sources (simultaneity or latent time-invariant country-specific effects), the small size of our sample, and the lack of exogenous and strong instruments for the potentially endogenous aid and political stability variables pose peculiar econometric challenges for the estimation of the growth equation. Endogeneity bias from multiple sources presents econometric challenges because researchers often do not exhaustively tackle endogeneity. For example, in aid research, endogeneity due to simultaneity is often mitigated by instrumental variable (IV) techniques but endogeneity due to country-specific effects is often overlooked leading to biased estimates (Hansen and Tarp, 2001).

A small sample size typically causes problems in estimation of the aid-growth relation because the traditional IV estimation techniques used to correct for simultaneity bias such as two-stage least square (2SLS) produces inconsistent estimates when the sample size is small (Woolridge, 2002). Further, Durbin-Wu-Hausman tests of endogeneity have low power in finite sample and may not detect endogeneity bias even when it is present. The low power of endogeneity tests in finite samples further complicates the problem of determining the correct estimation procedure for (1) as the tests provide little guidance in choosing between 2SLS which mitigates simultaneity bias and OLS which does not.

Even when the number of observations is sufficient, which would normally make traditional IV estimates consistent, traditional IV-type regressions are of little use in correcting

endogeneity bias in aid-growth regressions (Deaton, 2008). None of the "standard" instruments for aid such as population and the francophone dummy satisfies exogeneity: zero correlation between the instrument and the error term. For the SSA dataset used in this research, the correlation between growth and population is 0.1 not zero so population not exogenous. The aid-literature has paid even less attention to evaluating whether the "standard" set of instruments such as population are strongly correlated with the endogenous variable for which it is defined. For example, Burnside and Dollar (2000) and Islam (2005) evaluated the exogeneity requirement of population and other instruments for aid by means of Sargan's over-identification test but not the strength of the instrument requirement. For our purposes, lagged endogenous variables could be valid instruments but were found to be weak instruments by the Cragg-Donald-Wald F-test. In reality none of the "standard" instruments for aid are likely to be sufficiently strongly correlated to aid and so are not valid instruments. We therefore drop instrumental variable (IV) analysis as a strategy for mitigating simultaneity bias.

Recall, however, that unobserved time-constant country-specific effects that affect growth also affect aid, political stability and policy, so that country-specific effects accounts for a considerable portion of the total endogeneity bias. To illustrate, suppose there exists for each SSA country, unobserved time-invariant country-specific characteristics such as cultural norms, historical tensions, climate, religious tolerance and cognitive capacity. Assume that this characteristic directly or indirectly causes a country to be stable or receive less (more) aid, but also causes it to grow (stagnate). The country specific effects (unobserved effects) are thus correlated with the explanatory variables, resulting in endogeneity bias. These innate time-constant country-specific effects also explain why a country like Ghana, with the type of innate characteristics that enable it to be concurrently stable and to grow has performed differently from

Somalia. In this case it is easy to see how latent time-constant country-specific effects account for a substantial part of endogeneity bias. The latent time-constant country-specific effects can be removed by first differencing. Any remaining endogeneity bias is time-varying in nature and cannot be eliminated through differencing. In this research we automatically mitigate any residual simultaneity after first-differencing because we use lag of the potentially endogenous variables and the contemporaneous variables. If such a strategy eliminates endogeneity bias we should notice corrected signs and stronger statistical significance of coefficients and better fit of the model relative to OLS.

DATA DESCRIPTION AND SUMMARY STATISTICS

The aid data are from *SourceOECD* while the political stability data are from the Political Research Service (PRS). The growth data and the remainder of the data are from the World Development Indicators (WDI) of the World Bank, the Penn World Tables, and the World Banks' Africa Database CD. The data range from 1984 to 2007 and cover six four-year periods (i.e. 1984-1987 to 2004-2007). As is often the case for cross-country estimation involving SSA countries, there are missing observations leading to an unbalanced panel. The missing data problem further justifies our omission of IV analysis because consistency of the IV estimator requires lots of data, and so IV consistency is even more unlikely given that we have data missing in an unbalanced panel data set.

Of the 186 observations, 90 % of the data have complete sets of observations. Table 1 contains definitions and descriptive statistics of variables based on six four-year observations and provides detailed information about data sources and transformations of key variables used in the growth regression in (1). The correlations between the variables are low, typically less than 0.4,

indicating that multicollinearity is not severe and should not distort statistical inference. Aid is negatively correlated to political stability and initial GDP, respectively (-0.19) and (-0.24), implying aid is not systematically allocated to politically stable countries.

Figure 1 provides a plot of PS against growth rates. It shows a weak positive relationship between political stability and growth. Three large outliers can be identified: Sierra Leone (2000-2003), Liberia (1996-1999) and Burkina Faso (2004-2007). The outliers have a growth rate greater than the mean growth rate plus (or minus) three times the standard deviation. The high growth numbers associated with Sierra Leone (2000-2003) and Liberia (1996-1999) outliers are war-related. Growth is calculated as a percentage change in GDP averaged over four years so growth numbers can be inflated if calculated over a range when a war ends. For some of the annual growth rates in the four year period, calculation of percentage change in GDP is such that the base year has low GDP (for example in the war period) and the terminal year is associated with high GDP (for example the post war period), so the growth rate is extremely high. The high war-related annual growth rate inflates the four-year growth rate. For example, the Sierra Leone war was effectively over by 2002 so the growth rate calculated over the 2001-2002 period was substantial, since in calculating the growth rate, 2001 was essentially a war year with negative output and 2002 was a post war recovery year with very high output. The growth rate for the 2001-2002 periods therefore inflated the four-year 2000-2003 growth rate.

Unlike the Sierra-Leone (2000-2003) and Liberia (1996-1999) outliers where the occurrence of major wars influenced the calculation of the growth rate, the Burkina Faso (2004-2007) outlier is not war-related. The government exploited increased revenue from the cotton and gold mining sectors to spur growth because of the prevailing sustained political stability

(IMF, 2008). We report results of the analysis without these outliers because they exacerbate endogeneity bias since correlation between PS and growth is unusually strong for them.

Figures 2-5 shows that the measure of PS is credible if limited in certain situations. For each country, there is variation in the PS measure over time, and for each period, there is variation across countries in the PS measure. The PS also appears to correspond to perceptions of the political situations. Note that the PS measure has a range of 0 to 12 where 0 represents the least stable and 12 represent the most stable countries. Figures 2 and 3 demonstrate that there is variation over time in the measure of PS not only for the most stable SSA countries like Ghana, South Africa and Tanzania, who have average PS values greater then 6.8 (the mean PS), but also for the least stable SSA countries like Congo, Somalia and Liberia for which average PS is less than 6.8. For both the least stable and the most stable set of countries (Figure 2 and 3), the bulk of the high PS numbers is concentrated at the end of the data range, while the opposite holds true for the low PS numbers. This indicates a general rise in political stability of the SSA region more recently for the least stable countries and is consistent with observation.

DISCUSSION OF RESULTS

The main results of estimation of the growth equation are presented in Table (3). Columns 1 and 2 of Table 3 display results of estimation of equation (1) respectively by OLS, and FD. By contrast, columns 3 and 4 of Table 3 contain the same regressions in columns 1 and 2 but with the political stability variable dropped to evaluate how important the influence of political stability is to the aid growth relationship. Finally note that the aid, political stability and their interactions are lagged in the FD estimations (columns 2 and 4) but not in the OLS regressions (columns 1 and 3). This means for the FD estimations, AID_{t-1}, PS_{t-1} and $AIDPS_{t-1}$ are

pre-determined in the growth regression so there is little simultaneity bias. What we are trying to explain with the FD estimations is the effect of aid allocated in the previous period on current growth. Although we estimate OLS with AID_{t-1}, PS_{t-1} and $AIDPS_{t-1}$, we only report OLS results with contemporaneous aid, political stability and their interactions. This is to facilitate comparison of our OLS results with estimated coefficients of the aid-growth relationship in the literature. All regressions in Table 3 are corrected for serial correlation and heteroskedasticity.

The Hausman test cannot tell us if any endogeneity bias is present, therefore comparison of OLS results which does not treat endogeneity with the results of the FD estimation with lagged endogenous variables (which mitigates simultaneity and eliminates endogeneity due to time-constant country-specific effects) is the best way of gauging the effect of endogeneity bias in the OLS estimation of the growth equation (1). The FD estimations appear to fit the data better than the OLS counterparts because their coherence measures (adjusted R^2 and t-values) are significantly higher than the corresponding OLS values irrespective of whether political stability is in the equation or not. Breusch-Pagan test of heteroskedasticity results do not reject the null of homoskedasticity in the FD estimations in column 2. This contrasts with the result of test of the OLS residual where we rejected the null of homoskedasticity. The p-value for not-rejecting the null of homoskedasticity is 0.062 by FD although we reject homoskedasticity in OLS regression with a p-value of 0.048.

Further, although we weakly reject the null of no serial correlation in the errors of the OLS regression, we correct, but do not test for serial correlation in the idiosyncratic errors of the FD because theoretically, first differencing induces an AR (1) type correlation in the error. The lower incidence of misspecification errors in FD relative to OLS and the higher coherence measures (adjusted R^2 and t-statistics) is evidence FD has corrected for endogeneity relative to

OLS. There is little difference in terms of significance of coefficients and coherence values like adjusted R^2 whether we perform robust estimation or not for the FD estimation in column 2.[2]

From Columns 1 and 2 of Table 3, aid and political stability are positively related to growth at five percent significance level, respectively, by OLS and FD. In comparison, aid and political stability are insignificant in Columns 3 and 4 where political stability is omitted. Even more importantly $AIDPS_{t-1}$ the lagged interaction term between aid and political stability is positive and significant so aid promotes growth conditional on political stability. This provides some evidence that political stability influences the aid-growth relationship in SSA. The adjusted R^2 for all regressions are not exceptionally high: they range from 0.19 to 0.6, but this is typical of cross-country growth regressions. By comparing the FD estimation with lagged endogenous variables (Column 2) to the OLS results with current endogenous variables (column 1) we notice improvement in statistical significance and adjusted $R^2$for the FD estimations. However, the magnitudes of the coefficients are only slightly different which indicates total endogeneity bias is not severe.

The majority of the coefficients of the other variables in our model (in addition to aid and political stability) have the expected sign in both OLS and FD estimations, where PS is included, although not many have statistically significant coefficients. For example, initial GDP is negative, consistent with conditional convergence. Further, M_2 is consistently positive in all estimations and GOVCONS is negative, consistent with expectations. The interaction variable (AIDPS) is positive and significant, consistent with expectation implying that conditional on political stability, aid promotes growth. However, its statistical significance is different for OLS

[2] We estimated a variant of the FD estimation where we corrected for heteroskedasticity by clustering but the results were not much changed from what we reported in Table 3. We also estimated feasible GLS by estimating the variance structure of the coefficient matrix using the xtgee command in STATA. Differences in coefficients and standard errors of estimates were minor.

and FD because the FD addresses endogeneity but OLS does not. The lack of significance of AIDPS obtained by OLS is somewhat unexpected because it will suggest that conditional on political stability, aid is not related to growth instead of being growth-promoting. However, while OLS eliminates neither simultaneity nor country specific effect endogeneity, the FD estimator eliminates time-constant country-specific effect endogeneity and does mitigate simultaneity bias because of the lagging of the endogenous variables. The lack of significance of AIDPS by OLS may be the result of simultaneity bias but it may be the case because, unlike $AIDPS_{t-1}$, too little time has elapsed in the simultaneous interaction between aid and growth to yield a statistically significant interaction effect. AIDPS is, however, positive and significant by the robust FD estimator where AID, AIDPS and PS are lagged and the equation is corrected for heteroskedasticity and autocorrelation. FD is not only efficient, but it also eliminates most of the endogeneity bias. FD may be inconsistent due to feed forward effects but we tested for and failed to reject strict exogeneity so remaining inconsistency due to feed forward effects is negligible.

To determine the magnitude and economic relevance of the aid-growth relationship in SSA, we compute the marginal effects of growth with respect to aid. The coefficients on the aid variable were multiplied by 0.01 before calculating marginal effects, because the foreign aid data used in estimating the growth equation was acquired in a form where it had been pre-multiplied by one hundred. The marginal effects were calculated for the OLS and FD estimation in column 1 and 2 Table 3. We obtained a value of 0.12 for OLS where aid is not lagged and 0.084 for FD where aid is lagged after taking the significant AIDPS in the FD regression into account. In comparison, Islam (2005) finds using data from all LDCs, not just SSA, that a unit increase in current period aid as a fraction of GDP increases growth by 0.12 percent for LDCs.

It is reasonable to expect aid to have a larger effect on growth in SSA using current data once we condition on political stability, since political stability is more relevant in this region. However, we find that the effect of aid on growth in SSA is comparable to what is found in the literature when we condition on political stability. Brempong-Gyimah (1992), using only SSA data from 1968-1982, finds that a unit increase in aid as fraction of GNP increases growth by 0.08 percent, which is not too different than what we have identified in this research, although they used GNP, which is a different measure from GDP. Brempong Gyimah's (1992) finding of a slightly lower marginal effect for SSA comparing to literature values using older data is not entirely surprising, because he did not account for political stability and we will expect the contribution of aid to growth in SSA to increase once the contribution of aid to growth is conditioned on political stability. We also expect a bigger aid-growth relation if in practice aid is actually allocated conditional on political stability. However, we know that aid is not systematically allocated conditional on political stability, so the effect of aid on growth in SSA will increase only slightly over time.

When political stability is omitted from the growth equation, aid is no longer significant (Table 3, columns 3 and 4). This provides support that political stability positively and significantly influences the aid growth regression in SSA. Finally the positive and significant AIDPS in the FD with lagged aid justifies the assertion that once we eliminate endogeneity bias, aid is growth promoting in SSA conditional on political stability.[3]

[3] We estimated a version of (1) where policy represented by inflation and its interactions with aid were included with the rest of the explanatory variables in (1). Aid, political stability, and their interaction were significant, but policy and its interaction with aid were insignificant. We also decomposed the data into stable, unstable rich and poor countries using the mean of income and political stability as thresholds Aid, PS and AIDPS were significant at 5% significance level in the poor and stable data sets but only weakly significant in the rich and unstable datasets. Results did not change when ODA was replaced by multilateral aid

CONCLUSION

The research objective was to determine the sign and economic relevance of the relationship between foreign aid and growth in SSA and further to investigate the consequence of political stability and economic policies on the aid-growth relationship. The evidence suggests that aid and growth are positively related at the five percent significance level, that political stability has a strong influence on the aid growth relationship in SSA and that (1) suffers from limited endogeneity bias caused primarily by latent country-specific effects. Our results help to clarify why so much aid has done so little good in SSA. Aid is currently given independent of country stability. Based on our findings, reaching the millennium development goals is most likely when aid is provided to stable SSA countries. For example, Ghana has been stable for the past twenty years and is growing, taking advantage of the Millennium Challenge Grants. Ghana will likely meet most of the millennium goals by 2015. While the results that aid is used less effectively in the countries that need it most (politically unstable SSA countries) is depressing, it cautions policy makers about unrealistic expectations of foreign aid. Aid can prevent starvation in poor unstable SSA countries, but cannot be expected to spur growth there. A policy recommendation of this paper is that the pursuance of political stability and good governance in SSA is not only a worthy objective in itself, but also because stability promotes growth and augments the growth-promoting power of aid. The precise mechanism by which political stability and good governance can be achieved is an interesting question that should motivate further research.

Figure 1. Growth Vs Political Stability, all SSA Countries, 1984-2007.

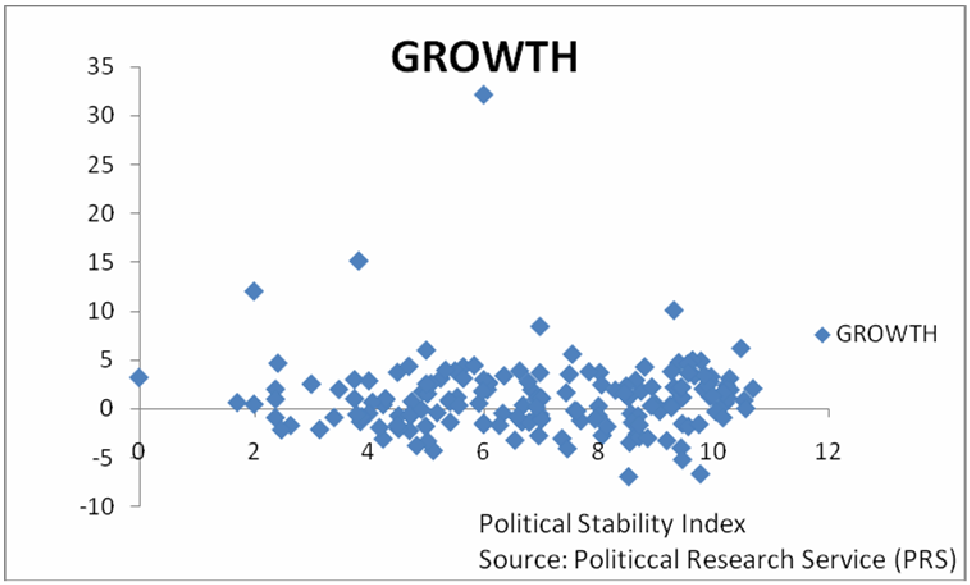

Figure 2. Political Stability for the Most Stable SSA Countries, 1984-2007.

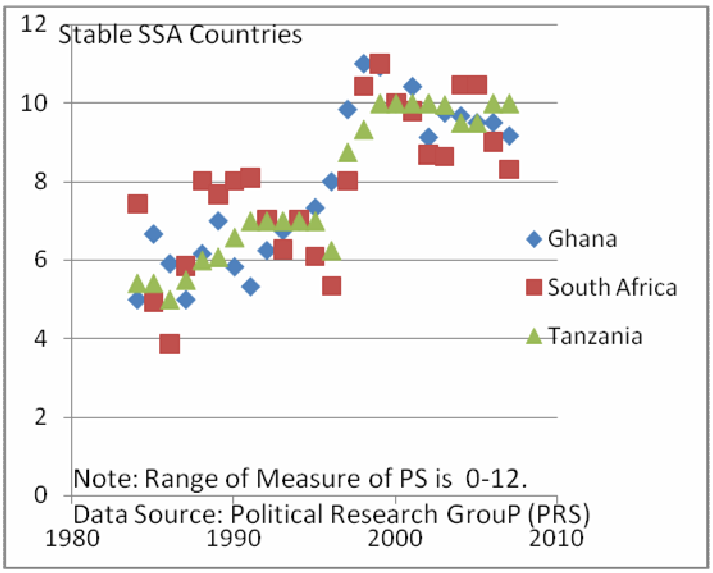

Figure 3. Political Stability for the Least Stable SSA Countries, 1984-2007

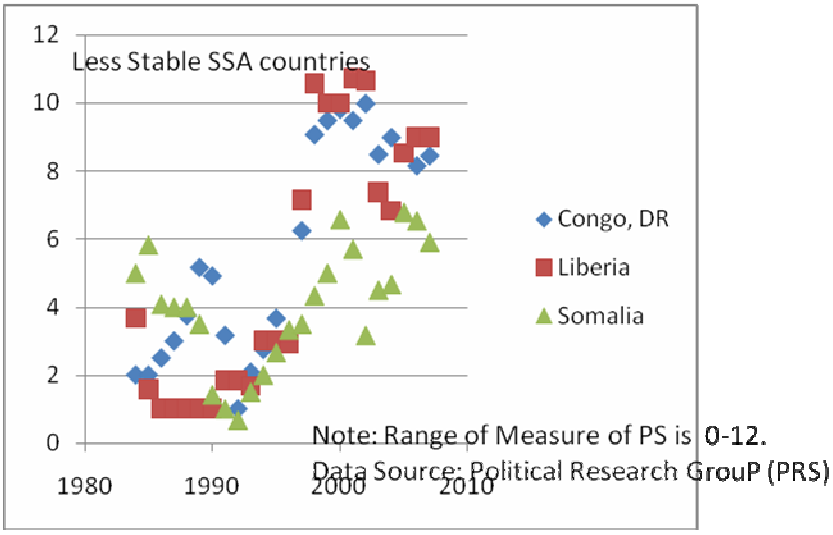

Figure 4. Political Stability for SSA Countries, 2004-2007.

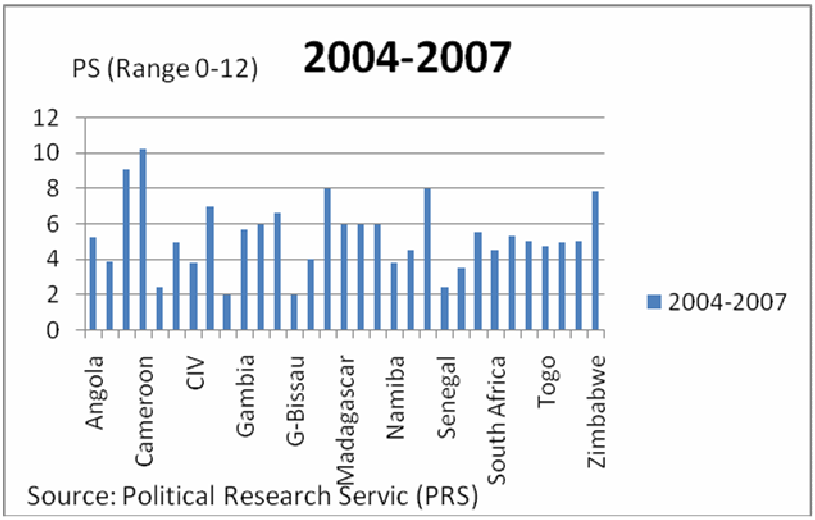

Figure 5. Political Stability for SSA Countries, 1996-1999.

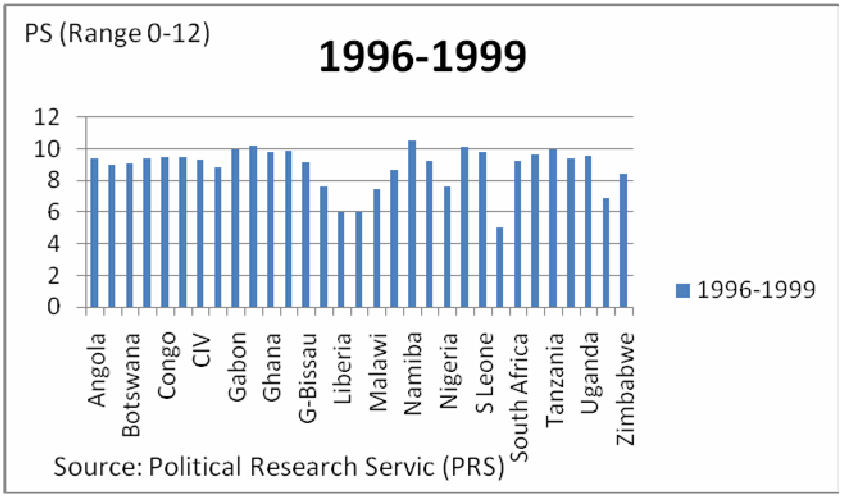

Table 1. Descriptive Statistics of Key Variables.

Growth in per cap GDP (GROWTH)	Based on real GDP per capita in constant US dollars.[a]	0.400 (4.760)	-14.08 (32.13)
Initial GDP (IGDP) * $ 100 000 000	Real GDP per capita in the last year preceding the period for which the growth rate is calculated.[a]	688.929 (937.94)	56.52 (4599)
Aid (AID)	Net Oversees Development Assistance (ODA) disbursements as a percentage of GDP.[b&c]	0.1914 (0.2520)	0.001 (1.70)
Primary Schooling (PRIM)	Years of primary education.[a]	6.1621 (0.7100)	4.00 (8.00)
Financial Depth (M_2)	Money and quasi-money (M_2) as a percentage of GDP. [a]	25.0366 (35.04)	-8.10 (368.4)
Life Expectancy (LE)	Life expectancy at birth, total (years).[a]	46.2442 (12.491)	10.00 (63. 06)

Table 1. Continued.

Political Stabilty (PS)	This is an assessment both of the government's ability to carry out its declared program(s), and its ability to stay in office. [f]	6.8130 (2.4091)	1.70 (10.700)
Government Consumption (GCONS)	Gov consumption expenditure as a % of GDP. [a]	15.3340 (6.454)	5.9 (50.1)
Time Dummies	Each Dummy takes a value of 1 for particular period and 0 otherwise. The six 4-year time periods starts from 1984-1987 and end with 2004-2007. [e]		0.00000(1.000)
Standard Deviation of Aid	Square root of the variance of Aid	1.52 (0.0002)	0.17 (0.2)

Table 1. Continued.

Variable	**Description**	**Mean (SD)**	**Min (Max)**
Investment profile (INVPROF)	Assessment of factors affecting risk to investment not covered by other political risk components. Ranges from 0-12. 12 is very low risk and 0 is high risk. [f]	5.7790 (2.0743)	0.500 (10.80)
Democratic Accountability	This is a measure of how responsive government is to its people. The minimum is 0 and represents the highest risk. The maxmum is 6 and represents lowest risk. [f]	2.605 (1.1236)	0.200 (5.60)
Bureaucratic Quality (BQUAL)	This is a measure of the quality of the bureaucracy. Ranges from 0-4 with 4 being the lowest risk.[f]	1.4130 (1.025)	0.000 (4.00)

Sources. [a] World Development Indicators; [b]OECD-DAC's online SourceOECD database; [c]World Bank's Africa Database C; [d]Sachs and Warner (1995); [e]Constructed variable; [f]International Country Risk Guide (ICRG) of Political Risk Services (PRS) and [g]Defined in detail in text.

Table 2. Correlation Matrix of Selected Explanatory Variables.

	IGDP	Aid	POL	PS	PRIM	M_2	BQUAL	DACC	LE	GCONS	INVPROF	LANDL
IGDP	1											
AID	-0.1972	1										
POL	-0.0643	0.3644	1									
PS	-0.0096	-0.2487	0.083	1								
PRIM	0.0323	0.2071	-0.03	0.0906	1							
M_2	0.3038	0.1295	0.199	-0.1076	0.422	1						
BQUAL	0.3684	-0.2402	0.003	0.0044	-0.098	0.1415	1					
DACC	0.1163	-0.1725	-0.02	0.3078	-0.026	-0.1911	0.2047	1				
LE	-0.055	0.132	-0.09	-0.2365	0.2141	0.1048	0.328	-0.0638	1			
GCONS	0.0609	0.1105	0.229	-0.319	-0.305	0.1675	-0.0262	-0.0868	-0.136	1		
INVPROF	0.0527	-0.1642	0.179	0.696	0.0915	-0.0562	0.1042	0.4819	-0.288	-0.2083	1	
LANDL	0.3561	-0.3263	-0.07	0.0504	-0.292	0.0746	0.4443	-0.0056	0.243	-0.2248	0.0339	1

Note: The SAA countries in the analysis include:: Angola, Burkina Faso, Cameroon, Congo, Congo DR, Cote d'Ivoire, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Namibia, Niger, Nigeria, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe.

Table 3. Growth Regression Results.

	(1)	(2)	(3)	(4)
	OLS	FD	OLS	FD
IGDP	-0.0001	-0.003	0.009	-0.001
	(-1.15)	(2.04)*	(-0.39)	(0.97)
AID	12.05	8.066	0.232	5.775
	(2.19)*	(2.62)*	(0.15)	(1.95)
PS	1.084	1.593		
	(4.12)***	(4.94)***		
PRIM	0.098	0.744	0.043	1.299
	(0.22)	(0.25)	(0.09)	(0.45)
M_2	0.049	0.106	0.049	0.108
	(1.64)	(2.51)*	(1.39)	(1.92)
BQUAL	0.727	1.303	0.583	0.99
	(1.61)	(1.98)*	(1.37)	(1.41)
DACC	0.253	1.535	0.363	1.102
	(0.77)	(2.13)*	(1.1)	(1.51)
GOVCONS	-0.007	-0.095	-0.004	-0.198
	(-0.18)	(-0.84)	(-0.1)	(1.44)
LE	0.013	0.184	0.024	0.157
	(0.46)	(2.00)*	(0.76)	(1.69)
INVPROF	0.078	0.946	0.483	0.025
	(0.3)	(1.5)	(2.56)*	(0.06)

Table 3 continued.

	(1)	(2)	(3)	(4)
	OLS	FD	OLS	FD
AIDPS	0.872	0.332		
	(1.69)	(1.98)*		
STD_AID	-1.861	-6.214	2.415	-2.416
	(-0.57)	(-1.63)	(0.84)	(-0.76)
Constant	-8.48		-4.643	
	(2.29)*		(-1.32)	
Observations	167	102	167	102
Adjusted R-squared	0.33	0.55	0.19	0.4

Note. Each regression included a set of time dummies. Errors are corrected for serial correlation and heteroskedasticity. The AID, PS and AIDPS variables are all lagged one period in the FD estimations. Three outliers identified in the text, were deleted in each regression. Student t-statistics in parentheses.* Significant at 10%; ** significant at 5%*** significant at 1%***

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