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Foreign aid, instability and Governance in Africa

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Abstract

This study contributes to the attendant literature by bundling governance dynamics and focusing on foreign aid instability instead of foreign aid. We assess the role of foreign aid instability on governance dynamics in fifty-three African countries for the period 1996-2010. An autoregressive endogeneity-robust Generalized Method of Moments is employed. Instabilities are measured in terms of variance of the errors and standard deviations. Three main aid indicators are used, namely: total aid, aid from multilateral donors and bilateral aid. Principal Component Analysis is used to bundle governance indicators, namely: political governance (voice & accountability and political stability/no violence), economic governance (regulation quality and government effectiveness), institutional governance (rule of law and corruption-control) and general governance (political, economic and institutional governance). Our findings show that foreign aid instability increases governance standards, especially political and general governance. Policy implications are discussed.

***JEL Classification*:** C53; F35; F47; O11; O55

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1. Introduction

The positioning of this inquiry is motivated by two main factors in order to fill the gaps in the foreign aid literature and evolving paradigms in the conception of governance. *First,* we complement recent foreign aid literature by incorporating the notion of instability in the light of recent events and debates in the literature. *Second,* we bundle governance indicators in order to articulate hitherto unexplored governance concepts.

On the first contribution, the recent financial crisis has led to a decline in development assistance from developed countries to their less developed counterparts (Dang *et al*., 2013). Many studies have found economic and financial crises in developed countries to be significant determinants of foreign aid flows to developing countries (Pallage and Robe, 2001; Berthelemy and Tichit, 2004; Bulir and Hamann 2008; Kharas, 2008; Roodman, 2008; Chauvet and Guillamont, 2009; Frot, 2009; Mendoza *et al*., 2009; Fuchs *et al*., 2014; Tingley, 2010; Dabla-Norris *et al*., 2015; Reinsberg, 2015; Heinrich *et al*., 2017). It is important to note that Mendoza *et al*. (2009) have shown that increases in stock market uncertainty (a proxy for economic uncertainty and financial volatility) reduce aid from the United States, while Fuchs *et al.* (2014) posit that financial crises are not significantly linked to the donor's foreign aid disbursements. Conversely, Dabla-Norris *et al*. (2015) establish that in periods of economic stress, foreign aid from donors is reduced.

In the light of the above, the 2008 financial crisis has reignited the debate over the effects of foreign aid on the development of recipient countries. To this end, whereas a recent stream of literature has confirmed the positive impact on development (Gyimah-Brempong and Racine, 2014; Kargbo and Sen, 2014), another strand motivated by the recent financial crisis has seriously questioned aid effectiveness (Marglin, 2013; Ghosh, 2013; Banuri, 2013; Krause, 2013; Titumir and Kamal, 2013; Wamboye *et al*., 2013; Monni and Spaventa, 2013; Asongu, 2014a, 2015a). Some of the conclusions have included, *inter alia*: neo-

colonialism as the prime motivation of foreign aid to less developed countries (Amin, 2014); the entrapment of African countries within neo-colonial webs (Ndlovu-Gatsheni, 2013); the need to strategically limit overly foreign aid reliance from developed countries (Kindiki, 2011); the imperative for foreign aid policies to be based on the needs of recipient nations (Obeng-Odoom, 2013) and the questionable economics of development assistance for inclusive human development (Asongu, 2014b).

According to Dang et al. (2013), with the global economic downturn, international aid to the developing world has decreased by an average of 20 to 25 percent. The fact that donors may be less able or willing to meet aid promises and engagements during crises results in significant macroeconomic instabilities/challenges for high aid-dependent developing countries. While such instabilities in foreign aid may be viewed in a negative light by recipients, there is an evolving stream of literature suggesting the contrary (see Moore, 2008; Mahon, 2004, 2005; Morton, 1994; Bernstein and Lu, 2008; Prichard, 2009; Eubank, 2012; Asongu, 2015b).

This study contributes to the attendant literature by bundling governance dynamics and focusing on foreign aid instability, instead of foreign aid. Accordingly, this study steers clear of the engaged literature by employing 'foreign aid instability' instead of foreign aid itself. The relevance of introducing this concept in Section 2.1 is threefold, notably: (i) the nature of instability in the international aid system, (ii) why/how foreign aid instability could affect recipient governments, and (iii) the assumption of 'aid volatility' as 'aid instability'.

The second contribution of this study to the literature builds on evolving paradigms of governance which are fundamentally motivated by the need to bundle governance variables in order to provide more robust policy implications (Asongu and Ssozi, 2016; Ajide and Raheem, 2016a, 2016b; Amavilah *et al*., 2017; Asongu *et al*., 2019). For instance, the emphasis on political governance versus economic governance is important in the foreign aid literature because

of an apparent gap in the literature on the conception and application of governance. Accordingly, the governance concept has been employed in recent foreign aid literature without a comprehensive measurement. For example, Kangoye (2013) has used the term 'corruption-control' as 'governance'. In essence, restricting the concept of governance to corruption could be misleading because, while corruption is employed as the dependent variable of interest, governance is used in the title. Moreover, it is not plausible to employ the term governance unless it is a composite measurement that encompasses a multitude of conceptually distinct governance variables. We address the aforementioned shortcomings by using ten bundled and unbundled governance indicators, namely: political governance (voice and accountability and political stability/no violence); economic governance (government effectiveness and regulation quality); institutional governance (corruption-control and the rule of law) and general governance (economic, political and institutional governances)[1]. In the light of the introductory insights the research question which this research aims to answer is the following: how does foreign aid instability affect governance in Africa?

The rest of the study is organized as follows. Section 2 clarifies the concepts of aid instability and governance. Section 3 discusses the data and methodology. The empirical analysis and discussion of results are covered in Section 4. Section 5 concludes with future research directions.

2. Aid Instability and Clarification of Governance

2.1 Aid unpredictability: views and assumptions

We devote some space to discussing: (i) some summary insights into the nature of instability in the international aid system; (ii) why/how aid instability might influence recipient governments, and (iii) the assumption of 'aid volatility' as 'aid instability'. These strands of literature are consistent with the mainstream

[1] It is important to note that 'general governance' is different from other governance dynamics (political, economic and institutional) because it captures all other governance dynamics. Every governance category has a distinct definition and measurement.

literature on aid volatility, notably: Kharas (2008), who has focused on measuring the cost of foreign aid volatility; Bulir and Hamann (2008), who have found that the volatility of flows in aid is higher than that of domestic income in developing countries, while Chauvet and Guillamont (2009) are concerned with clarifying when aid volatility matters in the nexus between foreign aid and economic growth.

According to Kangoye (2003), some sources of aid can be unstable for a plethora of reasons. They are: (i) Aid may be unstable because the approval of aid disbursements is from multiple actors (e.g., parliamentary versus executive powers). (ii) The economic/financial conditions of donors may change because of multiple factors, *among other things* negative economic shocks like global financial/economic crises,(iii) Donor priorities for recipient countries may change owing to unstable events like natural catastrophes in some of them, such that more (less) aid is disbursed to affected (non-affected) recipients. The above factors may be sources of variations between commitments and actual disbursements. According to the authors, aid flows are less predictable in nations that are not strongly covered by the International Monetary Fund (IMF) programmes. Moreover, Lemma (2004) has established that in some aid categories, only a small fraction (about 12 percent in certain cases) of initial disbursements eventually trickle-down to recipient countries themselves.

The underlying gap between commitment and actual disbursements affect aid-dependent countries in a multitude of ways, notably in their domestic macroeconomic management and development programmes (Kangoye, 2013). Some documented consequences of 'aid instability' on recipient governments include: (i) the difficulty of fiscal planning for the nation's development based on the assumption that government planning may be long-term while aid commitments are short-run; (ii) monetary and fiscal instability; (iii) procyclicality in aid which increases volatility in economic output and (iv) an increase in political accountability due to more reliance on domestic taxation

for public income. While the first-two points are from Kangoye (2013), the third and fourth points are respectively from Lensink and Morrissey (2000) and Asongu (2015b). The third point is consistent with Lensink and Morrissey because they have argued that it is difficult establishing a significant growth effect from aid unless some indicator capturing instability in aid is factored into the regression. Conversely, predictability of aid can create over dependence of recipients on donors.

In the underlying literature, Lensink and Morrissey (op.cit) have used the term 'instability' interchangeably with 'uncertainty', whereas Kangoye (op.cit) has used 'instability' interchangeably with 'unpredictability'. We prefer to use the term 'instability' interchangeably with 'volatility' because equating volatility with unpredictability may not be a perfectly defensible assumption. This is essentially because the underlying equation is based on the hypothesis that there is a constant stream of aid flows and the sources of volatility are not the result of an aid programme stopping in a predictable manner. In essence, the implicit assumption that volatility implies unpredictability is short of substance. This is because, whereas volatility may result from events like the global economic crisis (which was not predictable for the most part), volatility may also result from aid programmes starting and stopping in an entirely predictable manner.

While Kangoye (2013) has concluded that foreign aid unpredictability is linked to more corruption and by extension bad governance standards, this study argues that foreign aid instability can also be associated with good governance. In essence, foreign aid instability can provide incentives for governments to be more accountable to citizens in exchange for more tax income. This is essentially because the electorate has been documented to be prepared to pay more taxes only in exchange for better governance standards (Morton, 1994; Mahon, 2004, 2005; Moore, 2008; Bernstein and Lu, 2008; Prichard, 2009; Eubank, 2012). The underlying governance standards entail political,

economic and institutional dimensions of governance which are clarified in the next section.

The intuition for the study above is investigated within an applied econometrics framework. Hence, because this research is framed as an applied economics study, an established theoretical underpinning is not indispensable to support the empirical analysis. This is essentially because of the wealth of theoretical literature on the relationship between aid and development outcomes in developing countries (Easterly, 1999; Asongu and Jellal, 2016). Hence, this research is consistent with a contemporary strand of literature arguing that applied econometrics is not necessarily limited to the acceptance and rejection of established theoretical underpinnings (Costantini and Lupi, 2005; Narayan *et al*., 2011; Asongu *et al*., 2018). Applied econometrics could pave the way to theory-building, especially in the light of a relationship that has not yet been established in the literature. Therefore, the study is consistent with the underlying contemporary literature in arguing that applied econometrics based on a sound intuition and the need to address a gap in the literature, is a useful scientific activity.

2.2 Clarification of governance

This section is devoted to clarifying the concept of governance adopted. We discuss it in two principal strands, notably definitions of governance and debates surrounding the governance concepts to be adopted in the paper.

The perception of governance is complex and multidimensional and can take several definitions (Asongu, 2016). *First,* according to Dixit (2009), economic governance can be defined as '*…structure and functioning of the legal and social institutions that support economic activity and economic transactions by protecting property rights, enforcing contract, and taking collective action to provide physical and organizational infrastructure*'(p.5). *Second,* Tusalem (2015) understands governance as consisting of regulation quality, political stability, rule

of law, bureaucratic effectiveness and corruption-control. *Third,* Fukuyama (2013) has said that governance should comprehensively embody four principal measures, namely: bureaucratic measures, procedural measures, output measures and capacity indicators which entail both professionalism and resources. *Fourth,* to the best of our knowledge, the most widely employed governance indicators in the literature are from Kaufmann *et al*. (2010). These consist of three main governance categories: institutional, economic and political governances. Institutional governance is defined as respect by the State and citizens of institutions that govern interactions between them. It is measured with two variables: corruption-control and the rule of law. Economic governance is defined as the formulation and implementation of policies that deliver public goods and services. It is also measured with two indicators: regulation quality and government effectiveness. Political governance is defined as the election and replacement of political leaders. It is measured with two main indicators, political stability/no violence and voice and accountability.

In spite of some criticisms that have arisen in policy-making and scholarly circles, Kaufmann, Kraay and Mastruzzi have promptly responded with rebuttals to defend the confidence enjoyed by the underlying governance variables in scholarly circles. As far as we have reviewed, one of the most interesting debates has been with Andrew Schrank and Marcus Kurtz. The reader can find more insights into the highlighted debate in: 'models, measures and mechanisms' (Kurtz & Schrank, 2007a); a reply (Kaufmann et al., 2007a); a defense (Kurtz & Schrank, 2007b) and a rejoinder (Kaufmann et al., 2007a). In light of the debate, we have found the reply and rejoinder from Kaufmann et al. (2007a, 2017b) very informative on the quality of governance indicators from the World Governance Indicators of the World Bank.

The debate begins with Kurtz and Schrank (2007a) raising doubts about the positive association between good governance and economic development. They have argued that it is essential to (i) question the confidence

enjoyed by the World Bank governance indicators and (ii) rethink the consensus upon which the causality flowing from governance to economic development is based. The authors have gone further to establish that the World Bank governance indicators are liable of, *inter alia*: conceptual conflation with policy choices, perceptual biases and sample adverse selection. Kaufmann et al. (2007a) have replied with three clarifications in order to show that the claims from the contending authors are not substantiated. They have demonstrated that the suggestions on perception-oriented measurement biases are speculative, falsifiable and short of empirical scrutiny. They have furher provided empirical substantiation to the argument that short-run nexuses discussed by the Andrew Schrank and Marcus Kurtz are conceptually flawed and statistically fragile. They have finally disqualified the empirical substantiation of the contending authors on the impact of governance on growth.

In defense of their stance, Kurtz and Schrank (2007b) have responded by further arguing that the underlying issues about measurement and conceptual clarity are deeply rooted in the debate bordering the relationship between governance and growth. In a rejoinder, Kaufmann et al. (2007b) deliberated on the absence of empirical backing with which to substantiate criticisms from contending authors. They have further argued that issues related to 'potential respondant bias' which are not exclusively restricted to the measurement of government effectiveness, but also apply to other variables.

In this light, the study adopts the governance indicators from Kaufmann *et al*, consistent with a recent stream of literature on unbundling (Gani, 2011; Andrés & Asongu, 2013; Andrés *et al*., 2015; Oluwatobi et al., 2015; Yerrabit & Hawkes, 2015; Pelizzo *et al*., 2016; Pelizzo & Nwokora, 2016, 2018; Nwokora & Pelizzo, 2018) and bundling (Asongu, 2016; Asongu and Nwachukwu, 2016a, 2016b) governance dynamics.

3. Data and Methodology

3.1 Data

We examine a sample of fifty-three African countries using annual data from the African Development Indicators of the World Bank for the period 1996-2010. South Sudan is excluded from the fifty-four African countries because data for the country is not available before 2011. Good governance indicators from the World Bank are only available from 1996. The temporal and geographical scopes of the study are determined by constraints in data availability at the time of the study.

The choice of three non-overlapping intervals (NOI) used to periodize the data has a fourfold justification. *First,* one degree of freedom is lost after computation of residuals in the first-order autoregressive processes and at least two periods are needed for standard deviations of the corresponding residuals to be further computed. *Second,* averages mitigate short-run or business cycle disturbances that may loom substantially large. *Third,* three-year NOIs ensure that the basic conditions for the employment of Generalized Methods of Moments (GMM) are satisfied (N>T: 53>5). *Fourth*, three-year NOIs restrict overidentification, or limit instrument proliferation, by ensuring that the numbers of cross-sections are higher than the number of instruments in each specification.

The dependent variables are governance dynamics (political, economic, institutional and general). They are obtained from principal component analysis (PCA) discussed in Section 3.2.1 below.

The independent variable of interest is net official development assistance as a percentage of Gross Domestic Product (NODA). In order to provide room for more policy implications, we add (i) NODA from the Development Assistance Committee as a percentage of GDP (NODADAC) and (ii) NODA from Multilateral donors also as a percentage of GDP (NODAMD). The instabilities are computed using two approaches. They are (i) simple standard deviations of three-year intervals and (ii) variance of the errors or standard deviations of the

saved residuals after first-order autoregressive processes in the NODA dynamics. The latter approach is consistent with Kangoye (op.cit). As we have emphasized in Section 2.1, we equate volatility with instability in the study. Two points are worth noting in the computation of instability. *First*, the second measurement of instability (from variance of the errors) is motivated by the need to distinguish simple variations (from the first measurement) with more unstable factors. Therefore, more unstable changes in aid flows are captured by the second measurement of aid instability. *Second*, the study uses two-year averages for the computation of variance of the errors (after a loss of one degree of freedom from first autoregressive processes). The corresponding low order of non-overlapping intervals enables the study to limit the mitigation of short-run or business cycle disturbances that are essential to capture instability as much as possible. Therefore, with scholarly modesty in mind, contrary to the Kangoye (2013) computation which based on ten-year data averages with three-year data averages, the approach in this study limits the mitigation of the short-run disturbances that are required to better compute instability.

We control for inflation, trade openness, economic prosperity and government expenditure. Whereas the role of government expenditure is consistent with fiscal behavior in governance (Eubank, 2012; Asongu and Jellal, 2013), globalization in terms of trade openness has been documented to improve governance (Khandelwal and Roitman, 2012; Asongu, 2014c). Economic prosperity and income-levels are instrumental in the quality of government (Asongu, 2012, p. 191). The sign of inflation on governance remains ambiguous. It may be positive if the measures put in place are designed to effectively improve government quality and correct the problem. On the other hand, it could substantially affect governance standards negatively if issues of soaring food prices remain unaddressed. The latter constitute factors that culminated in the "Arab Spring" (Khandelwal and Roitman, 2012). We also employ time-effects in the specifications to further control for unobserved

heterogeneity. It is important to note that, whereas dummy or fixed effects like legal origins have been documented to affect the quality of governance (Anyanwu and Erhijakpor, 2014), unfortunately we cannot control for dummy variables in the GMM specification because these are eliminated by first differencing for the difference equation of the system GMM.

Definition of the variables is presented in Appendix 1, the summary statistics is disclosed in Appendix 2 and the correlation analysis in Appendix 3. From the summary statistics it can be observed that variables are comparable and from their corresponding variations, we can be confident that reasonable estimated relationships will emerge. From the perspective of comparable mean values, in statistical analysis, average values should be comparable. For instance, tens of units should not be compared with billions of units. On the front of variations, considerable variations between variables across time are necessary for the variables to affect one another. The correlation analysis has been employed to mitigate multicollinearity and overparameterization issues that could arise. These are apparent among NODA instability dynamics. We also notice from the summary statistics that the computed 'aid volatiles' are quite large. Accordingly, for the most part, the variances of 'aid instability' indicators are as substantial as those of baseline aid variables.

3.2 Methodology

3.2.1 Principal Component Analysis

This section extends the definition of governance from corruption to political, economic, institutional and general dynamics. We use principal component analysis (PCA) to reduce the dimensions of each governance dynamic because some information may be redundant owing to the high degrees of substitution. PCA is a widely employed statistical method that consists of reducing a set of highly correlated variables into a smaller set of uncorrelated variables called principal components that reflect a substantial variation or

proportion of initial information. We first reduce all the governance indicators to obtain a general governance measurement before further mitigating them into: (i) voice and accountability and political stability for political governance (PolGov), (ii) government effectiveness and regulation quality for economic governance (EcoGov) and (iii) corruption-control and rule of law for institutional governance (InstGov). The advantage of using PCA over "averaging" is that PCA does not assign equal weights in the computation of a composite indicator.

The Kaiser (1974) and Jolliffe (2002) criterion are employed to determine common factors. They recommend stopping at first principal components (PCs) with an eigen value greater than the mean (or unity). In this light, as shown in Table 1 below: General governance (*G.Gov*) has an eigenvalue of 4.642 and represents more than 77 percent of variation in the six government variables (regulation quality, government effectiveness, corruption-control, rule of law, political stability/no violence and voice and accountability); political governance (PolGov) summarizes about 82 percent of information with an eigenvalue of 1.852; economic governance denotes more than 90 percent of information with an eigenvalue of 1.812 and institutional governance represents 93.5 percent of variability with a 1.871 eigenvalue. Consistent with Andrés *et al*. (2015), the following definitions are relevant to governance dynamics: (i) *Political governance* is the process by which those in authority are selected and replaced (ii) *Economic governance* denotes the capacity of government to formulate and implement policies as well as deliver services and (iii) *Institutional governance* represents the respect for citizens and the state of institutions that govern the interactions among them. The three dimensions do not emerge endogenously when the first PCA is computed for all World Governance Indicators because the six governance indicators are highly correlated. While they are correlated, they reflect different concepts of governance, which is the reason the three dimensions of governance are further considered in order to articulate political, economic and institutional dimensions of governance.

Table 1: Principal Component Analysis (PCA) for Governance (Gov)

Principal Components		Component Matrix (Loadings)						Proportion	Cumulative Proportion	Eigen Value
		VA	PS	RQ	GE	RL	CC			
First (G.Gov)	PC	0.383	0.374	0.403	0.429	0.443	0.413	0.773	0.773	4.642
Second PC		0.297	0.774	-0.369	-0.350	-0.021	-0.230	0.077	0.851	0.466
Third PC		0.750	-0.300	0.353	-0.127	-0.223	-0.396	0.066	0.917	0.398
First (PolGov)	PC	0.707	0.707	---	---	---	---	0.829	0.829	1.659
Second PC		-0.707	0.707	---	---	---	---	0.170	1.000	0.340
First (EcoGov)	PC	---	---	0.707	0.707	---	---	0.906	0.906	1.812
Second PC		---	---	-0.707	0.707	---	---	0.093	1.000	0.187
First (InstGov)	PC	---	---	---	---	0.707	0.707	0.935	0.935	1.871
Second PC		---	---	---	---	-0.707	0.707	0.064	1.000	0.128

P.C: Principal Component. VA: Voice & Accountability. RL: Rule of Law. R.Q: Regulation Quality. GE: Government Effectiveness. PS: Political Stability. CC: Control of Corruption. G Gov (General Governance): First PC of VA, PS, RQ, GE, RL & CC. PolGov (Political Governance): First PC of VA & PS. EcoGov (Economic Governance): First PC of RQ & GE. InstGov (Institutional Governance): First PC of RL & CC.

Consistent with the underlying literature on bundling institutions (Asongu, 2015c; Asongu and Nwachukwu, 2016c, 2016d), is it relevant to engage some issues that might arise in the validity of estimated coefficients from PC-augmented regressions. The concerns, to the best of our knowledge, were first raised by Pagan (1984, p.242) who established that three main anxieties are linked to the use of estimates from initial regressions in second-stage modeling, namely concerns about efficiency, consistency and the inferential validity of estimations. Pagan argues that whereas estimates from two-step estimation processes are efficient and consistent, not all corresponding inferences are valid. The issue about inferences broadly aligns with an abundant supply of literature that has focused on the same issue, notably: Oxley and McAleer (1993), McKenzie and McAleer (1997), Ba and Ng (2006) and Westerlund and Urbain (2012, 2013ab).

Narrowing down the perspective to the specific framework of the PC-derived indicators employed in this study, to the best of our knowledge Westerlund and Urbain (2012, 2013b) have provided insights into how the

concern about inferential validity can be tackled. The authors have built on more contemporary literature (Stock and Watson, 2002; Bai, 2003; Pesaran, 2006; Bai, 2009; Greenaway-McGrevy *et al*., 2012) in order to sustain that normal inferences can be established with PC regressors provided that the estimated coefficients converge to their corresponding real values at the rate $\sqrt{NT}$ with N (T) as the number of cross-sections (time series). While the authors have argued that for convergence to be feasible N and T need to be sufficiently large, they have stopped short of elucidating how 'large is large'. Within the specific framework of this inquiry, we are faced with three major issues. *First*, N cannot be stretched further because we have included all existing fifty-three African countries, with the exception of South Sudan for which data was not available before 2011. *Second*, we cannot extend T to a date before 1996 because good governance variables from the World Bank Governance indicators are only available therefrom. *Third*, we cannot employ annual periodicities so as to extend T because of analytical and methodological constraints. On the analytical front, the calibration of aid instabilities (variance of the errors) require that we use at least three non-overlapping intervals so that (i) one degree of freedom is lost after the first autoregressive process and (ii) at least two degrees of freedom are required for the computation of variance of the errors (or standard deviations of corresponding residuals). At the methodological level, a basic requirement for the adopted GMM technique is that N>T. Hence using non-overlapping intervals also enables the study to limit instrument proliferation or over-identification. Above all, recent literature on bundling institutions (albeit with lower values of N and T) has established that inferences with bundled governance indicators are equally valid (Asongu & Nwachukwu, 2016a; Asongu, 2016).

3.2.2 Estimation technique

The system GMM estimation strategy is adopted for a threefold interest: (i) it accounts for some potential endogeneity[2]; (ii) cross-country regressions are eliminated in the estimation process and (iii) biases in the difference estimation resulting from small samples are mitigated (Tchamyou and Asongu, 2017; Efobi *et al*., 2018; Meniago and Asongu, 2018; Boateng *et al*., 2018; Tchamyou, 2019a, 2019b; Tchamyou *et al*., 2019). Hence it is substantially for this third point that we are consistent with Bond et al. (2001, pp. 3-4) in choosing the system GMM approach (Arellano and Bover, 1995; Blundell and Bond, 1998) instead of the difference estimator (Arellano and Bond, 1991). In the specification, a heteroscedasticity-consistent *two-step* approach is preferred to the homoscedasticity-consistent *one-step* procedure. Two tests are performed to ascertain the validity of the models: (i) the Sargan over-identifying restrictions (OIR) test for instrument validity and (ii) the Arellano and Bond autocorrelation (AR(2)) test for the absence of autocorrelation in the residuals. The interests of using data averages in terms of three-year NOI have already been discussed in the data section.

The following equations in levels and first difference represent the GMM approach.

$$Gov_{i,t} = \sigma_0 + \sigma_1 Gov_{i,t-1} + \sigma_2 T_{i,t} + \sigma_3 DAC_{i,t} + \sigma_4 MD_{i,t} + \sum_{j=1}^{4} \partial_j X_{i,t} + \eta_i + \xi_t + \varepsilon_{i,t} \quad (1)$$

$$Gov_{i,t} - Gov_{i,t-1} = \sigma_1 (Gov_{i,t-1} - Gov_{i,t-2}) + \sigma_2 (T_{i,t} - T_{i,t-1}) + \sigma_3 (DAC_{i,t} - DAC_{i,t-1})$$
$$+ \sigma_4 (MD_{i,t} - MD_{i,t-1}) + \sum_{j=1}^{4} \partial_j \left(X_{i,t} - X_{i,t-1}\right) + (\xi_t - \xi_{t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \quad (2)$$

Where: 't' denotes the period and 'i' stands for a country. Gov is Governance; T, Total NODA; DAC, NODA from DAC countries; MD, NODA from Multilateral Donors; X is the set of control variables (*Trade openness*,

[2] In essence, the system GMM controls for: (i) autoregressive endogeneity in the dependent variables by exploiting all orthogonality conditions between the lagged endogenous variable and error terms; (ii) simultaneity by instrumenting the regressors with the first lagged and first differences and (iii) time-invariant omitted variables with time fixed effects.

Government expenditure, *Inflation* and *GDP growth*); η_i is a country-specific effect; ξ_t is a time-specific constant and $\varepsilon_{i,t}$ an error term. The estimation procedure involves jointly estimating the regression in levels (Eq. [1]) with that in first-difference (Eq. (2)), hence exploiting all the parallel or orthogonality conditions between the error term and the lagged endogenous variable.

In the light of the above, the underlying exclusion restriction assumption is that the lagged changes in aid volatility affect governance exclusively through present period aid volatility. The use of internal instruments is motivated by the difficulty of finding relevant external instruments. In the findings that are reported in the next section, the assumption of exclusive restriction is valid if null hypothesis of the Sargan test is not rejected.

4. Empirical results

While Section 4.1 presents the findings with foreign aid instability as standard deviations, Section 4.2 reveals robustness checks with foreign aid instability as variance of the errors (standard deviations of the residuals after first-order autoregressive processes). We observe that the post-estimation diagnostics test confirms the validity of the models for the most part. Accordingly, two tests have been performed to investigate the validity of these models, they are: the Arellano and Bond autocorrelation test which investigates the null hypothesis of no autocorrelation and the Sargan-test that assesses the over-identification restrictions. The latter test investigates if the instruments are not correlated with the error term in the equation of interest. The null hypothesis of this test is the view that the instruments as a group display strict exogeneity or do not suffer from endogeneity. Overwhelmingly for most models, we have neither rejected the AR(2) null hypothesis for the absence of autocorrelation nor the Sargan null for the validity of the instruments.

4.1 Instability as standard deviations

Table 2 below assesses the concerns underpinning this paper using the first definition of instabilities which is the standard deviation of three-year NOIs. But for a thin exception (first model on general governance with a significant Sargan OIR test), the models are overwhelmingly valid because the null hypotheses of the AR(2) and Sargan OIR tests are not rejected for the most part. The main findings support a positive effect of aid instabilities on political and general governances. The comparatively higher magnitude on general governance can be traceable to the fact that political governance is already contained in general governance. Hence, the incremental magnitude could be the effect from other constituents of general governance. Accordingly, a one standard deviation increase in foreign aid instability is expected to increase, (i) political governance by 0.038(6.460×0.006) and 0.096(6.460×0.015) for first and second specifications respectively and (ii) general governance by 0.109(6.460×0.017)[3]. Most of the control variables have the expected though insignificant signs.

Table 2: Total foreign aid instability with standard deviations

	Dependent variable: Governance							
	Political Governance (PolGov)		**Economic Governance (EcoGov)**		**Institutional Governance (InstGov)**		**General Governance (G.Gov)**	
Gov (-1)	**0.970*** **	**1.128*** **	**1.081*** **	**0.862*** **	**0.854*** **	**0.913*** **	**1.040*** **	**0.955*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Constant	-0.067	-0.145	-0.041	-0.007	0.048	0.063	0.008	-0.088
	(0.358)	(0.177)	(0.701)	(0.963)	(0.572)	(0.673)	(0.944)	(0.634)
NODASD1 (Total)	**0.006***	**0.015***	0.012	0.007	0.003	0.006	**0.017** **	**0.017***
	(0.054)	**(0.075)**	(0.251)	(0.582)	(0.482)	(0.350)	**(0.044)**	**(0.056)**
Gov. Expenditure	---	0.005	---	0.004	---	0.0008	---	0.009
		(0.324)		(0.539)		(0.865)		(0.225)
GDP growth	---	0.012	---	0.018	---	0.004	---	0.019
		(0.217)		(0.240)		(0.786)		(0.383)
Trade	---	0.0002	---	0.0005	---	-0.0003	---	0.0007
		(0.831)		(0.668)		(0.797)		(0.634)
Inflation	---	0.0009	---	-0.001	---	0.001	---	0.0007
		(0.139)		(0.571)		(0.233)		(0.393)

[3] 6.460 is the standard deviation corresponding to the first measurement of total foreign aid instability (see Appendix 2).

Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**(0.550)**	**(0.614)**	**(0.395)**	**(0.701)**	**(0.389)**	**(0.300)**	**(0.524)**	**(0.338)**
Sargan OIR	**(0.599)**	**(0.290)**	**(0.029)**	**(0.196)**	**(0.115)**	**(0.297)**	(0.071)	**(0.252)**
Wald (joint)	**91.426*** **	**953.30*** **	**102.44*** **	**1084.3*** **	**79.441*** **	**1339.6*** **	**168.15*** **	**3076.3*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Instruments	14	18	14	18	14	18	14	18
Countries	51	34	50	34	51	34	50	34
Observations	199	118	195	118	199	118	195	118

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying
Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. P-values in bracket. Gov: Government. NODA: Total Net Official Development Assistance. NODA S.D1(Total): Distortions by Simple Standard Deviation.

In Table 3 below, specifications of Table 2 are replicated with NODA from DAC countries (Panel A) and NODA from Multilateral Donors (Panel B). The models in both panels support a positive effect of aid instabilities on political, economic and general governance. The comparatively higher magnitude on general governance can be traceable to the fact that political and economic governance are already contained in general governance.

Table 3: DAC and MD foreign aid instability with standard deviations

	Dependent variable: Governance							
	Panel A: Foreign Aid from the Development Assistance Committee (DAC) Countries							
	Political Governance (PolGov)		**Economic Governance (EcoGov)**		**Institutional Governance (InstGov)**		**General Governance (G.Gov)**	
Gov (-1)	**0.992*** **	**1.131*** **	**1.084*** **	**0.835*** **	**0.843*** **	**0.919*** **	**1.035*** **	**0.963*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Constant	-0.054	-0.160	-0.044	0.009	0.055	0.081	0.022	-0.081
	(0.467)	(0.140)	(0.677)	(0.952)	(0.526)	(0.581)	(0.844)	(0.670)
NODADACSD1	0.002	**0.019*** **	0.016	0.005	0.0009	0.004	**0.019***	**0.016** **
	(0.541)	**(0.000)**	(0.249)	(0.714)	(0.844)	(0.513)	**(0.092)**	**(0.041)**
Gov. Expenditure	---	0.005	---	0.004	---	0.0007	---	0.009
		(0.299)		(0.617)		(0.873)		(0.216)
GDP growth	---	0.013	---	0.019	---	0.004	---	0.019
		(0.188)		(0.223)		(0.771)		(0.357)
Trade	---	0.0003	---	0.0006	---	-0.0004	---	0.0006
		(0.752)		(0.605)		(0.740)		(0.686)
Inflation	---	**0.001***	---	-0.001	---	0.001	---	0.0008
		(0.084)		(0.530)		(0.272)		(0.355)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**(0.646)**	**(0.669)**	**(0.338)**	**(0.682)**	**(0.383)**	**(0.296)**	**(0.560)**	**(0.333)**
Sargan OIR	**(0.536)**	**(0.281)**	(0.032)	**(0.199)**	**(0.120)**	**(0.330)**	(0.075)	**(0.244)**
Wald (joint)	**50.416*** **	**1245.2*** **	**112.70*** **	**1085.5*** **	**48.786*** **	**1674.0*** **	**150.14*** **	**2994*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**

Instruments	14	18	14	18	14	18	14	18
Countries	51	34	50	34	55	34	50	34
Observations	199	118	195	118	199	118	195	118

Panel B: Foreign Aid from Multilateral Donors

	Political Governance (PolGov)		**Economic Governance (EcoGov)**		**Institutional Governance (InstGov)**		**General Governance (G.Gov)**	
Gov (-1)	**0.872*** (0.000)**	**1.115*** (0.000)**	**1.047*** (0.000)**	**0.882*** (0.000)**	**0.834*** (0.000)**	**0.971*** (0.000)**	**1.005*** (0.000)**	**0.947*** (0.000)**
Constant	-0.078 (0.284)	-0.106 (0.378)	-0.041 (0.705)	-0.037 (0.807)	0.039 (0.644)	0.155 (0.309)	-0.014 (0.904)	-0.020 (0.903)
NODAMDSD1	**0.039*** (0.000)**	0.011 (0.748)	**0.025** (0.044)**	0.039 (0.422)	0.013 (0.211)	0.009 (0.724)	**0.052*** (0.000)**	0.032 (0.493)
Gov. Expenditure	---	0.004 (0.390)	---	0.003 (0.646)	---	0.001 (0.711)	---	0.007 (0.283)
GDP growth	---	0.013 (0.224)	---	0.020 (0.194)	---	-0.002 (0.865)	---	0.017 (0.462)
Trade	---	0.0001 (0.881)	---	0.0004 (0.694)	---	-0.001 (0.465)	---	0.0006 (0.723)
Inflation	---	0.0001 (0.743)	---	-0.001 (0.300)	---	0.001 (0.178)	---	-0.0002 (0.678)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**(0.519)**	**(0.700)**	**(0.605)**	**(0.902)**	**(0.406)**	**(0.339)**	**(0.633)**	**(0.364)**
Sargan OIR	**(0.562)**	**(0.250)**	(0.035)	**(0.319)**	**(0.114)**	**(0.562)**	(0.059)	**(0.396)**
Wald (joint)	**59.108*** (0.000)**	**733.31*** (0.000)**	**156.94*** (0.000)**	**1280.6*** (0.000)**	**74.766*** (0.000)**	**1051.6*** (0.000)**	**153.56*** (0.000)**	**2885*** (0.000)**
Instruments	14	18	14	18	14	18	14	18
Countries	51	34	50	34	51	34	50	34
Observations	199	118	195	118	199	118	195	118

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying
Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. P-values in bracket. Gov: Government. NODADAC: Net Official Development Assistance from the Development Assistance Committee. NODAMD: Net Official Development Assistance from Multilateral Donors. NODADAC SD1: Instability by Simple Standard Deviation.

4.2 Robustness checks: instability as variance of the errors

Tables 4 and 5 below address the underlying problem using variance of the errors as instabilities instead of standard deviations. The variances of the errors are computed as the standard deviations of the residuals saved from the first-order autoregressive processes. Previously established positive results in relation to the effects on political and general governances are confirmed.

Table 4: Total foreign aid instability with variance of the errors

	Dependent variable: Governance							
	Political Governance (PolGov)		Economic Governance (EcoGov)		Institutional Governance (InstGov)		General Governance (G.Gov)	
Gov (-1)	**0.969*** (0.000)**	**1.128*** (0.000)**	**1.078*** (0.000)**	**0.828*** (0.000)**	**0.841*** (0.000)**	**0.915*** (0.000)**	**1.034*** (0.000)**	**0.938*** (0.000)**
Constant	-0.057 (0.431)	-0.147 (0.165)	-0.025 (0.815)	0.012 (0.938)	0.055 (0.513)	0.078 (0.593)	0.030 (0.785)	-0.068 (0.691)
NODA SD2 (Total)	**0.003****	**0.012****	0.005	0.002	0.0006	0.002	0.009	0.008
	(0.030)	**(0.035)**	(0.468)	(0.811)	(0.804)	(0.514)	(0.178)	(0.167)
Gov. Expenditure	---	0.005	---	0.003	---	0.0008	---	0.008
		(0.333)		(0.633)		(0.861)		(0.238)
GDP growth	---	0.012	---	0.020	---	0.004	---	0.021
		(0.198)		(0.216)		(0.777)		(0.330)
Trade	---	0.0002	---	0.0007	---	-0.0004	---	0.0009
		(0.845)		(0.573)		(0.775)		(0.529)
Inflation	---	0.001	---	-0.001	---	0.001	---	0.0003
		(0.119)		(0.457)		(0.267)		(0.689)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**(0.655)**	**(0.673)**	**(0.524)**	**(0.687)**	**(0.381)**	**(0.294)**	**(0.765)**	**(0.307)**
Sargan OIR	**(0.596)**	**(0.308)**	(0.024)	**(0.228)**	**(0.120)**	**(0.350)**	(0.053)	**(0.290)**
Wald (joint)	**82.210*** (0.000)**	**1065.2*** (0.000)**	**84.379*** (0.000)**	**1026.0*** (0.000)**	**49.500*** (0.000)**	**1487.1*** (0.000)**	**133.72*** (0.000)**	**3105*** (0.000)**
Instruments	14	18	14	18	14	18	14	18
Countries	51	34	50	34	51	34	50	34
Observations	199	118	195	118	199	118	195	118

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying
Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. P-values in bracket. Gov: Government. NODA: Total Net Official Development Assistance. NODAS.D2 (Total): SD2: Instability by Standard Deviation of the Residuals after first-order autoregressive processes.

Table 5: DAC and MD foreign aid instability with variance of the errors

	Dependent variable: Governance Panel A: Foreign Aid from the Development Assistance Committee (DAC) Countries							
	Political Governance (PolGov)		Economic Governance (EcoGov)		Institutional Governance (InstGov)		General Governance (G.Gov)	
Gov (-1)	**0.985*** (0.000)**	**1.131*** (0.000)**	**1.078*** (0.000)**	**0.810*** (0.000)**	**0.838*** (0.000)**	**0.917*** (0.000)**	**1.032*** (0.000)**	**0.950*** (0.000)**
Constant	-0.050 (0.499)	-0.149 (0.170)	-0.031 (0.771)	0.021 (0.890)	0.056 (0.513)	0.081 (0.573)	0.035 (0.750)	-0.075 (0.677)
NODADAC SD2	0.002	**0.013****	0.009	0.002	0.0002	0.002	0.011	**0.010***
	(0.412)	**(0.014)**	(0.389)	(0.825)	(0.935)	(0.564)	(0.223)	**(0.097)**
Gov. Expenditure	---	0.005	---	0.003	---	0.0007	---	0.008
		(0.306)		(0.683)		(0.873)		(0.220)

GDP growth	---	0.012	---	0.020	---	0.004	---	0.021
		(0.194)		(0.229)		(0.742)		(0.307)
Trade	---	0.0002	---	0.0007	---	-0.0004	---	0.0007
		(0.796)		(0.555)		(0.746)		(0.604)
Inflation	---	**0.001***	---	-0.001	---	0.001	---	0.0006
		(0.099)		(0.464)		(0.273)		(0.504)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**(0.681)**	**(0.684)**	**(0.466)**	**(0.659)**	**(0.382)**	**(0.293)**	**(0.778)**	**(0.320)**
Sargan OIR	**(0.527)**	**(0.288)**	(0.027)	**(0.205)**	**(0.125)**	**(0.360)**	(0.060)	**(0.269)**
Wald (joint)	**52.18*** **	**1318.2*** **	**95.147*** **	**1019.6*** **	**37.637*** **	**1818.7*** **	**130.29*** **	**3194.3*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Instruments	14	18	14	18	14	18	14	18
Countries	51	34	50	34	51	34	50	34
Observations	199	118	195	118	199	118	195	118

Panel B: Foreign Aid from Multilateral Donors

	Political Governance (PolGov)		**Economic Governance (EcoGov)**		**Institutional Governance (InstGov)**		**General Governance (G.Gov)**	
Gov (-1)	**0.916*** **	**1.135*** **	**1.053*** **	**0.849*** **	**0.818*** **	**0.962*** **	**0.990*** **	**0.934*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Constant	-0.089	-0.157	-0.047	-0.002	0.044	0.141	-0.013	-0.029
	(0.243)	(0.149)	(0.682)	(0.989)	(0.596)	(0.343)	(0.913)	(0.852)
NODAMD SD2	**0.042*** **	0.043	0.020	0.007	0.010	0.012	**0.048*** **	0.019
	(0.000)	(0.116)	(0.111)	(0.807)	(0.385)	(0.612)	**(0.000)**	(0.591)
Gov. Expenditure	---	0.004	---	0.003	---	0.001	---	0.007
		(0.345)		(0.570)		(0.713)		(0.229)
GDP growth	---	0.012	---	0.021	---	-0.002	---	0.019
		(0.257)		(0.166)		(0.890)		(0.408)
Trade	---	0.000	---	0.0006	---	-0.001	---	0.0008
		(0.977)		(0.569)		(0.489)		(0.593)
Inflation	---	0.0006	---	-0.001	---	0.001	---	-0.0002
		(0.261)		(0.304)		(0.210)		(0.743)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(2)	**(0.762)**	**(0.652)**	**(0.559)**	**(0.765)**	**(0.416)**	**(0.328)**	**(0.654)**	**(0.331)**
Sargan OIR	**(0.458)**	**(0.347)**	(0.030)	**(0.294)**	**(0.125)**	**(0.550)**	(0.049)	**(0.370)**
Wald (joint)	**43.24*** **	**981.65*** **	**92.29*** **	**1052.5*** **	**35.313*** **	**1174.1*** **	**100.18*** **	**3054.4*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Instruments	14	18	14	14	14	14	14	14
Countries	51	34	50	34	51	34	50	34
Observations	199	118	195	118	199	118	195	118

***, **, and * indicate significance at 1%, 5% and 10% levels respectively. AR(2): Second Order Autocorrelation test. OIR: Overidentifying
Restrictions test. The significance of bold values is twofold. 1) The significance of estimated coefficients and the Wald statistics. 2) The failure to reject the null hypotheses of: a) no autocorrelation in the AR(2) tests and; b) the validity of the instruments in the Sargan OIR test. P-values in bracket. Gov: Government. NODADAC: Net Official Development Assistance from the Development Assistance Committee. NODAMD: Net Official Development Assistance from Multilateral Donors. NODADACSD2: SD2: Instability by Standard Deviation of the Residuals after first-order autoregressive processes. DAC: Development Assistance Committee. MD: Multilateral Donors.

4. 3: Further discussion and policy implications

4.3.1 Implications for foreign-driven governance

This section on foreign-driven governance focuses on the use of foreign aid by donors to influence governance standards in recipient countries. Accordingly, the decision by a donor to cut aid obviously affects the stability of aid[4].

The results accord with a strand of the literature on the conditionality of development assistance for political governance purposes in recipient nations (see Stokke, 2013; Hayman, 2011; Faust, 2010; Killick, 2003; Crawford, 2001; Carothers, 2000; Asongu and Nwachukwu, 2017a). Accordingly, development assistance can be a policy instrument employed by developed countries for the promotion of political governance in view of enhancing democratic standards and human rights. Hence, these developed countries could voluntarily manipulate foreign aid with the ultimate goal of reaching the underlying foreign-driven goals of democracy and respect for human rights. The case of Zimbabwe over the past decade provides eloquent testimony. In essence, calls for regime change by Western nations have been greased by drastically reducing the amount of development assistance, which Zimbabwe receives from these developed countries (Asongu & Nwachukwu, 2017c). Another recent case is the example of Uganda, where in early 2014 an anti-gay legislation that was signed into law by president Youweri Museveni was not welcomed by Donor countries (e.g. Norway, the Netherlands and Denmark) and the World Bank with suspensions of aid and loans (Asongu & Nwachukwu, 2017a).

Our findings have shown that such instability/uncertainty in development assistance could increase political governance in recipient countries. Hence, even if a 'foreign aid dictated policy' is unpopular in a recipient nation, the

[4] Some of the points raised in the discussion of results are the opinions of authors and should not be construed as facts requiring citations. The opinions of authors are tailored such that they are presented in the conditional tense. Facts are substantiated with attendant references.

leadership in the recipient nation may be willing to compromise by improving political and general governance standards. With the exceptions of some emerging countries in East Asia, more concessions have been made by African countries under the pressure of aid withdrawal by Western nations (Asongu and Nwachukwu, 2017a, 2017b).

An alternative way of understanding the *foreign-driven governance* in this strand is that, development assistance increases competition for aid and donors offer more rewards to recipient countries with better governance compared to their counterparts with poor governance. Hence, an atmosphere of aid rent-seeking may induce positive competition in terms of improving governance scores.

It is relevant to articulate that reference to "aid conditionality" in this section is used to provide one possible interpretation of the findings in the light of the extant literature. Hence, it is not the purpose of the study to consider "aid volatility" to be fundamentally the result of "aid conditionality". The reason is that research does not substantively connect "aid conditionality" with "aid volatility" in Section 2. It is important to note also that many factors could account for aid volatility, among which, is the financial crisis that is mentioned in the introduction. Accordingly, the implicit mention of "aid conditionality" in this section should be understood in the light of the fact that there are many potential causes of aid volatility.

4.3.2 Implications for domestic-driven governance

The findings can equally be understood from the perspective of internally-driven governance. In essence, aid instability could incite African governments to become more accountable to the electorate in exchange for more tax income. Hence, foreign aid instability may increase governance standards in recipient countries because, in the presence of such volatility, taxpayers may only be willing to pay more taxes in exchange for better governance. Hence,

reduction in aid may not be altogether a bad omen for recipient countries. It may simply push governments to adopt better governance standards in view of anticipating more tax revenues from the population. Moreover, reductions in the expectation of aid may lead governments to adopt better governance standards because countries facing a hard budget constraint make better use of available tax revenue. An eloquent example in Africa is Somaliland which has comparatively better governance standards despite the absence of official development assistance from donor countries. This case of Somaliland is documented in Eubank (2012). The findings of Eubank are particularly relevant for Africa given that Somaliland is ineligible for official foreign aid.

The narrative is in line with the view that governments in recipient countries depend on tax income from local taxpayers in exchange for improved standards of government. Therefore, taxpayers could use their leverage to request enhanced governance standards from the government in exchange for complying with their tax obligations. This view is consistent with a bulk of literature on the relationship between accountability and the dependence of government on domestic tax income (see Morton, 1994; Mahon, 2004, 2005; Moore, 2008; Bernstein and Lu, 2008; Prichard, 2009).

The arguments surrounding the improvement of government standards in exchange for tax income are deeply consolidated in the history of economic thought. As argued by Eubank (2012), the positive nexus between internal sources of funding like taxation and good governance, build on the negotiations by autocracies (which needed tax income in order to survive inter-state wars) and (citizens who were unwilling to accommodate more tax burden unless the autocracies improved accountability, public services and the quality of institutions). Within the framework of the findings, in the absence of foreign aid, the reliance of governments on local fiscal income endows taxpayers with a substantial leverage to request better governance standards in exchange for compliance with the payment of more taxes.

In the light of the above, the substantial reliance of a government on any particular source of funding will make the government dependent on the requirements of the funding source. Hence, just as we have seen in the literature that donors can use foreign aid to influence government standards in developing countries (Kindiki, 2011; Ndlovu-Gatsheni, 2013; Amin, 2014), taxpayers can also collectively influence governance standards in the absence of foreign aid or instability in the flow of foreign aid. From logic and common sense, tax payers will naturally request for, *inter alia*: (i) better processes of political governance or the election and replacement of political leaders (i.e. "voice & accountability" and political stability); (ii) effective economic governance or the formulation and implementation of policies that deliver public commodities (i.e. government effectiveness and regulation quality), and (iii) good institutional governance or the respect by the State and citizens of institutions that govern interactions between them (i.e. corruption-control and the rule of law). Moreover, over-reliance on foreign aid can constrain governments to be more accountable to donors than to citizens and the requirements from foreign donors may not necessarily be in the interest of better domestic governance and economic development. In essence, the adage of "no taxation without representation" can be extended to "no taxation without better governance" in the absence of foreign aid and in the presence of foreign aid instability.

An alternative way of understanding *domestic-driven governance* in this strand is that, countries with improving standards of government are also entitled to more development assistance because 'aid volatility' is correlated with improving indicators of governance, provided that such a trend is not limited to a first-order process of auto-regression (see Asongu and Nwachukwu, 2017a).

4.3.3. More direct implications

We have also observed that the effect of foreign aid instability is positively significant on general governance, while for the most part, it is not consistently significant in stimulating economic and institutional governance. Two implications derive from this finding. *First,* general governance may be substantially driven by political governance when it comes to the effect of aid instabilities. This may be because, in light of explanations provided in the previous sub-sections, the population may be more sensitive to 'taxation for political representation, voice and accountability', relative to economic and institutional governance.

Second, the aggregation of governance indicators improves insights into how macroeconomic variables affect governance. Hence, as opposed to Kangoye (2013) who has reduced the concept of governance to corruption, conceiving, defining and measuring governance more inclusively in applied econometrics is relevant to advancing the scholarship on aid and institutions. As a policy implication, it is important to clearly articulate the concept of governance in applied econometrics in order to avoid misleading policy implications.

5. Conclusions and future research directions

With the recent financial crisis and reduction of foreign aid by donor countries, the aid-institutions debate is shifting to how aid instability affects governance in developing countries. We have assessed the role of foreign aid instability on governance dynamics in fifty-three African countries for the period 1996-2010. An autoregressive endogeneity-robust Generalized Method of Moments has been employed. Instabilities are measured in terms of variance of the errors and standard deviations. Three main aid indicators are used, namely: total aid, aid from multilateral donors and bilateral aid. Principal Component Analysis is used to bundle governance indicators, namely: political governance

(voice & accountability and political stability/nonviolence), economic governance (regulation quality and government effectiveness), institutional governance (rule of law and corruption-control), and general governance (political, economic and institutional governance). Our findings show that foreign aid instability increases governance standards, especially political and general governance. Policy implications have been discussed. The policy implications are both relevant to donors and recipients of foreign aid. Moreover, the conclusions do not imply that stable foreign aid is not good for governance in recipient countries.

Two main caveats are clearly apparent from the study. First, due to methodological constraints, we are unable to control for thresholds in foreign aid dependency. In this light, the effect on governance in low and high aid-dependent (e.g. Mozambique) countries cannot easily be disassociated. Moreover, the measure of aid instability might miss country-specific volatility characteristics and linear trends. We cannot control for these factors because of concerns about instrument proliferation or over-identification. Accordingly, given that the basic requirement for the GMM approach is N>T, the use of sub-samples leads to pre-estimation N<T and post-estimation instrument proliferation. Hence, future studies could focus on accounting for aid dependency thresholds as well as country-specific cases in order to improve on the extant literature on established relationships. *Second*, while the study has performed robustness checks by using different governance and aid variables, it would be worthwhile to use different indicators of governance and 'aid intensity' in future studies. Insights into this second point are documented in Kangoye (2013). Freedom House, Polity, and Varieties of Democracy (V-Dem) provide governance measures that may be worth considering. These recommendations are consistent with the need to account for more heterogeneity in foreign aid inquiries (Asiedu and Nandwa, 2007; Asiedu, 2014; Ssozi *et al*., 2019). Moreover, the findings could be influenced by changes in governments during the sampled

periodicity. While the factors of changes in government are not considered due to data availability constraints, it is worthwhile for such factors to be considered in future research.

Appendices

Appendix 1: Definitions of variables

Variable(s)	Definition(s)	Source(s)
Aid1: NODASD1 (Total)	Instability of Total NODA by Simple Standard Deviation	Author
Aid 2: NODADACSD1	Instability of NODADAC by Simple Standard Deviation.	Author
Aid 3: NODAMDSD1	Instability of NODAMD by Simple Standard Deviation	Author
Aid1: NODASD2 (Total)	Instability of Total NODA by Standard Deviation of the Residuals after first-order autoregressive process.	Author
Aid 2: NODADACSD2	Instability of NODADAC by Standard Deviation of the Residuals after first-order autoregressive process.	Author
Aid 3: NODAMDSD2	Instability of NODAMD by Standard Deviation of the Residuals after first-order autoregressive process.	Author
Political Stability	"Political stability/no violence (estimate): measured as the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional and violent means, including domestic violence and terrorism".	World Bank (WDI)
Voice & Accountability	"Voice and accountability (estimate): measure the extent to which a country's citizens are able to participate in selecting their government and to enjoy freedom of expression, freedom of association and a free media".	World Bank (WDI)
Political Governance	"First Principal Component of Political Stability and Voice & Accountability. The process by which those in authority are selected and replaced".	PCA
Government Effectiveness	"Government effectiveness (estimate): measures the quality of public services, the quality and degree of independence from political pressures of the civil service, the quality of policy formulation and implementation, and the credibility of governments commitments to such policies".	World Bank (WDI)
Regulation Quality	"Regulation quality (estimate): measured as the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development".	World Bank (WDI)
Economic Governance	"First Principal Component of Government Effectiveness and Regulation Quality. The capacity of government to formulate &	PCA

	implement policies, and to deliver services".	
Rule of Law	"Rule of law (estimate): captures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence".	World Bank (WDI)
Corruption Control	"Control of corruption (estimate): captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests".	World Bank (WDI)
Institutional Governance	"First Principal Component of Rule of Law and Corruption-Control. The respect for citizens and the state of institutions that govern the interactions among them"	PCA
General Governance	First principal component of Political Stability, Voice & Accountability, Government Effectiveness, Regulation Quality, Rule of Law and Corruption-Control.	PCA
GDP growth	Gross Domestic Product growth rate (annual %)	World Bank (WDI)
Trade Openness	Exports plus Imports of Commodities (% of GDP)	World Bank (WDI)
Government Expenditure	Government Final Consumption Expenditure (% of GDP)	World Bank (WDI)
Inflation	Consumer Price Index (annual %)	World Bank (WDI)

WDI: World Bank Development Indicators. GDP: Gross Domestic Product. PCA: Principal Component Analysis. NODA: Net Official Development Assistance. NODADAC: NODA from the Development Assistance Committee (DAC) countries. NODAMD: NODA from Multilateral Donors. SD1: Instability by Simple Standard Deviation. SD2: Instability by Standard Deviation of the Residuals after first-order autoregressive processes.

Appendix 2: Summary statistics

	Mean	S.D	Min	Max	Obs.
Total NODA	10.889	12.029	0.015	102.97	253
Total NODADAC	6.278	7.303	-0.003	68.063	253
Total NODADMD	4.525	5.083	0.004	33.249	253
First Instability from Total NODA	2.841	6.460	0.001	64.113	250
First Instability from Total NODADAC	1.868	4.790	0.0005	44.404	250
First Instability from Total NODADMD	1.397	2.712	0.0006	29.353	250
Second Instability from Total NODA	3.409	8.106	0.005	91.927	250
Second Instability from Total NODADAC	2.201	6.333	0.001	68.826	250
Second Instability from Total NODADMD	1.678	2.714	0.000	29.906	250
Political Governance (PolGov)	-0.016	1.291	-3.204	2.621	264
Economic Governance (EcoGov)	0.049	1.310	-3.019	3.290	254
Institutional Governance (InstGov)	0.008	1.378	-3.879	3.179	264
General Governance (G.Gov)	0.108	2.095	-5.139	5.086	254
Corruption (Corruption Perception Index)	3.005	1.064	1.066	6.100	181
GDP growth	4.755	5.587	-11.272	49.367	254
Trade Openness	78.340	39.979	20.980	250.95	247
Government Expenditure	4.495	8.064	-17.387	49.275	164
Inflation	56.191	575.70	-45.335	8603.3	230

S.D: Standard Deviation. Min: Minimum. Max: Maximum. Obs: Observations. NODA: Net Official Development Assistance. DAC: Development Assistance Committee. SD1: Instability by Simple Standard Deviation. SD2: Instability by Standard Deviation of the Residuals after first-order autoregressive processes.

Appendix 3: Correlation Analysis

Control Variables				Foreign Aid Instabilities						Governance					
GDPg	Trade	Gov.E	Inflation	SD1Aid1	SD1Aid2	SD1Aid3	SD2Aid1	SD2Aid2	SD2Aid3	PolGov	EcoGov	InstGov	G.Gov	Corruption	
1.000	0.179	0.254	-0.132	0.219	0.193	0.166	0.145	0.091	0.109	-0.012	-0.041	-0.084	-0.049	-0.056	GDPg
	1.000	-0.070	0.024	0.082	0.050	0.047	0.105	0.091	-0.032	0.202	0.089	0.207	0.174	0.209	Trade
		1.000	-0.243	0.014	0.024	0.072	0.028	0.028	0.051	-0.040	0.007	0.023	-0.003	-0.095	Gov. E
			1.000	-0.004	0.011	-0.016	-0.003	0.006	0.016	-0.114	-0.169	-0.136	-0.149	-0.054	Inflation
				1.000	0.921	0.793	0.949	0.878	0.678	-0.157	-0.293	-0.215	-0.244	-0.130	SD1Aid1
					1.000	0.528	0.901	0.946	0.459	-0.160	-0.279	-0.224	-0.242	-0.129	SD1Aid2
						1.000	0.718	0.515	0.902	-0.105	-0.252	-0.157	-0.191	-0.132	SD1Aid3
							1.000	0.945	0.650	-0.109	-0.251	-0.179	-0.198	-0.118	SD2Aid1
								1.000	0.452	-0.115	-0.228	-0.182	-0.191	-0.112	SD2Aid2
									1.000	-0.074	-0.234	-0.153	-0.175	-0.161	SD2Aid3
										1.000	0.758	0.819	0.901	0.745	PolGov
											1.000	0.878	0.945	0.822	EcoGov
												1.000	0.957	0.895	InstGov
													1.000	0.875	G.Gov
														1.000	Corruption

GDPg: GDP growth rate. Gov. E: Government Expenditure. Aid1: Total Net Official Development Assistance (NODA). Aid2: NODA from the DAC countries. Aid3: NODA from Multilateral Donors. SD1: Instability by Simple Standard Deviation. SD2: Instability by Standard Deviation of the Residuals after first-order autoregressive processes. PolGov: Political Governance. EcoGov: Economic Governance. InstGov: Institutional Governance. G.Gov: General Governance.

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