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On foreign aid distortions to governance

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Abstract

The Kangoye (2013, TDE) findings on the negative nexus between foreign aid unpredictability and governance could seriously affect debates in academic and policy making circles. Using the theoretical underpinnings of the celebrated Eubank (2012, JDS) literature, we first confirm Kangoye's findings. Then extend the concept of governance from corruption to political, economic, institutional and general versions of the phenomenon. Findings from the extension run counter to those of Kangoye. It follows that in the presence of foreign aid uncertainty, governments could be constrained to improve governance standards in exchange for or anticipation of more dependence on local tax revenues. The empirical evidence is based on 53 African countries for the period 1996-2010. Two direct policy implications result. First, the Kangoye findings for developing countries are relevant for Africa. Second, when the concept of governance is not restricted to corruption, the findings become irrelevant for the continent.

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1. Introduction

The Kangoye (2013) findings on the negative nexus between foreign aid unpredictability and governance could seriously affect debates in academic and policy making circles. The paper concludes: "*This paper examines the effects of aid on governance from a different perspective by asserting that aid unpredictability can potentially increase corruption in recipient countries by providing incentives to risk-averse and corrupt political leaders to engage in rent-seeking activities. Analyses of data from 80 developing countries over the period 1984–2004 offer evidence that higher aid unpredictability is associated with more corruption as measured by a synthetic index. We also find further evidence that this latter impact is more severe in countries with weak initial institutional conditions. These findings are a supplementary advocacy for the need for better management and better predictability of aid flow in developing countries*" (p. 121). Our interest in the underlying paper is twofold: restricted use of the concept of governance and a recently celebrated Eubank (2012) hypothesis.

First, restricting the concept of governance to corruption could be misleading. Accordingly, while corruption is employed as the dependent variable of interest, governance is used on the title. We recalibrate the concept of governance into political, economic and institutional dynamics. Consistent with Kaufmann et al. (2010) as recently employed in the literature (Andrés & Asongu, 2013; Andrés et al., 2014), governance is political (voice & accountability and political stability/no violence), economic (governance effectiveness and regulation quality), institutional (corruption-control and rule of law) and general (political, economic and institutional). We use these governance dynamics in our study to extend the underpinning paper.

Second, after the Bottom Billion (Collier, 2007) and Dead Aid (Moyo, 2009), inter alia, that have been critically engaged in academic and policy making circles, the Eubank (2012)

Somaliland-based hypothesis has been recently celebrated with the best paper award from the Journal of Development Studies in 2013. Consistent with the author, the government depends on local taxpayers for revenue in exchange for better governance standards. Hence, according to the narrative, taxpayers have the leverage to demand for better governance standards. The theoretical underpinnings of the hypothesis are deeply rooted in the history of economic thought. It has foundations in negotiations between autocratic governments who needed tax income (to survive inter-state wars) and citizens who were willing only to consent to taxation if there was better governance and delivery of public commodities.

In light of the above, it is interesting to engage how the above two underpinning points converge to give substance to the motivation of this paper. Two main axes of convergence boldly standout: (1) Somaliland is not eligible for foreign aid but has relatively better governance standards and; (2) the Kangoye (2013) findings run counter to the intuition of Eubank (2012).

First, while Somaliland is not eligible to official development assistance, compared to other African nations, it has relatively better governance standards. The increased confidence of Somaliland government in light of the Eubank hypothesis could be summarized in stylized facts from Somaliland's minister of energy and minerals. At a recent African mining conference Hussein Abdi Dualeh professed that his country did not need foreign aid because it was better-off without it: "*That is a blessing in disguise. Aid never developed anything…Aid is not a panacea, we'd rather not have it….How many African countries do you know that developed because of a lot of aid? It's a curse. The ones that get the most aid are the ones with the problems….We've been left to our own devices. We are our own people and our own guys. We pull ourselves up by our own bootstraps. We owe absolutely nothing to anybody. We would not change hands with Greece today. We have zero debt*" (Stoddard, 2014).

Second, the Kangoye findings for developing countries run counter to the Eubank hypothesis which has recently been confirmed in Africa (Asongu, 2014a). Accordingly, foreign aid uncertainty could be assimilated to a situation where domestic government starts anticipating of resorting to more local tax revenues to compensate for the potential negative gap in foreign aid. Hence, the State should be predisposed to improving its governance standards in exchange for or anticipation of more local tax income. The Eubank hypothesis come-in at this juncture. Unfortunately, the Kangoye findings have suggested the contrary. We address this puzzle by postulation that the contradiction is based on the limited scope of the concept of governance, which is restricted to corruption. Hence, we hypothesize that the Eubank hypothesis might be confirmed in more exhaustive contexts of political, economic, institutional and general governance.

The procedure of verifying our postulations consists of three main steps. First, we confirm the Kangoye findings with the concept of corruption as the main indicator of governance. Second, we extend the conception of governance to political, economic, institutional and general dimensions using the six principal government quality dynamics, notably: political stability and voice & accountability (political); government effectiveness and regulation quality (economic); corruption-control and rule of law (institutional); and general (political, economic & institutional). Third, we replicate the approach that has confirmed the Kangoye findings to assess if his results are confirmed in the broader spectrum of governance. In other words, if the Eubank intuition is validated.

The rest of the study is organized as follows. Section 2 discusses the data and the methodology. The empirical analysis and discussion of results are covered in Section 3. Section 4 concludes.

2. Data and Methodology

2.1 Data

We examine a sample of 53 African countries using annual from African Development Indicators of the World Bank for the period 1996-2010. While the data of Kangoye ranges from 1984 to 2004, good governance indicators from the World Bank only date from 1996. The focus on the African continent has a twofold justification. It is: (1) consistent with developing countries to which the findings of Kangoye are relevant and; (2) in line with the Eubank (2012) hypothesis which has been postulated and confirmed in Africa (Asongu, 2014a).

The dependent variables are measured in terms of the corruption perception index (CPI) and governance dynamics (political, economic, institutional and general). While the CPI is used in baseline analysis to confirm the Kangoye findings, governance dynamics are employed to verify if the findings are valid with an exhaustive conception of governance in light of the Eubank hypothesis. The governance variable are obtained from principal component analysis (PCA) discussed in Section 3.2 below.

The independent variable of interest is net official development assistance (NODA). In order to add subtlety to the analysis for robustness purposes, we add: (1) NODA from the Development Assistance Committee (NODADAC) and; (2) NODA from Multilateral Donors (NODAMD). The distortions are computed using two approaches: (1) simple standard deviations of three-year intervals and; (2) standard errors or standard deviations of the saved residuals after first-order autoregressive processes in the NODA dynamics. The latter approach is consistent with Kangoye.

The choice of three non-overlapping intervals (NOI) has a fourfold justification. First, one degree of freedom is lost after computation of residuals in the first-order autoregressive process and at least two periods are needed for standard deviations of the residuals to be further

computed. Second, averages mitigate short-run or business cycle disturbances that may loom substantially large. Third, 3 year NOI ensure that the basic conditions for the employment of Generalized Methods of Moments (GMM) are well satisfied (N>T: 53>5). Fourth, 3 year NOI restrict overidentification or limit instrument proliferation by ensuring that the number of cross-sections are higher than the number of instruments.

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 & Jellal, 2013), globalization in terms of trade openness has been documented to improve governance (Khandelwal & Roitman, 2012; Asongu, 2014b). 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 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 are among factors that culminated to the Arab Spring (Khandelwal & Roitman, 2012). We also employ time-effects in the specifications to further control for the unobserved heterogeneity.

Definition of the variables is presented in Appendix 1, the summary statistics disclosed in Appendix 2 and the correlation analysis in Appendix 3. From the first, the variables are comparable and based on the variations we could be confident that reasonable estimated relationships would emerge. The correlation analysis has been employed to mitigate multicollinearity and overparametization issues that could arise, especially among NODA distortion dynamics.

2.2 Methodology

The system GMM estimation strategy is adopted for a threefold interest: first, it accounts for potential endogeneity in all the regressors; second, cross-country regressions are eliminated in the estimation process and; biases in the difference estimation resulting from small samples are mitigated. 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 & Bover, 1995; Blundell & Bond, 1998) instead of the difference estimator (Arellano & 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, notably: the Sargan over-identifying restrictions (OIR) test for instrument validity and; the Arellano & Bond autocorrelation (AR(2)) test for the absence of autocorrelation in the residuals. The interests of using data averages in terms of 3 year NOI have already been discussed in the data section.

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

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

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

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*, *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 the error term and the lagged endogenous variable.

3. Empirical results

3.1 Confirmation of empirical underpinnings

As outlined in the introduction, it is relevant to first confirm the findings of Kangoye using the same: definition of uncertainty and; corruption as the dependent governance variable. The foreign aid distortions are standard errors (standard deviations of the residuals after first-order autoregressive processes). In Table 1 below, the models are overwhelmingly valid because the null hypotheses of the Sargan OIR and AR(2) tests are overwhelmingly rejected[2]. The main findings are broadly consistent with the position that foreign aid uncertainty increases corruption. In the interpretation, note should be taken of the fact that the CPI is reported in decreasing order such that, lower values denote higher levels of corruption.

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[2] Accordingly, two tests have been performed to investigate the validity of the models, notably: the Arellano & 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.

Table 1: Effect of foreign aid distortions on corruption

	Corruption					
Corruption (-1)	0.670***	0.701***	0.686***	0.714***	0.711***	0.671***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.802	0.910	0.758	0.858	0.672	0.929*
	(0.155)	(0.120)	(0.192)	(0.139)	(0.252)	(0.090)
NODASD2 (Total)	-0.010	-0.003	---	---	---	---
	(0.347)	(0.801)				
NODADACSD2	---	---	-0.010	0.000	---	---
			(0.253)	(0.999)		
NODAMDSD2	---	---	---	---	-0.091**	-0.103*
					(0.032)	(0.066)
Gov. Expenditure	-0.003	-0.0003	-0.002	0.000	-0.004	-0.001
	(0.533)	(0.950)	(0.633)	(0.999)	(0.150)	(0.689)
GDP growth	-0.019	-0.005	-0.021	-0.002	-0.008	0.003
	(0.489)	(0.901)	(0.437)	(0.961)	(0.765)	(0.921)
Trade	0.004	0.004	0.004	0.004	0.004	0.004
	(0.142)	(0.325)	(0.159)	(0.291)	(0.124)	(0.289)
Inflation	0.006	-0.002	0.005	-0.005	0.010	0.007
	(0.784)	(0.911)	(0.812)	(0.786)	(0.501)	(0.696)
Time effects	No	Yes	No	Yes	No	Yes
AR(2)	(0.295)	(0.405)	(0.310)	(0.374)	(0.299)	(0.343)
Sargan OIR	(0.511)	(0.238)	(0.507)	(0.247)	(0.654)	(0.212)
Wald (joint)	819.47***	267.53***	598.36***	273.44***	883.72***	259.56***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Instruments	15	18	15	18	15	18
Countries	21	21	21	21	21	21
Observations	69	69	69	69	69	69

***, **, 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: Distortions by Standard Deviation of the Residuals after first-order autoregressive processes.

3.2 Requalification of governance

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 obtained a general governance measurement before

further mitigating them into: voce & accountability and political stability for political governance (PolGov); government effectiveness and regulation quality for economic governance (EcoGov) and; corruption-control and rule of law for institutional governance (InstGov).

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 2 below: General governance (*G.Gov*) has an eigenvalue of 4.642 and represents more than 77% of variation in the six government variables (regulation quality, government effectiveness, corruption-control, rule of law, political stability/no violence and voice & accountability); political governance (PolGov) summarizes about 82% of information with an eigenvalue of 1.852; economic governance denotes more than 90% of information with an eigenvalue of 1.812 and; institutional governance represents 93.5% of variability with a 1.871 eigenvalue. Consistent with Andrés et al. (2014), the following definitions are relevant to the governance dynamics. (1) *Political governance* is the process by which those in authority are selected and replaced. (2) *Economic governance* denotes the capacity of government to formulate & implement policies as well as deliver services. (3) *Institutional governance* represents the respect for citizens and the state of institutions that govern the interactions among them.

Table 2: Principal Component Analysis (PCA) for Governance (Gov)

Principal Components	Component Matrix(Loadings)						Proportion	Cumulative Proportion	Eigen Value
	VA	PS	RQ	GE	RL	CC			
First PC (G.Gov)	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 PC (PolGov)	0.707	0.707	---	---	---	---	0.829	0.829	1.659
Second PC	-0.707	0.707	---	---	---	---	0.170	1.000	0.340
First PC (EcoGov)	---	---	0.707	0.707	---	---	0.906	0.906	1.812
Second PC	---	---	-0.707	0.707	---	---	0.093	1.000	0.187
First PC (InstGov)	---	---	---	---	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.

3.2 Distortions as standard deviations

Table 3 below assesses the concerns underpinning the paper using the first definition of distortions which is the standard deviation of three-year NOI. 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 the Eubank hypothesis with a positive effect of aid distortions on political and general governance. Most of the control variables have the expected though insignificant signs.

Table 3: Total foreign aid distortions 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)
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 4 below, specifications of Table 3 are replicated with NODA from DAC countries (Panel A) and NODA from Multilateral Donors (Panel B). The models in both panels are overwhelmingly valid and the underlying Eubank is also confirmed from political and general governance perspectives.

Table 4: DAC and MD foreign aid distortions 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

	Political Governance (PolGov)		Economic Governance (EcoGov)		Institutional Governance (InstGov)		General Governance (G.Gov)	
	Panel B: Foreign Aid from Multilateral Donors							
Gov (-1)	**0.872***	**1.115***	**1.047***	**0.882***	**0.834***	**0.971***	**1.005***	**0.947***
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Constant	-0.078	-0.106	-0.041	-0.037	0.039	0.155	-0.014	-0.020
	(0.284)	(0.378)	(0.705)	(0.807)	(0.644)	(0.309)	(0.904)	(0.903)
NODAMDSD1	**0.039***	0.011	**0.025**	0.039	0.013	0.009	**0.052***	0.032
	(0.000)	(0.748)	**(0.044)**	(0.422)	(0.211)	(0.724)	**(0.000)**	(0.493)
Gov. Expenditure	---	0.004	---	0.003	---	0.001	---	0.007
		(0.390)		(0.646)		(0.711)		(0.283)
GDP growth	---	0.013	---	0.020	---	-0.002	---	0.017
		(0.224)		(0.194)		(0.865)		(0.462)
Trade	---	0.0001	---	0.0004	---	-0.001	---	0.0006
		(0.881)		(0.694)		(0.465)		(0.723)
Inflation	---	0.0001	---	-0.001	---	0.001	---	-0.0002
		(0.743)		(0.300)		(0.178)		(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***	**733.31***	**156.94***	**1280.6***	**74.766***	**1051.6***	**153.56***	**2885***
	(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. NODADAC: Net Official Development Assistance from the Development Assistance Committee. NODAMD: Net Official Development Assistance from Multilateral Donors. NODADAC SD1: Distortions by Simple Standard Deviation.

3.3 Distortions as standard errors

Tables 5-6 below address the underlying problem using standard errors as distortions instead of standard deviations. The standard errors are computed as the standard deviations of the residuals saved from the first-order autoregressive processes. The Eubank hypothesis is broadly confirmed for political and general governance.

Table 5: Total foreign aid distortions with standard errors

	Political Governance (PolGov)		Economic Governance (EcoGov)		Institutional Governance (InstGov)		General Governance (G.Gov)	
				Dependent variable: Governance				
Gov (-1)	0.969***	1.128***	1.078***	0.828***	0.841***	0.915***	1.034***	0.938***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.057	-0.147	-0.025	0.012	0.055	0.078	0.030	-0.068
	(0.431)	(0.165)	(0.815)	(0.938)	(0.513)	(0.593)	(0.785)	(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***	1065.2***	84.379***	1026.0***	49.500***	1487.1***	133.72***	3105***
	(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. NODAS.D2 (Total): SD2: Distortions by Standard Deviation of the Residuals after first-order autoregressive processes.

Table 6: DAC and MD foreign aid distortions with standard 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***	1.131***	1.078***	0.810***	0.838***	0.917***	1.032***	0.950***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.050	-0.149	-0.031	0.021	0.056	0.081	0.035	-0.075
	(0.499)	(0.170)	(0.771)	(0.890)	(0.513)	(0.573)	(0.750)	(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

	Political Governance (PolGov)		Economic Governance (EcoGov)		Institutional Governance (InstGov)		General Governance (G.Gov)	
			Panel B: Foreign Aid from Multilateral Donors					
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: Distortions by Standard Deviation of the Residuals after first-order autoregressive processes. DAC: Development Assistance Committee. MD: Multilateral Donors.

4. Concluding remarks

The Kangoye (2013, TDE) findings on the negative nexus between foreign aid unpredictability and governance could seriously affect debates in academic and policy making circles. Using the theoretical underpinnings of the celebrated Eubank (2012, JDS) literature, we have first confirmed Kangoye's findings. Then we have extended the concept of governance from corruption to political, economic, institutional and general versions of the phenomenon. Findings from the extension run counter to those of Kangoye. It follows that in the presence of foreign aid uncertainty, governments could be constrained to improve governance standards in exchange for or anticipation of more dependence on local revenues. This confirms the Eubank hypothesis that aid may dilute the positive appeals of local tax revenues on governance. The empirical evidence

is based on 53 African countries for the period 1996-2010. Two direct policy implications result. First, the Kangoye findings for developing countries are relevant for Africa. Second, when the concept of governance is not restricted to corruption, the findings become irrelevant for the continent.

Appendices

Appendix 1: Definitions of variables

Variable(s)	Definition(s)	Source(s)
Aid1: NODASD1 (Total)	Distortions of Total NODA by Simple Standard Deviation	Author
Aid 2: NODADACSD1	Distortions of NODADAC by Simple Standard Deviation.	Author
Aid 3: NODAMDSD1	Distortions of NODAMD by Simple Standard Deviation	Author
Aid1: NODASD2 (Total)	Distortions of Total NODA by Standard Deviation of the Residuals after first-order autoregressive process.	Author
Aid 2: NODADACSD2	Distortions of NODADAC by Standard Deviation of the Residuals after first-order autoregressive process.	Author
Aid 3: NODAMDSD2	Distortions 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): measures 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 & implement policies, and to deliver services.	PCA
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 publicpower 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: Distortions by Simple Standard Deviation. SD2: Distortions by Standard Deviation of the Residuals after first-order autoregressive processes.

Appendix 2: Summary statistics

	Mean	S.D	Min	Max	Obs.
First Distortions from Total NODA	2.841	6.460	0.001	64.113	250
First Distortions from Total NODADAC	1.868	4.790	0.0005	44.404	250
First Distortions from Total NODADMD	1.397	2.712	0.0006	29.353	250
Second Distortions from Total NODA	3.409	8.106	0.005	91.927	250
Second Distortions from Total NODADAC	2.201	6.333	0.001	68.826	250
Second Distortions 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: Distortions by Simple Standard Deviation. SD2: Distortions by Standard Deviation of the Residuals after first-order autoregressive processes.

Appendix 3: Correlation Analysis

GDPg	Control Variables			SD1Aid1	SD1Aid2	Foreign Aid Distortions	SD2Aid1	SD2Aid2	SD2Aid3	PolGov	EcoGov	Governance	G.Gov	Corruption	
	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: Distortions by Simple Standard Deviation. SD2: Distortions by Standard Deviation of the Residuals after first-order autoregressive processes. PolGov: Politcal Governance. EcoGov: Economic Governance. InstGov: Institutional Governance. G.Gov: General Governance.

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