Explaining public investment dynamics in Sub-Saharan Africa: The role of country governance structures

Samuel Kwaku Agyei*

Abstract: This paper assesses the contribution of country governance structures to resolving the unsettled crowding-in–crowding-out hypothesis of public and private investments and arresting the recent fall of public investment in Sub-Saharan Africa (SSA). Within an Arellano-Bond Dynamic Panel Framework, we estimate a derived accelerator model that allows for inclusion of country governance structures (control of corruption, political stability, rule of law, governance effectiveness, voice and accountability and regulatory quality) in a public investment model. The results, based on data from SSA, suggest that country governance structures that control corruption, ensure political stability, regulatory quality and rule of law enhance public investment in SSA. But the presence of these governance structures does not curtail the crowding out effect of private investment on public investment. Thus, policies directed at improving public investment in SSA should target governance structures in addition to the conventional factors.

Subjects: Social Sciences; Development Studies; Economics, Finance, Business & Industry

Keywords: public investment; country governance structures; crowding-in-out hypothesis and SSA

ABOUT THE AUTHOR
Samuel Kwaku Agyei is a lecturer at the Department of Finance, University of Cape Coast, Ghana. He holds a PhD in Finance from the University of Ghana Business School and is a member in good standing of the Institute of Chartered Accountants (Ghana). His current research interests include behavioural finance and development economics. This paper forms part of a broad research in the thematic area of public investment, private investment, employment and social welfare in Sub-Saharan Africa.

PUBLIC INTEREST STATEMENT
Public investment in Sub-Saharan Africa (SSA) assists in employment generation, provision of schools and health facilities and offering support to the private sector. Unfortunately, however, public investment in SSA has been falling in the past two decades (1990–2009). Meanwhile, it is believed that when countries are managed well, it will lead to their development. So this study was carried out to assess whether good governance can help SSA counties to arrest the fall in public investment. The results of the study show that when countries control corruption; ensure political stability; have quality regulations and rule of law; keep expenditures within budget; ensure efficient utilization of aid; fund public investment from controlled borrowing; and take advantage of imports and exports public investment in SSA would be revived.
1. Introduction
Public investment plays a significant role in the socio-economic development of developing economies including Sub-Saharan Africa (SSA) even though these investments are generally seen to be less efficient as compared to private investment. Generally, policy-makers assert that private sector-led economy benefits more from proper investment management and reduction in corruption culminating in high relative return when compared to public investment. But the public sector is the biggest employer and its spending pattern defines the economic activity and social welfare dynamics of most developing economies in SSA.

Recent dynamics in investment patterns in SSA show a gradual shift from government-led investment to private sector controlled investment. Public sector investment fell from 7.72% (1990–1999) to 7.13% (2000–2009) while private investment increased from 12.40% of GDP to 13.14% of GDP. The results from the sub-regions of SSA generally support this downward trend in public sector investment. Apart from Central Africa which recorded an increase in public investment (from 6.03% of GDP to 7.34%), all other sub-regions in SSA recorded decreases in public investment (Southern Africa fell from 8.70 to 6.26%; West Africa fell from 7.96 to 6.41%; and East Africa fell from 8.23 to 8.09%) (see Agyei, 2015).

These public investment dynamics coincide with the era of privatization in Africa. Africa saw a surge in privatization due to the impact of the study conducted in 1995 and 1996 on Benin, Burkina Faso, Ghana, Kenya, Madagascar, Nigeria, Togo, Uganda and Zambia, but for the wrong or unintended reasons. Political change; need for world bank, International Monetary Fund and donor support; need to generate proceeds; precarious state of some public enterprises; need to maintain employment levels and sometimes the need to satisfy vested interests even though privatization was mainly meant to reduce the fiscal and administrative burdens of a large public enterprises sector, enhance private sector development, mobilize more domestic and foreign investment and contribute towards the fight against poverty (White and Bhatia, 1999). Even though Nellis (2005) argued that African countries were slow privatizers, the private sector in SSA has seen considerable development (especially in the second decade of the study period) due partly to privatization policies and improvement in institutions. The reluctance of African countries to privatize was due to the fear of job loss by labour unions through collapse of privatized firms and downsizing and the use of privatization as a corruption channel by some governments. Thus, the recent decline in public investment as against a rise in private investment in SSA could be attributed to privatization but what has been the role of public management decisions and institutional factors such as country governance structures in this whole process?

Benefits of good governance practices may not only be limited to corporate entities (Kyereboah-Coleman, 2007), but could also influence certain sectors of the general economy if applied at the national level. The effectiveness with which government distributes scarce national resources could help mitigate the infrastructural gap in SSA. Control of corruption would help mitigate the harmful effects of corruption. Corruption is harmful to national development even though it could be sometimes beneficial. Corrupt officials, through rent seeking, divert state funds and pursue sub-optimal, if not inferior state projects at the detriment of the state. As a consequence of an unintended action of a purposeful corrupt act, corruption may facilitate national development by motivating corrupt officials to constantly embark on developmental projects because of their personal interest. In spite of this, control of corruption is good for public investment to thrive.

Corruption control thrives on the strength of laws and their enforcement. In countries where the judiciary is independent, fair and resourced, corrupt officials receive punitive measures while prospective corrupt officials are deterred from engaging in corrupt activities. Thus, rule of law is expected to have a positive impact on public investment through facilitating control of corruption. The quality of regulations precedes rule of law. When regulations do not adequately address the loopholes in the system, it creates avenues for resource siphoning. Adequate control of public investment process would help check and prevent the misuse or diversion of public funds. In view of this,
quality regulations that are not too stringent to stifle public investment initiative would facilitate public investment by enhancing the rule of law and ensuring government effectiveness.

Transparency of government transactions through proper accountability to the citizenry and enhanced media freedom are governance measures that have the potential to put governments in check and ensure value for money investments. In effect, to ensure continuity of government policies and investment projects, a stable political environment would facilitate that. Thus, all the other key country governance variables thrive in a stable political environment. This probably explains why all previous public investment studies have relied basically on political stability. This study extends the literature on public investment but highlights the individual and composite effect of the new set of country governance variables reported by the world. Apriori, it is expected that governance effectiveness, corruption control, rule of law, regulatory quality, voice and accountability and political stability would help address the dwindling public investment phenomenon.

This paper argues that the benefits from good country governance structures could extend to public investment. Also, depending on the extent of protection offered by country governance structures for public investment and private investments, a better understanding of the crowding-in-out hypothesis could be reached. Thus, this study offers insights on how country governance structures help explain the recent dynamics in public investment in SSA, given the potential of the downward trend of public investment to have negative implications for SSA and the fact that researchers have generally concentrated on explaining private investment dynamics.

The rest of the paper is structured as follows: Section 2 reviews the literature; Section 3 describes the methods used; Section 4 discusses the results; while Section 5 offers conclusion and recommendations for the study.

2. Theoretical review
This study contributes to the unsettled debate on the crowding-in–crowding-out hypothesis (Erden & Holcombe, 2005; Munthali, 2012) which has led many to the neglect of assessing the effect of private investment on public investment. The crowding-in hypothesis argues that public investment attracts, maintains or enhances private investment because public investment offers complimentary products, provides supporting infrastructure and sometimes needed resources for private investment to thrive. On the contrary, proponents of the crowding-out hypothesis contend that public investment curtails or replaces private investment because they compete for the same resources—like financial resources—or markets. In the same vein, private investment has the potential to crowd out public investment if they compete for similar resources and markets or through privatization. On the other hand, the effect of private investment on public investment could be positive if the two produce complimentary products or private investors patronize raw materials from public corporations and are socially responsible.

2.1. Determinants of public investment
Empirical literature on determinants of public investment is scarce especially in SSA. In his seminal work, Aschauer (1989a) hypothesized that an economy’s productivity slow down can be linked to fall in public infrastructure, as witnessed by the United States of America (USA) in the 1980s. We argue that key factors that explain public investment include economic growth, private investment, real interest rate, country governance, trade openness, aid for economic and infrastructural development, government borrowing and fiscal discipline.

2.1.1. Economic growth
Based on the accelerator theory, desired future growth levels define the current level of public investment required to sustain that level. In other words, investment projects are undertaken with the expectation that future economic benefits would cover its cost. Thus, a positive association between growth and public investment is theoretically expected. According Turrini (2004), trend output and output gap describe public investment.
2.1.2. **Private investment**
Private investment could either crowd-in or crowd-out public investment depending on whether the two investments are compliments or substitutes. Consequently, the relationship between private and public investment depends on whether government decides to support the private sector with basic infrastructure or provides competitive products as social intervention.

2.1.3. **Real interest rate**
Theoretically, the cost of funding investment projects is known to have a negative effect on the size of investment projects. Governments are discouraged from undertaking investment projects if their cost of capital is huge and vice versa. But Mehrotra and Välilä (2006) argued that the cost of financing in the European Monetary Union has not had any systematic effect on investment projects in the area.

2.1.4. **Country governance**
It is expected that good governance structures reflected in control of corruption, government effectiveness, political stability, regulatory quality, rule of law and voice and accountability would translate to bridging the public infrastructural gap in SSA. When corrupt state officials decide to maximize their returns rather than that of the state, agency problem in both public and private sectors amplifies (Alesina & Angeletos, 2005; Jain, 2011). In Africa, Gyimah-Brempong (2002) concluded that income inequality and corruption move in the same direction. Also, Braga Tadeu and Moreira Silva (2013) concluded that political and economic instability are harmful to investment in Nigeria.

2.1.5. **Trade openness**
It is postulated that increase in imports and exports would boost public investment through income generation and foreign technology accessibility and spillover channels. Taxes on imports and exports could enhance government revenue for development. Internationalization grants governments’ access to foreign technologies needed for local infrastructural development.

2.1.6. **Aid**
Africa’s socio-economic development has, to a large extent, been influenced by international donor agencies. These official development agencies have supported the construction of schools, hospitals and road infrastructure. Sturm (2001) contend that key variables that explain public infrastructure include aid. Thus, aid for economic infrastructure is expected to exert a positive influence on public investment in SSA.

2.1.7. **Government borrowing**
Benefits of debt financing through financial (fiscal) discipline emanating from restrictive covenants associated with debt financing could be extended to the public sector and not limited to the private sector. Consequently, it is more difficult for managers of state funds to divert borrowed funds for public investment projects than internally generated funds. Meanwhile, high external debt financing could also reduce public investment during the servicing stage and deter international financial institutions from funding investment projects as well as increase economic uncertainty (Ndikumana, 2000).

2.1.8. **Fiscal discipline**
Primary fiscal balance, stance of budgetary policies and fiscal sustainability considerations are key to explaining public investment dynamics (Mehrotra & Välilä, 2006; Turrini, 2004). Benefits associated with fiscal discipline such as savings and increased confidence of development partners could benefit public capital formation.
3. Methodology

3.1. An empirical model of public investment

The model used in this study relied on a similar derivation by Erden and Holcombe (2005) who built a private investment model from a flexible accelerator. According to Blejer and Khan (1984) and Ramirez (1994), the flexible accelerator model begins on the premise that desired capital stock is proportional to the level of expected output:

\[ K^*_\text{git} = \alpha Y^e_{it}, \]  

where \( K^*_\text{git} \) is the desired public capital stock of country \( i \) in time \( t \) while \( Y^e_{it} \) is the expected level of output taken to be future aggregate demand of country \( i \) in time \( t \).

In the absence of adjustment process and its associated cost, actual public capital stock and the desired or target public capital should be the same. But in reality, due to technical constraints and the time it takes to plan, decide, build and install new capital, adjustment process may be costly and not instantaneous. This implies that the adjustment process is partial. In other words, adjustment cost stalls the process of fully adjusting public capital stock from previous year’s level to the current year. According to Salmon (1982), the partial adjustment function can be derived from the minimization of the following cost function, \( J \). Thus, we capture this dynamic structure of public investment behaviour by introducing a one-period quadratic adjustment cost function,

\[ J = \beta (K_{\text{git}} - K^*_\text{git})^2 + (1 - \beta)(K_{\text{git}} - K_{\text{git} - 1})^2, \]  

where \( K_{\text{git}} \) is actual public capital stock of country \( i \) in time \( t \) and \( K_{\text{git} - 1} \) is the lag of actual public stock of country \( i \) in time \( t \). The first term of Equation (2) is the cost of disequilibrium, and the second term, the cost of adjusting towards equilibrium. The following partial adjustment mechanism can be derived from minimizing the cost of adjustment with respect to \( K_{\text{git}} \):

\[ K_{\text{git}} - K_{\text{git} - 1} = \beta (K^*_\text{git} - K_{\text{git} - 1}) \quad 0 \leq \beta \leq 1, \]  

The evolution of public capital stock takes the following standard form:

\[ I_{\text{git}} = (K_{\text{git}} - K_{\text{git} - 1}) + \delta K_{\text{git} - 1} \]  

where \( I_{\text{git}} \) is gross public investment and \( \delta \) is the depreciation rate of public capital stock.

Equation (4) can be rearranged as follows:

\[ I_{\text{git}} = [1 - (1 - \delta)L]K_{\text{git}}, \]  

The steady state of Equation (4a) can be specified as follows:

\[ I^*_\text{git} = [1 - (1 - \delta)L]K^*_\text{git} \]  

When we substitute Equation (1) in (4b) we get,

\[ I^*_\text{git} = [1 - (1 - \delta)L]aY^e_{it} \]  

The partial adjustment process in Equation (3) can be written in terms of \( I_{\text{git}} \), for empirical purposes, as follows:

\[ I_{\text{git}} - I_{\text{git} - 1} = \beta (I^*_\text{git} - I_{\text{git} - 1}) \]
Based on the assumption that private investment and other relevant factors affect the speed at which the gap between actual public investment adjust towards the desired level in each short run period, the speed of adjustment can be specified in a linear function as follows:

\[
\beta = \alpha_0 + \{1/(I_{git} - I_{git-1})\}((\gamma_1 I_{pit} + \gamma_2 X_{it}) (I_{git} - I_{git-1})
\]

where \(\alpha_0\) is the intercept, \(I_{git}\) is private investment and \(X_{it}\) is the vector of other relevant factors that condition the adjustment process.

When Equation (6) is substituted in (5), it leads to

\[
I_{git} - I_{git-1} = \{\alpha_0 + [1/(I_{git} - I_{git-1})]((\gamma_1 I_{pit} + \gamma_2 X_{it})) (I_{git} - I_{git-1})
\]

Rearranging Equation (7) leads to

\[
I_{git} - I_{git-1} = \alpha_0(I_{git} - I_{git-1}) + \gamma_1 I_{pit} + \gamma_2 X_{it}
\]

When we substitute Equation (4c) in (8) we get

\[
I_{git} - I_{git-1} = \alpha_0((1 - (1 - \delta)L)|Y_e|^g - I_{git-1}) + \gamma_1 I_{pit} + \gamma_2 X_{it}
\]

Rearranging Equation (9) leads to

\[
I_{git} = \alpha \alpha_0((1 - (1 - \delta)L)|Y_e|^g + (1 - \alpha_0)I_{git-1} + \gamma_1 I_{pit} + \gamma_2 X_{it} + u_{it}
\]

\[
X_{it} = f(\gamma_{21} RIR_{it}, \gamma_{22} CGI_{it}, \gamma_{23} TOPEN_{it}, \gamma_{24} AID_{it}, \gamma_{25} EDS_{it}, \gamma_{26} CBB_{it})
\]

When Equation (11) is substituted in (10), it leads to:

\[
I_{git} = \alpha \alpha_0((1 - (1 - \delta)L)|Y_e|^g + (1 - \alpha_0)I_{git-1} + \gamma_1 I_{pit} + \gamma_2 I_{RIR_{it}} + \gamma_4 CGI_{it} + \gamma_5 TOPEN_{it} + \gamma_6 AID_{it}
\]

\[+ \gamma_{25} EDS_{it} + \gamma_{26} CBB_{it} + u_{it}
\]

Equation (12) can be rewritten as follows:

\[
I_{git} = \phi_0((1 - (1 - \delta)L)|Y_e|^g + \phi_1 I_{git-1} + \phi_2 I_{pit} + \phi_3 RIR_{it} + \phi_4 CGI_{it} + \phi_5 TOPEN_{it} + \phi_6 AID_{it}
\]

\[+ \phi_7 EDS_{it} + \phi_{25} CBB_{it} + u_{it}
\]

where,

\[
\alpha \alpha_0 = \phi_0, (1 - \alpha_0) = \phi_1, \gamma_1 = \phi_2, \gamma_{21} = \phi_3, \gamma_{22} = \phi_4, \gamma_{23} = \phi_5, \gamma_{24} = \phi_6, \gamma_{25} = \phi_7, \gamma_{26} = \phi_8
\]

Assuming depreciation of public investment is 0, we get,

\[
I_{git} = \phi_0|Y_e|^g + \phi_1 I_{git-1} + \phi_2 I_{pit} + \phi_3 RIR_{it} + \phi_4 CGI_{it} + \phi_5 TOPEN_{it} + \phi_6 AID_{it} + \phi_7 EDS_{it} + \phi_{25} CBB_{it} + u_{it}
\]

Basically, Equation (14) says that additions to public capital stock (\(I_{git}\)) is influenced by expected output levels (\(|Y_e|^g\)), previous year’s public investment level (\(I_{git-1}\)), current level of private investment (\(I_{pit}\)), a host of other relevant factors (\(X_{it}\)) and \(u_{it}\) is assumed to be equal \(\mu_i + \nu_{it}\) where \(\mu_i\) is the country specific variable and \(\nu_{it}\) is the white noise. The coefficient of expected output could be positive or negative because it is used to capture the effect of cyclical factors on public capital expenditure. In a situation where the economy is not performing well, governments’ stabilization policies would be geared towards increasing capital expenditure to correct the downturn and vice versa. Also, the coefficient of private investment is ambiguous. If governments respond to private investments with the
provision of basic infrastructure to facilitate their business, then a positive relationship would be expected. On the other hand, if private investments into SSA region are basically through acquisition of state-owned enterprises (SOEs) or governments respond to private investments with the establishment of competitive SOEs, a negative relationship would be expected. The co-efficient of the lagged dependent variable is expected to be positive. Also, it is assumed that government and private investment depreciate at the same rate of zero based on previous empirical findings (for example Blejer & Khan, 1984; Erden & Holcombe, 2005; Munthali, 2012; Ramirez, 1994).

In order to reduce the bias in the coefficient estimates of expected output, private investment and lagged dependent variable and also to capture the other relevant factors that condition the adjustment process, we include other control variables that other researchers have found to influence public investment. Generally, these variables are grouped into macro-economic and politico-institutional variables (Turrini, 2004). Those included in this study are aid, budget deficit, trade openness (Sturm, 2001), interest rate, governance (de Haan & Sturm, 1997; Henrekson, 1988; Mogues, 2013; Roubini & Sachs, 1989), fiscal discipline and external public debt (Mehrotra & Väilä, 2006; Sturm, 2001; Turrini, 2004). These are captured in $X_t$.

The study included data from all SSA countries except South Sudan. The exclusion of South Sudan was basically based on lack of data. In all, 48 countries were included in the study over a 20 year period, from 1990 to 2009. The unbalanced panel data was used as not all countries had data for all variables at all times.

$$\ln GPINV_t = \varphi_0 \ln GPINV_{t-1} + \varphi_1 \ln PRINV_{t-1} + \varphi_2 \ln GDPr_{t-1} + \varphi_3 \ln RIR_{t-1} + \varphi_4 \ln TOPEN_{t-1}$$
$$+ \varphi_5 \ln AID_t + \varphi_6 \ln EDS_t + \varphi_7 \ln CBB_t + \ln CGI_t + \alpha_i + \gamma_t$$

(15)

where the variables are explained in Table 1.

All the data were taken from the online edition of the African development index of the World Bank except that of Trade openness. The variable for trade openness was taken from UNCTAD (2012). All the variables are presented in their natural log form in order to control for heteroskedasticity and also help in the determination of their elasticities.

**Country governance indexes (CGI)**

CGI was measured as an index constructed by the researcher (using the Principal Component Analysis - PCA) from the global governance indicators published by the World Bank. The following equation was used for the construction of the governance index.

$$CGI_t = W_1 CCN_t + W_2 GEN_t + W_3 PSN_t + W_4 RQN_t + W_5 RLN_t + W_6 VAN_t$$

(16)

where the components have been explained in Table 1 and the “Ws” are the weights.

The variance proportions of the various countries used in the study (see Appendix 1) showed that in all the countries, the first composition gave the best weights to be used in the calculation of the governance index.

### 3.2. Dynamic panel methodology

The nature of data used for the study allows for panel data methodology. Panel data methodology allows researchers to undertake cross-sectional observations over several time periods and also control for individual heterogeneity due to hidden factors which, if neglected in time-series or cross-section estimations, leads to biased results (Baltagi, 1995). The general form of the panel data model can be specified as:

$$Y_{it} = \alpha + \beta X_{it} + e_{it}$$

(17)

where the subscript $i$ denotes the cross-sectional dimension and $t$ represents the time-series dimension. $Y_{it}$ represents the dependent variable in the model. $\alpha$ is the constant and $\beta$ represents the
coefficients. $X_i t$ contains the set of explanatory variables in the estimation model. $e_{it}$ is the error term. According to Baltagi (2005), most panel data applications have been limited to a single regression with error components disturbances which is explained as:

$$ Y_{it} = \alpha + \beta X_{it} + \mu_i + \lambda_t + \nu_{it} \tag{18} $$
where the $\mu_i$ is an unobserved individual specific effect. $\lambda_t$ is an unobserved time specific effect. $\nu_{it}$ is a zero mean random disturbance with variance $\sigma^2$ and the other variables, are as explained in Equation (17).

The nature of the test to be carried out requires that a dynamic panel methodology is applied. In addition to other benefits associated with panel data methodology, dynamic panel allows for measuring the speed of adjustment (through the lagged dependent variable) using the partial adjustment-based approach. The dynamic panel approach accounts for individual effects, which mostly is the cross-sectional (see Baltagi, 2005) even though the time-specific effects can also be included. The dynamic error components regression is characterized by the presence of a lagged dependent variable among the regressors i.e.

$$Y_{it} = Y_{it-1} + \beta X_{it} + \mu_i + \nu_{it},$$

(19)

where $Y_i$ is the dependent variable in country $i$ for time $t$, $Y_{i, t-1}$ is the dependent variable in the previous period, $\beta X_i$ is a vector of explanatory variables, $i = 1 \ldots 48$, $t = 1 \ldots 20$.

In this particular study, the Arellano Bond General Moments Method (AB-GMM (1991)) approach, first proposed by Holtz-Eakin, Newey, and Rosen (1988), was used because of its popularity in dynamic panel modelling. The Arellano-Bond GMM approach is designed with the ability to handle the econometric problems that may arise in estimating Equation (14). It also uses the differencing (first differencing) GMM approach to wipe out the time invariant country-specific effects (which may be correlated with the explanatory variables) and also caters for the problem of autocorrelation which may be caused by the inclusion of the lagged dependent variable. Lastly, the AB approach has been designed for small-T (20 years) and large-N (48 countries) panels (Mileva, 2007).

3.2.1. Diagnostic tests

The Sargan test and autocorrelation test are the two main diagnostic tests relevant to this study. The Sargan test for over-identifying restrictions is used to determine if the instruments are suitable. The null hypothesis states that “the instruments as a group are exogenous”. Consequently, a higher $p$-value is preferred. Thus, if the $p$-value is less than 0.05, we reject the null hypothesis in favour of the alternate. The null hypothesis of no autocorrelation is applied to the differenced residuals (Mileva, 2007).

4. Analysis and discussion

4.1. Descriptive statistics

Table 2 presents the descriptive statistics for the study. On an average private investment to gross domestic product (in percentage) was as low as about 12.75% with a variation of 9.54. Some economies recorded as low as −2.64% with others as high as 112.35% in some years. The wide difference between the minimum and maximum ratios also attests to the fact that private investment activities on the continent are not evenly distributed. While others were able to attract even more than their national output in certain years, others experienced a reduction in private investment in certain years over the study period. Again, private investment as a percentage of GDP was almost double that of public investment (7.41%).

Meanwhile, real interest rate on the continent averaged at 10.8% but with huge disparities. The minimum and maximum rates were −96.87 and 508.74%, respectively, meaning that real interest rates on the continent are far from being homogenous. Impliedly, the result does not truly reflect the position of the entire continent. Consequently, a lot of work needs to be done in the area of monetary policy harmonization if the continent is really committed towards economic integration. The average Country Governance Index was 0.47099. Again, the wide difference between the minimum and maximum (−33.7 and 31.6) only goes to confirm the disparities in governance structures of African economies. Whilst some economies have good structures to facilitate control of
corruption, government effectiveness, political stability, regulatory quality, rule of law and voice and accountability are destroying the few structures they put up, through post-election conflict.

The average growth rate of GDP was about 4%. The volume of trade in SSA was about 31 times the size of aid the sub-region gets for economic infrastructure. If SSA was making more exports from this volume or importing more capital items for manufacturing, then a lot may be achieved through trade than aid.

4.2. Multicollinearity
The correlation matrix shown in Table 3 indicates that the country governance indicators are highly correlated among themselves with the country governance index calculated. In view of this, the stepwise regression approach was used. The individual country governance variables and the combined governance index were introduced into the model one at a time, resulting in eight estimated models. Also, variance inflation factors (VIF) analysis was conducted. The results (available on demand) show that the presence of multicollinearity is minimal in each of the models estimated. Multicollinearity is deemed to be high if VIF is greater than five (as a common rule of thumb) and according to Kutner, Nachtsheim, and Neter (2004), VIF of 10 should be the cut off.

4.3. Discussion of regression results
From Table 4, the results suggest that key country governance structures that influence public investment, in addition to private investment, trade openness, aid and external debt are control of corruption, political stability, regulatory quality and rule of law. These findings, based on the Sargan test and AR (1) and AR (2) test results reported in Table 4 emanate from models that are generally well specified. Table 4 gives the main results of our multivariate analysis. Model 1 is the base model mentioned in Equation (15) without any country governance indicator as a control variable. This model shows the impact of private investment on public investment, with economic growth, real interest rate, trade openness, aid, current budget balance, and external debt as conditioning factors but without the governance factors as controls. Model 2, through model 7, includes the governance factors (control of corruption, government effectiveness, political stability, and regulatory quality, rule of law and voice and accountability, in that order) singly as a control. Model 8 includes an index of all governance factors as the governance measure.

The coefficient of the lagged dependent (lnGPINV) variable is positive and is at least 5% significant in model 1 through to 8. This indicates that past levels of public investment in SSA inform current levels, implying that public investment follows a partial adjustment process. Given the degree of persistence of 0.4181 (using the base model), the speed of adjustment is estimated to be about 7 months (1/(1−0.4181) × 12). The results generally confirm the view that investment process take time, and this time lag is lengthened by the bureaucratic processes prevalent among most SSA countries.

| Variable | Obs | Mean   | SD    | Min   | Max   |
|----------|-----|--------|-------|-------|-------|
| GDP      | 916 | 3.92338| 8.29937| −51.031| 106.28|
| GPINV    | 841 | 7.407808| 4.82583| 0.1001| 42.9755|
| PRINV    | 840 | 12.75484| 9.77695| −2.6404| 112.352|
| RIR      | 641 | 10.84186| 27.7605| −96.87| 508.741|
| CGI      | 532 | 0.470989| 18.1122| −33.695| 31.6019|
| TOPEN    | 838 | 31.4506| 21.2424| 2.68738| 140.576|
| AID      | 374 | 1.116619| 1.24082| −0.2216| 10.7369|
| EDS      | 882 | 81.32798| 79.4891| 1.8722| 862.108|
| CBB      | 850 | 4,516.69| 128,957| −50.95| 3,759,757|
### Table 3. Correlation matrix

|       | lnGPINV | lnPRINV | lnTOPEN | lnRIR | lnGDP\(_{t-1}\) | lnCBB | lnEDS | lnAID | lnVAN | lnCCN | lnGE | lnPSN | lnREN | lnRLN | lnCGI |
|-------|---------|---------|---------|-------|----------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|
| lnGPINV | 1.0000  |         |         |       |                |       |       |       |       |       |      |       |       |       |       |
| lnPRINV | 0.0939*** | 1.0000 |         |       |                |       |       |       |       |       |      |       |       |       |       |
| lnTOPEN | -0.0671*  | 0.3617*** | 1.0000 |       |                |       |       |       |       |       |      |       |       |       |       |
| lnRIR   | -0.1173*** | -0.1620 | 0.0852* | 1.0000 |                |       |       |       |       |       |      |       |       |       |       |
| lnGDP\(_{t-1}\) | -0.1739*** | -0.0801**  | 0.1009*** | 0.0022 | 1.0000 |            |       |       |       |       |      |       |       |       |       |
| lnCBB   | 0.1740*** | -0.1015**  | 0.0086 | 0.0090 | 0.0998*** | 1.0000 |       |       |       |       |      |       |       |       |       |
| lnEDS   | -0.1027*** | -0.2575*** | -0.2573*** | 0.0509 | -0.1063*** | -0.0309 | 1.0000 |       |       |       |      |       |       |       |       |
| lnAID   | 0.1955*** | 0.0342 | -0.4127*** | 0.0710 | -0.2282*** | -0.1227* | 0.2909*** | 1.0000 |       |       |      |       |       |       |       |
| lnVAN   | 0.0239 | 0.1153**  | 0.0852* | -0.0099 | 0.2615*** | 0.1284** | -0.4870*** | 0.0555 | 1.0000 |       |      |       |       |       |       |
| lnCCN   | 0.0173 | 0.1094**  | 0.0876* | 0.0296 | 0.3140*** | 0.1340* | -0.4911*** | 0.0580 | 0.9169*** | 1.0000 |      |       |       |       |       |
| lnGE    | 0.0098 | 0.1226*** | 0.0854* | 0.0467 | 0.3082*** | 0.1258* | -0.4660*** | 0.0596 | 0.9104*** | 0.9844*** | 1.0000 |       |       |       |       |
| lnPSN   | -0.0645 | 0.1451*** | 0.1197*** | 0.0742 | 0.4230*** | 0.2151*** | -0.4600*** | -0.0810 | 0.8420*** | 0.8393*** | 0.8314*** | 1.0000 |       |       |       |
| lnREN   | -0.0018 | 0.1493*** | 0.0915**  | 0.0758 | 0.3525*** | 0.1698*** | -0.4461*** | 0.0485 | 0.8772*** | 0.9488*** | 0.9696*** | 0.8196*** | 1.0000 |       |       |
| lnRLN   | -0.0021 | 0.1072**  | 0.0582 | 0.0369 | 0.3436*** | 0.1884*** | -0.4672*** | 0.0737 | 0.9259*** | 0.9532*** | 0.8319*** | 0.9630*** | 1.0000 |       |       |
| lnCGI   | -0.1821*** | 0.0805 | 0.1573** | -0.0398 | 0.2012** | 0.1881*** | -0.5215*** | -0.0193 | 0.9683*** | 0.9836*** | 0.9807*** | 0.8919*** | 0.9633*** | 0.9894*** | 1.0000 |

*\(p < 0.1\).*

**\(p < 0.05\).*

***\(p < 0.01\).*
Table 4. Regression results (dependent variable—GPINV)

| Variable  | 1          | 2          | 3          | 4          | 5          | 6          | 7          | 8          |
|-----------|------------|------------|------------|------------|------------|------------|------------|------------|
| LnGPINV_{t-1} | 0.4181**   | 0.4116***  | 0.4187***  | 0.4291***  | 0.4228***  | 0.4011***  | 0.4036***  | 0.3932***  |
|           | [0.1646]   | [0.1401]   | [0.1378]   | [0.1368]   | [0.1293]   | [0.1321]   | [0.1453]   | [0.1015]   |
| lnPRINV   | -0.1686**  | -0.1718**  | -0.1822**  | -0.175**   | -0.1711**  | -0.1957**  | -0.1817**  | -0.2472*** |
|           | [0.0798]   | [0.0838]   | [0.0768]   | [0.0743]   | [0.0717]   | [0.0842]   | [0.0797]   | [0.0622]   |
| lnGDPr_{t-1} | 0.2367     | 0.0189     | 0.0665     | 0.1185     | -0.0445    | 0.0575     | -0.0917    | -0.1965    |
|           | [0.1722]   | [0.2169]   | [0.1981]   | [0.1954]   | [0.1711]   | [0.2176]   | [0.2034]   | [0.1965]   |
| lnTOPEN   | 0.3593**   | 0.3162     | 0.3176     | 0.3348*    | 0.3338*    | 0.3297     | 0.2834     | 0.1716     |
|           | [0.154]    | [0.1956]   | [0.2036]   | [0.1858]   | [0.1949]   | [0.2044]   | [0.1848]   | [0.2362]   |
| lnRIR     | -3.50E-04  | 0.0115     | 0.0221     | 0.0202     | 0.024      | 0.0181     | 0.0065     | 0.067*     |
|           | [0.0312]   | [0.0322]   | [0.0313]   | [0.0305]   | [0.032]    | [0.0348]   | [0.0302]   | [0.0395]   |
| lnCBB     | -0.0343    | -0.0393    | -0.0377    | -0.0328    | -0.0344    | -0.0395    | -0.046     | 0.0054     |
|           | [0.0263]   | [0.0322]   | [0.0313]   | [0.0305]   | [0.032]    | [0.0348]   | [0.0302]   | [0.0395]   |
| lnEDS     | 0.1623***  | 0.2457***  | 0.2465***  | 0.241***   | 0.2245***  | 0.2342***  | 0.2515***  | 0.2208     |
|           | [0.0416]   | [0.0525]   | [0.0516]   | [0.0464]   | [0.047]    | [0.0474]   | [0.0589]   | [0.1474]   |
| lnAID     | 0.0515     | 0.0668*    | 0.0646*    | 0.0614*    | 0.0582     | 0.0696**   | 0.0639*    | 0.1274*    |
|           | [0.0354]   | [0.0397]   | [0.0385]   | [0.0356]   | [0.0355]   | [0.0353]   | [0.0383]   | [0.0769]   |
| lnCCN     | 0.4071*    |            |            |            |            |            |            |            |
|           | [0.236]    |            |            |            |            |            |            |            |
| lnGEN     | 0.44       |            |            |            |            |            |            |            |
|           | [0.2711]   |            |            |            |            |            |            |            |
| lnPSN     | 0.3776**   |            |            |            |            |            |            |            |
|           | [0.1869]   |            |            |            |            |            |            |            |
| lnRQN     | 0.503*     |            |            |            |            |            |            |            |
|           | [0.2921]   |            |            |            |            |            |            |            |
| lnRLN     | 0.5387**   |            |            |            |            |            |            |            |
|           | [0.2347]   |            |            |            |            |            |            |            |
| lnVAN     | 0.4386     |            |            |            |            |            |            |            |
|           | [0.2794]   |            |            |            |            |            |            |            |
| lnCGI     | 0.39497    |            |            |            |            |            |            |            |
|           | [0.39918]  |            |            |            |            |            |            |            |
| χ²        | 98.95      | 141.10     | 117.10     | 110.80     | 132.30     | 84.19      | 120.60     | 382.90     |
| N         | 86         | 86         | 86         | 86         | 86         | 86         | 86         | 48         |
| AR(1)     | 0.0910     | 0.0758     | 0.0887     | 0.0710     | 0.0794     | 0.0885     | 0.0793     | 0.0942     |
|           | (p-value)  |            |            |            |            |            |            |            |
| AR(2)     | 0.5045     | 0.5819     | 0.6911     | 0.8104     | 0.5867     | 0.7479     | 0.5021     | 0.1651     |
|           | (p-value)  |            |            |            |            |            |            |            |
| Sargan test | 0.0983     | 0.0838     | 0.0833     | 0.1228     | 0.0991     | 0.0934     | 0.0957     | 0.1728     |
|           | (p-value)  |            |            |            |            |            |            |            |

Notes: GDPr is real GDP; CBB is current budget balance; EDS is external debt stock; AID is aid for economic infrastructure; CCN is control of corruption; GEN is government effectiveness; PSN is political stability; RQN is regulatory quality; RLN is rule of law; VAN is voice and accountability; CGI is the country governance index constructed by the author using the six main country governance variables reported by the World Bank. Also note that model 1 presents results for the baseline model while models 2–7 present results on the effect of each of the country governance indicators on the base line model. Model 8 presents results for the effect of country governance index.
From Table 4, the coefficient of lnPRINV is negative and is at least significant at 5% in all models (model 1 through model 8), suggesting that private investment reduces public investment irrespective of whether or not there is country governance structures in place and the type of governance structures in place. This may probably be as a result of privatization of state-owned enterprises and private sector engagement in social activities that lead to the provision of social goods. It therefore suggests that more private investment may be an alternative means of reducing the burden on the public sector for the provision of economic and social infrastructure. In effect, this result in a way completes the crowding-in-crowding-out story in SSA. In SSA, private investment and public investments are substitutes. In other words, private investors are partners in the development of SSA. The result supports Sturm's (2001) assertion that private investment is key to public investment decisions. A thorough assessment of the relative strengths and weaknesses of each of these major forms of investment would enable a more formidable formulation of public private partnerships that would speed up the development of the sub-region. Thus, there is the need for private sector protection such as building strong institutions and encouraging less government competition with the private sector.

Meanwhile, the study does not offer support for the accelerator model. All throughout models 1–8, economic growth in SSA exerts positive but insignificant influence on public capital formation. Expectations of future economic growth are probably met with increases in public capital. Thus, government public investment may signal economic growth expectations. The coefficient of lnTO-PEN is positive and significant at 5% for the base model but only retains its significance (but at 10%) in a governance environment that ensures political stability and regulatory quality. The results imply that the absence of violence or unconstitutional government overthrows as well as the presence of policies that facilitate private sector development ensures that government revenue from taxation of imports and exports for public investment is guaranteed. Governments benefit from trade, through taxes on imports and exports and accessibility of capital goods, facilitates public capital formation. These results are in line with previous studies by Mehrotra and Välilä (2006), Turrini (2004).

The coefficient of lnEDS is positive and significant at 1% for all models (except model 8) implying that external debt financing increases public investment in SSA. This relationship could emanate from the discipline that international financial institutions (IFIs) instill in countries when they borrow from them. Also, these debts go with restrictive covenants and strict supervision from the IFIs. Governments, therefore, find it difficult to use their discretion to divert these borrowed funds, as is common with IGF budgetary allocations. It is observed that the presence of good country governance structures amplifies this relationship as the coefficient of lnEDS increases for models 2–8 when the governance variables are introduced. The coefficient of lnAID of the base model is positive but insignificant. But it becomes at least significant at 10% for virtually the rest of the models (2–8) implying that as country governance structures improve benefits from aid for economic and infrastructural development also improves in SSA. In other words, countries that are governed well stand the chance of getting the best out of aid for economic and infrastructural development. In effect, the results on aid and external debt effects on public investment in SSA, confirm the special role played by good country governance in realizing the gains from aid and external debt.

Comparatively, trade (with coefficient of 0.3593 and significant at 5%) has the biggest impact on public investment, followed by debt (with a coefficient of 0.1623 and significant at 1%) and Aid (with coefficient of 0.0515 and generally significant at 10%). This puts in perspective recent agitation of the African continent for trade instead of aid, as the results point to the fact that public investment benefits more from trade than aid. Apparently, the continent needs to strategize to take advantage of the benefits from trade. Also, the sub-region needs to build the needed capacity to attract external loans to fund public investment, if IGF proves futile. This would not only enhance public investment but would reduce governments’ activity in the domestic credit market, thereby reducing its crowding-out effect on private investment.
Fiscal indiscipline harms public investment but this result is not significant. When governments are not able to maintain current budget balance, it reduces public investment. Current budget deficit increases governments’ activities in the domestic financial market reducing credit to the private sector. When governments find it difficult to even meet their current budget requirements, nothing or little is left for infrastructural development. Thus, fiscal discipline enhances the IGF of governments in order to generate funds for investment.

From model 2 in Table 4, control of corruption has positive and significant relationship with public investment. This indicates that as corruption is controlled public investment increases. The public investment gains from control of corruption are not only evidence of benefits from controls that ensure that public power is exercised for the benefit of the public and not private individuals, but also evidence of gains that accrue to the public sector when private individuals are prevented from siphoning state funds. Thus, control of corruption prevents the misuse or misappropriation of funds for public investments and this is in tandem with similar results by Alesina and Angeletos (2005), Gyimah-Brempong (2002), Jain (2011). In Africa, a stable political economy facilitates public investment. The results show a significantly positive relationship political stability and public investment. This could be as a result of the continuity of government projects guaranteed by a peaceful political environment. This benefit is not restricted to only national political stability since local government instability may distort sustainability of public investment projects. Similar results were reported by Braga Tadeu and Moreira Silva (2013). Model 5 shows the relationship between regulatory quality and public investment. The results show a significantly positive relationship between regulatory quality and public investment depicting that improvement in the quality of regulations augments public investment in SSA. Basically, policies geared towards promoting private sector development eventually benefit public investment probably through taxation benefits of the private sector. The sizes of the coefficient of the governance variables stress the importance of country governance structures in explaining public investment.

Thus, governments in SSA should pay particular attention to the way in which their countries are governed through country governance structures like control of corruption, political stability, rule of law and the quality of regulation. In fact, good country governance structures amplify the positive effect of aid and external debt on public investment by enhancing their coefficient and/or significance level. But existing governance structures appear not to enable governments in SSA to take advantage of trade for public investment and also worsen the crowding out effect of private investment on public investment. Probably, this could be as a result of the fact that existing government structures have been designed factoring in privatization and attraction of foreign direct investment.

5. Conclusion

This study examined how country governance structures like control of corruption, political stability, rule of law, governance effectiveness, voice and accountability and regulatory quality influence the crowding-in–crowding-out hypothesis and assist in explaining public investment dynamics in SSA. The findings depict that in SSA, private investment crowds out public investment when they compete with public investment for resources and markets, irrespective of whether or not there exist sound country governance structures. The results suggest that key country governance structures that influence public investment, in addition to private investment, trade openness, aid and external debt are control of corruption, political stability, regulatory quality and rule of law. Also, the adjustment process of public investment in SSA takes less than a year. Thus, policies directed at improving public investment in SSA should go beyond conventional factors to include governance structures. The study augments existing literature on the unsettled crowding-in–crowding-out hypothesis by controlling country governance structures in explaining public investment in SSA. Future studies could consider whether the findings of this study are homogenous across SSA countries.
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Author details
Samuel Kwaku Agyei
E-mail: sayeji@ucc.edu.gh
School of Business, Department of Finance, University of Cape Coast, Cape Coast, Ghana.

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## Appendix 1

### Eigenvalues and Eigenvectors for the construction of the CGI variable

#### Angola

|     | Comp 1       | Comp 2       | Comp 3       | Comp 4       | Comp 5       | Comp 6       |
|-----|--------------|--------------|--------------|--------------|--------------|--------------|
| Eigenvalue | 34.6254      | 0.38011      | 0.16671      | 0.14176      | 0.06812      | 0.01371      |
| Variance Prop. | 0.97824      | 0.01074      | 0.00471      | 0.00401      | 0.00192      | 0.00039      |
| Cumulative Prop. | 0.97824      | 0.98897      | 0.99368      | 0.99769      | 0.99961      | 1            |

**Eigenvectors**

| Variable                              | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption                 | 0.45649      | 0.25615      | −0.1548      | −0.6062      | 0.29279      | 0.49888      |
| Govt effectiveness                    | 0.32244      | 0.22121      | −0.0465      | 0.60738      | 0.57527      | −0.1258      |
| Political stability                   | 0.14631      | 0.3636       | 0.79465      | −0.2755      | −0.0737      | −0.3655      |
| Regulatory quality                    | 0.28265      | 0.42931      | −0.0697      | 0.30752      | −0.7369      | 0.30546      |
| Rule of law                           | 0.51525      | −0.1112      | −0.4392      | −0.1933      | −0.1865      | −0.6761      |
| Voice and accountability              | 0.56646      | −0.6537      | 0.38027      | 0.23628      | −0.007       | 0.22654      |

#### Benin

|     | Comp 1       | Comp 2       | Comp 3       | Comp 4       | Comp 5       | Comp 6       |
|-----|--------------|--------------|--------------|--------------|--------------|--------------|
| Eigenvalue | 65.7119      | 0.33381      | 0.29024      | 0.18295      | 0.07455      | 0.02462      |
| Variance Prop. | 0.9864       | 0.00501      | 0.00436      | 0.00275      | 0.00112      | 0.00017      |
| Cumulative Prop. | 0.9864      | 0.99141      | 0.99577      | 0.99851      | 0.99963      | 1            |

**Eigenvectors**

| Variable                              | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption                 | 0.43798      | −0.0182      | −0.5871      | −0.3025      | −0.6096      | −0.0087      |
| Govt effectiveness                    | 0.40639      | −0.2173      | −0.1555      | −0.1378      | 0.50668      | 0.69838      |
| Political stability                   | 0.22282      | 0.42709      | −0.4395      | 0.0205       | 0.56752      | −0.5023      |
| Regulatory quality                    | 0.31768      | −0.7212      | −0.0435      | 0.497        | 0.05017      | −0.3572      |
| Rule of law                           | 0.457        | −0.0727      | 0.58226      | −0.5833      | 0.06374      | −0.3203      |
| Voice and accountability              | 0.53255      | 0.49467      | 0.31164      | 0.54943      | −0.2074      | 0.1723       |

#### Botswana

|     | Comp 1       | Comp 2       | Comp 3       | Comp 4       | Comp 5       | Comp 6       |
|-----|--------------|--------------|--------------|--------------|--------------|--------------|
| Eigenvalue | 43.0145      | 0.84382      | 0.41072      | 0.14623      | 0.03091      | 0.00519      |
| Variance Prop. | 0.96768      | 0.01898      | 0.00924      | 0.00329      | 0.0007       | 0.00012      |
| Cumulative Prop. | 0.96768      | 0.98666      | 0.9959       | 0.99919      | 0.99988      | 1            |

**Eigenvectors**

| Variable                              | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption                 | 0.40066      | −0.0201      | 4.53E-05     | 0.88321      | 0.20036      | −0.1373      |
| Govt effectiveness                    | 0.40842      | −0.2476      | −0.1976      | 0.01085      | −0.3557      | 0.77859      |
| Political stability                   | 0.18379      | 0.21102      | 0.32037      | 0.06021      | −0.8396      | −0.3324      |
| Regulatory quality                    | 0.30792      | −0.8065      | −0.0907      | −0.2245      | −0.0107      | −0.4428      |
| Rule of law                           | 0.44099      | 0.4491       | −0.6968      | −0.2345      | 0.02579      | −0.2503      |
| Voice and accountability              | 0.59127      | 0.20414      | 0.6038       | −0.3328      | 0.35723      | 0.07584      |

#### Burkina Faso

|     | Comp 1       | Comp 2       | Comp 3       | Comp 4       | Comp 5       | Comp 6       |
|-----|--------------|--------------|--------------|--------------|--------------|--------------|
| Eigenvalue | 68.7594      | 0.3562       | 0.22641      | 0.09212      | 0.05497      | 0.01789      |
| Variance Prop. | 0.98924      | 0.00513      | 0.00326      | 0.00133      | 0.00079      | 0.00026      |
| Cumulative Prop. | 0.98924      | 0.99437      | 0.99763      | 0.99895      | 0.99974      | 1            |
### Burundi

| Variable                        | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption           | 0.43717   | −0.0535   | 0.4903    | 0.69892   | 0.06874   | 0.2691    |
| Govt effectiveness              | 0.37803   | −0.2102   | 0.30661   | −0.4987   | −0.6406   | 0.24444   |
| Political stability             | 0.2186    | 0.54705   | 0.52498   | −0.3213   | 0.28281   | −0.4406   |
| Regulatory quality              | 0.28629   | −0.4277   | −0.0293   | −0.3781   | 0.70591   | 0.30949   |
| Rule of law                     | 0.45646   | −0.4345   | −0.2283   | 0.12866   | −0.0749   | −0.727    |
| Voice and accountability        | 0.5726    | 0.53099   | −0.5805   | 0.0048    | −0.0307   | 0.22846   |

### Cameroon

| Variable                        | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption           | 0.42935   | 0.19421   | 0.39632   | −0.6713   | −0.3716   | 0.17931   |
| Govt effectiveness              | 0.36219   | 0.1874    | −0.4604   | −0.3989   | 0.55887   | −0.3876   |
| Political stability             | 0.20469   | −0.0375   | 0.76831   | 0.22937   | 0.49423   | −0.2633   |
| Regulatory quality              | 0.32678   | 0.53948   | −0.0938   | 0.35437   | 0.22984   | 0.6441    |
| Rule of law                     | 0.50281   | 0.18394   | −0.1099   | 0.45346   | −0.4989   | −0.4967   |
| Voice and accountability        | 0.53196   | −0.7752   | −0.1406   | 0.07859   | 0.05963   | 0.29436   |

### Cape Verde

| Variable                        | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption           | 0.48041   | −0.0326   | 0.71298   | 0.43426   | −0.2295   | 0.13616   |
| Govt effectiveness              | 0.35141   | −0.3742   | −0.014    | −0.3076   | 0.52306   | 0.60672   |
| Political stability             | 0.19279   | 0.21026   | 0.42883   | −0.527    | 0.37495   | −0.5625   |
| Regulatory quality              | 0.28608   | −0.5503   | −0.1141   | −0.4324   | −0.6132   | −0.1983   |
| Rule of law                     | 0.44369   | −0.2651   | −0.4028   | 0.47844   | 0.33695   | −0.4777   |
| Voice and accountability        | 0.57431   | 0.66453   | −0.3638   | −0.1524   | −0.2088   | 0.17152   |

### Eigenvectors

| Comp 1  | Comp 2  | Comp 3  | Comp 4  | Comp 5  | Comp 6  |
|---------|---------|---------|---------|---------|---------|
| Eigenvalue | 43.1958 | 0.3034  | 0.13284 | 0.11543 | 0.05941 | 0.00557 |
| Variance Prop. | 0.98593 | 0.00693 | 0.00303 | 0.00264 | 0.00136 | 0.00013 |
| Cumulative Prop. | 0.98593 | 0.99285 | 0.99588 | 0.99852 | 0.99987 | 1       |
## Central African Republic

|        | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|--------|----------|----------|----------|----------|----------|----------|
| Eigenvalue | 19.1504  | 0.68455  | 0.38878  | 0.0903   | 0.03815  | 0.02283  |
| Variance Prop. | 0.9399   | 0.0336   | 0.01908  | 0.00443  | 0.00187  | 0.00112  |
| Cumulative Prop. | 0.9399   | 0.97349  | 0.99258  | 0.99701  | 0.99888  | 1        |

### Eigenvectors

| Variable                      | Vector 1   | Vector 2   | Vector 3   | Vector 4   | Vector 5   | Vector 6   |
|-------------------------------|------------|------------|------------|------------|------------|------------|
| Control of corruption         | −0.3667    | 0.29887    | 0.35479    | −0.5419    | 0.36539    | 0.47244    |
| Govt effectiveness            | −0.3599    | 0.31998    | 0.12044    | −0.1973    | 0.05789    | −0.8434    |
| Political stability           | −0.2073    | −0.0018    | 0.74878    | 0.62473    | −0.0642    | 0.04412    |
| Regulatory quality            | −0.3629    | 0.47294    | −0.5125    | 0.51482    | 0.30142    | 0.16135    |
| Rule of law                   | −0.5288    | 0.01825    | −0.1363    | −0.1082    | −0.8101    | 0.18283    |
| Voice and accountability      | −0.3307    | −0.7644    | −0.133     | 0.02001    | 0.3344     | −0.0642    |

## Chad

|        | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|--------|----------|----------|----------|----------|----------|----------|
| Eigenvalue | 49.5825  | 0.35495  | 0.16365  | 0.03434  | 0.01455  | 0.00279  |
| Variance Prop. | 0.98863  | 0.00708  | 0.00326  | 0.00069  | 0.00029  | 5.6E-05  |
| Cumulative Prop. | 0.98863  | 0.99571  | 0.99979  | 0.99994  | 1         | 1         |

### Eigenvectors

| Variable                      | Vector 1   | Vector 2   | Vector 3   | Vector 4   | Vector 5   | Vector 6   |
|-------------------------------|------------|------------|------------|------------|------------|------------|
| Control of corruption         | 0.40396    | −0.3146    | 0.4094     | −0.5614    | −0.3697    | −0.344     |
| Govt effectiveness            | 0.39424    | −0.2447    | −0.1285    | −0.315     | 0.79464    | 0.19367    |
| Political stability           | 0.24457    | 0.23251    | 0.73693    | 0.23831    | 0.0315     | 0.5361     |
| Regulatory quality            | 0.3204     | −0.3969    | −0.4198    | 0.10011    | −0.4567    | 0.58085    |
| Rule of law                   | 0.45684    | −0.2524    | 0.03181    | 0.71209    | 0.09488    | −0.4588    |
| Voice and accountability      | 0.55012    | 0.75221    | −0.3092    | −0.1177    | −0.1151    | −0.0941    |

## Comoros

|        | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|--------|----------|----------|----------|----------|----------|----------|
| Eigenvalue | 10.631   | 0.45848  | 0.16427  | 0.06238  | 0.01722  | 9.86E-17  |
| Variance Prop. | 0.93803  | 0.04045  | 0.0145   | 0.0055   | 0.00152  | 0        |
| Cumulative Prop. | 0.93803  | 0.97848  | 0.99298  | 0.99848  | 1         | 1         |

### Eigenvectors

| Variable                      | Vector 1   | Vector 2   | Vector 3   | Vector 4   | Vector 5   | Vector 6   |
|-------------------------------|------------|------------|------------|------------|------------|------------|
| Control of corruption         | −0.3065    | 0.33637    | 0.28347    | −0.4462    | 0.11615    | 0.70711    |
| Govt effectiveness            | −0.3065    | 0.33637    | 0.28347    | −0.4462    | 0.11615    | 0.70711    |
| Political stability           | −0.0722    | 0.12064    | −0.5962    | −0.4136    | −0.6736    | 2.48E-14   |
| Regulatory quality            | −0.3257    | 0.31354    | 0.38375    | 0.55115    | −0.587    | 3.28E-14   |
| Rule of law                   | −0.5579    | 0.2839     | −0.5713    | 0.34033    | 0.40729    | #######    |
| Voice and accountability      | −0.6241    | −0.7617    | 0.10095    | −0.1059    | −0.0939    | 4.54E-15   |

## Congo Dr

|        | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|--------|----------|----------|----------|----------|----------|----------|
| Eigenvalue | 35.5949  | 1.14045  | 0.17861  | 0.09484  | 0.07819  | 0.03111  |
| Variance Prop. | 0.95896  | 0.03073  | 0.00481  | 0.00256  | 0.00211  | 0.00084  |
| Cumulative Prop. | 0.95896  | 0.98969  | 0.9945   | 0.99706  | 0.99916  | 1        |
### Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | −0.4037      | 0.14251      | 0.10624      | −0.5591      | −0.6275      | 0.3148       |
| Govt effectiveness        | −0.3269      | 0.33445      | 0.27221      | −0.4874      | 0.69013      | −0.314       |
| Political stability       | −0.1628      | 0.38626      | −0.8363      | −0.0111      | −0.108       | −0.3363      |
| Regulatory quality        | −0.2786      | 0.49379      | −0.025       | 0.40652      | 0.2597       | 0.66725      |
| Rule of law               | −0.4474      | 0.15744      | 0.38993      | 0.53045      | −0.3264      | −0.4849      |
| Voice and accountability  | −0.6526      | −0.6708      | −0.2501      | 0.05557      | 0.22777      | 0.09403      |

### Congo Rep

| Comp 1 | Comp 2 | Comp 3 | Comp 4 | Comp 5 | Comp 6 |
|--------|--------|--------|--------|--------|--------|
| Eigenvalue       | 27.3683 | 0.34901 | 0.24516 | 0.06122 | 0.04899 | 0.00375 |
| Variance Prop.   | 0.97478 | 0.01243 | 0.00873 | 0.00218 | 0.00175 | 0.00013 |
| Cumulative Prop. | 0.97478 | 0.98721 | 0.99594 | 0.99812 | 0.99987 | 1        |

### Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | 0.39377      | −0.7641      | 0.2789       | 0.21775      | −0.2345      | −0.2845      |
| Govt effectiveness        | 0.40356      | 0.07289      | −0.4354      | −0.3641      | 0.34363      | −0.6258      |
| Political stability       | 0.21714      | 0.20327      | 0.06643      | −0.5623      | −0.7684      | 0.02265      |
| Regulatory quality        | 0.35828      | −0.3406      | −0.1769      | −0.3827      | 0.29653      | 0.69992      |
| Rule of law               | 0.47345      | 0.24276      | −0.5043      | 0.59318      | −0.2741      | 0.18883      |
| Voice and accountability  | 0.53143      | 0.44112      | 0.66534      | 0.07444      | 0.27099      | 0.0367       |

### Cote D’ Voire

| Comp 1 | Comp 2 | Comp 3 | Comp 4 | Comp 5 | Comp 6 |
|--------|--------|--------|--------|--------|--------|
| Eigenvalue       | 28.4058 | 0.38417 | 0.20081 | 0.17043 | 0.0215 | 0.00476 |
| Variance Prop.   | 0.97322 | 0.01316 | 0.00688 | 0.00584 | 0.00074 | 0.00016 |
| Cumulative Prop. | 0.97322 | 0.98638 | 0.99326 | 0.9991   | 0.99984 | 1        |

### Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | 0.43377      | −0.1776      | 0.4702       | 0.63477      | 0.29889      | −0.2588      |
| Govt effectiveness        | 0.37444      | −0.2572      | 0.12997      | −0.1737      | 0.19665      | 0.84126      |
| Political stability       | 0.21366      | 0.62199      | 0.57745      | −0.1548      | −0.4514      | 0.0794       |
| Regulatory quality        | 0.32238      | −0.2456      | 0.19632      | −0.7311      | 0.23603      | −0.455       |
| Rule of law               | 0.4697       | −0.3893      | −0.2868      | 0.08587      | −0.7273      | −0.096       |
| Voice and accountability  | 0.54904      | 0.55095      | −0.5548      | 0.03304      | 0.28903      | −0.0509      |

### Djibouti

| Comp 1 | Comp 2 | Comp 3 | Comp 4 | Comp 5 | Comp 6 |
|--------|--------|--------|--------|--------|--------|
| Eigenvalue       | 15.5476 | 0.68434 | 0.18742 | 0.0533 | 0.03226 | #       |
| Variance Prop.   | 0.94188 | 0.04146 | 0.01135 | 0.00335 | 0.00196 | 0       |
| Cumulative Prop. | 0.94188 | 0.98334 | 0.9947 | 0.99805 | 1       | 1       |

### Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | −0.3276      | 0.42789      | 0.13383      | 0.26724      | 0.34674      | −0.7071      |
| Govt effectiveness        | −0.3276      | 0.42789      | 0.13383      | 0.26724      | 0.34674      | 0.70711      |
| Political stability       | −0.1641      | −0.0182      | 0.89963      | −0.1229      | −0.3851      | 1.69E-14     |
| Regulatory quality        | −0.2464      | 0.35631      | −0.3302      | 0.30585      | −0.7809      | 2.43E-14     |
| Rule of law               | −0.3344      | 0.15178      | −0.2016      | −0.8066      | 0.0072       | 3.06E-14     |
| Voice and accountability  | −0.6419      | −0.6953      | −0.0721      | 0.31279      | 0.03829      | #           |
Equitoria Guinea

|         | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|---------|------------|------------|------------|------------|------------|------------|
| Eigenvalue | 6.86464    | 1.02626    | 0.16442    | 0.04073    | 0.00812    | #          |
| Variance Prop. | 0.84705    | 0.12663    | 0.02029    | 0.00503    | 0.001      | 0          |
| Cumulative Prop. | 0.84705    | 0.97368    | 0.99397    | 0.999      | 1          | 1          |

Eigenvectors

| Variable   | Vector 1       | Vector 2       | Vector 3       | Vector 4       | Vector 5       | Vector 6       |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Control of corruption | −0.2316        | 0.33148        | 0.30725        | −0.2189        | −0.4406        | 0.70711        |
| Govt effectiveness | −0.2316        | 0.33148        | 0.30725        | −0.2189        | −0.4406        | −0.7071        |
| Political stability | −0.0685        | −0.1451        | 0.60631        | 0.77801        | −0.0369        | 3.26E-15       |
| Regulatory quality | −0.3093        | 0.4792         | 0.27047        | −0.1122        | 0.76743        | #              |
| Rule of law      | −0.5933        | 0.26584        | −0.5949        | 0.45482        | −0.1289        | 9.96E-15       |
| Voice and accountability | −0.6636        | −0.6774        | 0.12874        | −0.2818        | 0.06894        | #              |

Eritrea

|         | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|---------|------------|------------|------------|------------|------------|------------|
| Eigenvalue | 22.4894    | 0.37075    | 0.24921    | 0.17006    | 0.03846    | 0.00153    |
| Variance Prop. | 0.96441    | 0.0159     | 0.01069    | 0.00729    | 0.00165    | 6.6E-05    |
| Cumulative Prop. | 0.96441    | 0.98031    | 0.99099    | 0.99829    | 0.99993    | 1          |

Eigenvectors

| Variable   | Vector 1       | Vector 2       | Vector 3       | Vector 4       | Vector 5       | Vector 6       |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Control of corruption | 0.41345        | −0.0705        | 0.70721        | 0.36579        | −0.4072        | 0.15589        |
| Govt effectiveness | 0.3093         | 0.17182        | 0.44546        | −0.4086        | 0.49344        | −0.5157        |
| Political stability | 0.17701        | −0.3099        | −0.103         | 0.65963        | 0.65319        | 0.0163         |
| Regulatory quality | 0.37178        | 0.4232         | −0.0671        | −0.2105        | 0.28344        | 0.744          |
| Rule of law      | 0.52769        | 0.46047        | −0.4645        | 0.26882        | −0.2595        | −0.3926        |
| Voice and accountability | 0.53422        | −0.6916        | −0.2656        | −0.3841        | −0.1279        | 0.04256        |

Ethiopia

|         | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|---------|------------|------------|------------|------------|------------|------------|
| Eigenvalue | 48.7752    | 0.57234    | 0.35292    | 0.05198    | 0.02663    | 0.01257    |
| Variance Prop. | 0.97959    | 0.0115     | 0.00709    | 0.00104    | 0.00054    | 0.00025    |
| Cumulative Prop. | 0.97959    | 0.99108    | 0.99817    | 0.99921    | 0.99975    | 1          |

Eigenvectors

| Variable   | Vector 1       | Vector 2       | Vector 3       | Vector 4       | Vector 5       | Vector 6       |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Control of corruption | −0.4749        | −0.7855        | −0.3174        | 0.08518        | 0.22193        | 0.01493        |
| Govt effectiveness | −0.3356        | 0.01966        | 0.38024        | 0.03291        | −0.0596        | −0.8589        |
| Political stability | −0.3841        | −0.026         | −0.3183        | −0.6014        | −0.7075        | −0.0435        |
| Regulatory quality | −0.2752        | −0.0632        | 0.61875        | −0.5891        | 0.27555        | 0.33834        |
| Rule of law      | −0.4965        | 0.10895        | 0.29702        | 0.52697        | −0.4798        | 0.38147        |
| Voice and accountability | −0.5529        | 0.60503        | −0.427         | −0.0728        | 0.37487        | 0.01209        |
| Gabon          | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6  |
|---------------|----------|----------|----------|----------|----------|--------|
| Eigenvalue    | 10.765   | 0.3765   | 0.18377  | 0.04436  | 0.01233  | #######|
| Variance Prop.| 0.9458   | 0.03308  | 0.01615  | 0.0039   | 0.00108  | 0      |
| Cumulative Prop.| 0.9458  | 0.97887  | 0.99502  | 0.99892  | 1        | 1      |

| Eigenvectors  | Variable                        | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|---------------|---------------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption  | −0.4431  | −0.4316  | 0.48622  | −0.6035  | 0.12934  | 8.28E-15 |
| Govt effectiveness     | −0.3656  | −0.2429  | −0.0882  | 0.44061  | 0.32476  | −0.7071 |
| Political stability    | −0.2602  | 0.21895  | 0.63658  | 0.43124  | −0.5414  | ####### |
| Regulatory quality     | −0.3656  | −0.2429  | −0.0882  | 0.44061  | 0.32476  | 0.70711 |
| Rule of law            | −0.4458  | −0.207   | −0.5737  | −0.1247  | −0.6432  | ####### |
| Voice and accountability| −0.5195 | 0.7778   | −0.1171  | −0.2143  | 0.25584  | 3.98E-15 |

| Gambia, The    | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6  |
|---------------|----------|----------|----------|----------|----------|--------|
| Eigenvalue    | 17.6606  | 0.35169  | 0.13878  | 0.02946  | 3.61E-16 | #######|
| Variance Prop.| 0.9714   | 0.01934  | 0.00763  | 0.00162  | 0        | 0      |
| Cumulative Prop.| 0.9714  | 0.99075  | 0.99838  | 1        | 1        | 1      |

| Eigenvectors  | Variable                        | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|---------------|---------------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption  | −0.3798  | 0.27614  | 0.2253   | −0.2491  | −0.0216  | −0.8162 |
| Govt effectiveness     | −0.3798  | 0.27614  | 0.2253   | −0.2491  | 0.71765  | 0.38943 |
| Political stability    | −0.236   | −0.6223  | 0.68715  | 0.29146  | 5.25E-15 | 1.49E-14|
| Regulatory quality     | −0.3798  | 0.27614  | 0.2253   | −0.2491  | −0.6961  | 0.42679 |
| Rule of law            | −0.4638  | 0.28452  | −0.2423  | 0.80327  | 1.69E-14 | 5.17E-14|
| Voice and accountability| −0.5445 | −0.5505  | −0.5629  | −0.2892  | #######  | ####### |

| Ghana           | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6  |
|-----------------|----------|----------|----------|----------|----------|--------|
| Eigenvalue      | 54.8415  | 0.95493  | 0.33409  | 0.23382  | 0.07973  | 0.0143 |
| Variance Prop.  | 0.97136  | 0.01691  | 0.00592  | 0.00414  | 0.00141  | 0.00025|
| Cumulative Prop.| 0.97136  | 0.98828  | 0.99419  | 0.99834  | 0.99975  | 1      |

| Eigenvectors    | Variable                        | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|-----------------|---------------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption  | −0.4862  | −0.1978  | 0.2297   | −0.6698  | 0.44693  | 0.153   |
| Govt effectiveness     | −0.345   | 0.39424  | 0.03958  | 0.02554  | 0.10598  | −0.8439 |
| Political stability    | −0.154   | −0.0837  | 0.17221  | −0.4086  | −0.8744  | −0.0903 |
| Regulatory quality     | −0.2493  | 0.83169  | −0.1131  | −0.0508  | −0.0831  | 0.47318 |
| Rule of law            | −0.6644  | −0.1223  | 0.63056  | 0.58089  | −0.0714  | 0.17091 |
| Voice and accountability| −0.5857 | −0.303   | −0.7111  | 0.20931  | −0.1116  | 0.05689 |
|       | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|-------|----------|----------|----------|----------|----------|----------|
| Guinea |          |          |          |          |          |          |
| Eigenvalue | 20.9456 | 0.29441  | 0.13439  | 0.07719  | 0.03082  | 0.00374  |
| Variance Prop. | 0.97484 | 0.0137   | 0.00626  | 0.00359  | 0.00143  | 0.00017  |
| Cumulative Prop. | 0.97484 | 0.98855  | 0.9948   | 0.99839  | 0.99983  | 1        |
| Eigenvectors |          |          |          |          |          |          |
| Variable | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
| Control of corruption | −0.4057 | 0.31015  | 0.528    | −0.2782  | 0.01699  | 0.61867  |
| Govt effectiveness    | −0.395  | 0.22633  | −0.0648  | −0.1657  | −0.7901  | −0.37    |
| Political stability    | −0.1852 | −0.3047  | 0.69957  | 0.53315  | −0.0124  | −0.3226  |
| Regulatory quality     | −0.332  | 0.36586  | −0.3776  | 0.74056  | 0.02778  | 0.25332  |
| Rule of law            | −0.4826 | 0.26715  | −0.0665  | −0.2281  | 0.61203  | −0.5148  |
| Voice and accountability| −0.5495 | −0.7447  | −0.2932  | −0.1023  | 0.00525  | 0.21701  |
| Guinea Bissau          |          |          |          |          |          |          |
| Eigenvalue             | 6.83405 | 0.73436  | 0.11854  | 0.04359  | 0.00558  | # ###### |
| Variance Prop.         | 0.8834  | 0.09493  | 0.01532  | 0.00563  | 0.00072  | 0        |
| Cumulative Prop.       | 0.8834  | 0.97832  | 0.99365  | 0.99928  | 1        | 1        |
| Eigenvectors           |          |          |          |          |          |          |
| Variable               | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
| Control of corruption  | −0.3195 | 0.23669  | 0.05025  | −0.2237  | 0.53787  | 0.70711  |
| Govt effectiveness     | −0.3195 | 0.23669  | 0.05025  | −0.2237  | 0.53787  | −0.7071  |
| Political stability    | −0.0534 | −0.0911  | −0.9679  | −0.2281  | 0.00392  | 2.49E-15 |
| Regulatory quality     | −0.3979 | 0.41365  | 0.09931  | −0.5043  | −0.6374  # ###### |
| Rule of law            | −0.5484 | 0.27212  | −0.1756  | 0.76277  | −0.1119  # ###### |
| Voice and accountability| −0.5778 | −0.7966  | 0.13213  | −0.1082  | −0.0501  # ###### |
| Kenya                  |          |          |          |          |          |          |
| Eigenvalue             | 65.3807 | 0.71694  | 0.27671  | 0.16166  | 0.06968  | 0.00543  |
| Variance Prop.         | 0.98153 | 0.00107  | 0.00415  | 0.00243  | 0.00105  | 8.2E-05  |
| Cumulative Prop.       | 0.98153 | 0.99229  | 0.99645  | 0.99887  | 0.99992  | 1        |
| Eigenvectors           |          |          |          |          |          |          |
| Variable               | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
| Control of corruption  | 0.48871  | −0.1563  | 0.75723  | 0.25192  | −0.2186  | 0.22826  |
| Govt effectiveness     | 0.33458  | 0.31087  | −0.0188  | −0.1328  | −0.4693  | −0.7438  |
| Political stability    | 0.15811  | −0.2     | 0.23191  | 0.01998  | 0.78372  | −0.5164  |
| Regulatory quality     | 0.25217  | 0.84326  | −0.0536  | 0.2722   | 0.31717  | 0.21853  |
| Rule of law            | 0.48108  | −0.0074  | −0.0866  | −0.8162  | 0.13105  | 0.27859  |
| Voice and accountability| 0.57375 | −0.3575  | −0.6017  | 0.42213  | −0.0054  | 0.05195  |
| Lesotho                |          |          |          |          |          |          |
| Eigenvalue             | 30.2839 | 0.72338  | 0.37043  | 0.21181  | 0.10164  | 0.00123  |
| Variance Prop.         | 0.95529 | 0.0231   | 0.01169  | 0.00668  | 0.00321  | 3.9E-05  |
| Cumulative Prop.       | 0.95529 | 0.97839  | 0.99007  | 0.99676  | 0.99996  | 1        |
### Eigenvectors

| Variable                  | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|---------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption     | 0.4063   | 0.10485  | −0.2782  | −0.5488  | −0.6191  | −0.2494  |
| Govt effectiveness        | 0.42028  | −0.0348  | −0.318   | 0.0369   | 0.03878  | 0.84765  |
| Political stability       | 0.20079  | 0.4122   | 0.36236  | −0.5974  | 0.54647  | 0.05431  |
| Regulatory quality        | 0.36525  | −0.2919  | −0.5416  | 0.05925  | 0.55198  | −0.4242  |
| Rule of law               | 0.48665  | 0.60785  | 0.13431  | 0.57856  | −0.0752  | −0.1878  |
| Voice and accountability  | 0.49773  | −0.6027  | 0.61551  | 0.04864  | −0.0794  | −0.0391  |

#### Liberia

|                      | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|----------------------|----------|----------|----------|----------|----------|----------|
| **Eigenvalue**       | 45.4907  | 0.85765  | 0.20738  | 0.1718   | 0.07053  | 0.01448  |
| **Variance Prop.**   | 0.97176  | 0.01832  | 0.00443  | 0.00367  | 0.00151  | 0.00031  |
| **Cumulative Prop.** | 0.97176  | 0.99008  | 0.99451  | 0.99818  | 0.99969  | 1        |

### Eigenvectors

| Variable                  | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|---------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption     | 0.48506  | −0.3757  | 0.32376  | −0.5315  | −0.458   | −0.1627  |
| Govt effectiveness        | 0.31457  | −0.3351  | −0.3739  | 0.11936  | −0.0765  | 0.79299  |
| Political stability       | 0.09345  | 0.11101  | −0.0247  | −0.6698  | 0.70826  | 0.16737  |
| Regulatory quality        | 0.25312  | −0.3879  | −0.643   | 0.09182  | 0.22409  | −0.5598  |
| Rule of law               | 0.5304   | −0.0905  | 0.51905  | 0.49611  | 0.44005  | −0.0361  |
| Voice and accountability  | 0.55824  | 0.75863  | −0.2681  | −0.0063  | −0.1972  | −0.0454  |

#### Libya

|                      | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|----------------------|----------|----------|----------|----------|----------|----------|
| **Eigenvalue**       | 18.1524  | 0.66805  | 0.1844   | 0.10371  | 0.02338  | #######  |
| **Variance Prop.**   | 0.9488   | 0.03492  | 0.00964  | 0.00542  | 0.00122  | 0        |
| **Cumulative Prop.** | 0.9488   | 0.98372  | 0.99336  | 0.99878  | 1        | 1        |

### Eigenvectors

| Variable                  | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|---------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption     | −0.4223  | 0.23868  | 0.47767  | −0.1925  | 0.70673  | 1.57E-14 |
| Govt effectiveness        | −0.3123  | 0.39021  | −0.4784  | −0.1421  | −0.0338  | −0.7071  |
| Political stability       | −0.2555  | 0.29882  | 0.15092  | 0.90024  | −1.1105  | #######  |
| Regulatory quality        | −0.3123  | 0.39021  | −0.4784  | −0.1421  | −0.0338  | 0.70711  |
| Rule of law               | −0.507   | −0.0243  | 0.44608  | −0.2936  | −0.6762  | #######  |
| Voice and accountability  | −0.5516  | −0.7407  | −0.3039  | 0.16109  | 0.1698   | 2.58E-15 |

#### Madagascar

|                      | Comp 1   | Comp 2   | Comp 3   | Comp 4   | Comp 5   | Comp 6   |
|----------------------|----------|----------|----------|----------|----------|----------|
| **Eigenvalue**       | 60.1679  | 0.40533  | 0.2519   | 0.1486   | 0.08113  | 0.03538  |
| **Variance Prop.**   | 0.9849   | 0.00664  | 0.00412  | 0.00243  | 0.00133  | 0.00058  |
| **Cumulative Prop.** | 0.9849   | 0.99154  | 0.99566  | 0.99809  | 0.99942  | 1        |

### Eigenvectors

| Variable                  | Vector 1 | Vector 2 | Vector 3 | Vector 4 | Vector 5 | Vector 6 |
|---------------------------|----------|----------|----------|----------|----------|----------|
| Control of corruption     | 0.42615  | −0.1612  | 0.64702  | 0.42206  | −0.3993  | −0.1903  |
| Govt effectiveness        | 0.41489  | 0.24517  | 0.03988  | 0.07848  | 0.07756  | 0.86833  |
| Political stability       | 0.22228  | −0.1931  | −0.0503  | 0.47312  | 0.81228  | −0.1647  |
| Regulatory quality        | 0.32288  | 0.85431  | −0.1016  | 0.0037   | 0.02656  | −0.3935  |
| Rule of law               | 0.46799  | −0.2105  | 0.25946  | −0.7656  | 0.25754  | −0.1299  |
| Voice and accountability  | 0.52306  | −0.32    | −0.7068  | 0.07553  | −0.3282  | −0.1046  |
### Malawi

|          | Comp 1          | Comp 2          | Comp 3          | Comp 4          | Comp 5          | Comp 6          |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Eigenvalue | 45.4725         | 1.26904         | 0.26329         | 0.22477         | 0.11922         | 0.01921         |
| Variance Prop. | 0.95998         | 0.02679         | 0.00556         | 0.00475         | 0.00252         | 0.00041         |
| Cumulative Prop. | 0.95998         | 0.98677         | 0.99233         | 0.99708         | 0.9996          | 1               |

**Eigenvectors**

| Variable                        | Vector 1   | Vector 2   | Vector 3   | Vector 4   | Vector 5   | Vector 6   |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| Control of corruption           | -0.4422    | 0.13214    | -0.7106    | 0.28205    | -0.3987    | -0.2087    |
| Govt effectiveness              | -0.3323    | -0.3984    | -0.0581    | -0.0887    | -0.1588    | 0.83328    |
| Political stability             | -0.1192    | -0.1223    | -0.3547    | 0.26551    | 0.87769    | 0.06685    |
| Regulatory quality              | -0.234     | -0.8155    | 0.21076    | 0.11473    | -0.0603    | -0.4679    |
| Rule of law                     | -0.4948    | 0.1141     | -0.0446    | -0.8154    | 0.19185    | -0.1961    |
| Voice and accountability        | -0.6166    | 0.36159    | 0.5652     | 0.40503    | 0.07085    | 0.02294    |

### Mali

|          | Comp 1          | Comp 2          | Comp 3          | Comp 4          | Comp 5          | Comp 6          |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Eigenvalue | 51.3025         | 0.61511         | 0.37202         | 0.21995         | 0.10921         | 0.02707         |
| Variance Prop. | 0.97448         | 0.01168         | 0.00707         | 0.00418         | 0.00207         | 0.00051         |
| Cumulative Prop. | 0.97448         | 0.98617         | 0.99323         | 0.99741         | 0.99949         | 1               |

**Eigenvectors**

| Variable                        | Vector 1   | Vector 2   | Vector 3   | Vector 4   | Vector 5   | Vector 6   |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| Control of corruption           | 0.41586    | -0.1187    | 0.49403    | 0.64298    | -0.3419    | 0.1964     |
| Govt effectiveness              | 0.40324    | 0.27401    | 0.03816    | 0.04296    | 0.03114    | -0.8707    |
| Political stability             | 0.20417    | -0.2931    | 0.26631    | 0.06816    | 0.89131    | 0.04924    |
| Regulatory quality              | 0.3065     | 0.80156    | -0.2069    | 0.10664    | 0.22499    | 0.39846    |
| Rule of law                     | 0.45491    | -0.0103    | 0.39952    | -0.7539    | -0.1793    | 0.18133    |
| Voice and accountability        | 0.56735    | -0.427     | -0.6936    | 0.02048    | -0.07      | 0.09648    |

### Mauritania

|          | Comp 1          | Comp 2          | Comp 3          | Comp 4          | Comp 5          | Comp 6          |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Eigenvalue | 54.0835         | 0.3788         | 0.16114         | 0.07417         | 0.01085         | 0.00484         |
| Variance Prop. | 0.98845         | 0.00692         | 0.00298         | 0.00136         | 0.0002         | 8.8E-05         |
| Cumulative Prop. | 0.98845         | 0.99538         | 0.99836         | 0.99971         | 0.99991         | 1               |

**Eigenvectors**

| Variable                        | Vector 1   | Vector 2   | Vector 3   | Vector 4   | Vector 5   | Vector 6   |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| Control of corruption           | 0.4309     | 0.26133    | -0.0099    | -0.033     | 0.85303    | -0.127     |
| Govt effectiveness              | 0.37188    | 0.32488    | 0.33754    | 0.44366    | -0.3515    | -0.5673    |
| Political stability             | 0.2132     | -0.0264    | 0.74292    | -0.6096    | -0.0926    | 0.14732    |
| Regulatory quality              | 0.30917    | 0.40667    | 0.01109    | 0.31677    | -0.1525    | 0.78441    |
| Rule of law                     | 0.48054    | 0.17273    | -0.5778    | -0.5221    | -0.3418    | -0.1264    |
| Voice and accountability        | 0.55142    | -0.7932    | -0.0099    | 0.23973    | -0.0103    | 0.09522    |

### Mauritius

|          | Comp 1          | Comp 2          | Comp 3          | Comp 4          | Comp 5          | Comp 6          |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Eigenvalue | 32.2703         | 0.42434         | 0.15721         | 0.03519         | 0.00187         | 6.4E-15         |
| Variance Prop. | 0.98119         | 0.0129          | 0.00478         | 0.00107         | 5.7E-05         | 0               |
| Cumulative Prop. | 0.98119         | 0.99409         | 0.99887         | 0.99994         | 1               | 1               |
### Eigenvectors

| Variable                      | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption         | 0.39608   | -0.1166   | 0.04067   | -0.4617   | -0.3387   | 0.70711   |
| Govt effectiveness            | 0.39608   | -0.1166   | 0.04067   | -0.4617   | -0.3387   | -0.7071   |
| Political stability           | 0.22371   | 0.73878   | 0.063356  | 0.02909   | 0.04375   | 4.83E-14  |
| Regulatory quality            | 0.42865   | -0.377    | 0.23846   | -0.0887   | 0.78063   | 8.74E-13  |
| Rule of law                   | 0.49704   | -0.251    | 0.10639   | 0.74966   | -0.3415   | #####     |
| Voice and accountability      | 0.43211   | 0.47101   | -0.726    | 0.05438   | 0.20659   | 2.37E-13  |

### Mozambique

| Comp  | Eigenvalue | Variance Prop. | Cumulative Prop. |
|-------|------------|----------------|------------------|
| 1     | 60.2145    | 0.97932        | 0.97932          |
| 2     | 5.0478     | 0.01237        | 0.01237          |
| 3     | 4.5687     | 0.99169        | 0.99169          |
| 4     | 4.5687     | 0.99574        | 0.99574          |
| 5     | 4.5687     | 0.99866        | 0.99866          |
| 6     | 4.5687     | 0.99997        | 0.99997          |

### Namibia

| Comp  | Eigenvalue | Variance Prop. | Cumulative Prop. |
|-------|------------|----------------|------------------|
| 1     | 29.7023    | 0.97632        | 0.97632          |
| 2     | 5.0478     | 0.01237        | 0.01237          |
| 3     | 4.5687     | 0.99169        | 0.99169          |
| 4     | 4.5687     | 0.99574        | 0.99574          |
| 5     | 4.5687     | 0.99866        | 0.99866          |
| 6     | 4.5687     | 0.99997        | 0.99997          |

### Niger

| Comp  | Eigenvalue | Variance Prop. | Cumulative Prop. |
|-------|------------|----------------|------------------|
| 1     | 30.4688    | 0.97327        | 0.97327          |
| 2     | 5.0478     | 0.01738        | 0.01738          |
| 3     | 4.5687     | 0.99065        | 0.99065          |
| 4     | 4.5687     | 0.99783        | 0.99783          |
| 5     | 4.5687     | 0.99946        | 0.99946          |
| 6     | 4.5687     | 0.99982        | 0.99982          |

### Eigenvectors (Continued)

| Variable                      | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption         | -0.3936   | -0.0488   | -0.2161   | -0.8849   | -0.0416   | -0.1067   |
| Govt effectiveness            | -0.4061   | -0.2059   | 0.0292    | 0.13328   | 0.26034   | 0.81448   |
| Political stability           | -0.1841   | 0.12668   | 0.14041   | 0.05255   | -0.9263   | 0.26379   |
| Regulatory quality            | -0.2998   | -0.8294   | -0.0631   | 0.2456    | -0.1538   | -0.3664   |
| Rule of law                   | -0.4471   | 0.45603   | -0.6017   | 0.35921   | -0.0101   | -0.3178   |
| Voice and accountability      | -0.5971   | 0.20812   | 0.72373   | 0.0842    | 0.22072   | -0.1435   |

### Eigenvectors (Continued)

| Variable                      | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption         | -0.3971   | 0.25475   | 0.44404   | 0.6957    | -0.2999   | -0.0795   |
| Govt effectiveness            | -0.3884   | 0.252     | 0.05376   | 0.00044   | 0.86187   | -0.1999   |
| Political stability           | -0.1949   | -0.0618   | 0.75025   | -0.6179   | -0.1165   | -0.0012   |
| Regulatory quality            | -0.3086   | 0.44233   | -0.1844   | -0.1591   | -0.0705   | 0.80301   |
| Rule of law                   | -0.4492   | 0.29609   | -0.4197   | -0.3237   | -0.3856   | -0.5301   |
| Voice and accountability      | -0.5971   | -0.7645   | -0.1642   | 0.06446   | 0.00343   | 0.16702   |
Nigeria

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| Eigenvalue     | 59.4592    | 0.82246    | 0.26491    | 0.21747    | 0.04193    | 0.02741    |
| Variance Prop. | 0.97741    | 0.01352    | 0.00436    | 0.00358    | 0.00069    | 0.00045    |
| Cumulative Prop.| 0.97741    | 0.99093    | 0.99529    | 0.99886    | 0.99955    | 1          |

Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | 0.49035      | 0.1988      | 0.61091     | −0.575      | −0.0579      | 0.11335      |
| Govt effectiveness        | 0.33374      | −0.3406     | 0.01967     | 0.07823     | −0.4192      | −0.7684      |
| Political stability       | 0.1567       | 0.13952     | −0.1391     | −0.1423     | 0.83532      | −0.4676      |
| Regulatory quality        | 0.24765      | −0.8325     | −0.1898     | −0.2332     | 0.20839      | 0.3343       |
| Rule of law               | 0.47317      | −0.022      | 0.33263     | 0.76588     | 0.2066       | 0.18904      |
| Voice and accountability  | 0.58173      | 0.36255     | −0.6785     | −0.0456     | −0.1925      | 0.17497      |

Rwanda

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| Eigenvalue     | 37.4       | 0.57756    | 0.29603    | 0.18604    | 0.01402    | 0.00553    |
| Variance Prop. | 0.97195    | 0.01501    | 0.00769    | 0.00484    | 0.00036    | 0.00014    |
| Cumulative Prop.| 0.97195    | 0.98696    | 0.99466    | 0.99949    | 0.99986    | 1          |

Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | −0.438       | −0.2665     | 0.61067     | −0.5743     | 0.17777     | −0.0526      |
| Govt effectiveness        | −0.3329      | −0.2617     | 0.05202     | 0.54886     | 0.17562     | −0.6971      |
| Political stability       | −0.1614      | 0.41768     | 0.63009     | 0.51327     | −0.1815     | 0.32571      |
| Regulatory quality        | −0.2627      | −0.4344     | −0.1953     | 0.28717     | 0.48437     | 0.6221       |
| Rule of law               | −0.493      | −0.2767     | −0.2361     | 0.00238     | −0.7784     | 0.1285       |
| Voice and accountability  | −0.5975      | 0.64866     | −0.3654     | −0.1517     | 0.25314     | −0.0411      |

Sao Tome

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| Eigenvalue     | 7.71756    | 0.46429    | 0.17843    | 0.04291    | 0.01348    | 8.76E-16    |
| Variance Prop. | 0.91694    | 0.05516    | 0.0212     | 0.0051     | 0.0016     | 0          |
| Cumulative Prop.| 0.91694    | 0.9721     | 0.9933     | 0.9984     | 1          | 1          |

Eigenvectors

| Variable                  | Vector 1     | Vector 2     | Vector 3     | Vector 4     | Vector 5     | Vector 6     |
|---------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Control of corruption     | −0.3229      | 0.46678     | 0.15906     | −0.3875     | 0.04938     | −0.7071      |
| Govt effectiveness        | −0.3229      | 0.46678     | 0.15906     | −0.3875     | 0.04938     | 0.70711      |
| Political stability       | −0.1981      | −0.6558     | 0.61821     | −0.3509     | 0.15933     | 5.97E-15     |
| Regulatory quality        | −0.4123      | 0.05596     | 0.37309     | 0.47776     | −0.6778     | #######      |
| Rule of law               | −0.5567      | −0.0103     | −0.0712     | 0.50573     | 0.65508     | 1.40E-14     |
| Voice and accountability  | −0.5219      | −0.3618     | −0.6503     | −0.3043     | −0.2849     | #######      |

Senegal

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| Eigenvalue     | 49.9046    | 0.705      | 0.33559    | 0.19022    | 0.03932    | 0.02662    |
| Variance Prop. | 0.97467    | 0.01377    | 0.00655    | 0.00372    | 0.00077    | 0.00052    |
| Cumulative Prop.| 0.97467    | 0.98844    | 0.995      | 0.99871    | 0.99948    | 1          |
### Seychelles

| Variable                  | Vector 1       | Vector 2       | Vector 3       | Vector 4       | Vector 5       | Vector 6       |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Control of corruption     | 0.47794        | 0.34294        | 0.77632        | -0.0892        | 0.14377        | 0.15058        |
| Govt effectiveness        | 0.37104        | -0.3269        | 0.10188        | 0.15554        | -0.0224        | -0.8495        |
| Political stability       | 0.17014        | 0.28733        | -0.0411        | 0.50277        | -0.793         | 0.07245        |
| Regulatory quality        | 0.27002        | -0.7734        | 0.13412        | -0.2109        | -0.3265        | 0.39976        |
| Rule of law               | 0.47213        | -0.099         | -0.3268        | 0.58378        | 0.47985        | 0.29912        |
| Voice and accountability  | 0.556          | 0.29376        | -0.5104        | -0.5743        | -0.1149        | -0.0328        |

### Sierra Leone

| Variable                  | Vector 1       | Vector 2       | Vector 3       | Vector 4       | Vector 5       | Vector 6       |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Control of corruption     | -0.3229        | 0.26743        | 0.47766        | -0.2071        | 0.23057        | 0.70711        |
| Govt effectiveness        | -0.3229        | 0.26743        | 0.47766        | -0.2071        | 0.23057        | -0.7071        |
| Political stability       | -0.2718        | -0.3094        | -0.3634        | -0.8354        | -0.0194        | 3.89E-16        |
| Regulatory quality        | -0.3911        | 0.43068        | -0.1028        | 0.03125        | -0.8062        | 3.45E-15        |
| Rule of law               | -0.5355        | 0.23136        | -0.5759        | 0.32811        | 0.46954        | 3.45E-15        |
| Voice and accountability  | -0.5272        | -0.7227        | 0.26348        | 0.32802        | -0.1512        | 3.45E-15        |

### Somalia

| Variable                  | Vector 1       | Vector 2       | Vector 3       | Vector 4       | Vector 5       | Vector 6       |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Control of corruption     | -0.4807        | -0.3257        | -0.7116        | 0.18375        | -0.3034        | 0.17526        |
| Govt effectiveness        | -0.285         | -0.3462        | 0.14818        | 0.15837        | 0.78478        | 0.16877        |
| Political stability       | -0.1067        | -0.1532        | -0.2587        | -0.8692        | 0.25069        | -0.2825        |
| Regulatory quality        | -0.2315        | -0.4183        | 0.55812        | -0.3189        | -0.4786        | 0.35949        |
| Rule of law               | -0.4844        | -0.1854        | 0.29136        | 0.25204        | -0.005         | -0.7632        |
| Voice and accountability  | -0.6229        | 0.7357         | 0.09156        | -0.1429        | 0.01382        | 0.2043         |
### Eigenvectors

| Variable                  | Vector 1  | Vector 2  | Vector 3  | Vector 4  | Vector 5  | Vector 6  |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Control of corruption     | -0.4934   | 0.33537   | 0.46835   | 0.14214   | -0.5683   | 0.28566   |
| Govt effectiveness        | -0.3753   | 0.14205   | -0.0934   | -0.3067   | -0.167    | -0.8416   |
| Political stability       | -0.1563   | -0.1137   | 0.75536   | -0.0775   | 0.60848   | -0.1259   |
| Regulatory quality        | -0.2162   | 0.25283   | -0.1785   | -0.805    | 0.19626   | 0.41335   |
| Rule of law               | -0.3045   | 0.60283   | -0.3122   | 0.46208   | 0.4825    | 0.00804   |
| Voice and accountability  | -0.6722   | -0.6535   | -0.2684   | 0.13455   | 0.08723   | 0.1529    |

#### South Africa

|                     | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|---------------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue**      | 7.71756    | 0.46429    | 0.17843    | 0.04291    | 0.01348    | 8.76E-16   |
| **Variance Prop.**  | 0.91694    | 0.05516    | 0.0212     | 0.0051     | 0.0016     | 0          |
| **Cumulative Prop.**| 0.91694    | 0.9721     | 0.9933     | 0.9984     | 1          | 1          |

#### Sudan

|                     | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|---------------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue**      | 19.5954    | 0.45814    | 0.20809    | 0.12587    | 0.02328    | 0.01982    |
| **Variance Prop.**  | 0.95912    | 0.02242    | 0.01019    | 0.00616    | 0.00114    | 0.00097    |
| **Cumulative Prop.**| 0.95912    | 0.98154    | 0.99173    | 0.99789    | 0.99903    | 1          |

#### Swaziland

|                     | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|---------------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue**      | 15.1106    | 0.39887    | 0.25197    | 0.05855    | 0.01338    | 1          |
| **Variance Prop.**  | 0.95435    | 0.02519    | 0.01591    | 0.0037     | 0.00085    | 0          |
| **Cumulative Prop.**| 0.95435    | 0.97954    | 0.99546    | 0.99916    | 1          | 1          |

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**Note:** The eigenvectors for each country are presented in the table format, showing the normalized coefficients for each variable across different components (Comp 1 to Comp 6). The eigenvalues, variance proportions, and cumulative proportions are also included to illustrate the variance captured by each component.
### Tanzania

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue** | 54.4799    | 1.02293    | 0.26752    | 0.16864    | 0.12254    | 0.01485    |
| **Variance Prop.** | 0.97153    | 0.01824    | 0.00477    | 0.00301    | 0.00219    | 0.00027    |
| **Cumulative Prop.** | 0.97153    | 0.98977    | 0.99454    | 0.99755    | 0.99974    | 1          |
| **Eigenvectors** | **Variable** | **Vector 1** | **Vector 2** | **Vector 3** | **Vector 4** | **Vector 5** | **Vector 6** |
| Control of corruption | -0.4475 | 0.1897 | -0.804 | 0.31485 | 0.03925 | -0.1292 |
| Govt effectiveness | -0.3354 | -0.3927 | -0.0675 | -0.0991 | 0.19838 | 0.82434 |
| Political stability | -0.1427 | 0.00551 | -0.157 | -0.4674 | -0.8544 | 0.08109 |
| Regulatory quality | -0.2427 | -0.8212 | 0.09694 | 0.24676 | -0.1569 | -0.4146 |
| Rule of law | -0.4974 | 0.05372 | 0.1 | -0.6765 | 0.40225 | -0.3468 |
| Voice and accountability | -0.6004 | 0.36409 | 0.5523 | 0.3925 | -0.2068 | 0.07132 |

### Togo

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue** | 24.1122    | 0.67568    | 0.32881    | 0.09815    | 0.02879    | 0.01337    |
| **Variance Prop.** | 0.95467    | 0.02675    | 0.01302    | 0.00389    | 0.00114    | 0.00053    |
| **Cumulative Prop.** | 0.95467    | 0.98143    | 0.99445    | 0.99974    | 1          |
| **Eigenvectors** | **Variable** | **Vector 1** | **Vector 2** | **Vector 3** | **Vector 4** | **Vector 5** | **Vector 6** |
| Control of corruption | -0.4325 | -0.0125 | -0.8156 | 0.37299 | -0.0357 | -0.0848 |
| Govt effectiveness | -0.3928 | 0.04031 | -0.0288 | -0.3427 | -0.1645 | 0.83593 |
| Political stability | -0.2118 | -0.4839 | -0.1863 | -0.7262 | 0.20978 | -0.339 |
| Regulatory quality | -0.3447 | 0.52699 | 0.12271 | -0.2633 | -0.5939 | -0.4079 |
| Rule of law | -0.4807 | 0.41368 | 0.24589 | 0.04667 | 0.7277 | -0.075 |
| Voice and accountability | -0.5138 | -0.5614 | 0.47302 | 0.38028 | -0.2131 | -0.0841 |

### Uganda

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue** | 63.8922    | 0.84957    | 0.33722    | 0.20848    | 0.07751    | 0.01003    |
| **Variance Prop.** | 0.97732    | 0.013     | 0.00516    | 0.00319    | 0.00119    | 0.00015    |
| **Cumulative Prop.** | 0.97732    | 0.99031    | 0.99547    | 0.99866    | 0.99985    | 1          |
| **Eigenvectors** | **Variable** | **Vector 1** | **Vector 2** | **Vector 3** | **Vector 4** | **Vector 5** | **Vector 6** |
| Control of corruption | 0.47237 | 0.47204 | 0.47351 | -0.5409 | -0.1053 | -0.1619 |
| Govt effectiveness | 0.33824 | -0.2986 | 0.16478 | -0.1193 | 0.25669 | 0.83017 |
| Political stability | 0.15967 | 0.13345 | -0.1323 | 0.2187 | -0.8898 | 0.31575 |
| Regulatory quality | 0.25369 | -0.805 | 0.03811 | -0.2871 | -0.2777 | -0.3558 |
| Rule of law | 0.47358 | -0.0474 | 0.3847 | 0.74946 | 0.12749 | -0.2181 |
| Voice and accountability | 0.5902 | 0.14127 | -0.7627 | -0.0358 | 0.19492 | -0.1037 |

### Zambia

|                | Comp 1     | Comp 2     | Comp 3     | Comp 4     | Comp 5     | Comp 6     |
|----------------|------------|------------|------------|------------|------------|------------|
| **Eigenvalue** | 47.6698    | 0.72116    | 0.38538    | 0.19543    | 0.06518    | 0.02558    |
| **Variance Prop.** | 0.97161    | 0.0147    | 0.00786    | 0.00398    | 0.00133    | 0.00052    |
| **Cumulative Prop.** | 0.97161    | 0.98631    | 0.99417    | 0.99815    | 0.99948    | 1          |
| **Eigenvectors** | **Variable** | **Vector 1** | **Vector 2** | **Vector 3** | **Vector 4** | **Vector 5** | **Vector 6** |
| Control of corruption | -0.4562 | -0.4403 | -0.5514 | 0.47466 | 0.00911 | 0.26186 |
| Variable                      | Vector 1    | Vector 2    | Vector 3    | Vector 4    | Vector 5    | Vector 6    |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Control of corruption         | 0.44395     | −0.3746     | 0.80135     | 0.01799     | 0.05534     | 0.1306      |
| Govt effectiveness            | 0.32439     | −0.4166     | −0.2544     | 0.1072      | 0.10564     | −0.7962     |
| Political stability           | 0.18354     | 0.18027     | 0.07816     | −0.0598     | −0.9447     | −0.1779     |
| Regulatory quality            | 0.26024     | −0.5463     | −0.4798     | 0.23896     | −0.2119     | 0.54919     |
| Rule of law                   | 0.48575     | 0.12496     | −0.2193     | −0.8192     | 0.13131     | 0.10971     |
| Voice and accountability      | 0.60026     | 0.58275     | −0.0937     | 0.50638     | 0.17648     | 0.0612      |

Source: Author’s construct from world development indicators (World Bank Group, 2012).