Corruption, EU Aid Inflows and Economic Growth in Ghana: Cointegration and Causality Analysis

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Abstract
This paper uses the Johansen cointegration technique to examine the causal relationship between aid inflows and economic growth for Ghana during the period 1970-2013. To better reflect causality, corruption (governance) and trade are included as control variables. In order to test for causality in the face of cointegration among variables, a vector error correction model (VECM) is used in place of vector autoregressive (VAR) model. This is complemented with Toda and Yamamoto's test to point to causal direction. Appropriate stability test to account for structural breaks in the series is undertaken. Our estimation results suggest that GDP growth has one cointegrating vector relationship with governance, EU aid inflows and trade in both short and long runs. There is a long run unidirectional causal relationship from EU Aid inflows to GDP growth, and a short run unidirectional causality from trade to GDP. Governance was ineffective to power growth. The error correction terms are the source of causation in the long. The results indeed confirm popular conjecture that corruption in Ghana stifles development. Therefore government's decision to launch a national anti-corruption plan in 2011 though long overdue, but is justifiable. However, such an attempt will only be effective if and only if a conscious effort is made by all stakeholders to work in hand in deepening good governance (reducing corruption) as a trajectory for promoting economic growth and to serve as inducement for a continue aid inflows from multilateral donors to sustain efforts at achieving the millennium development goals in Ghana.

Keywords: Ghana; Corruption; EU Aid Inflows; Economic Growth; Co-integration; T-Y Causality.

JEL Classification: 01; 04; C1; H7.

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1. INTRODUCTION

Corruption as a social issue is widespread and continues to dominate many discussions in both academic and policy circles due to the devastation it has on development. The subject area has also been revisited in recent times following the massive loot reported by the European Union anti-corruption agency. The agency reveals that corruption alone cost the EU over EUR 120 billion per year, an estimate just less than the annual budget of the EU (EC, 2014: p.3). A similar report from the World Bank estimates that every year between $20 to $40 billion are lost from developing countries due to corruption and bribery, but the bane also impacts developed economies (UN, 2013). The scourge on developed economies is as a result of the commitments they make in the form of Overseas Development Assistance (ODA) often captured as aids, grants and loans to promote development in disadvantaged economies. Likewise in Ghana, incidental and systematic corruptions are perceived to be high and is thought to be responsible for the slow pace of development (Lamptey, 2013). Several underlying factors are believed to be the root causes of corruption, but in the case of developing economies like Ghana, whose budgetary demands depend on the fluidity of financial pledges from development partners, it increasingly makes it an important source to investigate. Ghana currently ranks 98th out of 144 countries on the global percentile measure of irregular payment of bribes in public contracts based on the World Economic Forum (WEF) executive opinion, a trend which indicates weak institutional structures (WEF, 2014).

Foreign aids come in different forms for different purposes. Currently, the world's poorer countries activities are funded with aid from foreign governments and international organizations. Foreign aid may include billion dollar reconstruction projects in war-torn countries, microfinance programs for impoverished women, international research to find more productive crops and less polluting energy sources, expansion of primary education in rural regions, financing health budget, supporting economic reforms, debt relief and civil society development programs in Africa. The number of participants involved in providing foreign aid has increased which include but not limited to IMF, World Bank, the Asian, African, the United Nations Development Program (UNDP), Japan, Western Europe but also, with an estimated thirty governments having significant programs of foreign aid, including rich North American. The purposes of aid are classified into different dimensions some of which is to improve the human condition

in poor countries, others to combat terrorism, humanitarian relief, promote democracy and culture, economic and social transitions, preventing and mitigating conflict (See Lancaster, 2007).

The upsurge in aid flow has mainly been due to international attention towards the Millennium Development Goals (MDGs). The United Nations Millennium Declaration and Monterrey Consensus in Mexico in 2002 explicitly committed industrialized countries to "grant more generous development assistance because substantial increase in Overseas Development Assistance (ODA) would be required to achieve the MDGs" (UN, 2002). These international agreements have helped to increase the commitment of aid following a substantial weakening during the 1990s. In 2010, net ODA inflows from members of the Development Assistance Committee (DAC) of the OECD reached a staggering $128.7 billion, the highest level ever in nominal terms (OECD, 2010) with a bulk of this investment going to the social sector as opposed to productive sectors like agriculture. Studies on multilateral aid allocation have shown that the European Union is the most dominant aid donor in the world over the last decade. Before the Cold War, when EU members' preferences were largely heterogeneous, EU multilateral aid generally benefited the poorest states, particularly in Sub-Saharan Africa (SSA) but this trend changed after EU preferences converged on aiding the integration of Central and Eastern European countries into the European Union, African countries have lost out on important aid flows since then. Sub-Saharan Africa receives the largest volume of ODA relative to other regions yet it is the region where most LDCs are located and where most countries are 'off-track' towards the MDGs. Total ODA as of 2009 stood at $165.4 billion with sub-Saharan Africa receiving 25.5% (approximately $42.2 billion) (See OECD, 2010), but of the 49 Least Developed Countries (LDCs), 33 are in Africa and only 10 in Asia.

Ghana as a developing country relies heavily on aid to remain solvent in meeting its annual budgetary demands. Foreign aid constituted the third largest source of foreign capital inflows in Ghana for the year 1999 with a dollar value of $451.7 million (Bhasin & Obeng, 2007) and there was a steady increment in the inflow of aids from 2004 till late 2008 where there was a marginal decline. The EU condition that enjoins recipient economies to undertake policies to reform institutions, to ensure macroeconomic stability and security to attract development aid have been embraced by Ghana. The Public Procurement Act 2003 (Act 663), implemented in December 2003, the Fair Wages Salary Commission Act 2007 (Act 737) and the adoption of democracy in 1992 resulted in the strengthening of

ombudsman institutions such as the Economic and Organized Crime Office (EOCO) and the maintenance of a sound and resilient macroeconomic environment (see Forson & Opoku 2014). All these reforms and achievements have led to unprecedented inflow of aid but 2012 country report suggests that out of the eight MDGs only reducing extreme poverty by half is on track (GoG, 2012). A concern over how these aid inflows from multilateral agencies have inured to the benefit of Ghanaians in the broader sense has been raised and is a question that has not been adequately addressed. Even though there are series of inductive studies that attempts to link the state of Ghana's underdevelopment to elements of governance (corruption), none have actually used deductive approach such as cointegration to empirically prove the conjectures made thereof (See Lloyd et al., 2001). One is therefore left to wonder if there is any causal relationship between aid inflows and economic development in Ghana. Is there any causal relationship between aid inflow and institutional reforms? This research seeks to address these concerns by capitalizing on the availability of longitudinal data on institutional quality and macroeconomic variables.

Motivated by the fore-going perspectives, the study is driven by three objectives. To begin with, the study would like to assess the effect of aid inflows on Ghana's economy. Secondly, to investigate whether multilateral donor's selective policy that requires recipient countries to undertake institutional reforms to curb corruption and others is indeed responsible for the continued inflows of aid to Ghana's economy and its implication for development. Thirdly, to formulate policy recommendations based on these findings. To achieve these aims, the study employs appropriate econometric approaches that are able to capture the cause and effect mechanism of selected variables. Because most macroeconomic variables are thought to be stationary, the use of conventional regression estimators such as OLS technique tends to produce misleading results. To overcome this problem, Granger (1986) and Johansen (1991) came up with a tool based on the concept of cointegration which is now commonly used to analyze long-run equilibrium relationships. The strength of the cointegration approach lies in that fact that it allows non-stationary data to be examined in the long-run and at the same time it is able to tell the order of integration among variables. It also captures the short term adjustment mechanisms that occur when variables converge at the long run equilibrium position (Forson & Janrattanagul 2014).

2. THEORETICAL FRAMEWORK

The literature on the triggers of corruption in developing economies has changed cause in recent years with aid inflows being arguable the dominant source in sub-Sahara Africa. The principles of aid-giving are guided by need-based aid and strategic based aid. The need based aid looks at the poor economic characteristics of recipient economies while strategic-based aid, focuses on the economic interest of the donor by aligning it with developmental needs of recipients. Governments and institutions direct their assistance to countries that are strategically important, in terms of national politics, military and commercial interests. The drawback of strategy-driven aid is the enforcement of the conditions associated with the aid because the objective of the aid is achieved immediately disbursement occurred. Recipient countries are not motivated to comply with the conditions associated with aid disbursements which have direct consequences on aid effectiveness. The ineffectiveness has directed attention to multilateral aid institutions that implement and supervise the development goals established in the contract. The literature supports multilateral aid effectiveness in reducing poverty than bilateral aid because their conditionality carries more weight in the developing countries' policy-making.

Meanwhile, the subject of aid effectiveness has been researched into, especially in SSA. In a paper presented by Gomanee et al., (2002) at a conference based on an empirical study on 25 Sub-Saharan African countries on the effectiveness of aid, investment to growth pointed out that for each 1% in aid received as a share of GNI, there is a one-quarter of percentage points on growth among the studied 25 countries. They therefore concluded that the state of poorer African countries should not be attributed to aid ineffectiveness, yet the study failed to propose an alternate reason accounting for the state of these poorer African countries. According to Maizels and Nissanke (1984), in recipient-needs model, "aid is given to compensate for the shortfalls in domestic resources," whereas in the donor-interests model, aid serves donors' "political and commercial investment, and trade interests. While most of recipient-needs model received much attention on multilateral, bilateral allocation goes to beef up "political and commercial interest of donors'. However, evidence on the linkage between aid inflows and institutional reform to mitigate corruption still remains a fallacy as this notion has proven otherwise in recent studies. For instance, Ohler et al.,(2012) investigates whether the Millennium Challenge Corporation (MCC) was successful in promoting better control of corruption using difference-in-difference-

in-difference (DDD) approach. They find strong anticipation effect soon after the announcement of the MCC, while increasing uncertainty about the timing and amount of MCC aid appears to have weakened the incentives to fight corruption over time (See further Knack, 2013). Thus pointing out to the vague axiom that presupposes aid inflows are meant to enhance well-being.

In the meantime, with the introduction of the "New Public Administration" ideology, the focus has been on strengthening institutional framework to reduce corruption. Although this sounds plausible, other researchers have divergent views on this. For instance, Alesina and Weder (2002) asserts that corrupt governments tend not to receive less aid than clean governments. Dollar and Levin (2004) on the other hand observed that, over time, aid has been directed more towards countries with sound institutions and policies. Eric Neumayer provided a detailed analysis of the relationship between aid and human rights in series of studies on the United Nations. In one of those studies, Neumayer (2003a) points out that aids from UN agencies tend to respond to economic and human-development needs, but not necessarily to political freedom and corruption. In another study, Neumayer (2003b) concludes that a high level of rights or improvements in rights means higher bilateral aid, but warned that the role of rights is limited and did not increase after the end of the Cold War. However, even though respect for rights tends to play a role at the selection stage, there is significant inconsistency in the application of rights to the determination of the levels of bilateral aid (Neumayer, 2003a). In recent times, good governance has become conditionality for the disbursement of development assistance to less developed nations (Fayissa & Nsiah, 2010).

The debate on this conditionality was further fuelled following World Bank publication in 1998 on Aid assessment policy to poorer countries with institutional challenges. The policy decision of the publication was to adopt selectivity approach since the effectiveness of aid could be increased if more was allocated to countries with good policies. The argument is that 'aid does not work' in the sense that the amount of aid alone has no effect on growth, but aid makes a positive contribution to growth in those countries with good policy (Burnside & Dollar, 2000). Also, policy reform conditionality does not work since donors have less power to influence policies and institutions in recipients' economies let alone by-passing government in implementing expenditures (Collier & Dollar, 2004: p.245). Hence, more aid should go to nations already implementing good policies to boost the effort of poverty alleviation process. However, opponents have challenged selective aid allocation (See Hansen & Tarp, 2001; Dalgaard et al.,

2004). The contention is that aid has contributed to poverty reduction and improving the welfare of the poor independent of recipient policies (Mosley et al., 2004; Gomanee et al., 2002). The ineffectiveness of conditionality is also contested on the ground that the specific reforms advocated by donors are hardly implemented fully within the relatively short time period of the associated aid program (Mosley et al., 2004; Koeberle et al., 2005; Lensink & Morrissey, 2000). In an attempt to contextualize this in Ghana, Lloyd et al.,(2001) investigates the relationship between aid inflows, trade and growth with the contention that, export, aid and public investment are all positively related to long run growth. However, in the pre-1983 era, they find export and public investment to have negative impact on short run growth, with no significant impact reported on aid. The results for post reform era (after 1983) they assert show a significant improvement in the statistical significance of these variables. This they attributed to institutional reforms which enhance government machinery. Yet we found a gap in the type of proxy used in measuring governance (or institutional inputs) and hence argue that such linkage cannot be vaguely made unless such deficiency in variable measurement is sorted out.

*2.*1 Ghana's Foreign Aid in Perspective

From 1970 to 2002 total ODA to SSA stood at $318.8 billion which compares with $214.1 billion to Asia over the same period. SSA pattern of aid flow is not quite different from Ghana as a country. Specifically, ODA to Ghana has increased from 9.5% of GDP to 10.4 per cent of GDP between 1970 and 2005 (MOFEP, 2010). Aid as a share of GDP increased from 13.2% in 2003 to 14.6% in 2009 and dropped slightly to 12.8% in 2010. Successful implementation of economic reforms of the 1980s under the Structural Adjustment Program (SAP) and Economic Recovery Program (ERP) respectively coupled with a subsequent return to constitutional rule in 1992 has been the driving force for the substantial aid inflows to Ghana. Development aid to Ghana comes in the form of debt relief from the Multilateral Debt Relief Initiative (MDRI) and the Highly Indebted Poor Countries (HIPC) initiative; project aid (loans and grants for supporting specific projects and activities); general sector and budget support; and balance-of-payments support from the International Monetary Fund (IMF). Both traditional and non-traditional donors provide aid to Ghana. Traditional donors currently comprise 23 multilateral and 24 bilateral donors (MOFEP, 2010).

The multilateral donors include the World Bank, European Union, European Investment Bank, Nordic Development Fund, Arab Bank for Economic Development in Africa, African Development Bank OPEC Fund for International Development, Global Fund to Fight AIDS, Global Fund and Alliance for preventable diseases like malaria, tuberculosis, etc., and 12 agencies of the United Nations. So far World Bank and European Union are the largest multilateral donors, providing about 45 per cent of the multilateral average (Quartey et al., 2010).

Table 1 Ghana Overseas Development Assistance in Millions (US$)

YEAR	***2003***	***2004***	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***
Total	1003.1	1130.1	1205.8	14781	1656.5	1649.6	2102.5	1896.8
**IMF*	76.6	38.7	38.2	116.6	0	0	200	200
Debt Relief Grants	154.2	174.1	196.9	307.3	342.7	229.5	289.6	235.8
Budget Support	277.9	316.7	313.2	349.3	386.7	473.1	700.4	619.2
**EU	154.2	174.1	196.9	209.8	246.1	158.4	181.9	168.8
Project Aid	494.4	600.6	657.5	698.6	927	947	912.5	841.8
GDP	7621	8853	10726	12729	14984	16085	14385	14870
Total (ODA % of GDP)	13.2	12.8	11.2	11.6	11.1	10.3	14.6	12.8

Source: Adopted from Quarterly et al., (2010) and Ministry of Finance and Economic Planning report (2010).
Note*: **Denotes multilateral donor of interest*

Table 1 above shows the various classes of aid inflows from both traditional and non-traditional donors. Project aid dominates the trend beginning US $494.4 million in 2003 with a steady rise to $912.5 million in 2009 with a subsequent fall to $841.8 million. Aid for budget mimicked this trend. Aid from the EU has seen a significant trend of improvement beginning 2003 ($154.2 million) to 2007 ($246.1 million). Since 2008, the trend has shown significant mix of rise and fall. The ensuing situation is attributed to the 2008 global economic meltdown from the US and currently the EU crisis which intensified in the late 2010 with Greece, Portugal and Spain fueling it. Total ODA as a share of GDP has been falling from 13.2% in 2003 to 12.8% till the close of 2010. Figure 1 below shows the trend of EU Aid inflow to Ghana since 1970 to 2012;

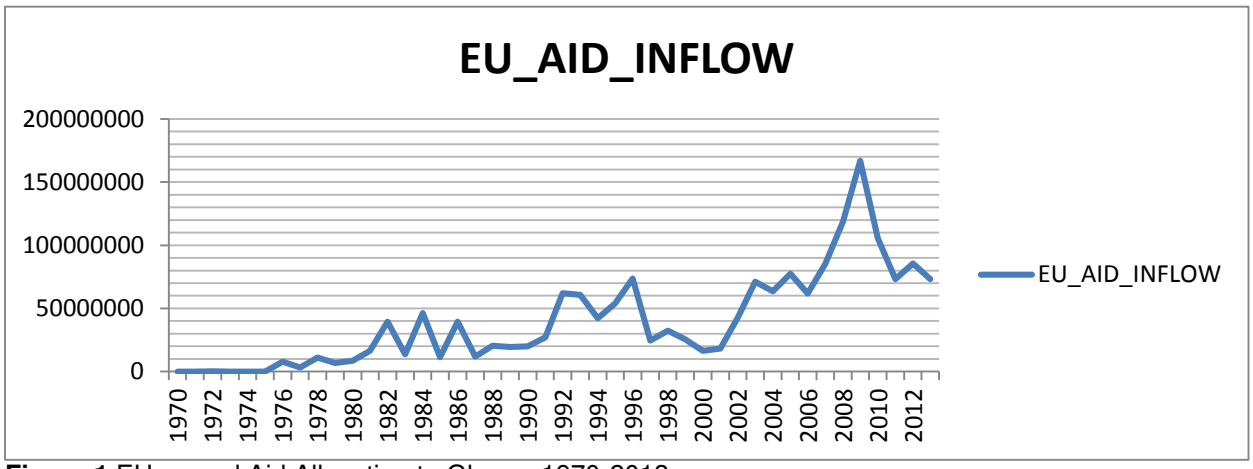


Figure 1 EU annual Aid Allocation to Ghana, 1970-2013

With these inflows, significant developmental aid related projects have been undertaken with specific examples worth mentioning. The Millennium Challenge Account (MCA) is the most prominent one. Ghana, in 2006 signed a five-year compact worth US$547 million under the then Kufour's administration with Bush's administration. The total fund ear-marked under the Millennium Challenged Corporation was in excess of US $1.2 billion shared among selected developing countries. Ghana, due to the success chalked in its democratic dispensation, thus setting the pace for others to emulate earned half of this ear-marked fund. Working to meet the eight MDGs was central to the direction of Ghana's compact. Among other things, reducing poverty through the mechanization of rural agriculture, transportation, and the provision of services for the rural poor were some of the detailed specifications of the compact. The program currently operates in about 30 districts where poverty rates are generally above 40 per cent. Most of these districts are in the three northern regions and southern horticultural belt in southeastern, including the Central Afram Basin in Ghana. So far, funds from the MCC has been used to support the training of farmers in commercial agriculture, irrigation development, improvements to the land tenure system, construction of road networks, and the provision of water and sanitation facilities for rural communities (MiDA, 2010). China, a nontraditional donor has supported Ghana government with an interest-free loan of US$30 million for the construction of the 16.9 kilometer Ofankor- Nsawam road in 2002. The same government in 2006 gave Ghana a concessional loan of US$30 million to finance the first phase of the National Communications Backbone Network Project, which aim to connect all the ten regional capitals to the internet. They also gave another US$30 million loan in 2007 to develop ICT

facilities for Ghana's security agencies. The Chinese government also provided aid money for the construction of the Bui Hydro-Electric Power Dam, consisting of US$270 million in concessional loans and a US$332 million buyer credit facility. The construction work was undertaken by the Sino-Hydro Corporation and is scheduled to be completed in 2013 (Gyimah-Boadi &Yakah, 2010). The figure below shows the performance of Ghana's economy from 1970 to 2013.

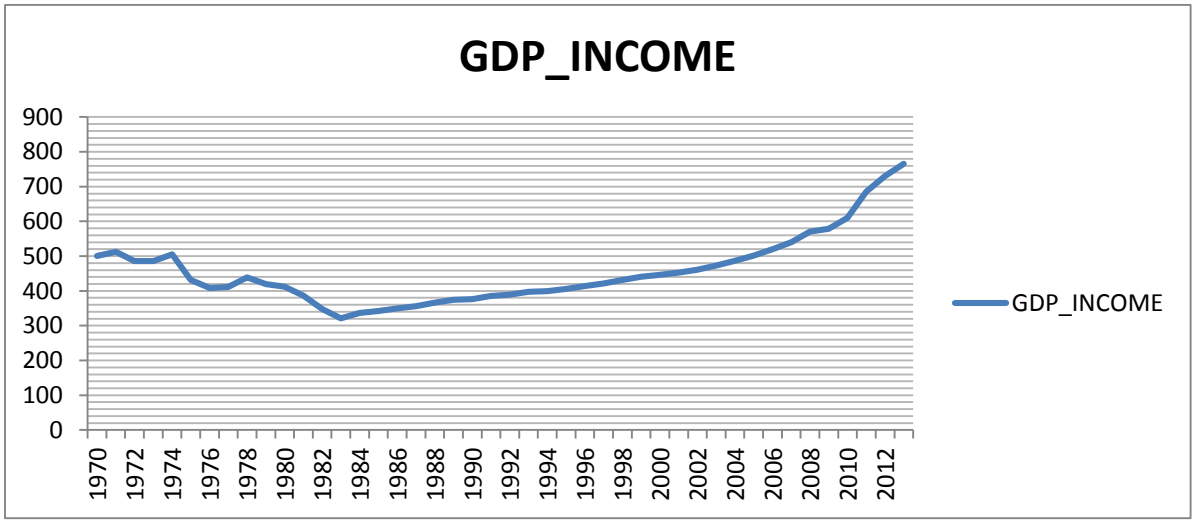


Figure 2 GDP per capita of Ghana, (1970-2013)

From figure 2 above, we are able to appreciate that despite the continuing support Ghana receives from multilateral donors; economic development has been relatively slow and less dramatic. The increase in per capita income from 2010 is as a result of the oil discovery. This provided an additional source of budgetary supplement from oil proceeds. Growth around this time could have possibly been triggered by new investments in the new oil industry.

3. RESEARCH METHODOLOGY, HYPOTHESES AND MODEL SPECIFICATION

3.1 Research Hypotheses

Corruption:: Governance is the exercise of economic, political and administrative authority to manage a country's affair at all level (UNDP, 1997). The concept has however been defined in different ways to highlight how subjective it could be. As a result, different institutions have collated and evolved their own measurements. The term is sometimes synonymous to corruption which is the abuse of the

entrusted power for private gain (Kaufmann et al., 2006b). It is also an institutional variant visualized when the mechanisms of public administration are non-functional as they ought to be. It is thought to be inimical to development, albeit this relationship has incurred mixed reactions from both grease in the wheel and sand in the wheel schools of thought. Thus the model relationship between governance (corruption) and Aid inflow and for that matter economic growth has received mixed reactions (See Aidt, 2009; Burnside & Dollar, 2000; Dietz et al., 2007; Fayissa & Nsiah, 2010; Gyimah-Brempong, 2002; Lensink & Morrissey, 2000; Próchniak, 2013; Svensson, 2000). Therefore, we hypothesize that good governance (or reduction in corruption) will lead to increase in EU aid inflows which is expected to impact positively on economic growth.

Aid Inflow: Aid inflow is the transfer of capital for the benefit of recipient country or its population (See Lancaster, 2007). EU Aid comes in different forms and purposes (i.e. economic, military, or even emergency humanitarian). Evidence on selective Aid allocation as a sine qua non for good governance and economic expansion abounds but have not been straightforward (See Fayissa and Nsiah 2010; Nunnenkamp & Thiele, 2006; Ohler et al., 2012; Hout, 2007a, 2007b; Easterly, 2007; Clist, 2009; Kargbo, 2012; Ohler et al., 2012; Knack, 2013). However, in this study, we hypothesize that there will be a strong positive relationship between EU aid inflows and governance and for that matter economic growth in Ghana.

GDP Per Capita Income: GDP per capita is an indicator of a country's standard of living (Cypher & Dietz, 2009). Per capita income is computed by dividing gross domestic product by midyear population. The effect of per capita income on economic growth has been extensively discussed in related studies within the growth nexus. However, improved standard of living, reflected in per capita income is spurred by other factors which may either be explicit or implicit. Such factors may include effective institutional set up, capital inflows (either FDIs or aids) etc. Both the neoclassical and endogenous perspectives have highlighted the importance of initial income within the convergence discussion on growth with mixed reaction of negative and positive significant relationship (Cypher & Dietz, 2009; Forson et al., 2013; Kargbo, 2012; Mankiw et al., 1992; Solow, 1956). We will examine this relationship by hypothesizing that foreign aid inflow promotes growth by supplementing limited domestic savings as well as foreign exchange constraints in Ghana. We thus expect positive significant relationship.

Trade Openness: Trade openness is the removal of barriers or restrictions on the free exchange of goods and services (Dowling & Valenzuela, 2010). It also includes the removal of tariffs and duties on imports and exports. The discussion on lower policy-induced barriers to international trade promote economic growth in countries with poorly developed institutions have changed cause with varying degree of findings. Several studies have found a general and positive relationship between trade openness and growth on average. It is a general view that without institutions, countries that integrate with world markets would become vulnerable to external shocks, possibly unleashing domestic conflicts and uncertainty which may be detrimental to growth. Thus, countries with weak institutions (governance) even when there is greater increase in trade openness may reduce growth ceteris paribus (See Federici & Montalbano, 2010; Haddad et al., 2012; Stensnes, 2006; Ulaşan, 2012). We, on the basis of the numerous institutional reforms undertaken in Ghana hypothesize that; greater increase in trade openness will positively induce growth.

3.2 Data Description

Data for the analysis are obtained from reputable organizations such as Bank of Ghana, World Bank, IMF, and Transparency International. These sources are considered reliable for any research project. The annual series is used for all the variables. The study uses GDP per capita income as a measure of economic growth; whiles good governance and or corruption consist of all the composite indicators from Transparency International extrapolated from 1996 to 1970. Trade as a percentage of GDP is used as a proxy for fiscal deficits to capture insufficiency of government revenue. GDP per capita and Aid inflows are deflated by the GDP implicit price deflator at the base year 2005 constant price. Aid inflows and trade are converted into natural logarithm to avoid heteroscedasicity and in order to have the estimation in elasticity for easy interpretation. The time series data spans from 1970 to 2013, covering 44 years. We present the summary descriptive statistics of the variables at level specification in table 2 below;

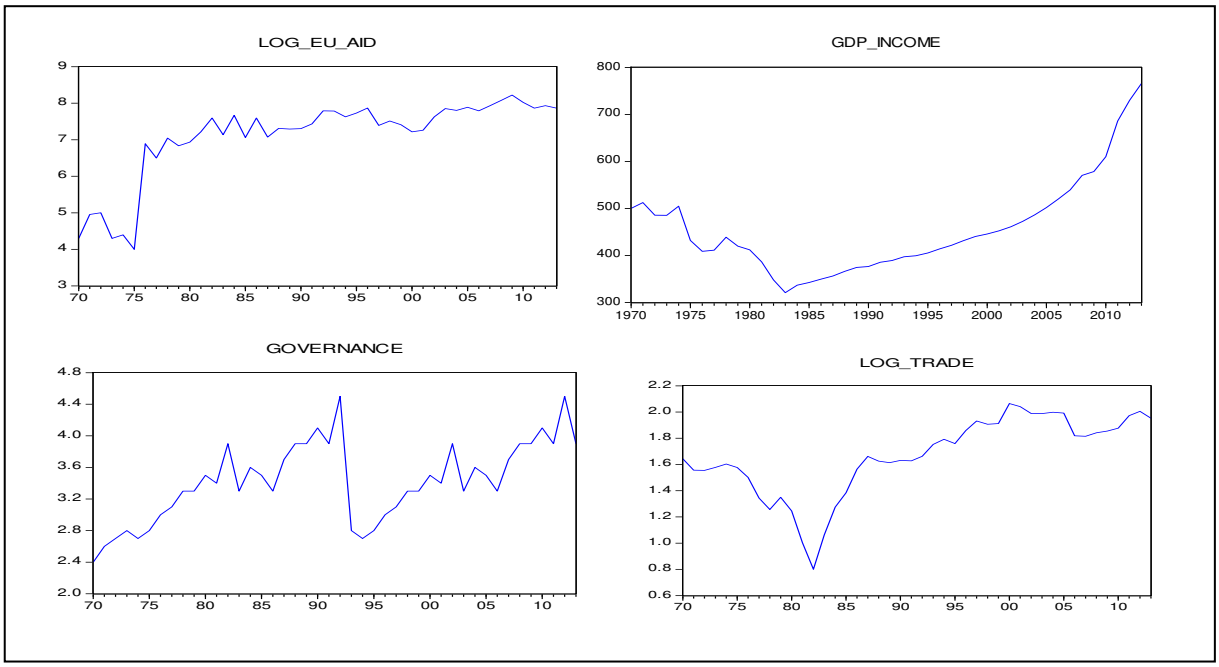
Table 2 Data Summary Statistics (at level specification)

	Y	GOV	AID	TRD
Mean	456.248	3.423	7.098	1.665
Median	431.706	3.400	7.421	1.662
Maximum	766.051	4.500	8.222	2.065
Minimum	320.772	2.400	4.000	0.801
Std. Deviation	100.559	0.507	1.119	0.299
Skewness	1.339	0.036	-1.737	-0.888
Kurtosis	4.659	2.395	4.796	3.351
Jarque-Bera	18.187	0.680	28.028	6.006
Probability	0.000112	0.711626	0.00001	0.049642
Observation	44	44	44	44

Note: A statistical summary of Ghana's Governance, GDP Growth, EU Aid allocation, and Trade indicators at level specification.

Table 2 provides the descriptive summary statistics (at level specification) generated with statistical software. All the macroeconomic variables are statistically significant at 5% except the institutional variable governance. In terms of skewness and kurtosis, all variables are within the acceptable range which means the series is without serious problem of outliers. Governance has a mean value of 3.423 with a standard deviation of 0.507. Per capita income recorded a mean of $456.248 USD dollars and a standard deviation of $100.559 USD dollars. EU aid inflow on the other hand has a mean of $7.098 million USD dollars with a corresponding standard deviation of $1.119 million USD dollars. Trade has a mean of 1.665% and a standard deviation of 0.299%. In general, the dispersion of values around

the mean indicates fairly normal distribution considering other key indicators. GDP per capita has the highest mean relative to governance and EU aid followed by trade having the least mean value. In a pairwise comparison, the variability of the variables shown by the standard deviation indicates that GDP per capita is highly volatile when compared to trade volatility of 0.299%. Governance volatility is relatively lower than that of EU aid volatility. However, in terms of correlation, we find GDP per capita and EU aid inflows to be mildly correlated (0.076). Correspondingly, the correlation between governance and EU Aid inflows is comparatively high (0.640). We graphically present the data summary for quick visual impression in figure 3 below;



In view of the fact that a visual plot of the data is usually the first step in any time series analysis, figure 3 above presents the graph of each variable. The figure shows that all the graphs of the selected variables are non-stationary, which is an indication that the respective means and variances of the selected variables are not constant. A cursory look at the graphs of Per capita GDP, governance, EU aid inflow and trade shows a conspicuous some fluctuations between 1970 and 2013. For instance, GDP per capita was down in the late 70s and early 80s with a corresponding drop in aid inflows from multilateral donors. The 1979 violent coup d'état led by the Armed Forces Revolutionary Council (AFRC) is one of the many factors that led to this (See US Department of State, 2014). Moreover, there was a devastating drought in the early 80s in Ghana (See

Ofori-Sarpong, 1986). This affected total output, hence the drop, but saw aid inflows increasing as multilateral donors such as the IMF and the World Bank were consulted for bailout. Nevertheless, this came with conditionalities. Key structural reforms became the launch-pad to accessing donor funds. The introduction of programs such as ERP and SAP became the normative approach to recover Ghana's ailing economy of that time.

3.3 Model Specification

Presenting the analysis using graphical method is only an initial step in time series modeling. The concepts of stationarity and unit root are extremely relevant elements in time series analysis that cannot be overlooked. When ignored, there may be a high tendency of having spurious regression which may impinge on the credibility of the results. Against this backdrop, following Johansen's (1991) approach, we test for cointegration and apply the vector error correction model (VECM) respectively. Through the cointegration approach, we able to assess changes in the long-run equilibrium relationships between the variables of interest on Ghana. However, before making any progress, it is equally imperative to determine the order of integration among these variables. This can best be done using the augmented Dickey-Fuller test (Dickey, 1988) to test for unit root. The ADF test is estimated in three different forms, each of which is based on a different hypothesis (Gujarati, 2003). These forms are specified below;

Y_t is a Random Walk and assumes the following form:

$$\Delta Y_t = \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-1} + \varepsilon_i \qquad (1)$$

Y_t is a Random Walk with an intercept:

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-1} + \varepsilon_i \qquad (2)$$

Y_t is a Random Walk with an intercept and time trend:

$$\Delta Y_t = \beta_1 + \beta_{2t} + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-1} + \varepsilon_i \qquad (3)$$

In addition, one can use the Phillips-Perron (PP) approach to detect unit root. Intuitively, the PP test is the same as ADF except that the PP test uses a non-parametric statistical method to handle serial correlation in the error term and does not include the lagged differences in the model. We describe the PP model below as follows;

Y_t is a Random Walk and assumes the following form:

$$\Delta Y_t = \delta Y_{t-1} + \varepsilon_i \quad (4)$$

Y_t is a Random Walk with an intercept:

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \varepsilon_i \quad (5)$$

Y_t is a Random Walk with an intercept and time trend:

$$\Delta Y_t = \beta_1 + \beta_{2t} + \delta Y_{t-1} + \varepsilon_i \quad (6)$$

In each of the cases outlined above, the null hypothesis is that δ= 0; that is, there is a unit root, and the time series is non-stationary. The alternative hypothesis is that δ<0; that is, the time series is stationary. In the case of the rejection of the null hypothesis, it presupposes that Y_t is a stationary time series at I (0). Otherwise, we have to take the difference until the null hypothesis is rejected. Same procedure is followed in this research. The unit root test is detected in levels and first differences respectively. Having been able to prove that each of the selected variables has a unit root at level, we are required to take first difference in order to have a stationary data. Thus assuming each variable is integrated of the same order of first difference at I(1), then by implication it means that we can test for long-run equilibrium relationships using Johansen (1991) cointegration method. This also indicates that there will be at least one cointegration among these variables. The cointegration method is linked to the vector error correction model (VECM). Though the VECM is somehow similar to the VAR model, but in contrast to the VAR model, the VECM can be used when all endogenous variables are non-stationary and cointegrated. Moreover, the VECM allows us to account for short-term adjustments that occur on the path toward the long-run equilibrium. Precisely, assuming that variable Y_t is out of equilibrium and that its value is above (below) its equilibrium value, there is the tendency it will start

falling (rising) to correct the equilibrium error in the next period. We describe the vector error correction model (VECM) below:

$$\Delta Y_t = \mu + \sum_{j=1}^{k-1} \Gamma_j \ \Delta Y_{t-j} + d_0 D_t + \alpha\beta' Y_{t-k} + \varepsilon_t \qquad (7)$$

Where $_\Delta$ denotes the first difference order, for example, $\Delta Y_t = (Y_t - Y_{t-1})$.The term Y_t represents variables on GDP, governance, EU aid, and trade that will be tested in this model and each variable is a p x 1 vector integrated of the same order. μ is a p x 1 vector of constant. The mechanism $\sum_{j-1}^{k-1} \tau \Delta Yt - 1$ comprises the vector autoregressive components where the p x p matrix denotes the coefficients of variables' short-run adjustments toward long-term equilibrium. D_t is the dummy variable where D_t=1 if $t =$ 1979; 1981/3 and1992, D_t = 0 if $t \neq$ 1979; 1981/3 and 1992. The equation $\alpha\beta' Y_{t-k}$describes the long-term equilibrium relationship (stationary linear combination of β'Y) where α stands for p x r speed of adjustment coefficient, β'denotes the cointegration vector with Y_t integrated of the same order, and k denotes the lag structure. $\mathcal{E}_t$ is the vector white-noise error term.

Although determining the exact order of cointegration among the variables is necessary, it might not be sufficient to establish the causal relationship among the variables of interest and ultimately economic development. As a consequence, there is the need to use the traditional Granger causality approach to unearth this seemingly relationship. This approach is the most common way to test for causal relationship between two variables and thus involves estimating a simple vector auto regression (VAR) equation, as shown below:

$$X_t = \sum_{i=1}^{n} \alpha_i \, Y_{t-1} + \sum_{j=1}^{n} \beta_j \, X_{t-1} + \mu_{1t} \qquad (8)$$

$$Y_t = \sum_{i=1}^{m} \lambda_i \, Y_{t-1} + \sum_{j=1}^{m} \delta_j \, X_{t-1} + \mu_{2t} \qquad (9)$$

Where, the disturbances μ_{1t} and μ_{2t} are assumed to be uncorrelated. The two equations above (8) and (9) posit that variable X is decided by lagged variable Y and X except that the dependent variables

are interchanged in each case. Granger causality means that the lagged Y significantly influences X in equation (8) and vice-versa in equation (9); thus, researchers can jointly test if the estimated lagged coefficients $\sum \alpha_i$ and $\sum \lambda_t$ are different from zero with F-statistics. However, the traditional Granger causality test is plagued with many bottlenecks.

To begin with, most pairwise granger causality test does not factor in the influence of other variables and as a result may suffer from specification bias. In a more precise way, causality test are sensitive to model specification and the number of lags of which makes evidence of pairwise causality more fragile and less credible (See Gujarati, 2003). Moreover, time series data are in most cases non-stationary, which could increase the probability of having spurious regression. Also, whenever the variables are integrated, the F-test procedure ceases to be valid due to the fact the test statistics does not have a standard distribution.

In order to resolve these shortcomings, Toda and Yamamoto (1995) present an alternate approach that accounts for the limitations enumerated. Among other things, this test may be used irrespective of whether Y_t and X_t are cointegrated of the order I(0), I(1) or I(2) and or whether they are non-cointegrated. Toda and Yamamoto (1995) augmented Granger causality test is the name of the method and is based on the following equations;

$$Y_t = \alpha + \sum_{i=1}^{k+d} \beta_i Y_{t-1} + \sum_{j=1}^{k+d} \gamma_j X_{t-j} + \mu_{yt} \qquad (10)$$

$$Y_t = \alpha + \sum_{i=1}^{k+d} \theta_i Y_{t-1} + \sum_{j=1}^{k+d} \delta_j Y_{t-j} + \mu_{xt} \qquad (11)$$

Where d is the maximal order of integration of the variables in the system, h and k are the optimal lag length of Y_t and X_t, and are error terms that are assumed to be white noise with zero mean, constant variance and no autocorrelation. We are required to determine the lag order of integration which by default occurs in the model, and to construct a VAR in their levels with a total of $(k + d)$ lags.

4. EMPIRICAL RESULTS AND ANALYSIS

4.1 Structural Break Test

We begin the analysis with a validation test using Chow's (1960) approach to investigate if there was a structural break in the series as suspected. Based on the statistical result (not shown here), the test statistic is less than the 5% significant level. Therefore, the null hypothesis of no structural break in the series is rejected. This implies that the 1979 bloody coup d'état, the 1981-1983 drought and the 1992 change over to democratic rule did indeed have some effects on the relationship coexisting between GDP per capita and the three regressors. These break dates are therefore included as dummy in our model.

We analyze the data by modifying the VECM models. That is, by detecting the data generating process (DGP), we can identify and assess the characteristics of each variable. To make any progress, there is the need to verify if our model should include components of an intercept and time trend. We then detect unit root on the variables GDP, governance, EU Aid inflows, trade and dummy. Our focus is on the set of variables that are integrated of the same order. The lag length must also be selected using appropriate statistical tool. This will assist in determining the order of cointegration. We have the option of selecting from commonly used tools such as the Akaike information criterion (AIC) and Schwarz information criterion (SIC). To simplify this research, these two approaches are used. The trace and maximum eigenvalue statistics are relevant in determining the exact order of cointegration. Once this is done, we can progress to predict the long-term equilibrium relationship and error correction by regressing ΔY_t against the lag difference of ΔY_t and Y_{t-k} where Y_t represents the variables Per capita, Governance, EU Aid inflows, Trade, and dummy.

4.2 Stationarity Tests

The rule of thumb is that when time series data is stationary at level, it is known to be integrated of the degree 0 or I (0), but when we take arbitrary number of differences (say first, second, or third) to make it stationary, this is known to be integrated at I(1), I(2), or I(3), respectively. The ADF and the PP tests are commonly used to detect for stationarity test, and thus is adopted by this paper. The unit root tests are estimated based on eq. (1)-(6) for the intercept with time trend and an intercept only. We present the t-statistics and p-values of the unit root test results in table 2 and 3 below;

Null Hypothesis: δ = 0 (each variable has a unit root).

Alternative Hypothesis: δ < 0 (each variable does not have a unit root).

Table 2 Results of Unit Root Test (Level Specifications)

	ADF		**PP**		**ADF**		**PP**	
	Intercept		***Intercept***		***Intercept and Trend***		***Intercept and Trend***	
At Level	*t-stats*	*p-value*	*Adj. t-stat*	*p-value*	*t-statistics*	*p-value*	*Adj. t-stat*	*p-value*
Y	-3.597	0.9981	2.007	0.9998	-4.192	0.9976	1.549	1.000
GOV	-3.081	0.355	-2.928	0.503	-3.519	0.499	-3.492	0.530
Log(EU_Aid)	-2.248	0.1930	-2.985	0.443	-2.911	0.169	-2.689	0.246
Log (TRD)	-1.526	0.511	-1.101	0.707	-2.531	0.313	-2.062	0.552

Note: ** Denotes significance at the 5 % level where Y = GDP Per capita income, GOV = *Composite Governance index*, EU_AID = *European Union Aid Allocation*, TRD = *Trade.*

Table 3 Results of Unit Root Test (First Difference)

	ADF		**PP**		**ADF**		**PP**	
	Intercept		***Intercept***		***Intercept and Trend***		***Intercept and Trend***	
First Difference	*t-stats*	*p-value*	*Adj. t-stat*	*p-value*	*t-stats*	*p-value*	*Adj. t-stat*	*p-value*
Y	-3.703	0.0076**	-19.194	0.000**	-5.926	0.000**	-23.403	0.000**
GOV	-9.717	0.000**	-9.686	0.000**	-9.601	0.000**	-9.571	0.000**
Log (EU_Aid)	-9.303	0.000**	-9.681	0.001**	-9.429	0.000**	-13.093	0.001**
Log(TRD)	-4.867	0.000**	-4.198	0.002**	-4.834	0.000**	-4.102	0.013**

Note: ** Denotes significance at the 5 % level where Y = GDP Per capita income, GOV = *Composite Governance index*, EU_AID = *European Union Aid Allocation*, TRD = *Trade.*

The values in Table 2 and 3 show the t-statistics and p-values at level. The results of the ADF and PP tests suggest our variables are cointegrated at the order 1(1). What this means is that, all the variables have unit roots at first difference. It should be noted that the identification of the data generating process (DGP) suggests that an intercept without time trend must be included in the tested equation. With all the variables integrated at 1(1) in table 2 and 3, we move to the next step to consider the long-run and short run equilibrium relationships. However, the appropriate lag length should be selected to aid in the estimation of the long run equilibrium relationship.

Appropriate Lag Length Selection

There are many ways to choose the optimal lag length in statistics, but the most commonly used ones include the Akaike information criterion (AIC) and Schwarz information criterion (SIC). We use these same methods to select the appropriate lag length for our model. Table 4 indicates that LR, FPE, AIC, SIC and HQ show significant results at 1, 2 and 4 lag length periods respectively. This is straight forward and makes our work quite easy. The numbers with asterisks are the smallest value in each of the criteria. Before selecting the lag length, two issues have to be addressed. One has to understand that

too short a lag length in VAR may not capture the dynamic behavior of the variables. Conversely, it is also argued that too long a lag length may distort the data and lead to a decrease in power. Guided by these caution, the optimal lag length selected for these four institutional and macroeconomic variables is based on the SIC (Schwarz information criterion), which indicates a lag length of 1 period.

Table 4 The Results of the Appropriate Lag length

Lag	Log L	LR	FPE	AIC	SIC	HQ
0	-183.4008	NA	0.137873	9.370041	9.538929	9.431105
1	-99.90233	146.1223	0.004743	5.995117	6.839556*	6.300439*
2	-81.11048	29.12737*	0.004234	5.855524	7.375515	6.405105
3	-41.81454	22.83569	0.004322	5.809758	8.361822	6.528824
4	-41.81454	25.73770	0.003587*	5.490727*	8.361822	6.528824

Note: * Indicates lag order selected by the criterion presented in the table (each test at 5 % level). LR: *sequential modified LR test statistic*, FPE: *Final prediction error*, AIC: *Akaike information criterion*, SIC: *Schwarz Information criterion*, HQ: *Hannan-Quinn information criteria.*

Cointegration Test for Long-run Equilibrium Relationships

The empirical analysis in this paper is subject to linear relationship, hence less emphasis is laid on whether the variables have time trend or not. We reached this conclusion due to the existence of one cointegrating relationship among variables (see table 5).

Table 5 the Number of Cointegration Vectors

Sample (Ghana):	1970- 2013
Included observations:	44
Trend assumption:	Linear deterministic trend
Series:	Y GOV AID TRD
Lags interval:	1 to 1

Unrestricted Co-integration Rank Test (Trace)

H_o	H_A	*Eigen value*	*Trace Statistic*	*0.05 Critical Value*	*p-value*
r = 0	r > 0	0.737	97.892	68.819*	0.000**
r ≤ 1	r > 1	0.457	41.864	47.856	0.1625
r ≤ 2	r > 2	0.169	16.186	29.797	0.699
r ≤ 3	r > 3	0.136	8.381	15.495	0.426
r ≤ 4	r =0	0.052	2.249	3.841	0.134

Unrestricted Co-integration Rank Test (Maximum Eigen value)

H_o	H_A	*Eigen value*	*Max-eigen stats*	*0.05 Critical Value*	*p-value*
r = 0	r = 1	0.737	56.027	33.877*	0.000**
r = 1	r = 2	0.457	25.678	27.584	0.086
r = 2	r = 3	0.169	7.805	21.132	0.915
r = 3	r = 4	0.136	6.132	14.264	0.596
r = 4	r =5	0.052	2.249	3.841	0.134

Note: Trace test and Max-eigen value test indicate 1 co-integrating equation(s) at the 5% level
*denotes rejection of the null hypothesize at the 5% level, ** MacKinnon p-value.

Table 5 shows the trace and max-eigen statistics. The trace statistic, 97.892 is greater than the critical value 68.819. This implies that the null hypothesis r = 0 can be rejected whiles the alternate hypothesis r > 0 accepted. The max-eigen value confirms the trace test results. The max-eigenvalue statistic 56.027 is larger than the critical value 33.877.Thus, the null hypothesis r = 0 is rejected and the alternate hypothesis r = 1 accepted at a 5% significance level. In other words, both tests (trace and max-eigenvalue) confirm that there is one cointegrating relationship among the five variables, meaning that in the long run, all the variables are cointegrated. We can proceed further to use the vector error correction model (VECM) to estimate the long and short run dynamics.

4.3 Long-term Cointegration Analysis

The cointegration test is conducted for Ghana's economic growth using GDP as dependent variable lagged on selected independent variables. Several tests for causality is performed here ; (1) long run causality – the significance of the error-correction terms by the t-test; (2) short run causality – the joint significance of the coefficients of lagged terms of each independent variable by Wald Chi-square tests and (3) Toda and Yamamoto causality tests- the joint significance of the four sources of causation.

We begin by evaluating the robustness of the VECM against normality residual test of Jarque-Bera, the ARCH test of serial correlation and the heteroscedasticity test. Using the histogram normality test, the Jarque- Bera is 14. 69, with p-value of 0.00065, which indicates that we reject the null hypothesis of the residual normally distributed at a 5% confidence level. This suggests the residual is not normally distributed. However, the other two tests passed the robustness checks. The ARCH test of heteroscedasticity indicates that the p-value of the obs*R-squared is 0.4872, which is greater than 5% confidence level. We accept the null hypothesis that there is no ARCH in this model. This is desirable as the model does not have ARCH effect. Using the Breusch- Godfrey serial correlation LM test, the p-value of the Obs*R-squared is 0.7103, which is greater than 5% confidence level. We accept the null hypothesis that there is no serial correlation. On the basis of these two tests, the model is acceptable as the residuals are Gaussian white noise.

The estimation of the VECM gives the long run cointegrating vectors as (1, -2.873, -0.868, -1.465, 10.519) to represent GDP, governance, EU Aid inflows, trade, and the dummy variable respectively. This means that when corruption is high (bad governance), it negatively affects GDP. Similarly, when EU aid inflows to Ghana falls, there is a corresponding decrease in the level of per capita growth in income. A drastic reduction in trade may impact negatively on GDP. There is a lot of theoretical soundness in the cointegrating vectors and confirms related works in the literature (See Aidt, 2009; Haddad et al., 2012; Knack, 2013; Ohler et al., 2012; Próchniak, 2013; Stensnes, 2006; Ulaşan, 2012). The cointegration test was normalized with respect to GDP. The coefficient of the one period lagged residual confirms there is a long run causal relationship from the regressors to GDP with significant negative sign (Results not shown here). This implies that the four regressors share a long run causal relationship with the dependent variable GDP. In other words, governance, EU aid inflows, trade and the dummy share a long run relationship with GDP.

However, to estimate the short run relationship, the Chi-square value of Wald statistic is used. The rule of thumb for determining the short run causality is that if the coefficients of the cointegrating residuals from C (3) to C (6) in the estimated residual jointly influence GDP, then we can conclude there is short-run causality from these variables to GDP. Thus the null hypothesis becomes zero if c (3) =c (4) =c (5) =c (6) = 0. In other words, if the p-value under the chi-square is greater than 5%, we cannot reject the null hypothesis; rather we accept the null hypothesis. However, the test result shows that the p-value of the chi square is less than 5% (0.0429). This implies the null hypothesis can be rejected to mean that governance, EU aid inflows and trade jointly causes GDP growth in the short run.

However, according to Granger theorem, when variables are cointegrated, there must be an error correction (EC) that describes the short-run adjustments of the cointegrated variables as they move towards their long run equilibrium positions. We capture this in table 6 below. The findings are statistically significant at 1%, 5% and 10% respectively and suggest that GDP, EU aid, trade and dummy are responsible for the error correction adjustment process when the variables are out of equilibrium.

Table 6 Error correction Adjustment

Co-Integrating Equation	D(Y)	D(GOV)	D(AID)	D(TRD)	D(DUMMY)
Adjustment Coefficient	-1.298*	0.083	6.00E-02**	-0.0168***	-0.328***
Standard Error	0.247	0.067	2.40E-02	0.009	1.8E-01
t- values	-5.249	1.232	2.530	-1.902	-1.795

Note: ** Denotes *p<0.01, **p<0.05, ***p<0.10*

The speed of adjustments for GDP per capita, trade and the dummy variables are negative. This implies when these variables are in disequilibrium from their long-term equilibrium in the short run or too high to be in equilibrium, they will begin falling in the following year by 1.298, 0.0168 and 0.328 percentage points respectively to be in equilibrium. However, the error correction term of EU aid inflow is positive. This implies when trade volume is too low in equilibrium, it will begin increasing in the following year by 0.06 percentage points to correct the equilibrium error. In general, the model confirms both long and short runs causation, but is unable to tell the direction of causality. To determine the direction of causality, Toda and Yamamoto's test model in equation (10) and (11) is used in place of the traditional Granger as discussed (See table 7).

Table 7 T-Y Block Granger Exogeneity Test

Dependent variable	Excluded Variables	χ^2	Prob.
Y	AID	0.847	0.357
	GOV	0.049	0.825
	TRD	2.552	0.110
	DUMMY	1.324	0.249
AID	Y	**13.95**	**0.000***
	GOV	0.576	0.448
	TRD	0.158	0.691
	DUMMY	1.993	0.158
GOV	Y	1.096	0.295
	TRD	0.274	0.708
	AID	0.14	0.600
	DUMMY	0.188	0.665
TRD	Y	**4.536**	**0.033***
	GOV	2.171	0.140
	AID	0.62	0.431
	GOV	4.423	0.035*
DUMMY	Y	**3.198**	**0.074****
	GOV	0.382	0.536
	AID	0.323	0.569
	TRD	**8.503**	**0.004***

***Note**: Denotes `p<0.05, **p<0.10 level*

The F-statistics of the modified Wald test is calculated. In table 9, the T-Y causality test results shows that there is a unidirectional causality from EU aid inflows to economic growth in Ghana. Similar direction is evident between trade openness and economic growth. EU aid inflows and trade openness supplements domestic incomes and thus leads to economic growth in the short and long runs. This result is consistent with related studies in the literature (Gomanee et al., 2002; Hansen & Tarp, 2001; Kilby & Dreher 2010; Lloyd et al., 2001; Maizels & Nissanke, 1984).

5. POLICY IMPLICATION AND CONCLUSIONS

This paper examines the causal relationship between EU Aid inflows and GDP in Ghana controlling for governance (corruption) and trade openness. The causal relationship between growth, governance, trade openness and EU aid inflow is based on pre-stated hypotheses. The statistical inference deduced from the Johansen model after testing for multivariate cointegration between GDP and the regressors indicates one cointegrating vector relationship. The dynamics of the variables in the short run indicates that the source of causality runs through governance, aid inflow, trade and the dummy to GDP. There is a long run unidirectional causal relationship from EU Aid inflows to GDP growth. Governance on the other hand remained insignificant and ineffective to power growth, but shared a relatively stronger correlation with EU Aid inflows. This analogy confirms the increasing attempt to meet the selectivity criteria espoused by most multilateral donors as precondition in ODA assessment as governance and EU aid inflows are highly correlated with each other.

The long run unidirectional causality from EU aid inflows to economic growth is confirmed by the negative coefficient and significance of the error correction term. The result supports the growth-led theses on income convergence in the literature (Cypher & Dietz, 2009; Forson et al., 2013; Kargbo, 2012; Mankiw et al., 1992; Solow, 1956). Therefore, effort of government and policy makers should be directed at meeting selectivity criteria to serve as inducement for continue inflow of aids to sustain efforts at meeting the MDGs and other developmental priorities. The short run unidirectional causality from trade to growth confirm existing literature (See Federici & Montalbano, 2010; Haddad et al., 2012; Stensnes, 2006; Ulaşan, 2012).

The results in this paper also hold significant implication on the conjecture that corruption is high in Ghana and is the cause of the slow pace of development. Consequentially, government's decision to launch the National Anti-Corruption Action Plan (NACAP) in 2011 though long overdue, the evidence presented in this paper rationalizes that line of thinking. However, such an attempt will only work if the various stakeholders (MMDAs, parastatals etc.) show the much needed commitment to raid the menace from the grassroots. Incidental and systematic corruption is high in Ghana and often times due to the nature they assume, they go unnoticed or treated with impunity. The scourge of petty corruption on national development is thus underestimated in most cases.

As a result, we recommend the reference point of this agency to be in tackling incidental corruption in the MMDAs, customs and police services as these are the main sources of petty corruption. Although this initiative is laudable, there are some questions that need clarifications. To what extent will this agency be independent to tackle corruption without fear or favor? How different will its mandate be from existing bodies? Are there mechanisms put in place to avoid conflict of interests and duplication of functions? We recommend further qualitative research to explore and present an in-depth account to answer these questions. In addition, relevant draconian measures should be reintroduced and applied where necessary to reduce impunity in cases involving corruption.

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