The Association between Corruption and Globalization in African Countries

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Corruption has been one of the most debated issues in the social science literature for decades. It has negative outcomes in economics such as: reducing private sector investments, tax revenue, economic growth and development; deterring foreign direct investments; causing misallocation of sparse resources; lowering the resources allocated for infrastructure, public services and anti-poverty programs; deteriorating environmental quality etc... Moreover, it may weaken political stability and democracy of a country. Because of its destructive effects, there are ample studies in the literature trying to identify determinants of corruption. Besides the already identified determinants of corruption (e.g., trade openness, bureaucratic inefficiency, rule of law, political rights, religion, democracy, freedom, political stability, poverty, education etc.), globalization level of a country may also affect corruption level in that particular country. Hence in this study we analyze the impact of globalization (i.e., over all globalization, economic globalization, social globalization, and political globalization) on corruption in a panel framework for African countries. Our results imply that over all globalization, economic globalization, and social globalization reduce corrupt activities in an economy.

Key Words: Corruption, Economic Globalization, Social Globalization, Political Globalization, Panel Data, African Countries

Introduction

Globalization shows the integration process of economies through economic, social and political channels (De, 2014: 108). Despite the multidimensional characteristics of globalization, researchers and international economic organizations generally pay attention to its economic dimension (Lalountas, Manolas and Vavouras, 2011: 637). According to economic framework, this process still has a substantial role in an economy by causing positive or negative effects on economies in all over the world. The rising density of economic integration through liberalization of the flows of trade, capital, labor, technology, and information has led to greater economic growth and expansion of knowledge (Nissanke and Thorbecke, 2006: 1338). According to Neo-classical economy argument, basic solution for lagging countries, especially those of Africa region, is to have more trade openness and more open financial markets (Wade, 2004: 567). Therefore, globalization reality in the world

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has also exposed countries to follow the rules within international liberal systems which support international integration among countries or regions in all dimensions.

One of the rules proposed by liberal argument is application of anti-corruption norms in public and private fields determined by the wealthy developed states and international economic organization, such as IMF and World Bank. Thus, some researchers have investigated whether globalization as a liberal argument is linked to corruption activities and whether globalization helps to reduce corruption because of pressure from the free market for applying anti-corruption policies (Warner, 2008: 593). Despite many papers investigated determinants of corruption (e.g., economic growth, income per capita, inflation, population growth, bureaucratic inefficiency, rule of law, political rights, religion, democracy, freedom, political stability etc.) in the literature (e.g. Akinpelu, Ogunseye, Bada and Agbeyangi, 2013; Asongu, 2013; Serra, 2006; Koyuncu, Ozturkler and Yilmaz, 2010, Topal and Unver, 2016, and Unver and Koyuncu, 2016), globalization level of a country may have a crucial role as a determinant of corruption level in that specific country. Therefore, the aim of this study is to empirically explain the impact of globalization (i.e., over all globalization, economic globalization, social globalization, and political globalization) on two different corruption measures (i.e., corruption perception index of Transparency International and control of corruption of Worldwide Governance Indicators) in the context of African countries. Hence, we hypothesize that globalization helps to reduce corruption in a country. In order to test the validity of our hypothesis, we employ an unbalanced panel data set including the period from 2002 to 2012 for 51 African countries. The paper proceeds as follows: section 2 reviews literatures; section 3 describes data and methodology; the estimation results are presented and assessed in Section 4; and finally, the last section concludes.

Literature Reviews

According to corruption literature, corruption means abuse of position and power held by government officers for getting individual gains. Moreover, corruption is a historical problem and thus it is believed that it is not only a modern time problem but also an ancient problem lasting for centuries (Bardhan, 1997: 1320).

However, a detailed review of literature on corruption shows that it may have various effects in an economy. Almost all of the empirical studies analyzing effects of corruption in the literature point out the negative effect rather than positive effect of corruption. Corruption may have direct and indirect adverse impacts on economic growth. Mo (2001), Kunieda, Okada and Shibata (2014) and D’agostino, Dunne and Pieroni (2016) in their studies reveal the direct negative effect of corruption on economic growth. There are studies in the literature analyzing indirect negative effects of corruption on economic growth. For instance, Mauro (1996), Koyuncu and Bhattacharyya (2007), and Asiedu and Freeman (2009) show corruption has a negative effect on private and public investments and therefore can indirectly reduce economic growth. Total factor productivity measures whether resources of a country flow to productive activities which is called misallocation problem. In this regard, corruption might be linked to total factor productivity. The results of Wu, Li, Nie and Chen (2017) suggest that corruption has a negative and significant effect on total factor productivity. Corruption also may reduce public infrastructure due to misallocation problems and loss of tax revenues. For instance, the empirical findings of Gillanders (2014) revealed that corruption has a negative and significant impact on infrastructure with the causality running from corruption to infrastructure while Timmons and Garfias (2015) found negative relationship between corrupt
behavior and tax revenues. In this regard, corruption may cause lower social expenditures (i.e., education, health, and social security). The results of analyses of Unver and Erdogan (2015) demonstrated that corruption had adverse and significant effects on different types of social expenditures. Corruption may also adversely affect the inflow of foreign direct investment (FDI). Foreign investors expect to realize the highest profit from a prospective investment with lowest risks, and consequently corruption for them seems very risky activity for entry to host country (Al-Sadig, 2009: 267). Erdogan and Unver (2015) in their paper show the negative effect of corruption on FDI entries. In addition to the effects of corruption mentioned above, it may have negative environmental consequences. For example, Koyuncu and Yilmaz (2009) and Koyuncu and Yilmaz (2013) empirically tested how deforestation is augmented by corruption level in a country. According to their empirical findings, corruption has a positive effect on deforestation.

Despite the above mentioned negative effects of corruption, there are rare studies indicating its positive effects in the literature (Leff, 1964; Huntington, 1968; Lui, 1985; Lien, 1990; Paul, 2010, and Huang, 2016).

**Data and Methodology**

In this paper, we examine the association between globalization and corruption by using four globalization indicators (i.e., overall globalization, political, economic and social globalization) and two distinct corruption indicators (i.e., corruption perception index of Transparency International and control of corruption of Worldwide Governance Indicators). Our sample covers only African countries and the years between 2002 and 2012. The data are unbalanced panel data. In order to conduct our empirical analyses, we employed the following multivariate fixed time effect models (FEM);

\[
CORRUPT_{it} = (\alpha + \tau_t) + \beta_1 GLOB_{it} + \beta_2 OPEN_{it} + \beta_3 POVERTY_{it} + \beta_4 INFLATION_{it} + \beta_5 FDI_{it} + \beta_6 POLFREED_{it} + u_{it}
\]

and the following multivariate random time effect models (REM);

\[
CORRUPT_{it} = \alpha + \beta_1 GLOB_{it} + \beta_2 OPEN_{it} + \beta_3 POVERTY_{it} + \beta_4 INFLATION_{it} + \beta_5 FDI_{it} + \beta_6 POLFREED_{it} + (\tau_t + u_{it})
\]

where \(it\) subscript stands for the \(i\)-th country’s observation value at time \(t\) for the particular variable. \(\alpha\) is the intercept term and \(\tau_t\) represents time-specific effects which affect all countries in the same way (i.e., \(\tau_t\) is variant across time but not across countries). \(u_{it}\) is idiosyncratic error term of the regression model.

In this study, we utilize two different proxies for corruption to check the validity and sensitivity of our empirical findings. If the findings remain valid for two distinct proxies, we may conclude that our results are robust. Table 1 below lists and describes dependent variables.

CORRUPTION variable represents the corruption level in a country. Control of corruption variable of WGI ranges from -2.5 to 2.5. The higher score indicates lower corruption level. In order to make its interpretation easy, we multiplied control of corruption variable of WGI with minus one. Control of corruption (CORRUPTION) variable as a proxy of corruption level was multiplied by minus one, where its higher scores indicate higher corruption level and its lower scores mean lower corruption level.
CPI variable is another proxy for corruption level in a country. For the same reason explained above, we multiplied corruption perception index (CPI) variable of Transparency International with minus one, where its higher scores indicate higher corruption level and its lower scores imply lower corruption level in a country.

\[ \text{CORRUPTION} = -1 \times \text{(Control of corruption)} \]

\[ \text{CPI} = -1 \times \text{(Corruption perception index)} \]

We chose our explanatory variables based on previous papers found in the literature and our research hypothesis. The definitions and sources of four globalization (GLOB) indicators are provided in Table 2 below.

\[ \text{SOCGLOB} \]
Social globalization

\[ \text{ECONGLOB} \]
Economic globalization

\[ \text{POLITICGLOB} \]
Political globalization

\[ \text{OVERALLGLOB} \]
Globalization index

Table 3 below shows the sub-components of KOF Index of Globalization and their weights given in parentheses.

\[ \text{A. Economic Globalization (36%)} \]
\[ \text{B. Social Globalization (38%)} \]
\[ \text{C. Political Globalization (26%)} \]

<table>
<thead>
<tr>
<th>A. Economic Globalization (36%)</th>
<th>B. Social Globalization (38%)</th>
<th>C. Political Globalization (26%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Actual Flows (50%)</td>
<td>i) Data on Personal Contact (33%)</td>
<td>Embassies in Country (25%)</td>
</tr>
<tr>
<td>Trade (percent of GDP) (22%)</td>
<td>Telephone Traffic (25%)</td>
<td>Membership in International</td>
</tr>
<tr>
<td>Foreign Direct Investment, stocks (percent of GDP) (27%)</td>
<td>Transfers (percent of GDP) (3%)</td>
<td>Organizations (27%)</td>
</tr>
<tr>
<td>Portfolio Investment (percent of GDP) (24%)</td>
<td>International Tourism (26%)</td>
<td>Participation in U.N. Security</td>
</tr>
<tr>
<td>Income Payments to Foreign Nationals (percent of GDP) (27%)</td>
<td>Foreign Population (percent of total population) (21%)</td>
<td>Council Missions (22%)</td>
</tr>
<tr>
<td>ii) Restrictions (50%)</td>
<td>ii) Data on Information Flows (35%)</td>
<td>International Treaties (26%)</td>
</tr>
<tr>
<td>Hidden Import Barriers (24%)</td>
<td>Internet Users (per 1000 people) (36%)</td>
<td></td>
</tr>
<tr>
<td>Mean Tariff Rate (28%)</td>
<td>Television (per 1000 people) (38%)</td>
<td></td>
</tr>
<tr>
<td>Taxes on International Trade (percent of current revenue) (26%)</td>
<td>Trade in Newspapers (percent of GDP) (26%)</td>
<td></td>
</tr>
<tr>
<td>Capital Account Restrictions (23%)</td>
<td>iii) Data on Cultural Proximity (32%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of McDonald's Restaurants (per capita) (44%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of Ikea (per capita) (44%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trade in books (percent of GDP) (11%)</td>
<td></td>
</tr>
</tbody>
</table>
Globalization may help to reduce corruption level in a country by making countries subject to international norms and rules. Thus, we expect each coefficient in models to be negative for GLOB variable.

In addition to GLOB variable, our model contains five more covariates determining corruption level in an economy. Their definition and sources are presented in Table 4 below.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN</td>
<td>Trade (% of GDP)</td>
<td>WDI</td>
</tr>
<tr>
<td>POVERTY</td>
<td>POVERTY= -1*(Human Development Index)</td>
<td><a href="http://hdr.undp.org/en/data">http://hdr.undp.org/en/data</a></td>
</tr>
<tr>
<td>INFLATION</td>
<td>Inflation, GDP deflator (annual %)</td>
<td>WDI</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment, Percentage of Gross Fixed Capital Formation</td>
<td>UNCTAD</td>
</tr>
<tr>
<td>POLFREE</td>
<td>POLFREE=−1*(political rights)</td>
<td>Freedom House</td>
</tr>
</tbody>
</table>

OPEN variable is a proxy for the degree of openness of a country. It is gathered from WDI and measured as percentage ratio of trade in GDP. Since more open an economy may help to decrease corruption level a negative relationship between OPEN and CORRUPT variables are anticipated.

POVERTY variable is an indicator of poverty level in a country. Human development index (HDI) values are used as proxy of poverty. Since higher HDI values imply higher human development level and so lower poverty level in a country, we multiplied HDI values with minus one to make its interpretation easy. As a result, higher values of POVERTY variable indicate higher poverty levels. One of the preliminary causes of corruption level in an economy is poverty. Thus, a positive coefficient is expected for POVERTY variable.

INFLATION depicts instability and uncertainty in an economy in the sense of economic and political instability and uncertainty. Corruption finds more space to itself in an uncertain and unstable environment. Therefore, we expect INFLATION to have a positive effect on CORRUPT.

FDI variable represents foreign direct investment. Foreign investors are inclined to invest in countries possessing lower corrupt activities. Hence our prior expectation is to have a negative relationship between FDI and CORRUPT variables.

POLFREE variable reflects the political freedom. Original political rights data range from one to seven where one implies the highest degree of political freedom and seven the lowest one. We multiplied political rights data with minus one to make its interpretation easy. As a result, higher score of POLFREE variable shows higher level of political freedom and lower score shows lower level of political freedom. Usually less corrupt behaviors are observed in societies having higher degree of political freedom and therefore we expect each coefficient in models to be negative for POLFREE variable.

Estimation Results

The multivariate estimation results are depicted in Table 5 and 6 for four different globalization indicators and two distinct corruption proxies. Hausman test is used to test the fixed time effect model (FEM) versus the random time effect model (REM), and decision is made at 95% significance level.

As seen from estimation results in Table 5, SOCGLOB, ECONGLOB, and OVERALLGLOB variables take the anticipated negative sign and are statistically significant whereas...
POLITICGLOB variable unexpectedly takes positive sign and is statistically significant. Among covariates: POVERTY variable is statistically significant and gets anticipated positive sign in all models; POLFREE variable is statistically significant and gets anticipated negative sign in all models; and INFLATION variable is statistically significant and gets anticipated positive sign in three out of four models.

Table 5: Multivariate Estimation Results for CORRUPTION Dependent Variable

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C</strong></td>
<td>0.77658</td>
<td>1.09755</td>
<td>0.48134</td>
<td>0.95728</td>
</tr>
<tr>
<td>Std. Error</td>
<td>0.08617</td>
<td>0.10436</td>
<td>0.11604</td>
<td>0.11298</td>
</tr>
<tr>
<td>Prob.</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
</tr>
<tr>
<td><strong>SOCGLOB</strong></td>
<td>-0.01856</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Error</td>
<td>0.00248</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob.</td>
<td>0.00000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ECONGLOB</strong></td>
<td></td>
<td>-0.00553</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td>0.00220</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td>0.01255</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>POLITICGLOB</strong></td>
<td></td>
<td></td>
<td>0.00311</td>
<td></td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td>0.00111</td>
<td></td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td>0.00520</td>
<td></td>
</tr>
<tr>
<td><strong>OVERALLGLOB</strong></td>
<td></td>
<td></td>
<td></td>
<td>-0.00886</td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
<td>0.00233</td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td></td>
<td>0.00020</td>
</tr>
<tr>
<td><strong>OPEN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
<td>0.0044</td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td></td>
<td>0.36330</td>
</tr>
<tr>
<td><strong>POVERTY</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.69987</td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
<td>0.20842</td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td></td>
<td>0.00080</td>
</tr>
<tr>
<td><strong>INFLATION</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.00133</td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
<td>0.00126</td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td></td>
<td>0.29060</td>
</tr>
<tr>
<td><strong>FDI</strong></td>
<td></td>
<td></td>
<td></td>
<td>-0.00036</td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
<td>0.00072</td>
</tr>
<tr>
<td>Prob.</td>
<td></td>
<td></td>
<td></td>
<td>0.61870</td>
</tr>
<tr>
<td><strong>POLFREE</strong></td>
<td></td>
<td></td>
<td></td>
<td>-0.15320</td>
</tr>
<tr>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
<td>0.000960</td>
</tr>
<tr>
<td>Num. of Obs.</td>
<td>524</td>
<td>461</td>
<td>524</td>
<td>524</td>
</tr>
<tr>
<td>Num. of Countries</td>
<td>51</td>
<td>44</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>R-square</td>
<td>0.56427</td>
<td>0.57729</td>
<td>0.52416</td>
<td>0.53007</td>
</tr>
<tr>
<td>F-statistic</td>
<td>111.58760</td>
<td>103.34000</td>
<td>94.91468</td>
<td>97.19441</td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
</tr>
<tr>
<td>Hausman Statistics</td>
<td>4.32321</td>
<td>3.67758</td>
<td>4.09520</td>
<td>6.93879</td>
</tr>
<tr>
<td>Prob(Hausman-Stat.)</td>
<td>0.63300</td>
<td>0.72020</td>
<td>0.66380</td>
<td>0.32650</td>
</tr>
</tbody>
</table>

According to results in Table 6, SOCGLOB, ECONGLOB, and OVERALLGLOB variables get the expected negative sign and are statistically significant while
POLITICGLOB variable unexpectedly takes positive sign and is statistically significant. Among covariates: POVERTY variable is statistically significant and gets anticipated positive sign in all models; POLFREE variable is statistically significant and takes anticipated negative sign in all models; INFLATION variable is statistically significant and gets anticipated positive sign in three out of four models; and FDI variable gets the anticipated negative sign and is statistically significant in two out of four models.

| Table 6: Multivariate Estimation Results for CPI Dependent Variable |
|-------------------------|-----------------|----------------|-----------------|----------------|
|                         | Model 5         | Model 6        | Model 7         | Model 8        |
| C                       | -1.96555        | -1.33773       | -2.33221        | -1.36641       |
| Std. Error              | 0.15415         | 0.19061        | 0.22362         | 0.21027        |
| Prob.                   | 0.00000         | 0.00000        | 0.00000         | 0.00000        |
| SOCGLOB                 | -0.03262        |                |                |                |
| Std. Error              | 0.00452         |                |                |                |
| Prob.                   | 0.00000         |                |                |                |
| ECONGLOB                |                | -0.01342       |                |                |
| Std. Error              |                | 0.00395        |                |                |
| Prob.                   |                | 0.00080        |                |                |
| POLITICGLOB             |                |                | 0.00384         |                |
| Std. Error              |                |                | 0.00218         |                |
| Prob.                   |                |                | 0.07830         |                |
| OVERALLGLOB             |                |                |                | -0.02180       |
| Std. Error              |                |                |                | 0.00450        |
| Prob.                   |                |                |                | 0.00000        |
| OPEN                    | 0.00075         | -0.00026       | 0.00086         | -0.00072       |
| Std. Error              | 0.00087         | 0.00137        | 0.00103         | 0.00900        |
| Prob.                   | 0.39230         | 0.84920        | 0.40180         | 0.42420        |
| POVERTY                 | 2.16109         | 4.15053        | 4.33200         | 3.26208        |
| Std. Error              | 0.38738         | 0.33307        | 0.28098         | 0.33279        |
| Prob.                   | 0.00000         | 0.00000        | 0.00000         | 0.00000        |
| INFLATION               | 0.00345         | 0.00628        | 0.00636         | 0.00521        |
| Std. Error              | 0.00219         | 0.00226        | 0.00228         | 0.00218        |
| Prob.                   | 0.11550         | 0.00580        | 0.00550         | 0.01720        |
| FDI                     | -0.00218        | -0.00022       | -0.00221        | -0.00246       |
| Std. Error              | 0.00127         | 0.00159        | 0.00134         | 0.00129        |
| Prob.                   | 0.08670         | 0.89100        | 0.10010         | 0.05800        |
| POLFREE                 | -0.23534        | -0.22629       | -0.27083        | -0.24382       |
| Std. Error              | 0.01695         | 0.01805        | 0.01722         | 0.01744        |
| Prob.                   | 0.00000         | 0.00000        | 0.00000         | 0.00000        |
| Num. of Obs.            | 447             | 403            | 447             | 447            |
| Num. of Countries       | 51              | 44             | 51              | 51             |
| R-square                | 0.63192         | 0.62185        | 0.59026         | 0.59480        |
| F-statistic             | 46.13908        | 108.53530      | 38.71517        | 107.64640      |
| Prob(F-statistic)       | 0.00000         | 0.00000        | 0.00000         | 0.00000        |
| Hausman Statistics      | 14.02770        | 8.030866       | 15.417152       | 8.29059        |
| Prob(Hausman-Stat.)     | 0.02930         | 0.23590        | 0.0172          | 0.21760        |
| Selected Model          | FEM             | REM            | FEM             | REM            |
Conclusion

In this study, we analyze the association between globalization and corruption in African countries by using unbalanced data covering the periods between 2002 and 2012. Countries with higher degree of globalization may experience less corrupt activities since globalization make countries subject to international norms and rules. Therefore, main hypothesis of the study is globalization reduces corruption. The empirical analysis is conducted by using two distinct proxies for corruption and four different globalization indicators. According to estimation results, we identified a statistically significant negative impact for SOCGLOB, ECONGLOB, and OVERALLGLOB variables on CORRUPT variable while we found an unexpected positive significant sign for POLITICGLOB variable. The findings imply that countries having higher degree of overall globalization, social globalization, and economic globalization face less corrupt activities. On the other hand, the results hint that countries having higher political globalization experience more corrupt behaviors, which contradicts with our hypothesis.

References:


