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Is Corruption Good or Bad for FDI? Empirical Evidence from Asia, Africa and Latin America

Summary: This article revisits the relationship between corruption and Foreign Direct Investment inflows in a panel of 42 countries from 1984 to 2012 using pooled mean group estimator in a dynamic heterogeneous panel setting using Westerlund and ARDL panel cointegration tests where the estimations are carried out by three different estimators: the pooled mean group (PMG), mean group (MG), and the dynamic fixed effect (DFE) estimators in order to examine both the long- and short-term effects of corruption on FDI inflows. The results suggest that corruption has a positive impact on FDI inflows in the case of Asia and Africa; and a negative impact in the case of Latin America.

Key words: FDI, Corruption, Panel data.

JEL: B28, F15.

The role of corruption in determining the Foreign Direct Investment (FDI) inflows is a long-debated issue and there seems to be no consensus in the literature on the nature of this relationship. One theory suggests that corruption undermines FDI inflows to the extent that foreign investors perceive corruption as an impediment to investing. This is because corruption damages the perception of the host country’s investment climate by lowering transparency, wasting resources and providing poor governance. An opposing theory, on the other hand, suggests that corruption has a beneficial impact on FDI inflows in countries where governments are inefficient. This theory argues that corruption may be the only way for to encourage investment by offering alternative ways to conduct business as bribing helps foreign investors avoid bureaucratic inefficiencies (see Andrei Shleifer and Robert Vishny 1993; Mohsin Habib and Leon Zurawicki 2002; Toke S. Adit 2003; Peter A. Voyer and Paul W. Beamish 2004; Peter E. Egger and Hannes Winner 2006; Daniel Kaufmann and Pedro C. Vicente 2011; Marco R. Barassi and Ying Zhou 2012; Sotirios Bellos and Turan Subasat 2012; Miguel Eduardo Sánchez-Martín, Rafael de Arceb, and Gonzalo Escribanoc 2014; Jose R. Godineza and Liu Ling 2015).

The existing empirical literature to date has also yielded mixed results. For example, Pranab Bardhan (1997), Egger and Winner (2005), and Barassi and Zhou (2012), and show that there is a positive relationship between corruption and FDI inflows, suggesting that when a transition economy suffers from fragile rule of law and poor governance along with corruption, then corruption can narrow down slow inefficient administrative procedures. On the other hand, Egger and Winner (2005) find that corruption can increase the level of FDI inflows if revenues generated by firms are more than costs they face due to corruption; and Bardhan (1997) reports evidence that corruption enhances efficiency in the presence of government failures hence it may be beneficial.

It is against this backdrop that the present article aims at revisiting the relationship between corruption on Foreign Direct Investment inflows in a panel of 42 countries from 1984 to 2012 using pooled mean group estimator in a dynamic heterogeneous panel setting using Westerlund and ARDL panel cointegration tests, where the estimations are carried out by three different estimators: the pooled mean group (PMG), mean group (MG), and the dynamic fixed effect (DFE) estimators in order to examine both the long- and short-term effects of corruption on FDI. The use of these techniques allows us to take into account the country-specific heterogeneity issue.

The rest of the article is organized as follows. Section 1 presents a review of the related literature. Section 2 reviews the data and methodology. The discussion on the empirical results is presented in Section 3, and Section 4 will conclude the study.

1. Literature Review

The existing studies in the literature on the impact of corruption on FDI inflows have yielded inconclusive results. Earlier studies such as Bardhan (1997), Habib and Zurawicki (2002), Voyer and Beamish (2004), Egger and Winner (2005), Barassi and Zhou (2012), Marie Freckleton, Allan Wright, and Roland Craigwell (2012), Dimitar Gueorguieva and Edmund Maleskyb (2012), Zhou and Barassi (2012), Yusuf Ekrem Akbas, Mehmet Senturk, and Canan Sancar (2013), Aboubacar Diabya and Kevin Sylwesterb (2014), Sánchez-Martín, de Arceb, and Escribanoc (2014) and Godineza and Ling (2015) have employed various econometric techniques for a variety of panels of countries, reporting evidence that corruption may not always be detrimental to FDI inflows as the theory suggests.

Some empirical studies such as Habib and Zurawicki (2002) provide evidence of a negative link between corruption and FDI inflows, while others such as David Wheeler and Ashoka Mody (1992) fail to find any significant relationship at all. In an extensive empirical analysis, Selçuk Akçay (2006) uses both cross-sectional as well as a panel data analysis to explore the impact of corruption on *per capita* FDI inflows to transition economies. Their results suggest that countries with a low level of corruption attract more *per capita* FDI. On the other hand, a research on OECD countries by Shang-Jin Wei (2000) reports strong evidence that there is a negative relationship between corruption and FDI inflows. Some existing studies use a cross-sectional rather than a panel data analysis to examine the effects of a corruption on FDI inflows. For instance, Akçay (2006) fails to find evidence of a negative relationship between FDI inflows and corruption for a sample of developing countries.

A number of other studies also provide conflicting evidence on the linkages between FDI and corruption. For example, a number of researchers consider corruption as a source of hindrance for foreign direct investment. They argue that corruption affects investment quality, increases cost of production, lowers profits, affects productivity decreases transparency, deteriorates infrastructure, promotes poor governance, waste resources because of rents, effects infrastructures competence (Wei 2000; Habib and Zurawicki 2002; Johann G. Lambsdorff 2003; Egger and Winner 2005) and worsens the location compensations for multinational companies (Egger and Winner 2005). Similarly, Shleifer and Vishny (1993), Christopher Bliss and Rafael Di Tella (1997) and Adit (2003) points out that the corruption raises the cost of multinational companies. On the contrary, some empirical studies are of the view that corruption compensates poor governance. When an economy is a victim of low governance, fragile rule of law and corruption then corruption can serve as a catalyst for slow and inefficient administrative procedures (Pierre-Guillaume Méon and Khalid Sekkat 2008; Bellos and Subasat 2011). Furthermore, countries having poor institutional structure get benefit from corruption by mobilizing their factors of production (Méon and Sekkat 2008).

A major weakness of the above studies is that they assume a homogenous slope of the parameters in a panel data framework. Since every developing country is different in relation to the nature of the macroeconomic determinant of the FDI inflows as well as the socio economic determinants like corruption, the homogeneity condition may lead to misleading results. Furthermore, most of the existing studies assume cross sectional independence among the countries and therefore use the estimation techniques which are based on the assumption of no cross sectional dependence. The present study aims at addressing these issues.

2. Data and Methodology

This article adopts a panel-data approach covering 42 countries over the period 1984-2012, to examine the dynamic relationship between corruption and FDI inflows using annual data. For the independent variable we use FDI inflows (denoted as *fdi*) as a percentage of GDP. In order to facilitate the comparison among countries, we use data in US dollar terms. The data is taken from United Nations Conference on Trade and Development (UNCTAD 2013)[1]. Corruption data (denoted as *corr*) has been obtained from International Country Risk Guide (ICRG 2013)[2]. As far as the control variables are concerned, we consider the conventional variables that are used in the literature. For instance, GDP *per capita* (denoted *gdp*) is used to capture market size of any host country. Inflation (denoted as *inf*) is used to proxy macroeconomic instability. GDP deflator is used to capture the change in prices from production side of economy. Trade openness (denoted *open*) is used as it is an important determinant that affects the decision to invest in a country. It is estimated by taking the ratio of sum of exports and imports to GDP at constant prices. External debt (denoted as *debt*) is used as it creates challenges for further private investment as well as FDI. Moreover it reflects fiscal difficulties of a government which may have to spend less on development. Similarly, government expenditures (denoted *gex*) and domestic

[1] **United Nations Conference on Trade and Development (UNCTAD).** 2013. Foreign Direct Investment Flows and Stock. http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?IF_ActivePath=P,5 (accessed October 01, 2013).

[2] **Political Risk Services.** 2013. International Risk Guide. http://epub.prsgroup.com/the-countrydata-gateway (purchased online in October 2013).

investments (denoted as *invt*) has also been used to capture further domestic economic expenditures. The data on the control variables are collected from the World Bank's World Development Indicators (WDI 2013)[3].

This article tests the hypothesis that corruption has a negative impact on FDI inflows. In order to test this hypothesis we use panel cointegration techniques. It is well known that most residual based cointegration tests in panels require that the long-run parameters for the variables in their levels are equal to the short-run parameters for the variables in their differences. The standard panel models such as pooled OLS, fixed effects and random effects models have some serious shortcomings. For instance, pooled OLS is a highly restrictive model since it imposes common intercept and slope coefficients for all cross sections, and thus disregards individual heterogeneity. The fixed effects model, on the other hand, assumes that the estimator has common slopes and variance but country-specific intercepts. The parameter estimates produced by the fixed effects model are biased when some regressors are endogenous and correlated with the error term.

Hence, we use Joakim Westerlund (2007) panel cointegration tests, which allow for a large degree of heterogeneity, both in the long-run cointegrating relationship and in the short-run dynamics, and dependence within as well as across the cross-sectional units. The rationale here is to test for the absence of cointegration by determining whether Error Correction exists for individual panel members or for the panel as a whole. In the second step we use Autoregressive Distributed Lag (ARDL) bounds testing procedure, through which both the short-run and long-run effects can be estimated simultaneously from a data set with large cross-section and time dimensions. In addition, the ARDL model, especially PMG and MG, provides consistent coefficients despite the possible presence of endogeneity because it includes lags of dependent and independent variables (Hashem M. Pesaran 2006). The ARDL model takes the following form in our case:

$$fdi_{i,t} = \mu_i + \sum_{j=1}^{p} \lambda_{i,j} fdi_{i,t-j} + \sum_{j=0}^{q} \delta_{i,j} x_{i,t-j} + \varepsilon_{i,t}, \qquad (1)$$

where $fdi_{i,t}$ is the level of FDI in i group at t time, u_i is included for the fixed effects and x_{it} is vector of explanatory variables which includes *corr*, *open*, *gdp*, *gex*, *cpi* and *invt.* After estimating an ARDL model for each cross section the long-run coefficients will be averaged. Equation (1) can be reparameterized and can be written as first difference form:

$$\Delta fdi_{i,t} = \mu_i + \phi_i fdi_{i,t-1} + \varphi_i x_{i,t} + \sum_{j=1}^{p-1} \lambda^*_{i,j} \Delta fdi_{i,t-j} + \sum_{j=0}^{q-1} \delta^*_{i,j} \Delta x_{i,t-j} + \varepsilon_{i,t}, \qquad (2)$$

where $\phi_i = -\left(1 - \sum_{j=1}^{p} \lambda_{i,j}\right)$, $\varphi_i = -\sum_{j=0}^{p} \delta_{i,j}$, $\lambda^*_{i,j} = -\sum_{m=j+1}^{p} \lambda_{i,m}$, $\delta^*_{i,j} = -\sum_{m=J+1}^{q} \delta_{i,m}$ with $j = 1, 2, \ldots, p\text{-}1$.

[3] **World Bank.** 2013. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed October 01, 2013).

Equation (2) can be written as follows when we group the variables in levels:

$$\Delta fdi_{i,t} = \mu_i + \phi_i \left[fdi_{i,t-1} - \theta_i x_{i,t} \right] + \sum_{j=1}^{p-1} \lambda^*_{i,j} \Delta fdi_{i,t-j} + \sum_{j=0}^{q-1} \delta^*_{i,j} \Delta x_{i,t-j} + \varepsilon_{i,t}, \quad (3)$$

where $\theta_i = -\frac{\varphi_i}{\phi_i}$. This shows the long-run relationship between the variables involved and ϕ_i is the speed of adjustment towards the long-run equilibrium. This model can be estimated by three different estimators: the mean group (MG) model of Pesaran and Ron Smith (1995), the pooled mean group (PMG) estimator developed by Pesaran (2006), and the dynamic fixed effects estimator (DFE). All three estimators consider the long-run equilibrium and the heterogeneity of the dynamic adjustment process and are computed by maximum likelihood.

3. Empirical Results

Since our data-set includes time period which is fairly long, it is very likely that the macroeconomic variables will follow a unit root process. We employ Gangadharro Soundalyrao Maddala and Stephen Wu (1999) as well as the Pesaran (2007) panel unit root tests for multiple variables and lags, which allows the heterogeneity in the data series. Though testing for the order of integration of variables is not important when applying the ARDL model as long as the variables of interest are $I(0)$ and $I(1)$, we carry out these tests just to make sure that no series exceeds $I(1)$ order of integration. The results in Table 1 show that the variables have mixed orders of integration, but none of the variables is $I(2)$ or beyond, justifying the use of the ARDL framework.

Table 1 Panel Unit Root Tests

	Africa			Asia			Latin America		
	Maddala and Wu panel unit root test								
	Lag 0	**Lag 1**	**Lag 2**	**Lag 0**	**Lag 1**	**Lag 2**	**Lag 0**	**Lag 1**	**Lag 2**
gdp	0.9220	0.9830	0.7830	0.8770	0.5730	0.0511*	0.6400	0.5790	0.0810*
corr	0.0430*	0.0000*	0.0070*	0.8880	0.9780	0.9960	0.5650	0.9170	0.8950
open	0.0220*	0.0000*	0.0060*	0.0300	0.6670	0.2830	0.5118	0.7427	0.7148
exp	0.0060*	0.5410	0.2380	0.8670	0.9860	0.9810	0.7458	0.1583	0.1747
invest	0.2930	0.3730	0.5340	0.7110	0.3640	0.5340	0.1196	0.4521	0.0588*
debt	0.9050	0.8640	0.9600	0.9790	0.7780	0.7870	0.9500	0.9700	0.9720
fdi	0.0000*	0.0000*	0.0010*	0.0010*	0.2710	0.0810*	0.0000*	0.0020*	0.7390
inf	0.0000*	0.0000*	0.0150*	0.0000*	0.0000*	0.0090*	0.0000*	0.0000*	0.0260*
	Pesaran panel unit root test								
gdp	0.1810	0.2670	0.5120	1.0000	0.9960	1.0000	0.9630	0.4250	0.9500
corr	0.0340*	0.0440*	0.3390	0.6380	1.0000	1.0000	0.0250*	0.9250	0.7010
open	0.0020*	0.0370*	0.5470	0.2700	0.9990	1.0000	0.9010	0.6070	0.9040
exp	0.0640*	0.2580	0.4660	0.7390	0.8830	0.9930	0.3350	0.0170*	0.4190
invest	0.1930	0.2770	0.6390	0.1500	0.3880	0.9700	0.4850	0.2040	0.8890
debt	1.0000	1.0000	1.0000	0.9960	0.8300	1.0000	0.2270	0.2924	0.5500
fdi	0.0000*	0.0130*	0.0450*	0.0000*	0.6260	0.4940	0.0000*	0.0010*	0.7600
inf	0.0000*	0.0000*	0.5100	0.0000*	0.0560*	0.9760	0.0000*	0.0000*	0.0040*

Note: The *p*-values with asterisk (*) show that the data series is $I(1)$ and without asterisk show the data series is $I(0)$.

Source: Authors.

The second issue in our panel causality analysis is to test whether or not slope coefficients are homogenous in our empirical model. There is bound to be country-specific heterogeneity among the countries in the data set at least in the short-run due to the effect of local laws and regulations. The PMG estimator offers more efficient estimates as compared to the MG estimators under the assumption of long-run homogeneity. Moreover, the time span for this study is 27 years, and the MG estimator may lack degrees of freedom. Consequently, the PMG estimation is more relevant for this analysis. We test the slope homogeneity condition by applying the standard version of Swamy's test and adjusted version of the Swamy's test adjusted for the small sample properties. P. A. V. B. Swamy (1970) derives the slope homogeneity test on the dispersion of individual slope estimates from a suitable pooled estimator. Swamy's tests require panel data models where N is small relative to T.

As can be seen in Table 2, both tests clearly reject the null hypothesis of slope homogeneity condition. This suggests that that application of long-run estimates based on the panel vector autoregressive model or error correction model by the means of generalized method of moments and of pooled least square estimators will be misleading in investigating the linkages between FDI and corruption. Hence, we use Westerlund (2007) panel cointegration tests, which allow for a large degree of heterogeneity. Next, we carry out Westerlund (2007) error correction panel cointegration tests, which provide p-values to test whether the null of no error correction can be rejected, either for the whole panel or for a non-zero fraction of the cross units depending on whether a pooled or group-mean estimation is performed. By applying an Error-Correction Model in which all variables are assumed to be $I(1)$, the tests proposed by Westerlund (2007) examine whether cointegration is present or not by determining whether error-correction is present for individual panel members and for the panel as a whole. If the null can be rejected, there is evidence in favor of cointegration. As can be seen in Table 3, the null hypothesis of no cointegration, and hence no stationary equilibrium relationship among the variables, is rejected at $P < 0.01$ in almost all the cases. The economic implication of the existence of cointegration is that there is a stable equilibrium long-run relationship between FDI inflows and corruption.

Table 2 Slope Heterogeneity Test

Swamy statistic	7.0575***
Adjusted Swamy statistic	4.6530***

Note: *** denotes significance at the 1% level.

Source: Authors.

Table 3 Wasterlund Error Correction Panel Cointegration Tests

Statistic	Asia			Africa				Latin America		
	Value	*p*-value	Robust	Value	*z*-value	*p*-value	Robust	Value	*p*-value	Robust
G_τ	-2.538	0.098	0.05	-2.539	-3.799	0	0	-1.735	0.071	0.02
G_α	-4.101	1	0.84	-5.401	1.81	0.965	0	-5.564	0.582	0.02
P_τ	-9.783	0.023	0.03	-9.394	-2.455	0.007	0	-7.291	0.008	0.02
P_α	-4.642	0.957	0.35	-4.631	-0.268	0.394	0	-4.247	0.06	0.02

Note: G_τ and G_α are group mean statistics that test the null of no cointegration for the whole panel against the alternative of cointegration for some countries in the panel. P_τ and P_α are the panel statistics that test the null of no cointegration against the alternative of cointegration for the panel as a whole. The robust critical values are computed using 300 bootstraps.

Source: Authors.

Given the evidence of panel cointegration, the long-run relationships between FDI inflows inflows and corruption can further be estimated by applying the ARDL framework. We estimate four models for four different samples through PMG, MG and Dynamic Fixed Effect (DFE) estimators for the whole sample. We use Hausman test to choose between alternative estimates. The *p*-values suggest that null hypothesis is in favour of PMG estimates. The long-run analysis of the PMG, MG and DFE presented in Table 4 sheds light on the long-run impacts of corruption on FDI inflows. The long-run estimates from PMG, MG and DFE estimators generally indicate a positive impact of corruption on the FDI inflows in the overall sample. Therefore, we focus on the PMG estimators as it provides the heterogeneous estimates for the short-run in the case of panel. Similarly, government expenditure, trade openness and external debt play a positive role in determining the level of FDI inflows.

Table 4 Long-Run Coefficients

Regressors	PMG	MG	DFE	Hausman test (*p*-values)
All countries				
corr	0.5335**	0.3140	0.0992**	0.3889
gdp	0.9081*	0.8976	0.5756*	
open	0.0594*	0.8703**	0.9488*	
gex	0.0086***	0.5634*	-0.4077*	
debt	0.0142*	0.6867	0.5584*	
cpi	-0.7866**	-0.6864	-0.5759*	
Asia				
corr	0.0534***	1.0505**	0.7908**	0.5303
gdp	0.0775***	0.0595*	0.9977*	
open	0.2136*	-1.7527**	0.4273*	
gex	-0.7096***	-0.0396*	0.9697*	
debt	0.8265***	1.9207*	0.4171**	
cpi	0.0215***	0.0055**	0.5843**	
Africa				
corr	2.4498***	-0.6152*	0.7317*	0.4889
gdp	0.0533**	0.2073*	0.0087**	
open	0.5170**	3.0875*	0.3619**	
gex	-1.9571***	3.5547**	0.4557**	
debt	0.5798**	-1.1937**	0.8838**	
cpi	0.0005	0.0781**	0.2206**	
Latin America				
corr	-0.2386***	0.9204**	0.3363**	0.3871
gdp	0.0026*	0.0076**	0.6174*	
open	0.1426*	1.7678**	0.6929**	
oex	-1.3594***	-0.8543*	0.5769*	
debt	0.5637***	1.3101***	0.8933*	
cpi	-0.0001**	-0.0053*	0.2444*	

Note: MG, PMG and DFE denote the mean group, the pooled mean group, and the dynamic fixed effects estimators, respectively. * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level.

Source: Authors.

Next we divided the sample into three parts as Asia, Africa and Latin America. Table 5 summarize the estimated short-run coefficients, the error correction estimation results and the diagnostic tests for serial correlation, normality, and heteroscedasticity of the underlying ARDL models for the individual countries, respectively. The results suggest that corruption has a positive impact on FDI inflows in the case of Asia. Furthermore, the coefficient with GDP growth 0.0775 implies that 1 percent increase in GDP growth causes almost 0.08 percent increases in FDI inflows in our sample of Asian countries. Trade openness, inflation, external debt and FDI inflows also have positive and statistically significant coefficients in the long-run. Government expenditure, on the other hand, has a negative coefficient which implies that government expenditure will reduce the foreign direct inflows. Heterogeneous slopes estimates are also given in Table 5. The results suggest that corruption has a negative impact on FDI inflows in India, Sri Lanka, Bangladesh and Thailand. On the other hand, it has a positive impact in the case of Indonesia, Iran, Malaysia, Pakistan, China and Philippine.

Table 5 Short-Run Dynamics

								Diagnostic tests				
	Δcorr	*Δgdp*	*Δopen*	*Δgex*	*Δdebt*	*Δcpi*	ect_{t-1}	X^2_{SC}	X^2_{FF}	X^2_{Nor}	X^2_{Het}	Adjusted R^2
Asia												
India	-0.263**	-0.013*	1.707**	0.133**	2.158**	-0.037**	-0.169**	0.721	0.912	0.824	0.423	0.390
Indonesia	0.055*	0.029*	1.444*	-3.099*	-1.872**	0.017*	-0.582**	0.317	0.980	0.774	0.177	0.538
Iran	3.602**	0.047*	12.955*	14.164*	-0.551**	0.022***	-0.413**	0.182	0.349	0.969	0.792	0.120
Malaysia	0.938**	0.029**	2.117*	-2.948**	0.083*	0.005*	-0.296**	0.270	0.048	0.375	0.430	0.550
Pakistan	0.309*	0.010**	-0.662*	0.258*	0.859*	-0.002*	-0.286**	0.696	0.231	0.216	0.553	0.868
China	0.270**	0.059	-3.240*	-4.549*	2.217**	-0.006*	-0.322**	0.377	0.213	0.150	0.054	0.490
Srilanka	-0.524**	0.027*	2.608*	-1.734**	0.132***	0.008**	-0.680*	0.635	0.281	0.754	0.230	0.065
Bangladesh	-3.691*	0.031**	3.159*	2.512***	-0.018*	0.016***	-0.314*	0.493	0.760	0.950	0.133	0.439
Philippine	0.688*	-0.035*	3.000*	3.941*	-0.504**	0.009**	-0.548*	0.729	0.685	0.407	0.128	0.797
Thailand	-3.940*	0.472*	20.217*	10.363*	-11.139*	-0.006**	-0.192**	0.433	0.917	0.039	0.860	0.802
Africa												
Algeria	2.474***	-0.089**	-4.597**	3.012*	0.155*	-0.010*	-0.117*	0.949	0.687	0.470	0.013	0.543
Angola	18.164*	-0.035*	-1.412	1.682*	-1.339**	0.001**	-0.078*	0.120	0.191	0.984	0.252	0.600
Botswana	0.173*	0.026*	0.868*	-0.095*	0.791*	-0.034**	-0.420*	0.026	0.422	0.836	0.374	0.459
Egypt	-2.264*	0.048*	2.083*	0.481*	1.915*	-0.008*	-0.391*	0.138	0.182	0.708	0.725	0.678
Gambia	0.075**	-0.072*	0.638*	-1.728*	0.190*	0.023*	-1.094*	0.648	0.664	0.009	0.785	0.203
Ghana	-1.425**	0.020*	1.204*	0.799**	-0.540*	0.003**	-0.147*	0.111	0.771	0.613	0.827	0.001
Liberia	1.735**	-0.021*	3.295*	-3.779*	-1.144*	-0.001**	-0.587**	0.683	0.526	0.310	0.787	0.847
Morocco	-0.796*	-0.022*	5.859*	-4.195**	-3.352**	-0.117**	-0.408*	0.580	0.060	0.957	0.558	0.815

South Africa	-8.384*	-0.387**	-14.958*	-7.530**	0.696*	0.109**	-1.311*	0.127	0.041	0.813	0.410	0.989
Sudan	-6.230**	0.039**	0.081*	-3.373*	5.409*	0.025**	-1.350**	0.246	0.634	0.905	0.525	0.577
Tanzania	-6.094**	-0.633*	15.285*	-9.961*	1.408**	-0.046**	-0.239*	0.467	0.349	0.755	0.870	0.419
Uganda	-1.025*	-0.057*	3.833*	4.410*	-0.493*	-0.006**	-0.742*	0.079	0.821	0.023	0.502	0.300
Zambia	-1.518*	0.012**	-2.113*	-1.939*	0.182**	0.008*	-0.446**	0.138	0.545	0.623	0.159	0.099
Latin America												
Argentina	-0.357**	0.018*	2.282*	-1.614*	-1.114*	0.000	-1.338*	0.348	0.927	0.555	0.898	0.175
Bahamas	-0.083**	-0.005*	2.566*	-5.001**	NA	-0.003*	-0.425*	0.196	0.974	0.281	0.115	0.882
Bolivia	0.611*	0.000*	-1.414**	0.812*	-1.374*	0.000*	-0.354*	0.273	0.695	0.872	0.132	0.506
Brazil	1.315**	-0.016**	2.154**	-0.329*	3.658*	0.000	-0.136	0.124	0.896	0.203	0.948	0.788
Chile	-0.194**	-0.008**	3.621*	-6.006**	-1.294	-0.006*	-0.404*	0.132	0.081	0.950	0.227	0.574
Colombia	1.031**	0.012**	-1.194*	2.284*	-1.385*	0.002*	-0.114*	0.182	0.604	0.600	0.987	0.301
Costa Rica	0.317**	-0.012**	1.400*	-3.011*	-0.867*	0.004*	-0.312*	0.787	0.685	0.633	0.233	0.792
Cuba	-0.575**	-0.008**	7.234*	-6.453*	NA	-0.022	-0.443*	0.244	0.106	0.794	0.442	0.154
El Salvador	3.170*	0.017**	-1.002*	2.210*	-2.360*	-0.003**	-0.784**	0.002	0.490	0.359	0.096	0.837
Guatemala	-0.574**	-0.006*	-1.677*	-0.885**	-0.758*	0.002	-0.629**	0.400	0.826	0.426	0.405	0.871
Gyana	0.188**	-0.005**	-0.982*	-0.995*	NA	-0.001*	-0.437**	0.525	0.759	0.470	0.755	0.152
Haiti	0.004**	0.073*	1.329*	-0.418**	-0.416*	0.020	-0.386**	0.007	0.853	0.802	0.402	0.818
Honduras	-0.665**	-0.008*	-0.273*	0.335**	-0.037*	-0.002	-0.118**	0.802	0.734	0.264	0.359	0.382
Jamaica	0.847**	0.008*	0.925*	-0.423**	0.590**	0.003*	-0.273**	0.766	0.015	0.324	0.056	0.395
Nicaragua	0.505**	-0.087*	2.851*	-6.094**	-1.835*	0.000*	-0.710**	0.405	0.746	0.717	0.511	0.434
Panama	2.313**	0.011*	2.926*	-7.516**	6.238*	-0.004	-1.338**	0.250	0.594	0.596	0.188	0.573
Paraguay	0.100**	0.040**	-2.336*	4.136*	0.330*	0.018*	-0.356**	0.572	0.942	0.707	0.993	0.589
Peru	0.909**	0.028**	-1.338*	-0.497*	-3.865*	0.000*	-0.568**	0.463	0.695	0.665	0.632	0.676
Trinidad and Tobago	-1.175*	0.000*	0.533**	-1.313*	NA	0.009	-0.030**	0.815	0.551	0.155	0.419	0.196

Note: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level.

Source: Authors.

We have obtained similar results for Africa. As can be seen in Table 5, corruption has a significant and positive coefficient, suggesting that corruption has a positive impact on FDI inflows in the long-run. The short-run estimates are considerably different form country to country in each sample. This implies that the heterogeneous slope coefficients require a different policy for every country regarding corruption for inviting the FDI inflows in host country.

On the other hand, turning to Latin America, we have empirical obtained evidence that, there is a negative the long-run relationship between corruption and FDI inflows. Our findings further suggest that government consumption and inflation has a negative and statistically significant impact on FDI inflows in the long-run. For external debt, we have obtained empirical evidence that 1 percent increase in external debt results in an increase in FDI inflows by 0.56 percent. Comparing these findings to those reported in Table 4, we observe that the short-run coefficients are generally lower in magnitude than their long-run counterparts. In general, the short-run coefficients have approximately half the magnitude of their long-run counterparts. The results which are reported in the last five columns of Table 5 suggest that our estimated model passes the diagnostic tests for the assumptions of no serial correlation, normality and homoscedasticity of the residuals in the corresponding models. The *p*-values of the χ^2 show that there is no evidence of serial correlation and heteroscedasticity. Furthermore, the *p*-value of functional form test and normality test is an evidence of well specification of the model and the acceptance of the null hypothesis of normality assumption of the residuals. Finally, in order to shed more light on the short-run dynamics, the corresponding error correction models are estimated using the lagged error correction terms (ect_{t-1}) resulting from the long-run relationships estimated. This measures the speeds of annual adjustment toward long-run equilibria. The error correction term is significant and negative in all estimations, varying from -0.16 in the case of India to -0.68 in the case of Sri Lanka, which implies that nearly 16 percent of the disequilibria in FDI inflows of the previous year's shock in the case of India, adjust back to the long-run equilibrium in the current year. These results are generally in line with the earlier studies in the literature such as Shleifer and Vishny (1993), Bliss and Di Tella (1997), Wei (2000), Habib and Zurawicki (2002), Adit (2003), Voyer and Beamish (2004), Egger and Winner (2006) and Bellos and Subasat (2012).

4. Conclusion

This article has investigated the relationship between corruption on Foreign Direct Investment in a panel of 42 countries from 1984 to 2012 using pooled mean group estimator in a dynamic heterogeneous panel setting using Westerlund (2007) cointegration tests. The results suggest that corruption has a positive and statistically significant impact on FDI inflows in the case of Asia and Africa; and a negative and statistically significant impact on FDI inflows in the case of Latin America. This suggests that international investors indeed take the level of corruption in a host country into account in making decisions to invest abroad in the countries under study.

Positive impact of corruption on FDI inflows in the case of Asia and Africa indicates that in countries with poor governance environment, or in the presence of regulations and government controls, bribery mitigates the impact of institutional inefficiency and thus is beneficial to FDI inflows as suggested by some earlier studies such as Barassi and Zhou (2012). In particular, the results lend support to Barassi and Zhou (2012), who points out that corruption increases the pace of slow governmental processes and efficiency of production also increases when investor will be provided the ease to get licences and permits with less effort than required.

In the case of Latin America, on the other hand, corruption seems to serve as a disincentive for FDI inflows. This is possible because international investors avoid making investments in those countries where corruption is prevalent, possibly because they consider corruption as a source of inefficiency, uncertainty and riskiness. It may also be that bribery increases the risk and uncertainty faced by the investors and leads to misallocation of resource distortion effects on FDI inflows. Furthermore, corruption is often considered as an additional cost of doing business or a tax on profits, which damages the expected profitability of investments.

The findings of the paper clearly indicate that that corruption is a crucial determinant of FDI inflows. Furthermore, the results also suggest that the economy size, trade openness, government expenditure policies, debt burdens and inflation are important factors for foreign investors. Above all, the most important outcome of the paper is that the impact of corruption may vary amongst different sets of the countries. Therefore, there should not be a uniform policy to deal with the corruption for all the countries.

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