How Does Corruption Influence the Effect of Foreign Direct Investment on Economic Growth?

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Abstract

We investigate the effect of Foreign Direct Investment (FDI) on economic growth by employing the data of 132 countries for the period from 1995 to 2008, considering the role of corruption in each country as an absorptive factor. The estimation results indicate that, although FDI alone does not promote economic growth, it has a significant effect on economic growth if the interaction term between FDI and corruption is considered. The threshold level of corruption separating the negative and positive effects of FDI on economic growth is approximately in the 10th percentile from the least corrupt countries. The existence of a corruption threshold implies a counter-intuitive proposition: that FDI inhibits economic growth in countries where corruption is below a corruption threshold, and promotes economic growth in countries where corruption is above the threshold. Our results are robust even if we use different corruption indices and conduct the instrumental variable estimation to address endogeneity problems.

Keywords: Foreign Direct Investment; Economic Growth; Corruption

JEL Classifications: D73; F23; F43

1 Introduction

This study empirically examines the effect of Foreign Direct Investment (FDI) on economic growth, taking into account the corruption level in each country. Since the late 1990s, FDI flows among countries have risen dramatically with the current of economic globalization (see Figure 1). As FDI is thought to be a potential source of economic growth, especially for developing countries, their governments initiate policies to actively attracting FDI. As a

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direct effect, FDI-based capital flows enhance the accumulation of capital in a host country, and as an indirect effect, FDI contributes to economic growth in a host country by promoting productivity growth through technology transfer. In addition, FDI is attractive because it is not a borrowing fund, so that host countries need not be concerned about debt accumulation.

The expectation to earn profits through market expansion and to take advantage of the relatively low factor price in host countries serve as incentives for multinational enterprises (MNEs) to implement FDI. This is particularly the case for FDI flows from developed to developing countries. Endogenous growth theory suggests that knowledge and technology are necessities for improving productivity (see e.g. Grossman and Helpman, 1991; Barro and Sala-i-Martin, 2004). Technology diffusion by FDI improves productivity and, as a result, enhances economic development in host countries.

However, previous studies, using country-level data, show that FDI alone does not necessarily have a significant impact on economic growth (e.g. Borensztein et al., 1998; Alfaro et al., 2004). In addition, most previous researches at the firm level find that FDI has an insignificant or small effect on productivity and efficiency. These results are confirmed in the works of Haddad and Harrison (1993) for Morocco, Kokko (1994) for Mexico, and Aiken and Harrison (1999) for Venezuela.

Another strand of literature points out that FDI flows have a positive impact on economic growth if a host country possesses an appropriate absorptive capacity. For example, Borensztein et al. (1998) show that FDI promotes economic growth in a country in which human capital is above a certain level. Bengoa and Sanchez-Robles (2003) analyze the case of Latin American countries and indicate that FDI induces economic growth depending on human capital, economic stability, and liberalized markets. Balasubramanyam et al. (1996) confirm that FDI enhances economic growth more strongly in countries with export-oriented trade policies. Alfaro et al. (2004) show that financial development plays an important role as an absorptive factor in host countries, complementing the FDI impact on economic growth. Similarly, Azman-Saini et al. (2010), using a threshold regression, verify that FDI can lead to economic growth if the host country's financial development level is above a threshold.

Our study differs from those discussed above in that it focuses on institutional factors as an absorptive factor in host countries.[1] Institutional factors include various aspects such as

[1]In an earlier study, Khamfula (2007) considers the role of corruption in examining the effect of FDI on economic growth, finding that the level of corruption negatively impacts the effect of FDI on economic growth. However, the estimation results of this study may be biased due to endogeneity problems, as instrumental variable estimation is not conducted. Further, because the number of countries used in Khamfula (2007) is very few, there may also exist a problem of sample selection bias. Studies on the effect of institutions on economic growth are available in many researches as follows. Hall and Jones (1999) show the negative effects of institutional factors on economic development. Mauro (1995) argues that corruption inhibits economic growth. By considering the role of democracy, Méndez and Sepúlveda (2006) note that the level of corruption that maximizes economic growth is not necessarily zero in the case of countries with sufficient democracy, and that there exists an inverted U-shaped relationship between corruption and economic growth. For theoretical studies examining the relationship between corruption and economic growth, see Ehrlich and Lui, (1999), Barreto (2000), and Ellis and Fender (2006), among others.

corruption, democracy, and racial and religious diversity. However, among these, we especially focus on the role of corruption for several reasons. First, as a condition for financial support or foreign aid, while international organizations such as the World Bank and the International Monetary Fund (IMF) require an elimination of, or at least a reduction in, corruption in a host country, profit-seeking firms engaging in FDI may invest in those countries where regulations are loose or poorly enforced. Second, some countries with high levels of both corruption and FDI inflows also achieve high levels of economic growth. For example, during the period from 2005 through 2007, the average FDI net inflow into Cambodia was 7.64 percent as a share of GDP, which is fairly higher than the world average.[2] While Cambodian FDI net inflows were very high, the country is also ranked as one of the most corrupt in the region and in the world. With a corruption perception index (CPI) of 2.0 in 2007, it is ranked 162 among 179 countries by the Transparency International (TI).[3] However, despite its high corruption level, Cambodia has achieved a remarkable rate of economic growth over the last few years. Its average per capita GDP growth rate between 2005 and 2008 was 8.0 percent according to World Bank data. The achievement of these high growth rates can be attributed to several factors, among which FDI is undoubtedly significant.[4]

Therefore, from the above discussion, we test the hypothesis that corruption serves as an important channel through which FDI affects economic growth. To investigate this hypothesis, we use annual data of 132 countries over the period from 1995 through 2008 for estimation. Consistent with Borensztein et al. (1998) and Alfaro et al. (2004), the estimation results show that FDI alone does not necessarily promote economic growth. However, when its interaction term with corruption is added, we find that FDI inhibits economic growth in those countries with low corruption, and promotes economic growth in the countries with high corruption levels. Therefore, corruption works as a "positive" absorptive factor. The threshold level of corruption, separating the negative and positive impacts of FDI on economic growth, is low—approximately in the 10th percentile from the least corrupt countries. As a robustness check, we also conduct the regressions with additional explanatory variables, with the instrumental variable (IV) method to address endogeneity problems, and with another corruption index. As a result, our main findings are robust, implying that reducing corruption levels may lessen the effect of FDI on economic growth. However, it is important to recognize that, because corruption can have various negative impacts on the society, our findings do not imply the

[2]Although we use five-year average data from 1995 to 2008 for the estimation, based on World Development Indicators 2009 released by the World Bank, FDI data are available only up to 2007. See the next section for detailed explanations of data.

[3]Cambodian CPI was 1.8 in 2008, ranked 166 among 180 countries classified by the TI.

[4]Some studies investigate whether corruption promotes or hinders FDI inflows. Wei (2003) indicates that if firms need to pay bribes in a country in which it is engaging in FDI, bribery may function as extra taxes, and corruption then hinders FDI. Alfaro et al. (2008) show that low institutional quality, including corruption, is a main factor of a lack of capital flows from rich to poor countries, as pointed by Lucas (1990). In contrast, some studies, such as Egger and Winner (2005), provide evidence that corruption can be a factor promoting FDI inflows, as corruption may help to fasten bureaucratic procedure.

encouragement of corruption for promoting economic development.

The rest of this paper is organized as follows. Section 2 discusses the estimation methodology and data. Section 3 provides the main empirical results. Results from the robustness check are presented in Section 4, and Section 5 is the conclusion.

2 Estimation methodology and data

As discussed above, the main purpose of this study is to investigate the effect of FDI on economic growth by taking into account the role of corruption in each country. In addition to FDI and corruption, following standard growth regression literature, some other determinants that may influence economic growth are also included in the estimation equation as independent variables. Our basic specification is expressed as follows:

$$\begin{aligned} Growth_i = \beta_0 + \beta_1 \ln\left(initinal\ GDP\ per\ capita\right)_i + \beta_2 FDI_i \\ + \beta_3 Corruption_i + \beta_4 X_i + u_i, \end{aligned} \tag{1}$$

where *FDI* is the share of net FDI inflows in GDP; X is a set of control variables that may influence economic growth; and u is the standard error term. *Corruption* is the two indices of corruption provided by the TI and the Worldwide Governance Indicators (WGI). The detailed definitions of corruption and other variables are provided in Table A2 of Appendix A2.

The inclusion of initial GDP per capita in the estimation equation for capturing a convergence effect is motivated by the seminal work of Barro (1991). In order to minimize possible omitted variable bias on the coefficients of focused variables, we include a number of control variables in the basic estimation equation that are standard in growth regression. X includes variables such as population growth, education, Sub-Saharan African dummy, Latin American dummy, inflation, government expenditures, and trade openness. The rationale underlying our selection of these variables is based on preeminent previous studies for growth regression, including Barro and Lee (1994), Easterly and Levine (1997), and Levine et al. (2000).

Next, to capture the role of corruption in the nexus of FDI and economic growth, our basic specification is extended to include the interaction term between FDI and corruption. This approach enables us to examine how corruption influences the effect of FDI on economic growth, which is the main purpose of our study. The estimation equation incorporating the interaction term between FDI and corruption is written as follows:

$$\begin{aligned} Growth_i = \beta_0 + \beta_1 \ln\left(initinal\ GDP\ per\ capita\right)_i + \beta_2 FDI_i + \beta_3 Corruption_i \\ + \beta_4 FDI_i \times Corruption_i + \beta_5 X_i + u_i. \end{aligned} \tag{2}$$

Particularly, we pay attention to the partial effect of FDI on economic growth, which varies with the level of corruption.

$$\frac{\partial Growth_i}{\partial FDI_i} = \beta_2 + \beta_4 Corruption_i. \quad (3)$$

For estimation, we use annual data from 132 countries spanning from 1995 to 2008. The full list of countries is presented in Table A1 in Appendix A1. Following previous studies, such as Bengoa and Sanchez-Robles (2003), as the main analysis we use the 5-year average (1995 to 1999, 2000 to 2004, and 2005 to 2008) of each variable in order to mitigate short-term economic fluctuations. Descriptive statistics of each variable are provided in Table A3 in Appendix A2.

We report the OLS estimation results as a benchmark case. Then, for the fact that the OLS estimator may be biased due to endogeneity resulting from the omitted variables, reverse causality, or measurement errors, we also conduct the IV estimation to overcome endogeneity problems. In addition to 5-year average regressions, as a robustness check, we report the results using the average value of each variable from 1995 to 2008 based on the OLS and IV estimations. The regressions are also conducted with another corruption index from an alternative source.

3 Empirical results

Our estimations start with the benchmark OLS regression, using the corruption perception index (CPI) from the TI as a measure for corruption level. Table 1 shows the results of this benchmark case. In columns (1) and (2), the coefficients of FDI, and corruption are not significant. This result is in line with that of Borensztein et al. (1998) and Alfaro et al. (2004), suggesting that FDI alone does not necessarily promote economic growth. Although the effect of education is not significant, the effects of regional dummies, inflation, government expenditures, and trade openness are significant and have the expected signs. Next, to investigate how corruption influences the effect of FDI on economic growth, we add the interaction term between FDI and corruption in column (3). The estimated coefficient of the interaction term is significantly positive and is robust among alternative specifications through columns (4) to (6).

[Table 1 here]

However, as discussed above, the OLS estimators may suffer from endogeneity problems due to omitted variables, reverse causality or measurement errors. Regarding corruption, there is a possibility of reverse casualty, running from economic growth to corruption, or of a measurement error. To address the endogeneity issue, we employ the IV estimation, in which the choice of appropriate instruments is important; instruments must be highly correlated with an endogenous variable and do not directly influence dependent variable. In this analysis, we

use legal origin, provided by La Porta et al. (1999), as the instruments for corruption.[5] This is because, as indicated by La Porta et al. (1999), Treisman (2000), and Billger and Goel (2009), economic, political, and cultural factors are thought to be the main determinants of corruption. Specifically, La Porta et al. (1999) show that legal origin has a significant effect on corruption. Likely, using the extreme-bounds analysis, Serra (2006) comprehensively examines the determinants of corruption and points out that British legal origin is a crucial determinant of corruption. Given these findings, legal origin highly influences current level of corruption, but may not affect current economic growth.

Table 2 presents the results using the IV estimation. Specifications in Table 2 are the same as those in Table 1; however, British and Scandinavian legal origins are used as the instruments for corruption. To test for the validity of instruments, we follow the method proposed by Stock and Yogo (2005) who indicate a problem of weak instruments and develop the critical value in F-statistics for the first stage regressions. The values of the F-statistics in our analysis are well above those in Stock and Yogo (2005) in all columns (1) through (6). They also satisfy the condition in the earlier approach, "rule of thumb", developed by Staiger and Stock (1997).[6] In addition, the Sargan test of overidentification cannot reject the orthogonality conditions even at the 10 percent significance level. In columns (1) and (2), without considering the interaction term between FDI and corruption, the results indicate that FDI does not promote economic growth. In columns (3) to (6), we consider the interaction between FDI and corruption and a set of additional explanatory variables to check for robustness. Each coefficient of FDI and its interaction with corruption becomes statistically significant. Furthermore, although the coefficient of corruption is not significant, the null hypothesis that both coefficients of corruption and its interaction term with FDI are simultaneously zero is rejected at the 5 percent significance level in the F test.

[Table 2 here]

From the estimated coefficients of FDI and the interaction term, we can calculate the threshold of corruption by separating the negative and positive partial effects of FDI on economic growth. The effect of FDI on economic growth is negative if the corruption level is below the threshold; it is positive if the corruption level is above the threshold. In column (6), the threshold value of corruption is 1.44, which is in approximately the 10th percentile. Given this result, FDI promotes economic growth in most countries and its impact increases with corruption. Although this finding is counter-intuitive, it has profound implications. As a condition for financial support or aid, while international organizations such as the World Bank and the IMF require an elimination of or reduction in corruption, profit-seeking firms engaging in FDI may not be concerned with about corruption, and they may rather take advantage of it and expand their investments in more corrupt countries.

[5] See the Appendix for a more detailed definition of legal origin.

[6] Staiger and Stock (1997) insist that the F-statistic in the first stage should exceed 10.

4 Robustness Analysis

To check for robustness, we first use the average value of each variable from 1995 to 2008 instead of the 5-year average, and present the estimation results in Table 3. Columns (1) and (2) indicate that FDI alone does not significantly promote economic growth. In columns (3) and (4), in which the interaction term between FDI and corruption are considered, the coefficients of FDI and their interaction with corruption are significant, and we can reject the null hypothesis that the coefficients of these two variables are jointly zero. As discussed above, to account for the fact that corruption may be endogenous because of the omitted variables, the causality may be reversed, or there may be measurement errors, the IV estimation is conducted to handle the possibility of endogeneity problems. The instruments for corruption used here are the same as those in the previous section's IV estimation. In columns (5) and (6), the IV estimation illustrates that the effect of FDI on economic growth is still insignificant. When the interaction term between FDI and corruption is added in column (7), the threshold of corruption inducing the positive partial effect of FDI is quite low. In column (8), in which we control for variables such as inflation, government expenditures and trade openness, the threshold of corruption inducing the positive partial effect of FDI is 1.49, which is approximately in the 10th percentile. From these results, it is evident that our main findings are robust even if the data of the whole sample (1995-2008) average is used instead of 5-year average data.

[Table 3 here]

Next, we check the robustness of our results from the previous section, using a different corruption index obtained from the World Bank's WGI.[7] The WGI provide data on the level of controlling corruption for 1996, 1998, 2000, and 2002 through 2008. To make our estimation consistent with the previous analysis, we first conduct the regressions with 5-year average data for each variable in consideration.

Table 4 presents the estimation results, using the index for corruption provided by the WGI. Columns (1) and (2) show the results based on the OLS without the interaction term between FDI and corruption. In this case, the coefficient of FDI on economic growth is not significant. In columns (3) and (4) where the interaction term is added, the FDI effect on economic growth becomes significantly positive. To mitigate endogeneity problems, we conduct the IV estimation in columns (5) through (8), where the specifications are the same as those in columns (1) through (4), respectively. The results of the IV estimation indicate that

[7]The TI and the WGI provide different corruption indices created from different original sources. The TI's corruption perception index captures overall corruption perceptions among public officials and politicians. The WGI's corruption index captures the perceptions of the extent to which public workers and officials in a country abuse their public power for private interests, including both grand and petty corruption. Grand corruption involves senior officials, ministers, and heads of state, while petty corruption entails immigration officials, customs clerks, policemen, and similar positions.

FDI does influence economic growth, but only when its interaction term with corruption is included. In column (8), the threshold level for corruption, separating negative and positive partial impacts of FDI on economic growth, is 0.53, which is approximately in the 10th percentile. This result is similar to that of the case when the TI's corruption index is used.

[Table 4 here]

Our main results are robust to the change of corruption indices. In addition, employing the IV estimation to address the endogeneity problems makes our main results more robust. We find that corruption plays an important role as an absorptive factor enhancing the effect of FDI on economic growth. Corruption levels for the threshold separating negative and positive impacts of FDI is approximately in the 10th percentile. Specifically, the threshold implies that FDI inhibits economic growth in countries where corruption is below the threshold, and promotes economic growth in countries where corruption is above the threshold.

5 Conclusion

By employing the data of 132 countries over the period from 1995 to 2008, we investigate the effect of Foreign Direct Investment (FDI) on economic growth, taking into account the role of corruption in each country. The estimation results indicate that, while FDI alone does not necessarily promote economic growth, it has a significant effect on economic growth when its interaction term with corruption is considered. The threshold level of corruption separating the negative and positive effects of FDI on economic growth is approximately in the 10th percentile. The existence of the threshold implies that FDI inhibits economic growth in countries where corruption is below the threshold, and promotes economic growth in countries where corruption is above it. To address endogeneity problems, the IV estimation is also conducted. The results indicate that our main implications are robust. Further, even if a corruption index from an alternative source is used, our main implications do not alter.

The results of our study interestingly imply that reducing corruption may weaken the contribution effect of FDI on economic growth. However, it is important to maintain that, because corruption negatively affects the society in many ways beyond just economic development, our findings should be interpreted with caution; they do not imply that corruption should be encouraged.

Appendix

A1. List of countries in the sample

[Table A1 here]

A2. Data definitions, data sources, and descriptive statistics

[Table A2 here]

[Table A3 here]

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Table A1: List of countries

Albania	Congo (Rep.)	India	Mauritania	Saudi Arabia	United Kingdom
Algeria	Costa Rica	Indonesia	Mauritius	Senegal	United States
Argentina	Cote d'Ivoire	Iran	Mexico	Serbia	Uruguay
Armenia	Croatia	Ireland	Moldova	Sierra Leone	Venezuela
Australia	Cyprus	Israel	Mongolia	Singapore	Vietnam
Austria	Czech Republic	Italy	Morocco	Slovak Republic	Yemen
Bahrain	Denmark	Jamaica	Mozambique	Slovenia	Zambia
Bangladesh	Dominican Republic	Japan	Namibia	South Africa	
Belgium	Ecuador	Jordan	Nepal	Spain	
Belize	Egypt	Kazakhstan	Netherlands	Sri Lanka	
Benin	El Salvador	Kenya	New Zealand	Sudan	
Bolivia	Fiji	Korea (South)	Nicaragua	Swaziland	
Botswana	Finland	Kuwait	Niger	Sweden	
Brazil	France	Kyrgyz	Norway	Switzerland	
Brunei Darussalam	Gabon	Lao PDR	Pakistan	Syria	
Bulgaria	Gambia	Latvia	Panama	Tajikistan	
Burundi	Germany	Lesotho	Papua New Guinea	Tanzania	
Cambodia	Ghana	Liberia	Paraguay	Thailand	
Cameroon	Greece	Lithuania	Peru	Togo	
Canada	Guatemala	Luxembourg	Philippines	Tonga	
Central Africa	Guyana	Malawi	Poland	Trinidad and Tobago	
Chile	Haiti	Malaysia	Portugal	Tunisia	
China	Honduras	Maldives	Romania	Turkey	
Colombia	Hungary	Mali	Russia	Uganda	
Congo (Dem. Rep.)	Iceland	Malta	Rwanda	Ukraine	

Table A2: Data definitions and sources

Variable	Description	Source
Initial GDP per capita and Growth	Initial GDP per capita is taken from the beginning of sample period. GDP per capita is the real GDP per capita at purchasing power parity in 2005 international dollars. It is also used to calculate economic growth rates.	World Development Indicators 2009
Foreign direct investment (FDI)	FDI is measured as the share of GDP of the net values of investment ' s inflows to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in a country other than that of the investor. It is calculated as the total value of equity capital, reinvestment of earnings, other long-term capital, and short-term capital, as shown in the balance of payments. Note that the data is available from 1995 to 2007.	World Development Indicators 2009
Corruption	We have two indexes of corruption: (1) The corruption perception index released by the Transparency International (TI), and (2) control of corruption from the Worldwide Governance Indicators (WGI) published by the World Bank. The variables are rescaled so that a larger value indicates more corruption. Note that the WGI provides data for 1996, 1998, 2000, and each year from 2002 to 2008.	Transparency International (TI) and Worldwide Governance Indicators (WGI)

Table A2 (Contined): Data definitions and sources

Variable	Description	Source
Population growth	Population growth is the annual population growth rate.	World Development Indicators 2009
Education	Education is measured as the average years of secondary schooling of the population aged more than 15 years old. We take the natural logarithm of this variable in the estimations.	Education Statistics by the World Bank (Original source: Barro and Lee (1996) educational attainment dataset)
Inflation	Inflation is calculated based on the GDP deflator.	World Development Indicators 2009
Government expenditures	Government expenditures are calculated as general government final consumption expenditures divided by GDP. It includes current government expenditures such as purchases of goods and services (including compensation of employees) and expenditures on national defense and security, which are not part of capital formation.	World Development Indicators 2009
Trade	Trade is calculated as the sum of exports and imports of goods and services, divided by GDP.	World Development Indicators 2009
Legal origin	Dummy variables for legal system origin, classified into Anglo-Saxon Common Law (UK), French Civil Law (FR), German Civil Law (GE), Socialist Law (SO) or Scandinavian Law (SC).	La Porta et al. (1999)

Table A3: Descriptive statistics

Variables	Observations	Mean	Std. Dev.	Min.	Max.
Growth	393	0.0281	0.0283	-0.0628	0.2443
FDI	393	0.0581	0.2453	-0.0417	3.5640
Corruption (TI)	335	5.6342	2.2599	0.2000	8.9000
Corruption (WGI)	393	2.4886	1.0223	0.0088	4.5163
Population growth	393	0.0140	0.0116	-0.0172	0.0651
Education	393	2.4258	1.3812	0.0954	7.4676
Inflation	393	0.1350	0.4620	-0.0212	7.5842
Government expenditures	388	0.1522	0.0534	0.0363	0.3111
Trade	386	0.8536	0.4817	0.1658	4.4481

Notes:
1. The number of countries is 132.
2. The data for each variable is the average values of 5-year average in the period 1995-2008.

Table 1: Growth and FDI, 5-year average (OLS estimation)
Dependent variable: Growth rate in GDP per capita, Corruption: TI

Independent Variables	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	OLS (6)
Log initial GDP per capita	-0.0079***	-0.0072***	-0.0073***	-0.0074***	-0.0065***	-0.0065***
	(0.0021)	(0.0020)	(0.0021)	(0.0020)	(0.0020)	(0.0020)
FDI	0.0047	0.0008	-0.0216**	-0.0195*	-0.0228**	-0.0226**
	(0.0047)	(0.0049)	(0.0106)	(0.0103)	(0.0103)	(0.0103)
Corruption	-0.0001	0.0003	-0.0006	0.0001	-0.0004	-0.0003
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)
FDI × Corruption			0.0171***	0.0158***	0.0174***	0.0159**
			(0.0062)	(0.0060)	(0.0060)	(0.0062)
Population growth	-0.7098***	-0.9023***	-0.6606***	-0.7658***	-0.8046***	-0.8507***
	(0.1517)	(0.1513)	(0.1512)	(0.1477)	(0.1491)	(0.1513)
Education	0.0018	0.0013	0.0006	0.0001	0.0006	0.0005
	(0.0026)	(0.0026)	(0.0027)	(0.0026)	(0.0026)	(0.0026)
Sub-Saharan African dummy	-0.0111**	-0.0078*	-0.0127***	-0.0120***	-0.0104**	-0.0093**
	(0.0044)	(0.0043)	(0.0044)	(0.0042)	(0.0043)	(0.0043)
Latin American dummy	-0.0104***	-0.0105***	-0.0111***	-0.0115***	-0.0132***	-0.0116***
	(0.0036)	(0.0036)	(0.0036)	(0.0034)	(0.0035)	(0.0036)
Inflation		-0.0324***		-0.0314***	-0.0318***	-0.0318***
		(0.0064)		(0.0064)	(0.0064)	(0.0064)
Government expenditures		-0.0709**			-0.0771***	-0.0776***
		(0.0288)			(0.0282)	(0.0287)
Trade		0.0052*				0.0034
		(0.0028)				(0.0029)
Constant	0.1099***	0.1138***	0.1058***	0.1073***	0.1146***	0.1120***
	(0.0224)	(0.0219)	(0.0223)	(0.0215)	(0.0216)	(0.0217)
R^2	0.18	0.26	0.20	0.25	0.27	0.27
Number of countries	131	129	131	131	130	129
Observations	335	328	335	335	332	328

Notes:
1. The asterisks ***, **, and * are 1%, 5%, and 10% of significance levels, respectively.
2. The numbers in parentheses are standard errors.

Table 2: Growth and FDI, 5-year average (IV estimation)
Dependent variable: Growth rate in GDP per capita, Corruption: TI

Independent Variables	IV (1)	IV (2)	IV (3)	IV (4)	IV (5)	IV (6)
Log initial GDP per capita	-0.0064*	-0.0081**	-0.0059*	-0.0062*	-0.0070**	-0.0075**
	(0.0035)	(0.0033)	(0.0034)	(0.0033)	(0.0033)	(0.0032)
FDI	0.0049	0.0005	-0.0189*	-0.0172	-0.0231**	-0.0239**
	(0.0047)	(0.0049)	(0.0113)	(0.0109)	(0.0111)	(0.0112)
Corruption	0.0008	-0.0004	0.0003	0.0009	-0.0008	-0.0011
	(0.0020)	(0.0021)	(0.0021)	(0.0020)	(0.0022)	(0.0022)
FDI × Corruption			0.0155**	0.0145**	0.0175***	0.0166**
			(0.0066)	(0.0063)	(0.0064)	(0.0067)
Population growth	-0.6695***	-0.8981***	-0.6277***	-0.7375***	-0.7958***	-0.8483***
	(0.1574)	(0.1557)	(0.1549)	(0.1494)	(0.1526)	(0.1532)
Education	0.0019	0.0015	0.0008	0.0004	0.0007	0.0006
	(0.0026)	(0.0025)	(0.0026)	(0.0025)	(0.0025)	(0.0025)
Sub-Saharan African dummy	-0.0105**	-0.0079*	-0.0120***	-0.0113***	-0.0104**	-0.0094**
	(0.0044)	(0.0043)	(0.0045)	(0.0043)	(0.0043)	(0.0044)
Latin American dummy	-0.0113***	-0.0098**	-0.0119***	-0.0121***	-0.0128***	-0.0109***
	(0.0040)	(0.0039)	(0.0039)	(0.0038)	(0.0038)	(0.0038)
Inflation		-0.0322***		-0.0327***	-0.0320***	-0.0316***
		(0.0066)		(0.0066)	(0.0066)	(0.0065)
Government expenditures		-0.0772**			-0.0812***	-0.0846***
		(0.0306)			(0.0302)	(0.0309)
Trade		0.0053*				0.0033
		(0.0028)				(0.0029)
Constant	0.0908**	0.1258***	0.0877**	0.0927**	0.1208***	0.1254***
	(0.0413)	(0.0416)	(0.0405)	(0.0388)	(0.0414)	(0.0411)
R^2	0.17	0.26	0.19	0.24	0.26	0.27
First stage F statistic	47.3	40.1	45.0	44.3	36.9	37.4
Sargan test	p=0.81	p=0.96	p=0.82	p=0.96	p=0.98	p=0.97
Number of countries	130	128	130	130	129	128
Observations	333	326	333	333	330	326

Notes:
1. The asterisks ***, **, and * are 1%, 5%, and 10% of significance levels, respectively.
2. The numbers in parentheses are standard errors.
3. Instrumental variables for corruption are dummy variables for British and Scandinavian legal origin.

Table 3: Growth and FDI, 1995-2008 average (OLS and IV estimation)
Dependent variable: Growth rate in GDP per capita, Corruption: TI

Independent Variables	OLS	OLS	OLS	OLS	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log initial GDP per capita	-0.0080***	-0.0063**	-0.0060**	-0.0048*	-0.0063	-0.0056	-0.0043	-0.0047
	(0.0025)	(0.0026)	(0.0025)	(0.0026)	(0.0041)	(0.0042)	(0.0038)	(0.0039)
FDI	0.0046	0.0016	-0.0475***	-0.0569***	0.0051	0.0018	-0.0450***	-0.0564***
	(0.0052)	(0.0055)	(0.0151)	(0.0170)	(0.0052)	(0.0054)	(0.0152)	(0.0181)
Corruption	-0.0011	-0.0012	-0.0016	-0.0022*	0.0001	-0.0007	-0.0003	-0.0020
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0025)	(0.0026)	(0.0024)	(0.0026)
FDI × Corruption			0.0327***	0.0382***			0.0314***	0.0379***
			(0.0090)	(0.0106)			(0.0089)	(0.0111)
Population growth	-0.5408***	-0.6212***	-0.4771***	-0.5248***	-0.5128***	-0.6027***	-0.4545**	-0.5122***
	(0.1855)	(0.1877)	(0.1777)	(0.1809)	(0.1855)	(0.1858)	(0.1765)	(0.1762)
Education	0.0010	-0.0004	-0.0016	-0.0014	0.0011	-0.0003	-0.0014	-0.0012
	(0.0033)	(0.0034)	(0.0032)	(0.0033)	(0.0032)	(0.0033)	(0.0031)	(0.0031)
Sub-Saharan African dummy	-0.0146***	-0.0130**	-0.0176***	-0.0158***	-0.0139***	-0.0128**	-0.0168***	-0.0156***
	(0.0052)	(0.0053)	(0.0050)	(0.0051)	(0.0052)	(0.0051)	(0.0050)	(0.0050)
Latin American dummy	-0.0090**	-0.0095**	-0.0113***	-0.0135***	-0.0101**	-0.0098**	-0.0124***	-0.0135***
	(0.0044)	(0.0044)	(0.0043)	(0.0044)	(0.0048)	(0.0047)	(0.0046)	(0.0044)
Inflation		0.0082		-0.0008		0.0081		-0.0009
		(0.0053)		(0.0057)		(0.0052)		(0.0057)
Government expenditures		-0.0490		-0.0821**		-0.0477		-0.0823**
		(0.0374)		(0.0368)		(0.0381)		(0.0387)
Trade		0.0037		-0.0005		0.0037		-0.0004
		(0.0033)		(0.0034)		(0.0032)		(0.0033)
Constant	0.1133***	0.1043***	0.0965***	0.1022***	0.0909*	0.0956*	0.0739	0.0999**
	(0.0271)	(0.0281)	(0.0263)	(0.0268)	(0.0487)	(0.0515)	(0.0456)	(0.0492)
R^2	0.22	0.25	0.30	0.33	0.21	0.25	0.29	0.32
First stage F statistic					18.0	15.5	17.6	14.1
Sargan test					p=0.71	p=0.72	p=0.98	p=0.90
Observations	131	131	131	131	130	130	130	130

Notes:
1. The asterisks ***, **, and * are 1%, 5%, and 10% of significance levels, respectively.
2. The numbers in parentheses are standard errors.
3. In columns (5) to (8), instrumental variables for corruption are dummy variables for British and Scandinavian legal origin.

Table 4: Growth and FDI, 5-year average (OLS and IV estimation)
Dependent variable: Growth rate in GDP per capita, Corruption: WGI

Independent Variables	OLS	OLS	OLS	OLS	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log initial GDP per capita	-0.0084***	-0.0054***	-0.0067***	-0.0047**	-0.0055	-0.0047	-0.0035	-0.0041
	(0.0023)	(0.0020)	(0.0022)	(0.0020)	(0.0042)	(0.0036)	(0.0040)	(0.0035)
FDI	0.0052	-0.0006	-0.0288***	-0.0162**	0.0059	-0.0005	-0.0257***	-0.0152*
	(0.0057)	(0.0052)	(0.0091)	(0.0082)	(0.0057)	(0.0052)	(0.0095)	(0.0089)
Corruption	-0.0021	-0.0004	-0.0035	-0.0014	0.0021	0.0006	0.0013	-0.0004
	(0.0024)	(0.0021)	(0.0024)	(0.0022)	(0.0057)	(0.0054)	(0.0056)	(0.0055)
FDI × Corruption			0.0618***	0.0305**			0.0577***	0.0285**
			(0.0131)	(0.0125)			(0.0135)	(0.0134)
Population growth	-0.2742*	-0.7327***	-0.2616*	-0.7012***	-0.2494	-0.7121***	-0.2391	-0.6839***
	(0.1543)	(0.1391)	(0.1502)	(0.1387)	(0.1555)	(0.1386)	(0.1515)	(0.1378)
Education	0.0038	0.0007	0.0008	-0.0002	0.0036	0.0008	0.0008	-0.0001
	(0.0029)	(0.0025)	(0.0029)	(0.0025)	(0.0029)	(0.0025)	(0.0029)	(0.0025)
Sub-Saharan African dummy	-0.0162***	-0.0111***	-0.0187***	-0.0123***	-0.0155***	-0.0108***	-0.0178***	-0.0120***
	(0.0046)	(0.0041)	(0.0045)	(0.0041)	(0.0046)	(0.0041)	(0.0046)	(0.0041)
Latin American dummy	-0.0095**	-0.0109***	-0.0111***	-0.0120***	-0.0118**	-0.0113***	-0.0137***	-0.0123***
	(0.0041)	(0.0036)	(0.0040)	(0.0036)	(0.0051)	(0.0044)	(0.0049)	(0.0043)
Inflation		-0.0291***		-0.0286***		-0.0297***		-0.0292***
		(0.0046)		(0.0046)		(0.0049)		(0.0049)
Government expenditures		-0.0998***		-0.1083***		-0.0988***		-0.1070***
		(0.0274)		(0.0274)		(0.0301)		(0.0307)
Trade		0.0054*		0.0038		0.0055**		0.0041
		(0.0028)		(0.0028)		(0.0027)		(0.0028)
Constant	0.1111***	0.1027***	0.0979***	0.0996***	0.0761	0.0938**	0.0592	0.0915**
	(0.0238)	(0.0208)	(0.0233)	(0.0207)	(0.0484)	(0.0443)	(0.0464)	(0.0437)
R^2	0.094	0.24	0.14	0.25	0.085	0.24	0.13	0.25
First stage F statistic					42.5	34.6	42.3	33.2
Sargan test					p=0.78	p=0.36	p=0.60	p=0.35
Number of countries	132	132	132	132	131	131	131	131
Observations	393	384	393	384	390	381	390	381

Notes:
1. The asterisks ***, **, and * are 1%, 5%, and 10% of significance levels, respectively.
2. The numbers in parentheses are standard errors.
3. In columns (5) to (8), instrumental variables for corruption are dummy variables for British and Scandinavian legal origin.

Figure 1: FDI net inflows as a share of GDP (World, 1970-2007)