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Foreign Direct Investment and Economic Growth: The Role of Democracy

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ABSTRACT

This study investigates the growth-effect of foreign direct investment (FDI) in 67 developing countries covering from 1984 to 2016, with a special emphasis on the role of democracy. The empirical results obtained from generalized method of moments (GMM) estimation demonstrate that democracy plays a crucial role in moderating the positive effect of FDI on output growth. The results are robust to several alternative measures of democracy and FDI. This suggests that the marginal effect of FDI on growth depends on the level of democracy such that countries which promote democratic institution benefit more from FDI inflows. The finding is consistent with the growing view that the growth-effect of FDI depends on other intervening factors in the host countries.

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INTRODUCTION

The economic literature is filled with many studies which attempt to improve our understanding about why some countries are able to grow faster than the others. Several studies have highlighted that there are more than sixty variables that may help to explain the variations in growth performance across countries (see for example Durlauf et al., 2005 and Sala-i-Martin, 1997). According to the literature, foreign direct investment (FDI) by multinational corporations (MNCs) is regarded as one of the possible factors. Therefore, FDI is viewed as an important component for development and productive capacity building in many countries (especially developing countries). They view FDI as a channel for local firms to improve their productive capacity and efficiency because it allows them to learn and adopt from as well as imitate MNCs.

The adoption of pro-FDI policies by many countries is based on the expectation that MNCs will bring tremendous benefits to the host countries, mainly in terms of new technology (De Mello, 1999). FDI is always linked to superior technologies as MNCs invest heavily in research and development (R&D) activities. Additionally, they recruit a large number of technical and professional workers and provide extensive trainings for their workers (Dunning, 1998). Once the local subsidiary has been set up, some of the positive externalities associated with MNCs will spill over to local firms because knowledge cannot be completely internalized. In addition, FDI is also viewed as a key mechanism for creating new employment opportunities, raising additional tax revenue, development of human capital, increasing trade and complementing domestic investment (Jenkins and Thomas, 2002).

In order to tap the benefits associated with FDI inflows, many countries relax their foreign investment regulations. They introduce various types of incentives to encourage MNCs to invest in their countries. These include fiscal incentives (i.e. tax and tariff exemption and low corporate tax rates), financial incentives (i.e. loan and land subsidies) and others incentives (i.e. special economic zones, infrastructure subsidies, R&D subsidies and reducing bureaucracy). According to UNCTAD (2005, 2017), an average of 57 countries have changed their foreign investment policy (i.e. both liberalization and restrictive) over the past 25 years. Interestingly, the numbers of investment policy changes directed towards liberalization of investment policies far outweighed the number of restrictive policies. Specifically, an average of 112 regulatory changes were introduced annually with 82% of the changes were made to facilitate foreign capital flows. These positive changes have provided strong incentives for MNCs to expand their operations globally. The data also reveals that the highest number of changes were made during 1996-2000 with 140 regulatory changes per year. Since then, the changes declined gradually but recent data for 2016 shows that the competition for foreign capital has intensified again as 124 regulatory changes were recorded which exceeds the 25 years' average (i.e. 112 regulatory changes).

Although economic theories predict that FDI inflows will bring tremendous benefits to the recipient countries (Findlay, 1978; Wang, 1990), empirical findings reveal a conflicting relationship between FDI and output growth. While some studies have reported positive impact of FDI on growth (De Mello, 1999; Chong et al., 2008) others find that the impacts are negative (Aitken et al., 1997; Adams, 2009). Several recent studies have explored the reasons behind this mixed finding and absorptive capacity appears to be the key explanation.[1] Specifically, they find that the growth-effect is weak or non-existent in countries with poor absorptive capacity. In other words, FDI spillovers are not automatic consequences of MNCs presence but require the host countries to have certain quality which allow them to reap the maximum benefits from FDI inflows. In earlier literature, several factors have been recognized as important elements of absorptive capacity such as trade policy, level of economic development, human capital, financial market development, and economic freedom, among many others.

In line with the recent literature which emphasizes on the role of institution in economic development, this study aims to examine the role of democratic institution in moderating the growth-effect FDI inflows. Specifically, we hypothesize that countries which promote democratic institution will benefit more from FDI inflows. At least, there are two reasons to support this argument. First, democracy is found to be robustly related

[1] Cohen and Levinthal (1990) define absorptive capacity as a firm's "ability to recognize the value of new information, assimilate it, and apply it to commercial ends."

to the level of human capital (Baum and Lake, 2003) which is an important pre-condition for the positive impact of FDI (Borensztein et al., 1998). We can expect that human capital is widely available in democratic countries and hence more FDI spillovers are possible. Second, democracy may influence financial markets and systems which is also one of the important intervening factor for FDI spillovers (Alfaro et al., 2004; Azman-Saini et al., 2010b). Democracy may limit the power of the state to control and repress financial system and therefore generate a more efficient banking system (Haber, 2007). Additionally, democratic countries tend to provide greater protections against expropriation which result in a better banking system and more developed stock markets (Acemoglu and Johnson, 2005). Moreover, La Porta et al. (2002) suggest that democratic regimes tend to encourage financial development by discouraging government ownership of banks.

The rest of the paper is structured as follows. Section 2 provides a review of the related literature while Section 3 presents the methodology and data used in this paper. Section 4 reports the empirical results and their interpretations. The final section concludes and provides some policy recommendations.

LITERATURE REVIEW

Several theories predict that FDI by MNCs is beneficial for the host countries mainly in the form of technology transfer to local firms. Findlay (1978) is perhaps one of the earliest theories which recognize the potential role of FDI in the development process. The author constructs a simple dynamic model which can accommodate the possible transfer of technology from various sources including FDI. Generally, FDI is viewed as a source of technical progress through technology spillovers from MNCs to local firms. Furthermore, Findlay (1978) suggests that the magnitude of FDI spillover is conditional on technology gap such that if the gap is too big local firms may not be able to benefit from MNCs presence. This idea was further supported by Wang (1990) who proposes a model in which knowledge applied to production is assumed to be a function of FDI. With increasing movement of capital, more technology is expected to be transferred across countries and the gap between developed and developing countries could be reduced.

Earlier studies point out that FDI spilllovers are not automatic but depend on the absorptive capacity of the host countries. Several intervening factors have been highlighted in the literature which contribute to a nation's absorptive capacity. For instance, Blomstrom et al. (1994) reveal that FDI spillovers depend on the level of economic development such that more developed countries benefit more from FDI inflows. Meanwhile, Balasubramanyam et al. (1996) examine the role of trade policy and find that the growth-effect is stronger in countries that pursue export promotion policies than in countries that pursue import substitutions. In fact, they uncover that FDI has no impact on growth in developing countries that follow import substitution policies. The authors argue that import substitution policies reduce the efficiency of FDIs by distorting the returns from social and private capitals.

On another related issue, Borensztein et al. (1998) find that FDI inflows positively contribute to growth in countries with sufficiently high level of human capital. This finding is consistent with the view that FDI has high technological content and therefore requires labor that is able to understand and work with the new technology. However, the same effect could not be established for domestic investment. This finding implies that developed countries are able to benefit more from FDI inflows as they generally have higher level of human capital. This is further supported by Xu (2000) who unveils that technology transfer by U.S. MNCs contributes to the productivity growth in developed countries, but not in developing countries.

In several recent studies, financial market has been highlighted as an important moderating factor in the FDI-growth link. Hermes and Lensink (2003) reveal that the development of the financial sector is more important than human capital for FDI spillovers. The importance of financial market has also been documented in Alfaro et al. (2004), Durham (2004) and Azman-Saini et al. (2010b), among many others. According to these authors, a more developed financial system positively contributes to the process of technology diffusion linked to FDI inflows as they are able to reduce the risks inherent in the investment made by domestic firms that seek to imitate technology developed by MNCs or to upgrade the qualifications of their workers.

Several other studies have examined the role of institution in moderating the impact of FDI on growth. A number of recent papers empirically confirm the importance of institutions for economic development.[2] Apart from financial market, Durham (2004) also investigate whether countries with better institutional quality will benefit more from FDI and portfolio inflows. Using data on 80 countries they find that both FDI and portfolio investment have no direct effect on growth. However, the effects are contingent on institutional factors available in the host countries. Meanwhile, Azman-Saini et al. (2010a), Alguacil et al. (2011), Slesman et al. (2015) examine the specific type of institution namely, economic freedom. They argue that the lack of economic freedom can limit a firm's (or nation's) ability to absorb and internalize new technology from MNCs and contribute to host country's economic growth. They conclude that countries which promote freedom of economic activities benefit more from MNCs presence. Recently, Malikane and Chitambara (2017) find that FDI spillovers depend on political institutions (i.e. political stability and regime types) using a sample of eight Southern African countries.

METHODOLOGY

Empirical model

In order to test the role democratic institution plays in the FDI-growth relationship, this study relies on a model based on the works of Balasubramanyam et al. (1996); Alfaro et al. (2004) and Azman-Saini et al. (2010a). The baseline model can be specified as follows:

$$y_{it} = \alpha y_{i,t-1} + \beta_1 FDI_{it} + \beta_2 DEM_{it} + \beta_3 X_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

where y is gross domestic product (GDP) per capita, FDI is foreign direct investment, DEM is democracy, X is a vector of control variables (such as trade openness, life expectancy, investment, population growth and inflation) that affect output growth. Additionally, ε_{it} is error term, η_i term is unobserved country-specific effect, *i* and *t* are the usual country and time indexes, respectively.

In order to test the hypothesis that democracy plays an important role in moderating the growth-effect of FDI, equation (1) is extended to include an interaction term constructed as a product of FDI and democracy (i.e. FDI x DEM). With this extension, the model can now be expressed as follows:

$$y_{it} = \alpha y_{i,t-1} + \beta_1 FDI_{it} + \beta_2 DEM_{it} + \beta_3 (FDI \times DEM)_{it} + \beta_4 X_{it} + \eta_i + \varepsilon_{it} \quad (2)$$

In this framework, β_3 is used to test the role of democracy in moderating the growth-effect of FDI. If the coefficient is found to be positive and significant, this would imply that the growth-effect of FDI is increasing monotonically with the level of democracy in the host countries. In other words, democracy improves the growth-effect of FDI and countries with higher level of democracy benefit more from MNCs presence. Then, the marginal effect of FDI on output can be calculated by deriving the partial derivative of y_{it}, as follows:

$$\frac{\partial y_{it}}{\partial FDI_{it}} = \beta_1 + \beta_3 DEM \quad (3)$$

Following Brambor et al. (2006), the standard errors are calculated as follows:

$$\sigma^2 \frac{\partial y}{\partial FDI} = var(\beta_1) + DEM^2 var(\beta_3) + 2DEMcov(\beta_1 \beta_3) \quad (4)$$

[2] North (1990) defines institutions as the humanly devised constraints or rules of the game that structure political, economic, and social interaction. Important elements of these are formal rules (e.g., constitutions, laws, and property rights sustained through courts, and the police) and informal constraints (e.g., sanctions, taboos, customs, traditions, and codes of conduct). He further states that institutions provide the incentive structure of an economy.

Econometric methodology

This study employs a generalized method of moments (GMM) panel estimator. The methodology was proposed Holtz-Eakin et al. (1988) and then extended by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). The main reason for choosing this estimator is because of its ability in handling country-specific effects and simultaneity bias. Several authors have revealed that FDI is likely to be endogenous as higher output may attract more FDI that seek market expansion. This methodological procedure has been used in the analyses of finance-growth link (Levine et al., 2000; Beck et al., 2000), FDI-growth link (Azman-Saini et al., 2010b; Alguacil et al., 2011), R&D spillovers (Chee-Lip et al., 2015), FDI-R&D link (Azman Saini et al., 2018; Tan and Azman-Saini, 2017) among many others.

Arellano and Bond (1991) propose transforming Equation (2) into first-difference to remove country-specific effects. Then, the lagged levels of the regressors are used as instruments to address endogeneity problem. This is valid under the assumptions that the error term is not serially correlated and the lag of the explanatory variables are weakly exogenous. This estimation strategy is known as difference GMM estimation. However, Alonso-Borrego and Arellano (1999) and Blundell and Bond (1998) reveal that if the independent variables are persistent this type of modelling strategy may lead to incorrect inferences. In order to address the problem, Arellano and Bover (1995) and Blundell and Bond (1998) have proposed a system GMM estimator which combines difference and level equations. In this strategy, additional moments are introduced for the level equation using the lagged difference of regressors as instruments.

The validity of the GMM estimation depends on two specification tests. The Hansen (1982) J-test of over-identifying restrictions is used to evaluate the validity of the instruments. Under the null of joint validity of all instruments, the empirical moments have zero expectation, so the *J* statistic is distributed as a $\chi 2$ with degrees of freedom equal to the degree of overidentification. The second test examines the hypothesis that there is no (second-order) serial correlation in the error term (Arellano and Bond, 1991). Failure to reject the null of both tests would imply that the model is adequately specified and the result is valid.

There are two variants of GMM estimators used in empirical literature namely, one- and two-step GMM estimators (Arellano and Bond, 1991). The one-step estimator uses weighting matrices that are independent of estimated parameters while the two-step GMM counterpart uses the optimal weighting matrices in which the moment conditions are weighted by a consistent estimate of their covariance matrix. This makes the two-step estimator more superior than the one-step estimator in term of asymptotic efficiency. Consequently, we use two-step system GMM estimator in this study.

Data and sample period

This study estimates equations (1) and (2) by utilizing a sample of 67 developing countries over 1984-2016 period[3]. The observations are averaged over five-year non-overlapping period except for the last observation which is averaged over 3 years (i.e. 1984-1988, 1989-1993, 1994-1998, 1999-2003, 2004-2008, 2009-2013, 2014-2016) to smooth out the cyclical fluctuations in the series.

This study employs several measures of democracy in order to enhance the credibility of regression results. The first measure of democracy is taken from Polity IV database. The variable is scaled between zero and ten such that the lower score implies low democracy and higher score represents higher level of democracy. The second measure uses variable published by the Political Risk Services (PRS) which publishes the International Country Risk Guide (ICRG). This indicator ranges from one to six in which lower values indicates lower democracy and vice versa[4]. The third indicator is taken from the Freedom House database on political right. The range of data is from one to seven, with higher score implies lower political rights and vice versa. Due to differences in interpretations across indicators, the last measure of democracy is transformed such that lower score implies lower democracy and vice versa. Finally, all indicators are rescaled such that the values lie between zero and twelve.

[3] The starting period is dictated by the availability of data from the ICRG. Appendix A provides the list of countries.
[4] This variable measures the degree to which its electorates are accountable by their governments and extent how much elections are fair and free.

The data on PPP adjusted GDP per capita and net FDI inflows as percentage of GDP is collected from the World Development Indicator database (WDI). Following the empirical growth literature, this study also includes other control variables such as trade as percentage of GDP (i.e. measure of trade openness), life expectancy (i.e. measure of human capital), gross fixed capital formation (i.e. proxy for investment in physical capital), population growth and inflation (measure of macroeconomic instability). These control variables are also collected from the WDI except for the life expectancy which is collected from the United Nations World Population Prospects database (UNWPP). For robustness check, we also use data on FDI stock which is collected from the United Nations Conference on Trade and Development (UNCTAD) database[5]. Table 1 describes the data used in this analysis.

Table 1 Data Description

Variables	Unit of Measurement	Source
GDP	PPP Adjusted GDP per capita	WDI
FDI	Net FDI inflows over GDP	WDI
POP	Annual % growth	WDI
TO	Ratio over GDP	WDI
HC	life expectancy (number of years)	UNWPP
INV	Ratio over GDP	WDI
INF	Annual percentage	WDI
DEMP	Scaled from 0 to 10	Polity IV
DEMI	Scaled from 0 to 12	ICRG
DEMF	Scaled from 0 to 12	Freedom House
FDIS	Net inflows as a ratio over GDP	UNCTAD

Notes: GDP=GDP per capita, FDI=Foreign direct investment inflow, POP= Population growth, TO= Trade openness, HC= Human capital, INV= investment in physical capital, INF= Inflation, DEMP= Democracy measure polity2 from Polity IV, DEMI=Democracy measure from ICRG, DEMF= Democracy measure from Freedom House, FDIS=Foreign direct investment stock.

EMPIRICAL RESULTS

The first step of our analysis is to estimate the baseline equation (1) and results are presented in table 2. Model 1, 2 and 3 present the results of using democracy measures from polity IV, ICRG and Freedom House, respectively. The findings reveal that the coefficients on FDI in all models are positive and statistically significant at the usual level which suggest that FDI is growth enhancing. For instance, the result for Model 1 indicates that one percentage point increase in FDI enhances economic growth by 7.2 percentage points. Similar interpretation can be made for Model 2 and 3. These results are consistent with the findings in Awad and Ragab (2018) who also find the positive impact FDI on economic growth. In addition, the results also reveal that as countries become more democratic, economic performance in term of output growth will improve as the coefficients on democracy are found to be positive and significant. The finding on the importance of democracy for growth is robust to various measures of democracy. Among all measures of democracy, Polity IV appears with the largest impact on growth. This finding is in line with Adams and Klobodu (2016) and Malikane and Chitambara (2017) who also find that democracy promotes economic growth.

Moreover, investment in physical capital (INV) and inflation also affect growth positively. However, inflation rate has a minor impact on economic growth in the range of 0.0003 to 0.0004. Similarly, population growth reduces economic growth which is consistent with the theory. In addition, the negative finding on the impact of life expectancy on economic growth is consistent with Acemoglu and Johnson (2007) who find that improvements in life expectancy lead to some growth in aggregate incomes, but mainly trigger faster population growth, and therefore have a negative causal effect on income per capita. Finally, the finding reveals that trade openness is important for growth which suggest that countries will benefit more from trade liberalizations. More importantly, the specification tests suggest the results presented in the table are valid as all models are adequately specified because we fail to reject the null of both Sargan and AR(2) tests.

[5] Data on FDI stock on Suriname is not available.

Table 2 Results of Baseline Specification
(N = 67 countries; T = 7; Sample Period = 1984– 2016)

	Polity IV	ICRG	Freedom House
Variables	Model 1	Model 2	Model 3
Lag GDP	0.278***	0.272***	0.279***
	(0.0214)	(0.0217)	(0.0245)
FDI	0.063***	0.073***	0.074***
	(0.0085)	(0.0084)	(0.0081)
DEM	0.83***	0.167**	0.139*
	(0.2123)	(0.0666)	(0.0809)
HC	-0.138***	-0.137***	-0.128***
	(0.0284)	(0.0319)	(0.0259)
INV	0.03	0.034	0.027
	(0.0275)	(0.0275)	(0.0287)
POP	-1.695***	-1.708***	-1.673***
	(0.2120)	(0.2188)	(0.2171)
TO	0.042***	0.033***	0.033***
	(0.0058)	(0.0053)	(0.0048)
INF	0.0003**	0.0004**	0.0004**
	(0.0001)	(0.0001)	(0.0002)
Constant	0.471	9.076***	10.67***
	(3.0609)	(2.1283)	(2.0203)
Sargan test	28.65	26.86	28.54
	(0.072)	(0.11)	(0.073)
AR(1)	-3.3888	-3.475	-3.516
	(0.001)	(0.0005)	(0.0004)
AR(2)	-0.916	-0.306	-0.317
	(0.36)	(0.76)	(0.751)
Instruments	29	29	29
Observations	469	469	469

Notes: All models are estimated using xtdpdsys command. The standard errors are reported in parentheses, except for Sargan test, AR (1) and AR (2) which are p-values. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Time dummies are included in the model specification but the results are not reported to save space.

The next step of our analysis is to test the main hypothesis that democracy level in the host countries will alter the way FDI affect growth. To this end, we rely on a linear interaction model as shown in Equation (2) and the results are presented in table 3. As revealed in the table, the interaction terms appear with positive signs and statistically significant in all models. This implies that democracy is critically important in enhancing the impact of FDI on growth. This finding is consistent with the findings in Malikane and Chitambara (2017) who also find that higher level of democracy and political stability allow recipient countries to benefit more from FDI inflows. Generally, this finding is consistent with the view that host countries must have certain quality which allow them to adopt and internalize new technology associated with FDI inflows. Moreover, all control variables generally appear with the expected signs and statistically significant in almost all models.

Then, the marginal effects of FDI on growth is computed and Equation (4) is employed to calculate standard errors to test their statistical significance. All models demonstrate that the marginal effects are positive and statistically significant at the mean, minimum and maximum values of democracy. For example, in Model 1A each additional percentage point of improvement in democracy will on average enhances the growth-effect of FDI by 8.7 percentage points. At the minimum and maximum points, the effects will increase by 6 and 9 percentage points, respectively. Finally, it is worth noting that the fitted models are adequately specified as the null of both specification tests cannot be rejected. Therefore, the findings are valid.

Table 3 Results of Interaction Specification
(N = 67 countries; T = 7; Sample Period = 1984– 2016)

	Polity IV	ICRG	Freedom House
Variables	Model 1A	Model 2A	Model 3A
Lag GDP	0.268***	0.249***	0.272***
	(0.020)	(0.0239)	(0.0221)
FDI	-0.05***	-0.042***	0.202***
	(0.0181)	(0.0146)	(0.0291)
DEM	0.692***	0.125*	0.195**
	(0.2156)	(0.0735)	(0.0928)
FDI x DEM	0.003*	0.006***	0.023***
	(0.0018)	(0.0013)	(0.006)
HC	-0.136***	-0.132***	-0.127***
	(0.0326)	(0.0294)	(0.0279)
INV	0.052*	0.053*	0.034
	(0.0302)	(0.0301)	(0.0272)
POP	-0.204***	-0.194***	-0.168***
	(0.0259)	(0.0247)	(0.0249)
TO	0.044***	0.036***	0.035***
	(0.0065)	(0.0057)	(0.0055)
INF	-0.0002*	0.0001	0.0004**
	(0.0001)	(0.0002)	(0.0002)
Constant	2.252	9.356***	10.68***
	(3.6144)	(1.9026)	(2.1253)
Sargan test	30.23	29.49	27.51
	(0.05)	(0.06)	(0.093)
AR(1)	-2.6343	-2.894	-3.147
	(0.008)	(0.004)	(0.002)
AR(2)	-0.768	0.117	-0.222
	(0.443)	(0.906)	(0.824)
Instruments	30	31	30
Observations	469	469	469
Marginal Effects			
Mean	0.087**	0.081***	0.3597***
Minimum	0.0606**	0.0425***	0.4805***
Maximum	0.0899***	0.1103***	0.2019***

Notes: All models are estimated using the Blundell and Bond (1998) dynamic panel system GMM estimations (Stata xtdpdsys command). The standard errors are reported in parentheses, except for Sargan test, AR (1) and AR (2) which are p-values. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Time dummies are included in the model specification but the results are not reported to save space.

Two sensitivity checks are carried out to ensure that the finding documented earlier is robust. The first test uses FDI stock as an alternative measure of FDI in which the data on 66 countries are available. The empirical results of using FDI stock variable are presented in table 4. Interestingly, the result of interaction variables reveal that the coefficients are positive and statistically significant in all models. This suggests that the finding documented earlier are not by chance and the important role of democracy in moderating the growth-effect of FDI cannot be disputed. Similarly, all control variables appear with the correct signs and statistically significant in most cases. The marginal effects and their statistical significance are computed and presented at the bottom of the table. They are all positive and significant at the usual level. More importantly, both specification tests yield p-values of more than 0.05, indicating the validity of our results.

Table 4 Robustness checks using FDI stock
(N = 66 countries; T = 7; Sample Period = 1984–2016)

	Polity IV	ICRG	Freedom House
Variables	Model 1B	Model 2B	Model 3B
Lag GDP	0.259***	0.269***	0.269***
	(0.0241)	(0.0272)	(0.0281)
FDI	-0.0159**	-0.0087***	0.012***
	(0.008)	(0.0019)	(0.0024)
DEM	0.639***	0.115*	0.163*
	(0.2123)	(0.0696)	(0.0843)
FDI x DEM	0.0014***	0.0012***	0.0012***
	(0.0003)	(0.0001)	(0.0005)
HC	-0.146***	-0.139***	-0.137***
	(0.0316)	(0.0286)	(0.0262)
INV	0.066*	0.0802***	0.0621**
	(0.035)	(0.0305)	(0.0232)
POP	-0.172***	-0.155***	-0.1103***
	(0.0291)	(0.0243)	(0.0219)
TO	0.0547***	0.0312***	0.0195***
	(0.0085)	(0.0053)	(0.005)
INF	-0.00001	0.0005***	0.0006**
	(0.0001)	(0.0002)	(0.0002)
Constant	1.856	8.520***	10.47***
	(3.3332)	(1.9544)	(1.7954)
Sargan test	25.35	27.12	29.246
	(0.1491)	(0.1017)	(0.0622)
AR(1)	-2.6338	-3.2363	-3.6022
	(0.0084)	(0.0012)	(0.0003)
AR(2)	-1.2377	0.0331	-1.2576
	(0.2158)	(0.9736)	(0.2085)
Instruments	30	30	31
Observations	469	469	469
Marginal effect			
Mean	0.0313***	0.0168***	0.02***
Minimum	0.0204***	0.0087***	0.0262***
Maximum	0.0325***	0.0231***	0.0119***

Notes: All models are estimated xtdpdsys command. The standard errors are reported in parentheses, except for Sargan test, AR (1) and AR (2) which are p-values. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. Time dummies are included in the model specification but the results are not reported to save space.

The second robustness check is implemented by using an alternative measure of democracy. Specifically, a new measure of democracy is constructed using principal component analysis. Table 5 present the result of estimating equation (2). Generally, the results reveal that the finding is similar to the one documented earlier. More importantly, the interaction term between FDI and democracy has the same positive sign and statistically significant at the conventional level. Therefore, we can safely conclude that the level of democracy in the host countries plays an important role in enhancing the impact of FDI on output growth. Countries which promote democratic institution are able to benefit more from FDI inflows and allow them to grow faster than the others.

Table 5 Robustness checks using Principal Component Measure of Democracy.
(N = 67 countries; T = 7; Sample Period = 1984– 2016).

	Principal Component Analysis (PCA)
Variables	Model 4
Lag GDP	0.257***
	(0.0237)
FDI	0.0306*
	(0.0158)
DEM	0.726**
	(0.3098)
FDI x DEM	0.0807***
	(0.0198)
HC	-0.142***
	(0.0314)
INV	0.0346
	(0.0241)
POP	-1.971***
	(0.2446)
TO	0.0298***
	(0.0061)
INF	0.0001
	(0.0002)
Constant	11.18***
	(2.1778)
Sargan test	29.107
	(0.0643)
AR(1)	-2.7722
	(0.0056)
AR(2)	-0.941
	(0.3467)
Instruments	31
Observations	469
Marginal Effects	
Mean	-0.0306*
Minimum	-0.190***
Maximum	0.0762***

Notes: All models are estimated using xtdpdsys command. The standard errors are reported in parentheses, except for Sargan test, AR (1) and AR (2) which are p-values. ∗∗∗, ∗∗ and ∗ indicate statistical significance at the 1%, 5% and 10% levels, respectively. Time dummies are included in the model specification but the results are not reported to save space.

CONCLUSIONS

This study investigates the role of democracy in moderating the growth-effect of FDI in developing countries. It employs a sample of 67 developing countries covering the 1984-2016 period. Methodologically, it uses a generalized method of moment panel estimator. The main finding reveals that the growth-effect of FDI depends on the level of democracy in the host countries. Specifically, the finding suggests that countries which promote democratic institution are able to benefit more from FDI spillovers, leading to better growth performance. More importantly, the finding is robust to different measures of democracy and FDI. In terms of policy implications, developing countries should improve the institutional reform policy agenda in order to benefit more from MNCs presence. Policymakers should weigh the cost of policies that focus on attracting FDI inflows versus those that seek to promote democratic institution.

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APPENDIX

APPENDIX A. LIST OF COUNTRIES AND KEY VARIABLES

Country	GDP	FDI	DEM	Country	GDP	FDI	DEM
Albania	2149.5	5.46	7.00	Malaysia	5607.38	3.89	7.06
Algeria	2997.0	0.72	4.01	Mali	459.91	1.70	6.66
Angola	1816.1	5.25	3.47	Mexico	6453.76	2.23	7.43
Armenia	1889.1	4.05	6.77	Mongolia	1724.28	4.38	8.26
Bangladesh	548.8	0.56	6.06	Morocco	1878.29	1.53	1.91
Bolivia	1451.4	3.31	9.11	Mozambique	339.90	9.46	5.80
Botswana	4200.3	2.77	8.77	Namibia	3145.87	4.02	7.49
Brazil	5762.2	2.31	8.80	Nicaragua	1208.89	4.69	8.19
Bulgaria	3884.1	6.28	7.97	Niger	276.49	3.38	5.96
Burkina Faso	394.2	0.93	3.94	Nigeria	1035.62	3.01	5.03
Cameroon	1066.9	1.12	2.54	Pakistan	735.50	1.00	6.37
China	2587.3	2.99	1.50	Papua New Guinea	1341.46	2.13	7.10
Colombia	3535.8	2.93	8.71	Paraguay	2233.66	1.26	7.51
Congo, Dem. Rep.	281.9	2.42	3.16	Peru	3068.47	3.01	8.27
Costa Rica	5332.2	4.34	10.00	Philippines	1439.77	1.49	8.50
Dominican Rep.	3368.1	2.92	8.60	Romania	4518.95	2.83	7.67
Ecuador	3158.5	1.33	8.46	Russian Federation	6511.83	1.64	6.66
Egypt	1634.7	2.39	2.53	Senegal	749.01	1.64	6.77
El Salvador	2149.5	1.79	8.54	Sierra Leone	316.89	3.14	5.46
Gabon	6131.8	1.85	3.54	South Africa	4388.65	1.01	8.90
Gambia, The	511.3	3.49	4.20	Sri Lanka	1552.70	1.10	7.46
Guatemala	2062.6	1.02	7.96	Sudan	963.20	2.14	2.90
Guinea-Bissau	368.1	1.34	5.51	Suriname	4131.90	-5.27	6.73
Guyana	1761.6	7.18	6.56	Tanzania	439.32	2.57	3.95
Honduras	1302.3	3.90	8.23	Thailand	3139.57	2.41	7.20
India	758.1	1.03	9.34	Togo	402.48	2.58	3.30
Indonesia	1603.2	1.07	5.74	Tunisia	2697.26	2.38	4.04
Iran, Islamic Rep.	3524.0	0.47	2.76	Turkey	6025.58	1.06	8.30
Jamaica	3339.7	3.82	9.63	Uganda	378.95	2.58	3.46
Jordan	2410.3	4.84	3.24	Venezuela	6873.35	1.41	7.84
Kenya	657.1	0.77	5.71	Vietnam	809.52	4.90	1.50
Liberia	268.4	30.79	5.73	Zambia	784.78	4.70	6.18
Madagascar	317.8	3.04	6.84	Zimbabwe	704.55	1.17	3.87
Malawi	258.6	2.60	5.80				