Inzinerine Ekonomika-Engineering Economics, **2012, 23(4), 379-386**

International Evidence on the link between Foreign Direct Investment and Institutional Quality

Yin-Li Tun, W.N.W. Azman-Saini, Siong-Hook Law

Universiti Putra Malaysia
43400 Serdang, Selangor,Malaysia
e-mail: tunyinli@yahoo.com, wazman@putra.upm.edu.my, lawsh@econ.upm.edu.my

crossref http://dx.doi.org/10.5755/j01.ee.23.4.2569

Multinational corporations (MNCs) are known for their huge investments in research and development activity. They are also known for superior patents, trade secrets, brand names, management techniques and marketing strategies. The provision of incentives (i.e., tax incentives and/or subsidies) and the adoption of FDI-stimulating policies stem from the expectations that FDI brings enormous benefits such as the transfer of new technology. Numerous empirical studies have demonstrated FDI has a positive impact on economic growth of the host countries. However, it should be noted that the distribution of FDI across countries is not uniform with some countries receive more FDI than the others. This observation raises the question of whether it is possible to identify a set of policies that might enhance the attractiveness of host countries as destinations for MNCs.

In the investigation of factors that influence FDI flows, existing studies have mainly focussed on the traditional factors such as market size, trade openness, infrastructure and human capital. The role of other factors such as the quality of institution in the host country was largely ignored. Institution can be defined as the humanly devised constraints or rules of the game that structure political, economic, and social interaction. Institutions provide the incentive structure of an economy. Specifically, it affects security of property rights, prevalence of corruption, distorted or extractive policies, and thereby affects the incentive to invest in human and physical capital, and hence economic growth. The role of institutional quality in the development process has been extensively examined and economists have reached a consensus on the importance of good domestic institutions in explaining cross-country differences in both growth rates and income per capita.

Following recent literature that emphasize on the importance of institution, this paper examines whether domestic institutional quality has any important role in attracting FDI. Instead of investigating the direct effect of institution on growth, this paper focuses on the indirect effect that institution may bring via FDI inflows. Arguably, countries with better institutional quality should be able to attract more investment because it improves productivity prospect, reduces the cost of doing business and uncertainty. In order to test the hypothesis, data from 77 countries over the period of 1981-2005 is utilised. Methodologically, this paper uses a system generalised method-of-moment panel estimator to address some of the weaknesses encountered in the previous literature on FDI-institution link. Specifically, this estimator is able to formally address biases induced by the inclusion of lagged dependent variable, country-specific effects and endogeneity problem.

There are several important conclusions emerging from this analysis. First, institution appears to be important determinant of FDI inflows. This finding is a line with the view that improvements in the quality of domestic institution will reduce the cost of doing business, reduce uncertainty, and improve productivity prospect. This will eventually lead to more investments. Second, FDI is also seeking human capital and trade openness. The availability of quality workforce in the host countries is an important pre-condition for the successful operations of MNCs as they need people who are able to understand and work with new technology. Trade openness is important because most FDI is export oriented in nature such that MNC will invest in countries that pursue trade-promotion policies. In addition, MNCs investment decision also depends on the amount of existing FDI invested in the countries. This is consistent with the view that the success of MNCs in the host countries is an important signal for further investments by MNCs. Finally, FDI is not influenced by market size and infrastructure quality. This is not surprising and in fact consistent with recent literature.

Importantly, the finding on the important role played by domestic institution in attracting FDI is robust and is not driven by outlier observations, or problems caused by weak instruments and simultaneity bias.

Keywords: *Foreign direct investment, Institutions, Generalised method-of-moment, Panel data, FDI determinants.*

Introduction

Foreign direct investment (FDI) by multinational corporations (MNCs) is considered as one of the key ingredients in the development process for many countries. MNCs have been linked to superior technologies, patents, trade secrets, brand names, management techniques and marketing strategies (Dunning, 1993). Also, they are known to be among the biggest spenders in research and development (R&D) activities (Borensztein *et al.,* 1998). Moreover, they hire a large number of technical and professional workers (Markusen, 1995) and undertake substantial efforts in the education of workers (Fosfuri *et al.,* 2001). Once they have invested and set up a subsidiary in host country, some of the advantages linked to MNCs may not be completely internalized and thus spill over to

domestic firms, leading to the expansion of the domestic economy.[1, 2]

Based on the above-mentioned potential externalities, many countries have lifted a lot of restrictions imposed on FDI flows. For instance, an annual average of 175 changes in FDI laws was made during 2000-2008 period. Of these changes, 88 per cent were made favourable to FDI (UNCTAD 2009). As a result of these efforts, FDI inflows rose sharply in the past few decades. According to UNCTAD (2001, 2009), global FDI inflows rose from $57 billion in 1982 to $1271 billion in 2000 and reached a record high of $2099 billion in 2007. In fact, over the past few decades the growth rate of world FDIs has exceeded the growth rates of both world trade and GDP. However, FDI inflows are not uniform across countries with few countries are able to attract more FDI than the others.

In order to better understand the nature of FDI, several studies have examined the link between FDI and its determinants. Several factors have been identified as important for FDI inflows which includes market size (Ramirez, 2006; Quazi, 2007), quality infrastructure (Asiedu, 2002), openness to trade (Ang, 2008; Fedderke & Romm, 2006), and human capital (Glass & Saggi, 2002, Noorbakhsh *et al.,* 2001).[3] Although there is a plethora of research on the influence of the above-mentioned factors on FDI inflows, only a few studies have made serious attempt to investigate the link between institutional quality and FDI flows (Ali *et al.*, 2010; Busse & Hefeker, 2007).[4] There are at least three reasons to believe why the quality of domestic institutions serves as an important pre-condition for attracting more FDI inflows. First, good institutions raise productivity prospects and therefore may attract foreign investors. Second, poor institutional environment can increase the cost of doing business. For example, corruption may deter investment because it increases the cost of doing business (Wei, 2000). Third, FDI is vulnerable to uncertainty including uncertainty due to poor government efficiency because FDI involves high sunk cost. For instance, imperfect enforcement of contracts may increase uncertainty regarding future returns and therefore negatively affect investment.

The aim of this study is to examine the role domestic institutional quality plays in determining FDI inflows while addressing some of the drawbacks in the recent empirical literature. This study is related to Ali *et al.* (2010) and Busse and Hefeker (2007) who also evaluate the impact of institutional quality on FDI inflows. Ali *et al.,* (2010), who use fixed effect estimator, show that FDI inflows are significantly related to property rights in developing countries. Meanwhile, using difference generalised method of moment (GMM) estimators, Busse and Hefeker (2007) reveal that FDI inflows is positively related to political risk in developing countries. One limitation of Ali *et al.,* (2010) work is that the authors did not address simultaneity bias. Intuitively, FDI and institution may be jointly determined as MNCs may demand for better institutional environment in host countries. Since most countries are competing for FDI, governments will be induced to improve the quality of domestic institutions. Busse and Hefeker (2007) address simultaneity bias in the FDI-institution relationship using difference GMM estimator. However, one problem remains. As Blundell and Bond (1998) show, inferences based on the difference GMM estimation is likely to be incorrect in the presence of persistent variable. This is particularly relevant for institution as it has a strong tendency to persist once it becomes established in society (Acemoglu & Robinson, 2008). In this paper, we employ a system GMM estimator which is not only able to address simultaneity bias but also problems associated with difference GMM estimation when it comes to analysing persistent variable. Additionally, both developed and developing countries are included in our sample. The inclusion of developed countries in the analysis of FDI is undeniably important given the fact that most of FDI flows across developed countries. Also, we assess the impact of outlier observations on the estimation results, in search of a robust relationship between FDI and institution. The importance of addressing outliers in the analysis of FDI has been emphasised by Azman-Saini *et al.,* (2010b) who show that the failure to properly address outlier observations may lead to incorrect conclusions. The results of our study will complement, or alter, the conclusions documented in previous studies particularly by Ali *et al.,* (2010) and Busse and Hefeker, (2007).

Model Specification

In this study, we employ a specification which is broadly similar to others (Ali *et al.,* 2010, Quazi, 2007). The impact of institutional quality and other variables on FDI inflows is expressed as follows:

$$FDI_{1,t} = \alpha FDI_{1,t}1 + \alpha_1 INS_{1,t} + \alpha_2 X_{1,t} + \eta_1 + \varepsilon_{1,t} \quad 1)$$

where i is country index, t is time index. The dependent variable, FDI, is net FDI inflows expressed as a ratio to GDP, INS is a measure of institutional quality, X is a vector of control variables which are hypothesized to affect FDI inflows, η_i is unobserved country-specific effect term, and ε_{it} is a white noise error term. The choice of control variables is guided by previous literature. It encompasses variables that are frequently included in the analysis of FDI determinants including population size (a proxy for market size), telephone line (a proxy for infrastructure development), trade/GDP ratio (a proxy for trade openness), and life expectancy (a proxy for human capital). With this specification, if the estimated coefficient

[1] Additionally, FDI is a useful source of capital for host countries to finance current account deficits. FDI is considered less volatile than other types of capital such as portfolio investment because MNCs investment strategy is long term in nature. However, few economists argue that FDI is detrimental (see review by Zilinske, 2010).

[2] Several studies reveal that FDI is growth-enhancing but many of them show that such effect exists only under certain conditions. See for example, Azman-Saini *et al.*, 2010a,b; Alfaro *et al.,* 2004; Durham, 2004; Borenzstein *et al.,* 1998; among many others.

[3] Blonigen (2005) provides an excellent survey of the literature on FDI determinants. Ali *et al.* (2010) provide a summary of the few studies on the institutional determinants of FDI.

[4] North (1990) defines institution as the humanly devised constraints or rules of the game that structure political, economic, and social interaction. The role of institutional quality in the development process has been extensively examined and economists have reached a consensus on the importance of good domestic institutions in explaining cross-country differences in both growth rates and income per capita (see Acemoglu *et al.,* 2005, for a recent survey).

on INS is positive and significant, this would imply that INS is an important determinant for MNC locational choice. In other words, higher level of institutional development will attract more FDI inflows.

Methodology

This study employs a system generalized-method-of-moment (GMM) panel estimator which was first developed by Holtz-Eakin *et al.,* (1988). The estimator was then extended and improved by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). The choice of this estimator over other alternatives because it has several advantages compared to other alternatives. First, this estimator is able to control for the presence of unobserved country-specific effects. Second, it is also able to control for a simultaneity bias caused by the potential endogeneity of the explanatory variables.

There are two variants of GMM estimator namely, difference-GMM (D-GMM) and system GMM (S-GMM). The D-GMM estimator is based on the first-difference transformation of Equation (1) to eliminate country-specific effects as follows:

$$FDI_{i,t} - FDI_{i,t-1} = \alpha\left(FDI_{i,t-1} - FDI_{i,t-2}\right) + \beta_1 \left(INS_{i,t} - INS_{i,t-1}\right) + \beta \left(X_{1,t} - X_{1,t-1}\right) + \left(\varepsilon_{1,t} - \varepsilon_{1,t-1}\right) \quad (2)$$

In order to eliminate bias induced by the endogeneity of the explanatory variable as well as the correlation between and $(\varepsilon_{i,t} - \varepsilon_{i,t-1})$, Arellano and Bond (1991) suggested using higher-order lags of regressors as instruments. Under this strategy, two assumptions must be fulfilled for instruments to be valid. First, the error terms in Equation (2) must not (second-order) serially correlated and secondly, the lag of the explanatory variables are weakly exogenous. Following Arellano and Bond (1991), the moment conditions for Equation (2) are set as below:

$$\mathrm{E}\left[\mathrm{FDI}_{\mathrm{i,t-s}} \cdot \left(\varepsilon_{\mathrm{i,t}} - \varepsilon_{\mathrm{i,t-1}}\right)\right] = 0 \text{ for } \mathrm{s} \geq 2; \mathrm{t} = 3, \ldots, \mathrm{T} \quad (3)$$

$$\mathrm{E}\left[\mathrm{INS}_{\mathrm{i,t-s}} \cdot \left(\varepsilon_{\mathrm{i,t}} - \varepsilon_{\mathrm{i,t-1}}\right)\right] = 0 \text{ for } \mathrm{s} \geq 2; \mathrm{t} = 3, \ldots, \mathrm{T} \quad (4)$$

$$\mathrm{E}\left[\mathrm{X}_{\mathrm{i,t-s}} \cdot \left(\varepsilon_{\mathrm{i,t}} - \varepsilon_{\mathrm{i,t-1}}\right)\right] = 0 \text{ for } \mathrm{s} \geq 2; \mathrm{t} = 3, \ldots, \mathrm{T} \quad (5)$$

This type of econometric strategy was used by Busse and Hefeker (2007) in evaluating the institutional impact on FDI inflows. However, it should be noted that although the above strategy is able to control for biases caused by country-specific effects and the endogeneity of explanatory variables, it has one serious limitation. Alonso-Borrego and Arellano (1999) and Blundell and Bond (1998) show that the instrumental variables (i.e. lagged levels of the explanatory variables) are weak if the explanatory variables are persistent. They show that this problem could lead to biased parameter estimates in small samples and larger variance asymptotically. In the present context, this should be properly addressed as institution is highly persistent and move slowly over time (Acemoglu & Robinson, 2008). To overcome this problem, Arellano & and Bover (1995) propose S-GMM estimator that combines Equations (1) and (2). Blundell and Bond (1998) reveal that the S-GMM estimator is able to reduce biases and imprecision associated with D-GMM estimator. Following Arellano and Bover (1995), the moment conditions set for Equation (2) are the same as above and the additional moment conditions for Equation (1) are set as follows:

$$\left[FDI_{i,t-s} - FDI_{i,t-s-1} \cdot \left(\eta_i + \varepsilon_{i,t}\right)\right] = 0 \; for \; s = 1; \mathrm{t} = 3, \ldots, \mathrm{T} \quad (6)$$

$$\left[INS_{i,t-s} - INS_{i,t-s-1} \cdot \left(\eta_i + \varepsilon_{i,t}\right)\right] = 0 \; for \; s = 1; \mathrm{t} = 3, \ldots, \mathrm{T} \quad (7)$$

$$\left[X_{i,t-s} - X_{i,t-s-1} \cdot \left(\eta_i + \varepsilon_{i,t}\right)\right] = 0 \; for \; s = 1; \mathrm{t} = 3, \ldots, \mathrm{T} \quad (8)$$

The validity of assumption on both error term and instruments determine the overall consistency of the GMM estimator. Thus, two specification tests are needed to examine the validity. The first is the Hansen test of over-identifying restrictions with the null hypothesis of the validity of the instruments. The second test examines the hypothesis of no second-order serial correlation in the differenced error term (Arellano & Bond, 1991). If the null of both tests cannot be rejected, this would indicate that the model is adequately specified and the instruments are valid.

The GMM estimators are typically applied in one- and two-step variants (Arellano & Bond, 1991). The one-step estimators use weighting matrices that are independent of estimated parameters, while the two-step counterpart utilizes the so-called optimal weighting matrices in which the moment conditions are weighted by a consistent covariance matrix estimate. This adjustment makes the two-step estimator asymptotically more efficient than the one-step estimator. However, the application of the two-step estimator to a small sample, as in our case, may lead to several problems. These problems are induced by the instruments proliferation. Windmeijer (2005) shows that numerous instruments can lead to biased standard errors as well as parameter estimates in the two-step GMM estimation. Moreover, Bowsher (2002) shows that numerous instruments may result in unreliable over-identification test. The author reveals that that the test is undersized and never rejects the null of joint validity at 0.05 or 0.10, rather than rejecting it 5% or 10% of the time as a well-sized test would. In a recent paper, Roodman (2009b) propose an innovative way of alleviating problems induced by the proliferation of instruments. Specifically, the author recommends reducing the dimensionality of the instrumental variable matrix.

Consequently, this paper uses the moment conditions presented in Eqs. (3)–(8) and employs the two-step estimator. Following the suggestion by Roodman (2009b), we reduce the dimensionality of the instrumental variable matrix.[5]

Data Description

The data set consists of panel observations from 77 countries (both developed and developing) for the 1981 – 2005 period.[6] The countries are selected based on the availability of reliable data over the sample period. In this paper, the key variables are FDI and institutional quality. FDI data is obtained from WDI and measured in term of FDI inflows over GDP (denoted FDI/GDP). The flows data is used rather than stock because data on FDI stock are not available for a large number of countries. Moreover, the FDI stock is expressed in term of book values without any adjustment for inflations and exchange rates variation. The

[5] All estimations were performed using the **xtabond2** routine developed by Roodman (2009a).

[6] Refer Appendix A for country list.

inflow data are less vulnerable to "book value bias" (Root & Ahmed, 1979). The data set on five institutional quality indicators are taken from International Country Risk Guide (ICRG). These five indicators are (i) bureaucratic quality, (ii) rule of law, (iii) corruption, (iv) risk of expropriation, and (v) government repudiation of contracts. The first indicator is scaled from 0 to 4, the second and third indicators are scaled from 0 to 6, and the last two indicators are scaled from 0 to 10. For all indicators, the value of zero indicates the lowest level of institutional quality and vice-versa. To ensure comparability, all data are converted into 0-10 scale. Then, the aggregate index of institutional quality is obtained by summing up the values for each indicator. Thus, a country with perfect institutional quality will have a value of 50.

Other control variables used are trade ratio (import plus export/GDP), life expectancy, population, and infrastructure. Trade ratio and life expectancy are intended to measure trade openness and human capital, respectively. Both data were taken from WDI. Population was taken from the PWT database. Finally, telephone line (measured as per 100 people) is used to measure the level of infrastructure development. The data were extracted from WDI database.

This study uses panel data. By utilizing information on both the intertemporal dynamics and the individuality of the insurance market, the efficiency of econometric results are greatly improved. However, the use of time series dimension introduces one problem. A glance at the data reveals that FDI inflows are highly volatile and some observations are missing. The large fluctuations in FDI may obscure the effects of institutional quality and other determinants on FDI inflows. To address this problem, this study uses panels based on five-year averages (1981-1985, 1986-1990, …, 2001-2005). In so doing, we are also able to eliminate the business cycle effect.

Empirical Results

Table 1 provides the descriptive statistics for the key variables namely, FDI and institution quality index. Statistics are based on data averaged over the 1981-2005 period. One apparent feature of these statistics is that there is considerable variation in the data. The share of FDI in GDP ranges from 0.07% in Japan to 6.5% in Guyana. The institutional quality index ranges from 17.9 (Mali) to 44.7 (Finland).

Table 1

Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
FDI/GDP	1.95	1.32	0.07	6.53
Institution	29.98	7.63	17.90	44.75

As a preliminary check, we plot the data for all of the FDI determinants. Figure 1 displays the relationships for 77 countries using data averaged over the entire period. The figure shows that trade, telephone line, life expectancy and institutional quality indicators show positive relationships with FDI. In contrast, the relationship between FDI and population appear to be negative. In all cases the correlation coefficients are relatively low, ranging from 0.02 (telephone line) to 0.232 (trade). However, this simple correlation does not imply causation which is precisely the type of relation that we are interested in. It is also worth mentioning that the figure also highlight that Kuwait and Japan fall relatively far from the others which indicate that they are potential outliers.

The next exercise is to evaluate the importance of domestic institutional quality in determining FDI inflows. A proxy for institutional quality complied from ICRG is used and result is reported in Table 2. The result shows that most of the FDI determinants appear to be statistically significant at the 10% level or better, except for population and telephone line. More importantly, the results reveal the importance of institutional quality in attracting FDI inflows. Specifically, the result indicates that a 1 percentage-point increase in the institutional quality would lead to 0.015 percentage-point higher FDI/GDP inflows. This indicates "good" institutions are able to attract more FDI inflows because it makes the business and investment environment more conducive for MNCs to operate. Regarding other FDI determinants, the coefficient on lagged FDI is positive and statistically significant which indicates that the past value of FDI is an important determinant for current FDI. This is consistent with the argument that MNCs are much more likely attracted to countries that already have accumulated sizable FDI. This clearly indicates that the success of MNC in the host countries is a strong attracting factor for further investments by foreign companies. The outcome for life expectancy (i.e. proxy for human) is not a surprise, and in fact, is consistent with many previous works such as Noorbakhsh *et al.,* (2001) who also find the importance of human capital in attracting FDI inflows. It has been widely known that MNCs invest significantly in research and development activities to develop new technologies. Therefore, host country must have a certain level of human capital that is able to understand and work with new technology brought by MNCs. Meanwhile, the trade ratio viewed as a standard measure for openness in the literature implies that greater liberalization of trade sector plays an important role in attracting investment from MNCs, which is line with the findings of Chakrabarti (2001) and Ang (2008). However, the coefficients on telephone line and population are statistically insignificant at conventional levels.

This finding is not surprising and in fact consistent with Ali *et al*., (2010) who also find that FDI is not seeking market size and quality infrastructure. Since the *p*-values for Hansen overidentification test (0.393) and second order of serial correlation (0.258) are high, the null of both tests cannot be rejected. This provides support for the validity of our finding.

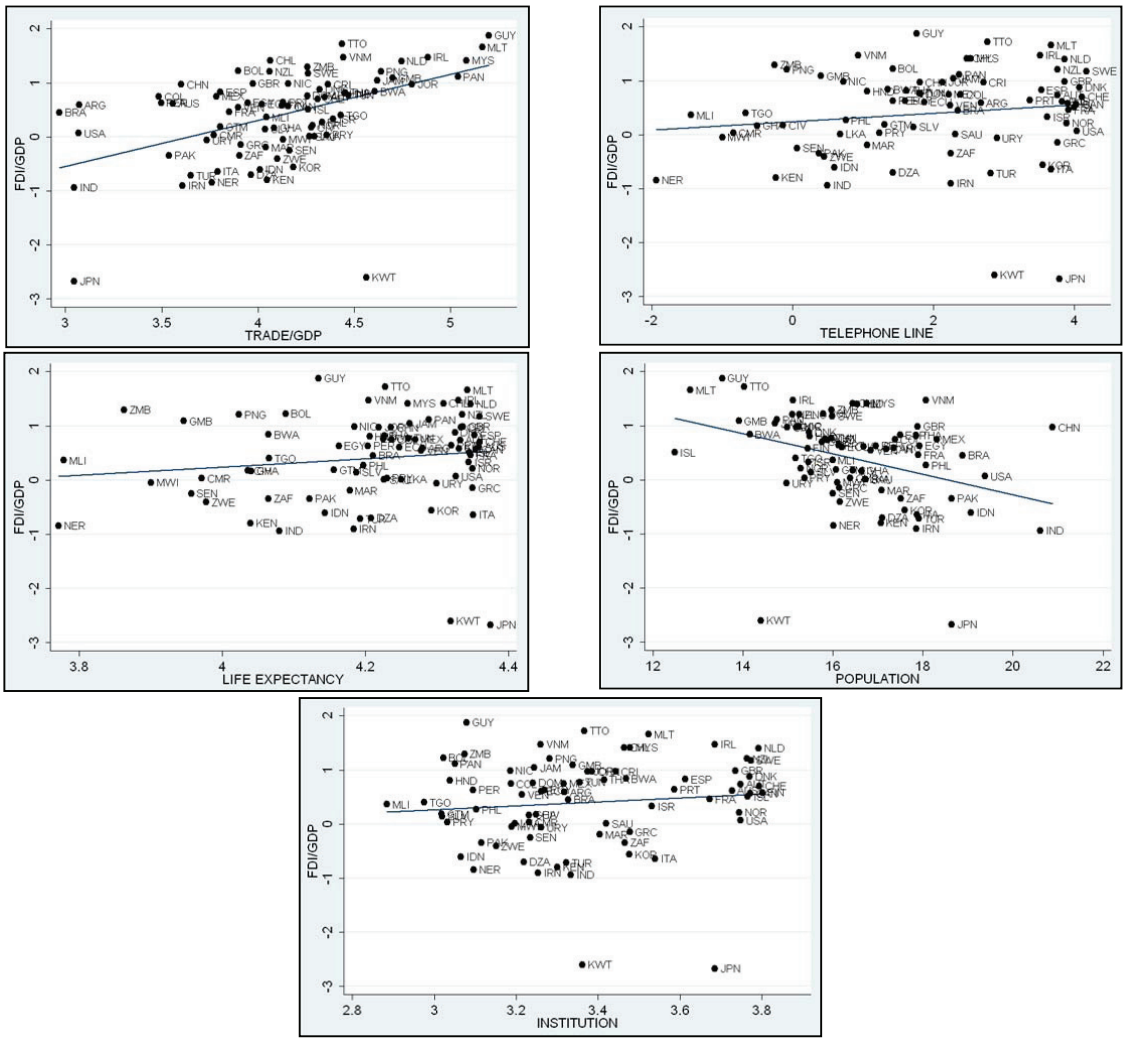

Figure 1. Scatter plot of FDI versus its Determinants

Table 2

FDI determinants

Regressor	Coeff.	S.e.	p-value
(FDI/GDP)it-1	0.287	0.112	0.010
Trade/GDP	0.018	0.006	0.003
Telephone line	-0.002	0.002	0.174
Life expectancy	0.028	0.016	0.094
Population	-0.002	0.002	0.403
Institution	0.015	0.007	0.055
AR(2) test (p-value)		0.258	
J-test (p-value)		0.393	
Observations		304	
Countries		77	

Notes: S.e. indicates heteroskedasticity-robust standard error. AR(2) is testing second-order residual serial correlation. J-test is the Hansen test of overidentification. Time dummies are included to capture period-specific effect but not reported. All variables are in logarithmic form.

In a recent study, Azman-Saini *et al.,* (2010b) show that it is critically important to evaluate the impact of outliers in the analysis of FDI. They show that the inclusion of China in their FDI-growth analysis appear to distort estimation results. It could be that the finding of a strong positive institutional determinant of FDI may be driven by outlier observations. In order to verify that the link between institution and FDI is robust to outliers, we formally identify the potential outliers by computing DFITS statistic, as suggested by Belsley *et al.,* (1980). The test identifies observations with high combination of leverage and residual and is calculated as $DFITS_j = r_j \sqrt{h_j/(1-h_j)}$, where r_j is studentized residual given by $r_j = e_j/(s_{(j)}\sqrt{1-h_j})$ with $s_{(j)}$ refer to the root mean squared error (s) of the regression equation with jth observation removed, and h is leverage statistic. Following Belsley *et al*. (1980), an observation is considered as outlier if the absolute DFITS statistic is greater than $2\sqrt{k/n}$, where k denotes the number of explanatory variables and n the number of countries. The test reveals that Kuwait and Japan are true outliers.[7] Figure 2 shows the combinations of leverage point and residual for all countries in our sample. Clearly, it shows that Japan and Kuwait have high combinations of residual and

[7] The DFITS tests are -1.1958 (Japan) and -1.3066 (Kuwait). The threshold level is 0.5096.

leverage and they fall relatively far from the rest of the other observations.

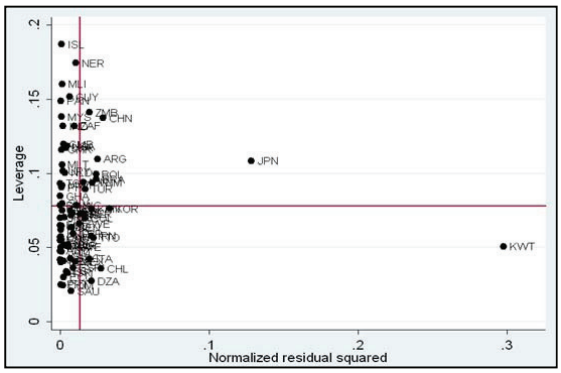

Figure 2. Residual versus leverage

The re-estimation result with the exclusion of Kuwait and Japan are reported in Table 3.

Table 3

Excluding Outliers (Japan and Kuwait)

Regressor	Coeff.	S.e.	*p*-value
$(FDI/GDP)_{it-1}$	0.221	0.119	0.065
Trade/GDP	0.021	0.006	0.002
Telephone line	-0.003	0.002	0.169
Life expectancy	0.041	0.025	0.098
Population	-0.002	0.002	0.318
Institution	0.016	0.008	0.070
AR(2) test (*p*-value)		0.138	
J-test (*p*-value)		0.427	
Observations		296	
Countries		75	

Notes: S.e. indicates heteroskedasticity-robust standard error. AR(2) is testing second-order residual serial correlation. J-test is the Hansen test of overidentification. Time dummies are included to capture period-specific effect but not reported. All variables are in logarithmic form.

Interestingly, the result shows that the importance of good institution as an attractor for FDI remain intact as the *p*-value for the coefficient on institution is less than the 10 % level. Interestingly, the exclusion of outliers has slightly increased the magnitude of the impact of institutional development on FDI inflows. More importantly, the specification tests indicate that the model is adequately specified and the result is not driven by simultaneity bias. Therefore, our previous interpretation regarding the importance of promoting good intuitional development in attracting FDI inflows is unchanged. The link is robust and not driven by outlier observations. Our finding is consistent with Ali *et al.,* (2010) and Busse and Hefeker (2007) who find the importance of property right protection and political stability as pre-conditions for MNCs presence.

Conclusions

FDI is viewed as one of the important channel for the transfer of new knowledge across borders. As a result, many countries compete against each other to attract more FDI. In an effort to further understand the nature of FDI flows, this paper draws from recent literature that highlights the importance of institutions in the growth process. Specifically, it explores the role of institution in attracting FDI inflows. It argues that FDI is seeking quality domestic institutions because good institution is able to create better environments for investors in terms of lower cost of doing business, lower uncertainty and higher productivity prospect.

In order to test the hypothesis, this study uses generalized method-of-moment panel estimator and data from 77 countries over the period of 1981-2005. From the analysis which also includes other traditional FDI determinants, we uncover the following results:

- Improvement in institutional quality is a critically important pre-condition for host countries to attract FDI.
- Human capital, trade openness, and the existing stock of FDI are also important FDI determinants.
- FDI inflows are not influenced by the market size and infrastructure quality.

Importantly, these findings are robust as they are not influenced by simultaneity bias, problem due to weak instruments or the presence of outlier observations.

Appendix

List of countries.

Country	Code	Country	Code	Country	Code	Country	Code
Algeria	DZA	France	FRA	Malawi	MWI	South Africa	ZAF
Argentina	ARG	Gambia, The	GMB	Malaysia	MYS	Spain	ESP
Australia	AUS	Ghana	GHA	Mali	MLI	Sri Lanka	LKA
Austria	AUT	Greece	GRC	Malta	MLT	Sweden	SWE
Bolivia	BOL	Guatemala	GTM	Mexico	MEX	Switzerland	CHE
Botswana	BWA	Guyana	GUY	Morocco	MAR	Thailand	THA
Brazil	BRA	Honduras	HND	Netherlands	NLD	Togo	TGO
Cameroon	CMR	Iceland	ISL	New Zealand	NZL	Trinidad &Tobago	TTO
Canada	CAN	India	IND	Nicaragua	NIC	Tunisia	TUN
Chile	CHL	Indonesia	IDN	Niger	NER	Turkey	TUR
China	CHN	Iran	IRN	Norway	NOR	United Kingdom	GBR
Colombia	COL	Ireland	IRL	Pakistan	PAK	United States	USA
Costa Rica	CRI	Israel	ISR	Panama	PAN	Uruguay	URY
Cote d`Ivoire	CIV	Italy	ITA	Papua New Guinea	PNG	Venezuela	VEN
Denmark	DNK	Jamaica	JAM	Paraguay	PRY	Vietnam	VNM
Dominican Rep.	DOM	Japan	JPN	Peru	PER	Zambia	ZMB
Ecuador	ECU	Jordan	JOR	Philippines	PHL	Zimbabwe	ZWE
Egypt	EGY	Kenya	KEN	Portugal	PRT		
El Salvador	SLV	Korea, Rep.	KOR	Saudi Arabia	SAU		
Finland	FIN	Kuwait	KWT	Senegal	SEN		

References

Acemoglu, D., & Robinson, J. A. (2008). Persistence of Power, Elites and Institutions. *American Economic Review,* 98(1), 267-293. http://dx.doi.org/10.1257/aer.98.1.267

Acemoglu, D., Johnson, S., & Robinson, J. (2005). 'Institutions as the Fundamental Cause of Long-run Growth', in P. Aghion and S. Durlauf (eds.). *Handbook of Economic Growth* (Amsterdam: North-Holland). http://dx.doi.org/10.1016/S1574-0684(05)01006-3

Ali, F., Fiess, N., & Macdonald, R. (2010). Do Institutions Matter for Foreign Direct Investment? *Open Economic Review*, 21(2), 201-219. http://dx.doi.org/10.1007/s11079-010-9170-4

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and Economic Growth: the role of Local Financial Markets. *Journal of International Economics*, 64(1), 89-112. http://dx.doi.org/10.1016/S0022-1996(03)00081-3

Alonso-Borrego, C., & Arellano, M. (1999).Symmetrically Normalized Instrument-Variable Estimation Using Panel Data. *Journal of Business and Economic Statistic,* 17(1), 36-49.

Ang, J. B. (2008). Determinants of Foreign Direct Investment in Malaysia. *Journal of Policy Modelling,* 30(1), 185-189. http://dx.doi.org/10.1016/j.jpolmod.2007.06.014

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence with an Application for Employment Equation. *Review of Economic Studies,* 58(2), 277-297. http://dx.doi.org/10.2307/2297968

Arellano, M., & Bover, O. (1995). Another Look at the Instrumental-Variable Estimation of Error-Components Models. *Journal of Econometrics,* 68(1), 29-52. http://dx.doi.org/10.1016/0304-4076(94)01642-D

Asiedu, E. (2002). On the Determinants of Foreign direct Investment to Developing Countries: Is Africa different? *World Development,* 30(1), 107-119. http://dx.doi.org/10.1016/S0305-750X(01)00100-0

Azman-Saini, W. N. W., Baharumshah, A. Z., & Law, S. H. (2010a). Foreign Direct Investment, Economic Freedom and Economic Growth: International Evidence. *Economic Modelling*, 27(5), 1079-1089. http://dx.doi.org/10.1016/j.econmod.2010.04.001

Azman-Saini, W. N. W., Law, S. H., & Ahmad, A.H. (2010b) FDI and Economic Growth: New Evidence on the Role of Financial Market. *Economics Letters*, 107(2), 211-213 http://dx.doi.org/10.1016/j.econlet.2010.01.027

Belsley, D., Kuh, E., & Welsh, R. (1980). *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity.* New York: Wiley. http://dx.doi.org/10.1002/0471725153

Blonigen, B. A. (2005). A Review of the Empirical Literature on FDI Determinants, *Atlantic Economic Journal*, 33(4), 383-403. http://dx.doi.org/10.1007/s11293-005-2868-9

Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics,* 87(1), 115-143. http://dx.doi.org/10.1016/S0304-4076(98)00009-8

Borensztein, E., Gregorio, J., & Lee, J. (1998). How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics,* 45(1), 115-135. http://dx.doi.org/10.1016/S0022-1996(97)00033-0

Bowsher, C. (2002). On Testing Overidentifying Restrictions in Dynamic Panel Data Models. Economics Letters 77(2), 211-220. http://dx.doi.org/10.1016/S0165-1765(02)00130-1

Busse, M., & Hefeker, C. (2007). Political Risk, Institutions and Foreign Direct Investment. *European Journal of Political Economy,* 23(2), 397-415. http://dx.doi.org/10.1016/j.ejpoleco.2006.02.003

Chakrabarti, A. (2001). The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-Country Regressions. *Kyklos,* 54(1), 89-114. http://dx.doi.org/10.1111/1467-6435.00142

Dunning, J. (1993). *Multinational Enterprises and the Global Economy*. Wokingham: Addison-Wesley Publishing Company.

Durham, J. (2004). Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth. *European Economic Review,* 48(2), 285-306. http://dx.doi.org/10.1016/S0014-2921(02)00264-7

Fedderke, J. W., & Romm, A. T. (2006). Growth Impact and Determinants of Foreign Direct Investment Into South Africa, 1956-2003. *Economic Modelling,* 23(5), 738-760. http://dx.doi.org/10.1016/j.econmod.2005.10.005

Fosfuri, A., Motta, M., & Ronde, T. (2001). Foreign Direct Investment and Spillovers through Workers' Mobility. *Journal of International Economics*, 53(1), 205-222. http://dx.doi.org/10.1016/S0022-1996(00)00069-6

Glass, A., & Saggi, K. (2002). Multinational Firms and Technology Transfer. *Scandinavian Journal of Economics,* 104(4), 495-513. http://dx.doi.org/10.1111/1467-9442.00298

Holtz-Eakin, D., Newey, W., & Rosen, H. S. (1988). Estimating Vector Autoregressions With Panel Data. *Econometrica,* 56(6), 1371-1395. http://dx.doi.org/10.2307/1913103

Markusen, J. (1995). The Boundaries of Multinational Enterprises and the Theory International Trade. *Journal of Economic Perpectives,* 9(2), 169-189. http://dx.doi.org/10.1257/jep.9.2.169

Noorbakhsh, F., Paloni, A., & Youssef, A. (2001). Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence. *World Development,* 29(9), 1593-1610. http://dx.doi.org/10.1016/S0305-750X(01)00054-7

North, D. C. (1990). Institutions, Institutional Change, and Economic Performance. Cambridge University Press, Cambridge. http://dx.doi.org/10.1017/CBO9780511808678

Quazi, R. (2007). Economic Freedom and Foreign Direct Investment in East-Asia. *Journal of the Asia Pacific Economy,* 12(3), 329-344. http://dx.doi.org/10.1080/13547860701405755

Ramirez, M. D. (2006). Economic and Institutional Determinants of Foreign Direct Investment in Chile: A Time Series Analysis 1960-2001. *Contemporary Economic Policy,* 24(3), 459-471. http://dx.doi.org/10.1093/cep/byj027

Roodman, D. (2009a). How to do Xtabond2: an Introduction to Difference and System GMM in Stata. *Stata Journal* 9, 86-136.

Roodman, D. (2009b). A Note on the Theme of too Many Instruments. Oxford Bulletin of Economics and Statistics 71, 135-158. http://dx.doi.org/10.1111/j.1468-0084.2008.00542.x

Root, F. R., & Ahmed, A. A. (1979). Empirical Determinants of Manufacturing Direct Foreign Investment in Developing Countries. *Economic Development and Cultural Change,* 27(4), 751-767. http://dx.doi.org/10.1086/451139

UNCTAD. (2001). World Investment Report: Promoting Linkages. United Nations.

UNCTAD. (2009). World Investment Report: Transnational Corporations, Agricultural Production and Development. United Nations.

Wei, S. J. (2000). How taxing is corruption on internal investors? *Review of Economics and Statistic,* 82(1), 1-11. http://dx.doi.org/10.1162/003465300558533

Windmeijer, F. (2005). A Finite Sample Correction for the Variance of Linear Efficient Two Step GMM Estimators. *Journal of Econometrics,*126(1), 25-51. http://dx.doi.org/10.1016/j.jeconom.2004.02.005

Zilinske, A. (2010) Incoming Foreign Investment: Holly Water or Menu of Potential troubles? *Inzinerine Ekonomika-Engineering Economics,* 21(5), 518-524.

Yin-Li Tun, W.N.W. Azman-Saini, Siong-Hook Law

Tarptautiniai ryšio tarp tiesioginių investicijų iš užsienio ir institucinės kokybės įrodymai

Santrauka

Daugianacionalinės koorporacijos yra žinomos dėl jų didžiulių investicijų į tyrimų ir plėtros veiklą. Taip pat jos žinomos dėl geresnių patentų, prekybinių paslapčių, prekės ženklų, valdymo technikų ir rinkodaros strategijų. Paskatos (t.y., mokesčių skatinimas ir/arba subsidijos) ir tiesioginių investicijų iš užsienio stimuliavimo politikos taikymas suteikia lūkesčių, kad tiesioginės investicijos iš užsienio duoda didžiulę naudą, ypač naujoms technologijoms. Daugybė empirinių tyrimų parodė, kad tiesioginės investicijos iš užsienio daro teigiamą įtaką šalies ekonominiam augimui. Tačiau reikėtų paminėti, kad tiesioginių investicijų iš užsienio paskirstymas tarp šalių nėra vienodas, vienos šalys gauna daugiau tiesioginių investicijų iš užsienio kitos mažiau. Kyla klausimas, ar įmanoma nustatyti tokią politiką, kuri sustiprintų šalies „šeimininkės“ patrauklumą daugianacionalinėms koorporacijoms.

Tiriant veiksnius, kurie daro įtaką tiesioginių investicijų iš užsienio srautams, ankstesni tyrimai daugiausiai sutelkdavo dėmesį į tokius tradicinius veiksnius kaip rinkos dydis, prekybos atvirumas, infrastruktūra ir žmogiškasis kapitalas. Kitų veiksnių vaidmuo, tokių kaip *institucijos kokybė*, daugiausiai buvo ignoruojamas. Institucija gali būti apibūdinama kaip žmonių sugalvoti žaidimo suvaržymai arba taisyklės, kurie suformuoja politinę, ekonominę ir socialinę sąveiką. Institucijos pateikia stimuliuojančią ekonomikos struktūrą. Tiksliau sakant, ji daro įtaką nuosavybės teisių saugumui, korupcijos paplitimui, iškreiptai politikai, ir kartu daro įtaką skatinimui investuoti į žmogiškąjį ir fizinį kapitalą, vadinasi ir ekonominiam augimui. *Institucinės kokybės* vaidmuo plėtros procese buvo plačiai nagrinėtas ir ekonomistai sutarė dėl geros vietinės institucijos svarbos paaiškinant augimo tempų ir pajamų vienam gyventojui skirtumus visoje šalyje.

Remiantis naujausia moksline literatūra, kurioje akcentuojama institucijos svarba, šiame darbe, siekiama išsiaiškinti ar vietinė *institucinė kokybė* atlieka kokį nors vaidmenį pritraukiant tiesiogines investicijas iš užsienio. Šiame darbe dėmesys sutelkiamas į tiesioginę įtaką, kurią gali daryti institucija per tiesioginių investicijų iš užsienio įplaukas. Be abejo, šalys, turinčios geresnę *institucinę kokybę*, turėtų gebėti geriau pritraukti daugiau investicijų, nes jos gerina našumo perspektyvą, sumažina verslo kaštus ir neužtikrintumą. Norint patikrinti šias hipotezes, buvo panaudoti duomenys, surinkti iš 77 šalių 1981-2005 laikotarpiu. Šiame darbe apibendrintas

Atlikus analizę buvo gautos kelios svarbios išvados. Pirma, institucija yra svarbus lemiamas tiesioginių investicijų iš užsienio įplaukų veiksnys. Šis rezultatas patvirtina teiginį, kad vietinės *institucijos kokybės* gerinimas sumažins verslo kaštus, sumažins neužtikrintumą, t.y. bus daugiau investuojama. Antra, tiesioginės investicijos iš užsienio taip pat siekia žmogiškojo kapitalo ir prekybos atvirumo. Kokybiškos darbo jėgos galimybė šalyje „šeimininkėje“ yra svarbi išankstinė sąlyga sėkmingoms daugianacionalinių koorporacijų investicijoms, nes joms reikia žmonių, kurie gali suprasti ir dirbti su naujausiomis technologijomis. Prekybos atvirumas yra svarbus todėl, kad dauguma tiesioginių investicijų iš užsienio iš esmės yra orientuotos į eksportą. Taigi daugianacionalinės koorporacijos investuos šalyse, kurios vykdo prekybos skatinimo politiką, o koorporacijų sprendimai priklausys ir nuo tiesioginių investicijų kiekio. Tai atitinka požiūrį, kad daugianacionalinių koorporacijų sėkmė šalyse „šeimininkėse“ yra svarbus signalas tolesnėms daugianacionalinių koorporacijų investicijoms. Išsiaiškinta, kad tiesioginėms investicijoms iš užsienio nedaro įtakos rinkos dydis ir infrastruktūros kokybė. Tai nestebina, nes tai tik patvirtina ankstesnių tyrimų teiginius naujausioje teorinėje literatūroje.

Atlikus tyrimą galima teigti, kad vietinių institucijų svarba pritraukiant tiesiogines investicijas iš užsienio yra labai stiprūs ir reikšmingi.

Raktažodžiai: *tiesioginės investicijos iš užsienio, institucijos, apibendrintas momentinis metodas, paneliniai duomenys, lemiami tiesioginių investicijų iš užsienio veiksniai.*

The article has been reviewed.

Received in June, 2011; accepted in October, 2012.