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22 June 2013

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Abstract

Foreign direct investment (FDI) is viewed as one of the key component in the development strategy for many countries,especially for developing ones. However, the distribution of FDI across countries is not uniform as only few countries are able to attract the bulk of FDI. In an effort to further understand the evolution in MNCs locational decision and understand their changing need, this paper examines whether economic freedom has any important role in attracting FDI inflows. To test the hypothesis, this study utilises data from 75 countries over the 1981-2005 period. The resultsof system generalised method-of-moment panel estimator uncover that the importance of economic freedom in attracting FDI inflows is undisputable. This is consistent with the view that improvements in freedom of economic activity provide a better environment for business activity.

JEL Classification codes: F21, N20

Keywords: foreign direct investment, economic freedom, generalised method-of-moments

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1. Introduction

It is well known that foreign direct investment (FDI) by multinational corporations (MNCs) is regarded as one of the important ingredients for economic development in many countries, especially the developing ones. FDI is viewed as important channel for host countries to get access to new technology available at the world's frontier because MNCs make huge investment in research and development (R&D) activities (Borensztein *et al.*, 1998). They also hire a large number of technical and professional workers (Markusen, 1995) and undertake substantial efforts in improving the quality of their worker through extensive trainings (Fosfuri *et al.,* 2001). In short, MNCs have always been linked to superior technologies, patents, trade secrets, brand names, management techniques and marketing strategies (Dunning, 1993). Once MNCs have invested and set up a subsidiary in host country, they may not be able to internalize all of its advantages and some of them may spill over to domestic firms which eventually boost domestic activities.[1] Therefore, FDI is viewed not only as a source of finance and employment creation but also a channel for host countries to access new technology available at the world's frontier.[2]

Since MNCs are expected to bring numerous benefits to host countries, many countries have removed laws and regulations that hinder free flow of capital recently.According to the *World Investment Report* by UNCTAD (2009), an annual average of 175 changes in FDI laws was made during the 2000-2008 period and most of these changes (i.e. 88 per cent) were favourable to FDI. In response to these efforts, MNCs has increased their investments

[1]Recently, several studies the growth-effect of FDI 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.
[2] FDI is more useful source of capital to finance current account deficitsthan other types of capital such as portfolio investment because it is less volatile

significantly over the past few decades. Global FDI inflows increased from $57 billion in 1982 to $1271 billion in 2000 and reached its peak of $2099 billion in 2007(UNCTAD, 2001, 2009). In fact, the growth rate of world FDIs has surpassed the growth rates of both international trade and GDP over the past few decades. Although total FDI have increased significantly, its distribution across countries is not uniform and few countries are able to attract 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. Therefore, it is important for policymakers to know the evolution in MNCs locational decision and understand their changing need as part of their global integration strategies. In line with this development, this paper investigates the importance freedom of economic activity as an attribute to attract FDI. It is well known that higher level of economic freedom (hereafter, EF) provides free and competitive markets which allow greater business opportunities for entrepreneurs. There are at least three reasons to believe why the level of EF in the host countries is an important pre-condition for MNCs presence. Firstly, the extent of regulations in a host country is a crucial determinant of transaction or production cost. Conventional wisdom suggests that a highly regulated country (i.e. less freedom) will not be an economically attractive location for MNCs because the cost of doing business will be high. Secondly, as investment involves a large amount of money, investors become very sensitive to stability and insecurity. Therefore, information about the quality of investment environment is vital because incomplete information is risky. Lastly, high level of EF provides better legal protection of assets, and thus reduces the chance of expropriation of a firm's assets, hence make investment more likely.

This study is related to Bengoa and Sanchez-Robles (2003) and Quazi (2007) who also evaluate the impact of EF on FDI inflows.Bengoa and Sanchez-Robles (2003) employ fixed and random effect estimators and show that FDI inflows are positively related to EF in 10 Latin American countries. Meanwhile, using random effects and generalized least square estimators, Quazi (2007) shows that EF positively affects FDI inflows into East Asiancountries. This study differs from the above-mentioned studies in three important aspects. First, this paper utilizes a larger sample of 75 countries covering both developed and developing countries across all regions. The inclusion of developed countries in the analysis of FDI is undeniably important because most of FDI flows are between developed countries. Second, this paper uses a recent panel technique which is able to address some of the limitations associated with previous studies. Specifically, this paper use generalized method-of-moments which is not only able to accommodate heterogeneity in country-specific effects but also problems associated with and simultaneity bias. Third, this study assesses the impact of outliers on the estimation results to ensure that the relationship between FDI and EF is robust. The importance of addressing outliers was emphasized in Azman-Saini *et al.* (2010a) who show that the failure to formally address outlier observations in the analysis of FDI may lead to incorrect conclusions.

Previous literature has also highlighted several other important determinants of FDI inflows. This includes human capital (Glass and Saggi, 2002, Noorbakhsh *et al.,* 2001), market size (Ramirez, 2006; Quazi, 2007), quality infrastructure (Asiedu, 2002), and also the past value of FDI (Noorbakhsh *et al.,* 2001).[3]The quality of human capital is important for FDI inflows because skilled labour is generally required for high technology MNCs' production activities (Borensztein*et al.*, 1998). MNCs are known to beamong the most technologically advanced firms

[3]Blonigen (2005) provides an excellent survey of the literature on FDI determinants.

as they areresponsible for a large part of the world's R&D expenditures. Therefore, they require labour that is able to understand and work with the newtechnology.Meanwhile, market size in the sense of a larger populationmeans more potential consumption and thus more opportunity for business. Therefore, countries with larger consumer market should receive more FDIs than that of smaller countries (Desmet and Parente, 2010; Wadhwa and Reddy, 2001).The availability of good quality physical infrastructure may improve the investment climate for MNCs by subsidizing their cost of total investment and thus raising the rate of return. The importance of infrastructure availability in influencing MNCs' locational choice was corroborated by Asiedu (2002) and Ang (2008),among many others. The past value of FDI is important for current FDI because past FDI embodies information on operating conditions in the host country (Noorbakhsh *et al.,* 2001). This information shapes perception about a country and may influence potential investor to view a particular location favourably. Also, investments by MNCs required time to adjust to desired levels as MNCs normally stagger their investments in a new market. By and large, it should be noted that the impact of the above-mentioned factors on FDI inflows are still inconclusive as some studies in this literature have found no such evidence (Singh *et al.*,2008; Cheng and Kwan, 2000; Na and Lightfoot, 2006).

The rest of the paper is structured as follows. Section 2 outlines the model specification. Section 3 explains the methodology. Section 4 highlights the data. Section 5 reports the empirical results and their interpretation. Conclusions are presented in Section 6.

2. Model Specification

The main objective of this paper is to test whether economic freedom has any significant impact in influencing FDI inflows. To this end, this study utilize a specification which is widely used in the literature (e.g.Bengoa and Sanchez-Robles, 2003; Quazi, 2007).[4] FDI is expressed as a function of EF and other factors as follows:

$$FDI_{i,t} = \alpha FDI_{i,t-1} + \alpha_1 EF_{i,t} + \alpha_2 X_{i,t} + \eta_1 + \varepsilon_{i,t} \quad [1]$$

where*i and t* are respectivelycountry and time index. The main variables in this study are FDI and EF. FDI is net FDI inflows expressed as a ratio to GDP while EF is represented by the index of economic freedom. X is a set of other control variables which are frequently used in the analysis of FDI determinant, η_i is unobserved country-specific effect term, and $\varepsilon_{i,t}$ is the usual error term. The selection of other determinants is guided by previous literature.[5] It consists of variables that are robustly related to FDI inflows which includes population size (a proxy for market size), telephone line (a proxy for infrastructure development), and life expectancy (a proxy for human capital). All of these determinants are expected to carry positive signs. Within this specification, if the estimated coefficient on EF is found to be positive and significant, this would indicate that EF is an important attracting factor for MNC locational choice. This would suggest that efforts to promote freedom of economic activity will translate into more FDI inflows.

[4]Both Bengoa and Sanchez-Robles (2003) and Quazi (2007) focus on economic freedom as the core determinant for FDI inflows in Latin Americas and Asian countries, respectively.
[5]Bengoa and Sanchez-Robles (2003); Quazi (2007); Kok and Ersoy (2009); Asiedu(2002).

3. Methodology

To test the hypothesis outlined in the previous section, this study uses a system generalized method-of-moment (GMM) panel estimator which was first proposed by Holtz-Eakin *et al.* (1988) and later improved by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). This estimator is chosen as it has several advantages over other estimators. In the present context, this estimator can alleviate bias introduced by the presence of unobserved country-specific effects. It also can control for simultaneity bias induced by the potential endogeneity of the explanatory variables. For instance, FDI and EF may be jointly determined because MNCs may demand for improvement in the protection of property right (which is an important element of economic freedom).

In the literature, there are two variants of GMM estimator which are widely used namely, difference-GMM (D-GMM) and system GMM (S-GMM). The D-GMM estimator uses a first-difference transformation of Equation (1) to eliminate bias triggered by the presence of country-specific effects. The model can be expressed as follows:

$$FDI_{i,t} - FDI_{i,t-1} = \alpha(FDI_{i,t-1} - FDI_{i,t-2}) + \beta_1 (EF_{i,t} - EF_{i,t-1}) + \beta_2 (X_{i,t} - X_{i,t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \quad [2]$$

Within this specification, there are two issues that need to be addressed. First is the endogeneity of explanatory variables. Second issue is the correlation between $(FDI_{i,t-1} - FDI_{i,t-2})$ and $(\varepsilon_{i,t} - \varepsilon_{i,t-1})$. In order to address these issues, Arellano and Bond (1991) suggest using higher-order lags of explanatory variables as instruments. This estimation strategy however requires two important assumptions. First, the error terms in Equation (2) must not serially correlated and

secondly, the instruments used (i.e. the lag of explanatory variables) must be weakly exogenous. Following the suggestion in Arellano and Bond (1991), the moment conditions for Equation (2) are set as follows:

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

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

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

Although this strategy is able to control for biases caused by the presence of country-specific effects and the endogeneity of explanatory variables, it has one serious limitation. As shown in Alonso-Borrego and Arellano (1999) and Blundell and Bond (1998), instruments are weak if the explanatory variables are persistent (i.e. they move slowly over time). This is particularly relevant for EF index as the quality of institution is a deep factor and move slowly over time. The authors show that weak instruments could lead to biased parameter estimates in small samples and larger variance asymptotically. As a solution, Arellano and Bover (1995) propose S-GMM estimator that combines both Equations (1) and (2) in one system. Blundell and Bond (1998) show that this alternative estimator performs well in reducing biases and imprecision linked to the D-GMM estimator. Following the suggestions in Arellano and Bover (1995), the moment conditions used for Equation (2) are the same as above and the additional moment conditions for level Equation (1) are set as follows:

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

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

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

The consistency of outputs obtained from S-GMM estimations depends on the validity of assumption made regarding error term in Equation (2) and instruments. Thus, two specification tests are used. The first test examines the hypothesis of no second-order serial correlation in the differenced error term (Arellano and Bond, 1991). The second test is Hansen's over-identifying restrictions test used to evaluate the validity of the instruments. If the null of both tests cannot be rejected, this would indicate that the model is adequately specified and the instruments are valid.

Both of the D-GMM and S-GMM estimators can be applied in one- and two-step approaches (Arellano and Bond, 1991). Theoretically, the two-step estimator is more efficient thanthe one-step estimator because it employs optimal weighting matrices.However, in a small sample the use of two-step estimator may lead to several problems such as biased standard errors and estimated parameters (Windmeijer, 2005). Morever, Bowsher (2002) reveals that this may result in weakened overidentification test. In a recent paper, Roodman (2009b) show that these problems are triggered by the proliferation of instruments the author further suggests reducing the dimensionality of the instrumental variable matrix as a solution.

Consequently, this paper uses the moment conditions presented in Eqs. (3)–(8) and employs the two step estimator.[6] Following Roodman (2009), we reduce the number of instruments.

4. Descriptionof Data

The data set consists of panel observations from 75 countries (both developed and developing) for the 1981 -2005 period.[7]The countries are selected based on the availability of

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

reliable data over the sample period. In this paper, the key variables are FDI and EF. FDI data is obtained from the *World Development Indicators* database (WDI) and measured in term of FDI inflows over GDP (i.e. FDI/GDP). This study uses flows data instead of stock because data on FDI stock are unavailable for many developing countries. Moreover, the FDI stock is expressed in term of book values without any adjustment for inflations and exchange rates variation. The flow data are less susceptible to "book value bias" (Root and Ahmed, 1979). The data set for EF index are taken from the Fraser Institute since its coverage in term of countries and years is greater than other alternative sources. This index measures EF in five areas which are (1) size of government interm of expenditures, taxes, and enterprises, (2) legal structure and security of property rights, (3) access to sound money, (4) freedom to trade internationally , and (5) regulation of credit, labour and business. This index is scaled from 0-10 with 10 representing the greatest level of freedom. Other control variables used are life expectancy, infrastructure, population, and the lag value of FDI. Life expectancy and telephone line (measured as per 100 people) are respectively used to measure the quality of human capital and infrastructure development. Both data were taken from the WDI database. Finally, population was taken from the PWT database. Several other studies on FDI determinants have included other macroeconomic variables such as trade openness, government size, and inflation. This study does not include these variables because they are already included in the computation of the EF index. The inclusion of these variables may introducemulticollinearity in the model.

This study employs panel dataset for 75 countries. 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

[7]Refer to Appendix A for country list.

effects of EF and other determinants on FDI inflows. In order to address this problem, this study uses panels based on five-year averages (1981-1985, 1986-1990, …, 2001-2005). Moreover, this strategy is able to eliminate the business cycle effect (Azman-Saini *et al*., 2010b; Alguacil *et al.,* 2011).

5. Empirical Results

The purpose of this paper is to test whether EF has any influence in attracting FDI inflows. The first step of the analysis is visual inspection of the data. All data areplotted against FDI inflows and displayed in Figure 1. The figure shows that life expectancy, telephone line and EF is positively associated with FDI inflows. However, population is negatively related to FDI inflows. It is worth noting that in all cases the correlation coefficients is low which range from 0.065 (life expectancy) to -0.240 (population). However, this simple correlation does not imply causation which is precisely the type of relation that we are interested in.

The next step of our analysis is to evaluate the central issue in this study which is to test the importance of EF in attracting FDI inflows. Utilizing the EF index obtained from the Fraser Institute,Equation (1) is estimated using the two-step S-GMM estimator and results are reported in Table 2. The result shows that EF appears to be important FDI determinants at the 10% significant level. This indicates that an improvement in freedom of economic activity will attract more FDI inflows. This is consistent with the view that MNCs are much more likely attracted to countries which provide stimulating environment for business and investment activities because it improves productivity prospect, reduces the cost of doing business and uncertainty.Regarding other FDI determinants, only the coefficient on lagged FDI/GDP is found to be positive and

statistically significant. This indicates that that the past value of FDI is an important signal for future investment by MNCs and is consistent with the argument that MNCs are much more likely attracted to countries that already have accumulated sizable FDI. The success of MNC in the host countries is a strong attracting factor for further investments by foreign companies. The outcome for population is consistent with Ali *et al*. (2010)who also find that market size is not an important determinant of FDI inflows. One possible explanation for this finding is that most of the FDI are export-oriented in nature and they rely more on foreign markets than domestic markets. Finally, the coefficients on life expectancy and telephone line are also insignificant. Since the *p*-values of testing for Hansen over identification test (0.133) and second order of serial correlation (0.115) are high, the null of both tests cannot be rejected. This provides support for the validity and reliability of our estimation results.

It should be highlighted that it is critically important to evaluate the impact of outliers in the analysis of FDI. It could be that the finding of a strong positive impact of EF on FDI inflows as presented in Table 1 may be driven by outlier observations. In a recent study, Azman-Saini *et al.* (2010a) show that the inclusion of China (i.e. an outlier) in their FDI-growth analysis appears to distort estimation results. In ensuring that the link between EF and FDI is robust and not affected by outlier observations, we formally identify outlier observations using the DFITS statistic proposed byBelsley*et al.* (1980).The test is computed 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 *j*th observation removed, and *h* is leverage statistic. Following Belsley*et al*. (1980), outlier is defined as observations with the absolute value of the DFITS statistic which is greater than $2\sqrt{k/n}$, where *k* is the number of independent variables and *n* is the

number of countries. The results of DFITS test show that Ireland, Austria and Iceland are true outliers. Figure 2 shows the combinations of leverage point and residual for all countries in our sample. Clearly, it shows that Ireland, Austria and Iceland fall relatively far from other observations and have high combinations of residual and leverage.

Based on the results of outlier test, we re-estimate Equation (1) by excluding Ireland, Austria and Iceland. The resultsreported in Table 3 show that the importance of EF as an attractor for FDI remains intact as the *p*-value for the coefficient on EF is less than the 10% level. 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 EF in attracting FDI inflows is unchanged. The link between EF and FDI is robust and not driven by outlier observations. Our finding is in accord with Bengoa and Sanchez-Robles (2003) andQuazi (2007) who find the importance of EF in attracting FDI inflows for Latin American and Asian countries, respectively.

6. Conclusions

FDI has been viewed as one of the key channel for the transfer of new knowledge across borders. Accordingly, 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 literature that emphasize on the importance of institutional quality in the development process. This paper argues that improvement in economic freedom has an important influence in attracting FDI because it able to create more conducive environments for investors in terms of lower cost of doing business, lower uncertainty and better prospect for productivity improvement. To test the

hypothesis, this study employs a generalized method of moment panel estimator and data from 75 countries over the 1981-2005 period. Consistent with our argument, the results reveal that improvement in EF is an important pre-condition for host countries to have more FDI. Importantly, this finding is robust and not driven by biases due to endogeneity, weak instrument, or outliers' presence.

The findings of this paper clearly suggest that the policies formulated towards attracting FDI should emphasize more on promoting EF as higher level of EF which is likely to foster a healthy economic environmentthat is ready to attract more FDI inflow. EF can be further improved by promoting personal choice, voluntary exchange coordinated by markets,freedom to enter and compete in markets, and protection of persons and their property from aggression by others. However, these efforts may be politically unpopular but the experiences of countries that have already achieved high level of EF indicate that this strategy produces tremendous long-run economic benefits.

References

Ali, F. A., &Fiess, N., & MacDonald, R. (2010). Do Institutions Matter for Foreign Direct Investment? *Open Economies Review,* 21(2), 201-219.

Alguacil, M. &Cuadros, A. & Orts, V. (2011).The Role of Macroeconomic and Institutional Environment.*Journal of Policy Modelling*, 33(3), 481-496.

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.

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.

Arellano, M., &Bover, O. (1995).Another Look at the Instrumental-variable Estimation of Error-components Models.*Journal of Econometrics,* 68(1), 29-52.

Asiedu, E. (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa different? *World Development,* 30(1), 107-119.

Azman-Saini, W. N. W., Baharumshah, A. Z. & Law, S. H., (2010b) Foreign Direct Investment, Economic Freedom and Economic Growth: International evidence. *Economic Modelling*, 27(5), 1079-1089.

Azman-Saini, W. N. W., Law, S. H., & Ahmad, A.H. (2010a).FDI and Economic Growth: New Evidence on the Role of Financial Market. *Economics Letters*, 107(2), 211–213

Belsley, D.,Kuh, E., & Welsh, R. (1980).*Regression diagnostics: Identifying influential data and sources of collinearity.* New York: Wiley.

Bengoa, M., & Sanchez-Robles, B. (2003). Foreign Direct Investment, Economic Freedom and Growth: New Evidence from Latin America, *European Journal of Political Economy,* 19(3), 529-545

Blonigen, B. A. (2005). A Review of the Empirical Literature on FDI Determinants, *Atlantic Economic Journal*, 33(4), 383-403.

Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models.*Journal of Econometrics,* 87(1), 115-143.

Borensztein, E., Gregorio, J., & Lee, J. (1998). How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics,* 45(1), 115-135.

Buckley, P. J., Clegg, L. J., Cross, A. R., Liu, X., Voss, H., &Zheng, P.(2007) The Determinants of Chinese Outward Foreign Direct Investment, *Journal of International Business Studies,* 38(4), 499-518.

Cheng, L. K., & Kwan, Y. K. (2000). What are the Determinants of the Location of Foreign Direct Investment? The China Experience.*Journal of International Economics*, 51(2), 379-400.

Desmet, K. &Parente, S. L. (2010). Bigger is Better: Market Size, Demand Elasticity and Innovation, *International Economic Review,* 51(2), 319-333.

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.

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.

Fosfuri, A., Motta, M., &Ronde, T. (2001).Foreign Direct Investment and Spillovers through Workers' Mobility.*Journal of International Economics*, 53(1), 205-222.

Glass, A., &Saggi, K. (2002).Multinational Firms and Technology Transfer.*Scandinavian Journal of Economics,* 104(4), 495–513.

Holtz-Eakin, D., Newey, W., & Rosen, H. S. (1988).Estimating Vector Autoregressions with Panel Data.*Econometrica,* 56(6), 1371-1395.

Kok, R. &Ersoy, B. A. (2009).Analyses of FDI Determinants in Developing Countries.*International Journal of Social Economic*, 36(1), 105-123.

Markusen, J. (1995). The Boundaries of Multinational Enterprises and the Theory International Trade.*Journal of Economic Perspectives,* 9(2), 169-189.

Na, Lv. & Lightfoot, W. S. (2006).Determinants of Foreign Direct Investment at the Regional Level in China.*Journal of Technology Management in China,* 1(3), 262-278.

Noorbakhsh, F., Paloni, A., & Youssef, A. (2001). Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence. *World Development,* 29(9), 1593-1610.

Quazi, R. (2007). Economic Freedom and Foreign Direct Investment in East-Asia.*Journal of the Asia Pacific Economy,* 12(3), 329-344.

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.

Roodman, D. (2009). A Note on the Theme of Too Many Instruments.*Oxford Bulletin of Economics and Statistics*, 71(1), 135-158.

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.

Singh, R., &McDavid, H., & Birch, A., & Wright, A. (2008). The Determinants of FDI in Small Developing Nation States: An Exploratory Study. *Social and Economic Studies.* 57(3&4), 79-104.

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

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

Wadhawa, K., & Reddy, S. S. (2011). Foreign Direct Investment into Developing Asian Countries: The Role of Market Seeking, Resource Seeking and Efficiency Seeking Factors, *International Journal of Business and Management,* 6(11), 219-226.

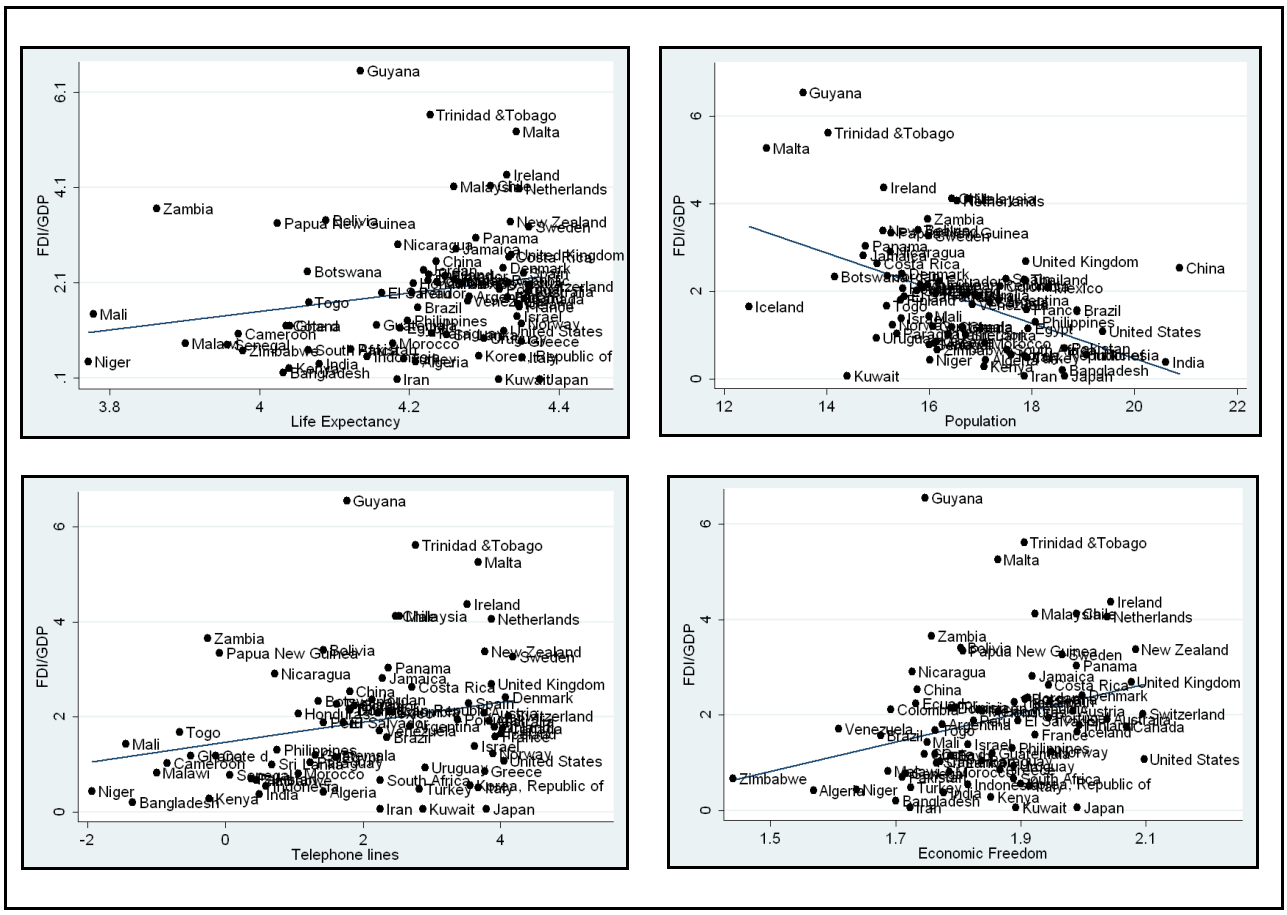

Figure 1: Scatter plot of FDI versus its determinants

Table 2: FDI Determinants (Dependent variable = FDI/GDP)

Regressor	Coeff.	S.e.	*p*-value
$(FDI/GDP)_{t-1}$	0.620***	0.137	0.000
Life Expectancy (log)	-3.330	3.007	0.268
Population (log)	-0.103	0.397	0.794
Telephone Line (log)	-0.122	0.262	0.640
Economic Freedom (log)	5.714*	3.033	0.060
Constant	6.125	11.374	0.590
AR(2) test (*p*-value)		0.115	
J-test (*p*-value)		0.133	
Number of Observation		294	
Number of Countries		75	

Note: *, ** , and *** denote the 10%, 5%, and 1% level of significance respectively. Relevant *p*- values are in parenthesis. *AR(2)* is a test of second-order residual serial correlation. J- test is the Hansen over identification test. Time dummies are included to capture period-specific effect but are not reported.Lag 2 and earlier are used as instruments for the equation in first-differences, while lag 1 in first-differences are used as instrument for the equation in levels. Moreover, collapsing instrument approach is adopted in the estimation.

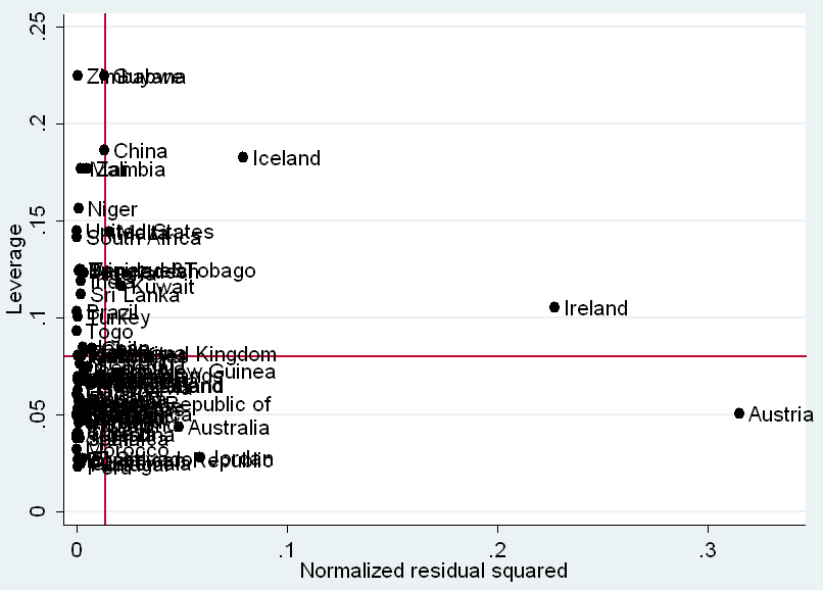

Figure 2: Residual versus leverage

Table 3: Robustness Check (Dependent variable = FDI/GDP)

Regressor	Coeff.	S.e.	*p*-value
$(FDI/GDP)_{t-1}$	0.559***	0.142	0.000
Life Expectancy (log)	-3.377	2.567	0.188
Population (log)	-0.184	0.407	0.651
Telephone Line (log)	-0.074	0.228	0.746
Economic Freedom (log)	5.386**	2.513	0.032
Constant	8.307	9.100	0.361
AR(2) test (*p*-value)		0.141	
J-test (*p*-value)		0.171	
Number of Observation		282	
Number of Countries		72	

Note: *, ** , and *** denote the 10%, 5%, and 1% level of significance respectively. Relevant *p*- values are in parenthesis.*AR(2)* is a test of second-order residual serial correlation. J- test is the Hansen over identification test. Time dummies are included to capture period-specific effect but are not reported. Lag 2 and earlier are used as instrument for the equation in first-differences, while lag 1 in first-differences are used as instrument for the equation in levels. Moreover, collapsing instrument approach is adopted in the estimation.

Appendix A. List of countries

Country	Country	Country	Country
Algeria	El Salvador	Korea, Rep.	Senegal
Argentina	Finland	Malawi	Singapore
Australia	France	Malaysia	South Africa
Austria	Ghana	Mali	Spain
Bangladesh	Greece	Malta	Sri Lanka
Bolivia	Guatemala	Mexico	Sweden
Botswana	Guyana	Morocco	Switzerland
Brazil	Honduras	Netherlands	Thailand
Cameroon	Iceland	New Zealand	Togo
Canada	India	Nicaragua	Trinidad &Tobago
Chile	Indonesia	Niger	Tunisia
China	Iran, Islamic Rep.	Norway	Turkey
Colombia	Ireland	Pakistan	United Kingdom
Costa Rica	Israel	Panama	United States
Cote d`Ivoire	Italy	Papua New Guinea	Uruguay
Denmark	Jamaica	Paraguay	Venezuela
Dominican Rep.	Japan	Peru	Zambia
Ecuador	Jordan	Philippines	Zimbabwe
Egypt	Kenya	Portugal	