FDI and Growth: The Role of Institutional Quality

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ABSTRACT

This study is aim to investigate the importance of institutions for the growth-enhancing effect of FDI in a panel of 78 countries over 1981-2005 periods. Interaction term between FDI and institutional quality is imposed in the estimation to capture this mediation effect. While using system GMM method, the findings highlight the complementary between FDI and institutional quality where the impact of FDI on growth actually depends on the quality of institution in the host countries.

Key Words: FDI, institutional quality, interaction, system GMM, economic growth

INTRODUCTION

Many developing countries have acknowledged the vital role of foreign direct investment (FDI) in long-run growth as FDI are deemed to bring along with marketing strategies, management techniques, trade secret, patents, brand names and superior technologies (Dunning, 1993). The ongoing competitions among developing countries by amending policies and regulations have caused them preferable to FDI and, the first time ever, they occupied more than half of global FDI inflows in 2010 (UNCTAD, 2011). However, growth rate of global FDI flows are still 15 percent below the pre-crisis average in the year 2010 (UNCTAD, 2011). Although, developing countries are the main absorbents for FDI, the inflows are not homogeneously distributed among them where Asia and Latin America appear to be the most popular destination for FDI but record for African region seems paltry. Another important issue related to FDI is that not all FDI recipients seem to benefit from FDI inflows. Evidence shows that the impact of MNCs presence on the growth of host economies is ambiguous (Görg and Greenaway, 2004; Alguacil et al., 2011). In some cases, FDI exerts positive impacts on growth but in some other cases there is no or even negative impacts.¹

¹ See survey by Herzer et al. (2008) and Görg and Greenaway (2004).
Although evidence on the impact of FDI on economic growth is ambiguous, there is broad empirical support for the positive contribution of institutional development in sustaining and promoting economic growth. North (1990) defines institutions as humanly designed constraints that structure political, economic and social interaction. The theoretical framework has been well established in the literature, with supporting empirical evidence using cross-country and panel regressions suggesting that institutional quality is important for productivity growth, capital accumulation, and development. In fact, they show that institutional quality is more important than other variables (such as financial development, geography, and trade) in explaining why some countries grow faster than the others. The theory is empirically confirmed by Cavallo and Cavallo (2010) where they find the importance of institutions in determining the impact of crises on long-run growth. The linkages between institutions and FDI have been highlighted by Tun et al. (2012) where (i) institutions shape a nation’s productivity prospects and therefore may attract more foreign investors, (ii) poor institutional induce poor business environment and thereby increase the cost of doing business, (iii) FDI are generally involve high sunk cost and therefore, they are highly sensitive to uncertainty including uncertainty due to poor government efficiency. Thus, the pertinent question is whether a better institutions able to mediate FDI to enhance economic growth.

This study aim to investigate the importance of institutions for the growth-enhancing effect of FDI. Previous studies have assured the significance of institutions as a determinant of FDI inflows. Against this backdrop, the indirect effects of institutions on FDI are yet to be explored.

The remaining paper is organised as follows. Section 2 provides an overview of the literature while section 3 presents the model specification. Section 4 details the methodology and section 5 outlines the data. Section 6 presents the results and discusses the findings. Concluding remarks are contained in section 7.

LITERATURE REVIEW

The contributions of FDI to economic growth cannot be viewed solely from the angle of productivities. In addition, indirect spillover benefits that ensue from FDI are luring the developing nations to compete for. Recent researchers have claimed these indirect spillover effects pass through imitation, labour mobility, export behaviour, competition, and backward and forward linkages. Das (1987) points out that the MNCs investment in the same sector makes local firms more efficient as they are able to learn from, adopt from and imitate the foreign firms. Knowledge spillover also existed when former MNC’s trained worker hired by local firms (Fosfuri et al., 2001; Glass and Saggi, 2002). Moreover, MNCs expose the local firms to foreign markets, foreign consumers and foreign technology which provide ways for local firms to penetrate in world market (Aiken et al., 1997; Baliamoune-Lutz, 2004). Entrance of MNC is generally complemented with foreign technology where this ascend the competition pressure in the host economy (Blomström et al., 1994). In order to thwart competition, this gives an incentive for local firms to thrive and be more efficient in production process (Crespo and Fontoura, 2007). Furthermore, demand of raw material by MNCs would accelerate local suppliers to produce with increasing economies of scale (Rodríguez-Clare, 1996).

However, the magnitude of the spillover effect of FDI is greatly depending on absorptive capacity of the host countries. Various factors that influencing a nation’s absorptive capacity have been studied such as human capital, R&D investment, technological gap, financial development, intellectual property protection, trade policy, economic freedom, macroeconomic stability, etc. Conversely, there is comparative dearth of empirical studies on factor of institutions. Organizations are acted as agents for institutions and it encompasses political bodies, economic bodies, social bodies and educational bodies (North, 1990). Therefore, institutions are capable to shape absorptive capacity (including human capital, R&D investment, technological gap, financial development, etc) of a nation. For instance, institutions structured the political framework, thus underlying policies are made according to that particular political framework. Acemoglu et al. (2001) emphasize the theory that extractive policies will usually keep using by colonies even after independence where these extractive

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3 See Ali et al. (2010), Busse and Hefeker (2007), and Tun et al. (2012).
4 See Crespo and Fontoura (2007). This survey paper provides theoretically and empirically of FDI spillover’s channel.
5 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.”
framework are imposed by colonizers. In sum, institutions shape the policies, business environment and government efficiency that attract FDI influx.

MODEL SPECIFICATION

To test whether institution plays any role in mediating the impact of FDI on economic growth, this study specifies the model as follows:

\[ y_{it} = (\alpha)y_{i,t-1} + \beta_1 FDI_{it} + \beta_2 INS_{it} + \beta_3 (FDI * INS) + \beta_4 X_{it} + \eta_i + \epsilon_{it} \]  

(1)

where \( i \) is country index and \( t \) is time index. The entire variables are in logarithm. \( y \) is GDP growth, FDI is foreign direct investment, INS is institutional quality, FDI*INS is the interaction term between FDI and institutional quality, \( X \) is a vector of control variables which are hypothesized to affect economic growth, \( \eta \) is an unobserved country-specific effect term, and \( \epsilon \) is a white noise error term. The choice of the control variables is comprised of variables frequently used in economic growth model including investment and population growth. With this specification, \( \beta_3 \) captures the role of institution in mediating the impact of FDI on output growth. As mentioned in section 1, institution is able to reduce uncertainties and insecurity in foreign investors’ decision making. Hence, better institutional quality is deemed to be more able to attract more FDI, thus contributing to economic growth. If the estimated \( \beta_3 \) is positive and significant would indicate that there is such a complementarity exists where institution is important in mediating the FDI impact on growth.

METHODOLOGY

This study employs a system generalized-method-of moment (GMM) panel estimator which was finalized by Blundell and Bond (1998). This estimator is better over others because (i) this estimator is able to control for the presence of unobserved country-specific effects and (ii) it is also able to control for a simultaneity bias caused by the potential endogeneity of the explanatory variables. To eliminate the country specific effect, Arellano and Bond (1991) imply first-difference transformation of Equation [1] as follows:

\[ \Delta y_{it} = \alpha (\Delta y_{i,t-1}) + \beta_1 (\Delta FDI_{it}) + \beta_2 (\Delta INS_{it}) + \beta_3 (\Delta (FDI * INS)_{it}) + \beta_4 (\Delta X_{it}) + \Delta \epsilon_{it} \]  

(2)

In order to address the issue of endogeneity and the correlation between \( \Delta y_{i,t-1} \) and \( \Delta \epsilon_{it} \), this problem can be solve by using higher-order lag of the regressors as instrument (Arellano and Bond, 1991). However, the validity of the moment conditions must be fulfilled to yield unbiased and consistent estimators. However, this econometric method has one serious limitation where instrumental variables are weak if the explanatory variables are persistent (Alonso-Borrego and Arellano, 1999; Blundell and Bond, 1998). To overcome this limitation, system GMM estimator has been introduced by Arellano and Bond (1995) to combine the Equation [1] and [2] in order to reduce the biases and imprecision. Two specification tests are employed to test the validity of the model. Firstly, the consistency of the system GMM estimator requires no second-order serial correlation in difference error term. Next would be Hansen test of over identifying restrictions. Non-rejection of the null of both tests indicates that the model is correctly specified and the instruments are valid.

DATA

In this estimation, the data cover 78 countries (including developed and developing) from year 1981 to 2005 and is divided into five non-overlapping five year period. The sample countries are selected based on the availability of reliable data over the period. GDP growth is used as dependence variable and the data is taken from World Development Indicators (WDI). The core variable of this analysis would be FDI and institutions. FDI data is excerpted from WDI and express as FDI inflows over GDP. The data of institutions quality are obtained from International Country Risk Guide (ICRG) by aggregating five institution indicators, namely (i) bureaucratic quality, (ii) rule of law, (iii) corruption, (iv) risk of expropriation, and (v) government repudiation of contracts. These five indicators are converted into scale of 1-10 respectively for comparability purpose. Hence, a country scoring of 50 indicates that possess perfect institutional quality. Control variables’ data such as population growth and investment
are both extracted from Penn World Table (PWT) where, investment is express in term of investment over GDP.

RESULTS

As a starting point of the analysis for the objective, this analysis plots the key variables (i.e. FDI and institution) against output growth. Figure 1 displays output growth and FDI for 78 countries averaged over the entire period (1981–2005). The fitted line shows a weak positive relationship between the FDI and growth. Meanwhile, Figure 2 illustrates a stronger correlation between output growth and the institution index. However, these simple correlations do not imply causation which is precisely the type of relation that interested in this study. Indeed, if institution plays an important role in influencing the effects of FDI on output growth, one can expect that countries with the same levels of FDI will have different level of incomes. It is worth mentioning that China and Papua New Guinea fall relatively far from the rest.

The first step of the analysis is to estimate a model that excludes the interaction term. The result in Table 1 column (1) displays that both FDI/GDP and institutional quality are shown to be positive and significance for output growth. The next step of the analysis, as shown in Table 1 column (2), is to establish the contingency impact of FDI on growth by estimating a linear interaction model using an interaction term constructed as a product of FDI and the institution index (FDI×INS). Within this specification, the contingency impact relies on the interaction term. If the term is found to be positive and significant, this would imply that the effect of FDI on growth increases with institution. The first thing to note is that the coefficient on FDI statistically insignificant which suggests that the impact of FDI on growth is transmitted via institutional quality and it has no direct impact on growth. However, the coefficient on institution is positive and statistically significant at the 1% level. The finding is consistent with the existing literature that emphasizes the importance of good institution for economic growth (Alguacil et al., 2011; Azman-Saini et al., 2010b). Finally, the coefficient on the interaction term is not significant at the conventional level. This seems to suggest that institution is not important for FDI spillovers. However, this result should be cautiously interpreted as it may be driven by outliers.

To formally identify the outliers in this sample, the DFIT statistics is computed6. The test suggests that Papua New Guinea, China, and Trinidad and Tobago are true outliers (Figure 3). Then, the interaction specification is re-estimated using a new sample that excludes outliers and results are reported in Table 1 column (3). The first thing to note is that the coefficient on the interaction term is positive and significant at the 10% level. This suggests that institutional quality is an important pre-condition for the positive impact of FDI on growth. This finding is consistent with Azman-Saini et al. (2010a, b), Alfaro et al (2004), Durham (2004) Borenstein et al (1998), among many others, who also find that the impact of FDI on growth depends on other conditions available in the host countries. Additionally, the coefficient on FDI remains insignificant and institution continue to be important for long-term growth. The rest of the variables appear with the correct signs and statistically significant except for investment/GDP ratio which is marginally insignificant at the 10% level (Azman-Saini et al., 2010b). A positive and significant coefficient for lag GDP indicates that previous GDP exert persistent effect on growth. As Adam Smith emphasizes that the greater possibilities for specialization and division of labour is resulted from the expansion of the market as well as labour force. In line with the finding of Kelley and Schmidt (1995) and Kapuria-Foreman (1995), the positive significant result for Population shows that specialization and division of labour are not only existed in a country, but happen in 75 sample countries. Furthermore, FDIs activities accelerate the specialization and division of labour process. More importantly, the results of AR(2) and Hansen tests suggest that the model is correctly specified and the instruments used are valid as the null of both tests cannot be rejected at the conventional level.

CONCLUSION

The effect of FDI on growth has been rigorously examined by numerous researchers but there is no consensus on the usefulness of FDI for host countries. A number of papers show mixed (or weak) evidence on the impact of FDI on growth. Economists has been trying to find answer to this ambiguity and one of the key explanations that appear in recent literature is that the impact of FDI on growth

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6 Refer to Azman-Saini et al. (2010b) for further clarification on DFIT statistic.
depends on other intervening factors, broadly called “absorptive capacity”. This paper takes a step further by exploring the role of institution in mediating the positive FDI spillovers. Institutions are highly associated with a nation’s productivity prospect, business environment and uncertainty. It argues that better institutions not only able to accelerate growth but also allow host countries to benefit from FDI’s spillover through the absorption and internalization of new knowledge that they bring. To test these hypotheses, this paper uses a generalized method of moment panel estimator and data from 78 countries cover 1981-2005. From the analysis, it can be conclude that FDI does not exert direct positive impact on the growth of host country economy where the impact of FDI on growth actually depends on the quality of institution in the host countries. Countries that promote good institutional quality benefit more from FDI’s presence. This finding is very significance as it highlights the complementarity between FDI and the host countries’ institutions, but is left out in earlier studies. The findings suggest that the policies directed towards attracting FDI inflows are not sufficient to contribute economic growth, it should go hand in hand with, not precede, the policies designed to promote good institutional quality as good institution is expected to deliver more real benefits, including those associated with FDI spillovers.

REFERENCES


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**FIGURE 1:** FDI versus Output Growth

**FIGURE 2:** Institution versus Output Growth
TABLE 1: The Growth Effect of FDI, Institutional Quality and Interaction Specification between FDI and Institutional Quality

<table>
<thead>
<tr>
<th>Dependent variable = GDP</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP_{t-1}</td>
<td>0.934</td>
<td>0.919</td>
<td>0.893</td>
</tr>
<tr>
<td></td>
<td>(0.000)**</td>
<td>(0.000)**</td>
<td>(0.000)**</td>
</tr>
<tr>
<td>Investment/GDP</td>
<td>0.101</td>
<td>0.099</td>
<td>0.112</td>
</tr>
<tr>
<td></td>
<td>(0.245)</td>
<td>(0.200)</td>
<td>(0.101)</td>
</tr>
<tr>
<td>Population growth</td>
<td>0.089</td>
<td>0.104</td>
<td>0.154</td>
</tr>
<tr>
<td></td>
<td>(0.005)**</td>
<td>(0.004)**</td>
<td>(0.005)**</td>
</tr>
<tr>
<td>FDI/GDP</td>
<td>0.017</td>
<td>-0.009</td>
<td>-0.029</td>
</tr>
<tr>
<td></td>
<td>(0.021)**</td>
<td>(0.653)</td>
<td>(0.198)</td>
</tr>
<tr>
<td>Institutional Quality</td>
<td>0.145</td>
<td>0.161</td>
<td>0.140</td>
</tr>
<tr>
<td></td>
<td>(0.001)**</td>
<td>(0.000)**</td>
<td>(0.002)**</td>
</tr>
<tr>
<td>(FDI/GDP)*Institution Quality</td>
<td>-</td>
<td>0.204</td>
<td>0.289</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.191)</td>
<td>(0.081)**</td>
</tr>
</tbody>
</table>

AR(2) test (p-value) | 0.510 | 0.694 | 0.228 |
J-test (p-value)     | 0.162 | 0.263 | 0.224 |
Number of Observation | 307 | 307 | 295 |
Number of Countries  | 78 | 78 | 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 overidentification test. Time dummies are included to capture period-specific effect but are not reported.

FIGURE 3: Residual Versus Leverage For Growth