EU Foreign Direct Investment flows to ASEAN:

do institutions matter?

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Abstract

This paper investigates the relevance of institutional dimensions as determining factors driving EU FDI flows to ASEAN member countries, controlling for the conventional determinants of FDI. Panel data analysis was used, and diagnostic tests were carried out to choose the most appropriate model and to avoid reporting spurious estimation results. Test results suggest that RE model is more suitable in the estimation of the panel data set. Our empirical results show that institutions, namely property rights and regulatory quality, have played a positive impact on the locational decision of EU FDI. Their impact is both statistically and economically significant. Host country's GDP is found to be positively correlated with the EU FDI in the ASEAN regional bloc. Higher minimum wage rate and geographical distance are, as expected, negatively associated with the EU FDI flows to ASEAN countries. Our results also suggest that resource-seeking is one of the EU FDI motives. The paper offers some policy implications.

1.   Introduction

The effects of institutions on foreign direct investment (FDI) and economic performance have received relatively limited attention, while economic determinants of FDI flows have been analyzed to a much larger extent (Liu et al., 1997; Wei and Liu, 2001; Cuyvers et al., 2011). Nobel Laureate in economics Douglas C. North, among others, has worked on the important role that institutions have played in economic activities, leading to some of his seminal works (North, 1990, 1991, 1994, 2005). Since then, more attention has been drawn with respect to the impact of institutional quality on FDI flows (Li and Resnick, 2003; Daude and Stein, 2007; Tintin, 2013; Zeshan and Talat, 2015) and on economic growth (Acemoglu et al., 2001).

Institutions affect economic performance of an economy through their influence on people's behavior, costs of transaction and production costs, which in turn determine profitability and feasibility of engaging economic activities. The differential economic performance over time is influenced by the evolution of institutions over time (North, 1990). Dunning and Lundan (2008) incorporate institutional factors into the received eclectic paradigm[4] and posit that high quality of host-country institutions, enforcement mechanism and transaction cost effectiveness will encourage multinational firms to engage in FDI in the host economy.

Previous studies on motives of FDI locations have focused primarily on the conventional economic, geographical and political determinants of FDI (Liu et al., 1997; Wei and Liu, 2001; Pan, 2003; Zhao, 2003; Asiedu, 2006; Buckley et al., 2007; Cuyvers et al., 2011). Recently, some studies have shifted away from the traditional FDI-determining factors towards the roles that institutions and governance have played in locational decisions of foreign investment in a host economy, especially in developing and transitional countries (Busse and Hefeker, 2007; Masron and Nor, 2013; Anyanwu and Yameogo, 2015).

This paper contributes to the existing literature on institutional determinants of FDI by testing, for the ASEAN group, relevant institutional factors that may influence the decisions of multinational firms to launch investment projects in the member states. Specifically, we empirically examine the influences of property rights protection and regulatory quality on inward FDI in this regional grouping.

This paper is structured as follows. Section 2 provides a review of the related literature on the effects of institutions on foreign direct investment, followed by a brief overview of EU foreign direct investment and quality of institutions achieved by each of the ASEAN member states in Section 3. Section 4 presents the model, estimation techniques and data. Section 5 offers empirical results and discussion. Section 6 concludes.

2.   Institutions and Foreign Direct Investment

Institutions are humanly devised constraints that shape economic, human and social interactions (North, 1990, 1991). They are formal rules (constitutions, laws, regulations and property rights) and informal constrains (values, customs, beliefs, and ethics) that set the rules of the game for business organizations to follow. These formal and informal institutions establish 'traffic' rules and procedures that reduce uncertainty with respect to exchanges as they provide parties in exchange with enforcement mechanism (Ali et al., 2010).

Institutions affect economic activities through their effects on costs of firms. For instance, bureaucracy, red-tape and lengthy delays in obtaining operations permits or licenses may substantially increase production and other related costs, thus adversely affecting firms' competitiveness. Institutions are found to have impacted upon many economic activities and long-run economic performance (North, 1990; Acemoglu et al., 2001; Góes, 2016), international trade (de Groot et al., 2004; Cheptea, 2007; Méon and Sekkat, 2008; Bhattacharyya et al., 2009) and foreign direct investment (Li and Resnick, 2003; Nunnenkamp and Spatz, 2004; Aysan et al., 2007; Gani, 2007; Daude and Stein, 2007; Bannaga et al., 2013; Masron and Nor, 2013; Saidi et al., 2013; Tintin, 2013; Zeshan and Talat, 2015).

Concerning investment, institutional quality affects both foreign and domestic investment in two broad ways (Daude and Stein, 2007). First, inefficient institutions of a host country raise the costs of doing business for firms as they are regarded as taxes to be 'paid' by the firms. Second, feeble enforcement of contracts may increase uncertainty about the future returns of firms, thus exerting an adverse impact upon private investment. In a similar vein, Henisz (2000) indicates that foreign investors will face two types of risks if their property rights are not sufficiently protected. The first is that the government of a host country may behave in an opportunist way and appropriate a proportion of the returns on FDI projects or even nationalize them. Second, with better access to local administration authorities, local incumbent competitors may win the government's favor at the expense of the new foreign entrants.

Given the important roles of institutions, research has shifted towards the impact of institutional quality on locational determinants of FDI. Knack and Keefer (1995) show that property rights protection has a positive impact on both investment and economic growth. Many studies have confirmed the conclusion of Knack and Keefer. Li and Resnick (2003) suggest that property rights in less-developed countries are important to FDI inflows and growth. Pajunen (2008) finds also that property rights have played a significant role in businesses both in domestic and international contexts.

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[4] Dunning and Lundan (2008) incorporates the work of three Nobel Laureates in economics, namely Amartya Sen, Joseph Stiglitz and Douglas C. North, into the well-received eclectic paradigm of ownership, location and internationalization to theorize the determinants of transnational corporations.

Using a large data set from both developed and developing or transitional economies, Globerman and Shapiro (2002) find that good governance has a relatively large effect on FDI in developing or transitional economies. Similarly, Gani (2007) finds that institutional quality is positively associated with inward FDI in the Asia, Latin America and the Caribbean regions. Using a panel data set from 164 countries over 1996-2006, Buchanan et al. (2012) confirms a positive association between FDI and governance.

Yet, several studies find that poor governance does not deter, but encourage, FDI inflows in both developing and transitional economies (Bellos and Subasat, 2012a, 2012b). More recently, Subasat and Bellos (2013) confirm their earlier results for transition economies and Latin America. They argue that, under certain circumstance, poor governance could affect FDI positively as it could allow firms to circumvent poorly designed regulations in these countries which are under institutional transition. Méon and Sekkat (2007), based on the earlier works of Leys (1965) and O'Donnell (1978), report that bribes could incentivize bureaucrats to speed up the application approvals for the establishment of new investment projects, in an otherwise sluggish administration. These views are shared by other researchers, such as Bailey (1966) who contend that perks may attract able civil servants who would otherwise have opted for employment in private businesses, non-governmental organizations or other international organizations where wages or salaries are much higher.

Multinational enterprises may have evolved 'going global' strategies in order to ensure the reliable supplies of domestically relatively scarce inputs that are used for final production in their home countries. Thus, sectors including agriculture, energy, fishery, minerals and timber are attractive to foreign investors. Dupasquier and Osakwe (2006) report that natural resource endowments have a statistically significant and positive impact on FDI inflows. Similar findings are reported by Asiedu (2006) who investigates FDI inflows in Africa and shows that countries relatively abundantly endowed with natural resources have attracted more FDI. The importance of natural resources is also confirmed by a series of previous empirical studies (Asiedu, 2002; Hailu, 2010; Anyanwu and Yameogo, 2015). In the present paper, we will also test if resource-seeking is an important motive of EU FDI in ASEAN countries, since the majority of them are well endowed with natural resources.

A set of other variables[5], such as market size, growth prospects, openness, wages, exchange rate and geographical distance, has been chosen as control variables.

3.   EU Foreign Direct Investment in ASEAN

Global FDI and trade flows have increased substantially, because of the continuing significant improvements in telecommunications and transport technology despite the fact that the former has grown at a faster rate. Over the 1970s-1980s, outward FDI was mostly undertaken by the

developed economies, accounting for almost 100% of the total outward FDI stock in the 1970s and around 95% in the 1980s (Figure 1). However, recently there has been a geographical shift of the origins of worldwide FDI outflows since the developing world has now important international investors whose outward FDI has continually risen at a faster rate than their developed counterpart.

Figure 1: Outward FDI Stock over 1970-2014 (Values in US$ million)
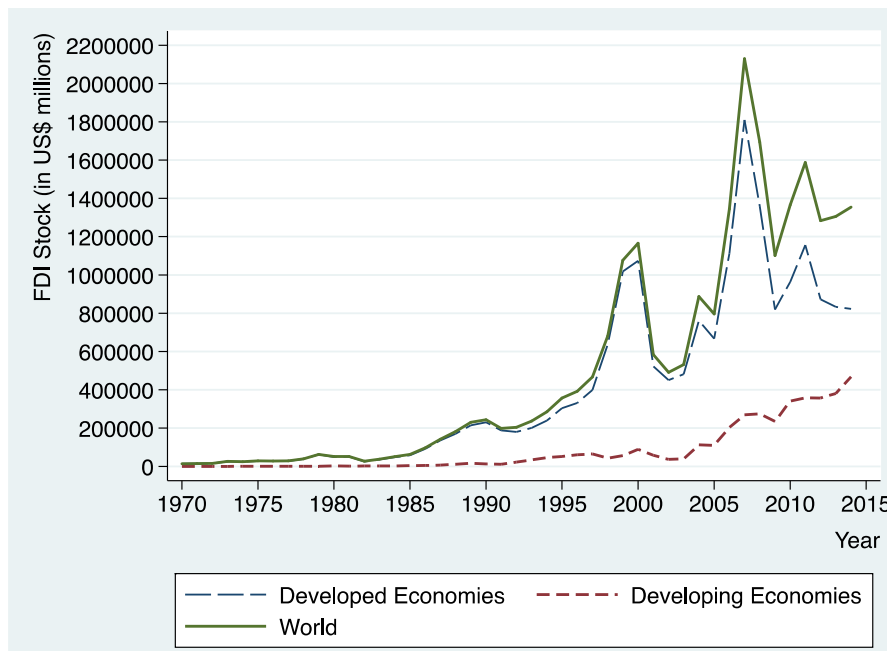
Source: UNCTAD online database

The global FDI surged in the early 1990s, but suffered from a sharp fall due largely to a brief slowdown in 2001-2002 after which outflows recovered significantly, reaching US$2,130 billion in 2007 before they were interrupted again by the global crisis in 2008. As can be gleaned from Figure 1, outward FDI of developing economies has grown over time and reached US$468 billion, accounting for 34.6% of total outward FDI in 2014.

Over the decades, EU firms have been investing increasing amounts of capital to set up or acquire firms outside the EU. In 1990, the stock of the EU27 outward FDI was about US$976 billion. This amount increased to US$2,948 billion in 2000 and reached US$9,157 billion in 2014 (UNCTAD online database, 2015). FDI into the EU has also been increasing. The stock of FDI into the EU amounted to US$884 billion in 1990 and increased to US$2,142 billion in 2000 and reached US$7,730 billion in 2014. Thus, the EU is a net capital exporter. During the period over 1990-2014, the stock of EU15 outward FDI has increased from 975 billion to around US$8,925 billion, making the EU15 outward FDI stock nine times higher in 2014 than in 1990.

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[5] For detailed descriptions of how these factors affect foreign direct investment, see Cuyvers et al. (2011).

Table 1 presents the outward FDI of the triad - the EU, Japan and the US. The share of U.S. direct investment abroad has declined gradually since 1990 from about 32.5% of worldwide outward FDI in 1990 to around 25.7% in 2014. Over the same period, EU outward FDI represented around 43.3% in 1990, but fell to 37.2% in 2014. Regarding Japanese outward FDI, its share was estimated at 5% over 1990-2014. Overall, outward FDI of the triad accounted for about 77.8% of total worldwide outbound FDI although it decreased to 67.8% in 2014 from 84.7% in 1990. However, the shares of BRICS and ASEAN outflows have risen to 7% and 3.44% in 2014 from about 2.7% and 0.42% in 1990, respectively.

Table 1: Outward FDI Stock by Source Economy (% of worldwide outward FDI)

| Year	1990	1995	2000	2005	2010	2014
Japan	8.94	5.97	3.82	3.30	4.07	4.85
US	32.47	34.16	36.91	31.09	23.56	25.68
EU	43.29	43.08	40.39	44.14	43.69	37.22
BRICS	2.69	2.24	1.77	2.77	5.17	7.08
ASEAN	0.42	1.23	1.16	1.85	2.91	3.44
Triad	84.70	83.22	81.13	78.55	71.34	67.78
World	100	100	100	100	100	100

Source: UNCTAD online database
Notes: Triad refers to the EU, U.S. and Japan; EU is EU27 and BRICS denotes Brazil, Russia, India, China and South Africa.

Figure 2 depicts inward FDI in ASEAN member countries. During the early 1990s, inward FDI increased almost threefold, from around US$12.7 billion in 1992 to US$36 million in 1997. The Asian crisis in 1997-98 which originated from Thailand adversely affected individual countries substantially, leading to an overall temporary decline in FDI in ASEAN until 2002 before it started to have a strong recovery again in 2003. The global crisis was another culprit causing a sudden drop in FDI in ASEAN over 2008-2009 after which FDI inflows to ASEAN surged from 2010 onwards.

It is interesting to note that the trends of inward FDI in ASEAN remained positive over the past decades although they were interrupted on several occasions by the Asian crisis in 1997-98, the global slowdown of 2001-2002 and the recent global crisis.

Figure 2: Inward FDI Flows in ASEAN by Host Country over 1991-2014
(Values in US$ million)
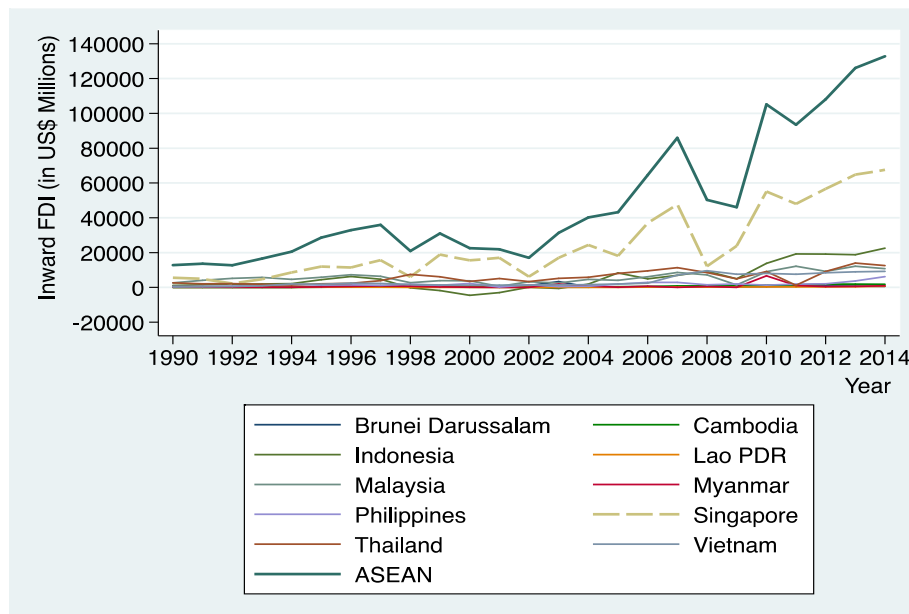
Source: UNCTAD online database

FDI flows to ASEAN were unevenly distributed. Singapore received a lion's share of about 50% of total FDI in ASEAN over 1990-2014, due to the fact that this city-state has relatively a much better investment environment and higher quality of FDI-supporting institutions. Indonesia, Malaysia and Thailand each received around 12%. Over the same period, FDI flows to CLMV (Cambodia, Lao PDR, Myanmar and Vietnam) have been relatively small. Myanmar, Cambodia and Lao PDR attracted a negligible amount of FDI of 1.5%, 1% and 0.3% respectively, but Vietnam enjoyed a much larger share of 7.5%.

Table 2 reports the ratio of the stock of inward FDI to gross domestic product (GDP) for the ten ASEAN member states. The inward FDI stock in ASEAN had increased over time from around 17% of GDP in 1990 to 42% in 2000, reaching 69.5% in 2014. By looking at individual economies, Singapore has maintained the highest FDI-GDP ratio, which continues to rise over time. Cambodia has the second largest ratio of inward FDI stock to GDP and its ratio has substantially increased from 2.22% in 1990 to 79.31% in 2014. This suggests that these small Southeast Asian countries are heavily dependent on FDI.

Table 2: Inward FDI Stock as Percentage of GDP

| Year	1990	1995	2000	2005	2010	2014
Brunei Darussalam	0.94	13.56	64.45	22.29	33.47	41.54
Cambodia	2.22	10.76	43.09	39.27	54.81	79.31
Indonesia	6.95	9.29	15.14	14.41	22.66	29.84
Lao PDR	1.45	12.38	35.33	25.06	27.99	31.12
Malaysia	21.69	29.93	54.05	30.97	41.05	41.02
Myanmar	5.50	15.63	51.57	54.32	34.94	26.10
Philippines	6.65	8.19	16.98	14.53	12.97	20.03
Singapore	78.45	75.40	117.24	188.96	271.23	302.91
Thailand	9.33	10.46	24.53	32.52	41.11	49.15
Vietnam	3.75	27.70	47.25	42.41	49.17	48.76
ASEAN	16.78	21.25	41.93	46.58	59.70	68.49

Source: UNCTAD online database

Figure 3 is the graphical presentation of inward FDI flows from the European Union to ASEAN over 2000-2014. The distribution is highly uneven with Singapore being by far the largest recipient of EU FDI. FDI inflows to the city-state show an upward trend over the period despite the fact that it was interrupted by economic slowdowns and crises in 2002, 2008 and 2012 during which many European countries were still in economic hardships inflicted by the recent global crisis and heavy foreign debt.

Malaysia is the second largest destination of EU FDI, receiving an average amount of net EU FDI flows of about US$1.5 billion per annum over 2000-2014. Thailand, Indonesia, Vietnam and Brunei were respectively the third, fourth, fifth and sixth destinations for EU multinational enterprises. Cambodia outperformed the Philippines and Lao PDR in terms of attraction of EU FDI over the same period.

Overall, EU FDI flows to ASEAN exhibit an upward trend. The least developed ASEAN member states, namely CLMV, become increasingly attractive to FDI from the EU and the rest of the world. This may be attributed to the continuing reforms and the gradual liberalization of the economies of these countries that started almost concurrently in the late 1980s (Menon, 2013)[6].

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[6] Cambodia started to open up its economy in 1985, but fuller economic liberalization did not occur until after 1986. Vietnam introduced its renovation policy, known as *doi moi* policy, in 1986 to promote its transition from centrally planned towards a market economy. Concurrently, the Lao PDR's process of transition to a market-oriented economy began in 1986 with the implementation of a major program of economic reforms or the New Economic Mechanism under which price controls were removed; exchange rates were unified; and private enterprise in agriculture and manufacturing were encouraged (Menon and Warr, 2013). Myanmar's liberalization was introduced in 1987, allowing for the emergence of private enterprises, the opening up to limited foreign investment, the return of private commercial banks (Turnell, 2011).

**Figure 3: EU FDI flows to ASEAN countries over 2000-2014**
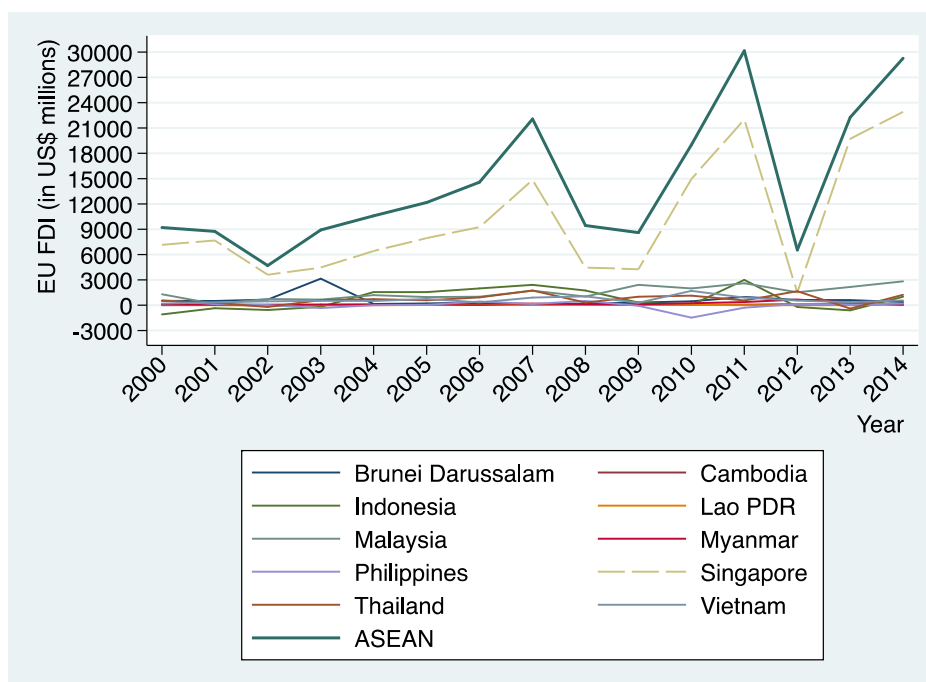
Source: ASEAN FDI Database online

Figure 4 shows the evolution of FDI flows to ASEAN between 2000 and 2014 from five important investors, namely the EU, the United States, Japan, Canada and China—the world second largest economy that has been both a large FDI recipient and a significant foreign investor. It is interesting to note that FDI from the EU and the US exhibits similar trends, except in 2012 and 2013 when the trends of the two moved in opposite direction. FDI from Japan had a different pattern, falling gradually between 2007 and 2009 before it recovered in 2010, whereas Canada's FDI hovered around US$1 billion over 2000-2014.

China's FDI in ASEAN was very small in the early 2000s. It briefly increased between 2006 and 2007 before falling substantially in 2008, due to the global crisis after which the amount of Chinese outward FDI to ASEAN nations experienced a strong recovery and grew almost exponentially from 2009 onwards, reaching US$8.90 billion in 2014. Among the main investors, the EU is by far the most important foreign investor in the ASEAN regional grouping and continues to remain the important source of FDI.

Figure 4: FDI from Major Investors to ASEAN countries over 2000-2014
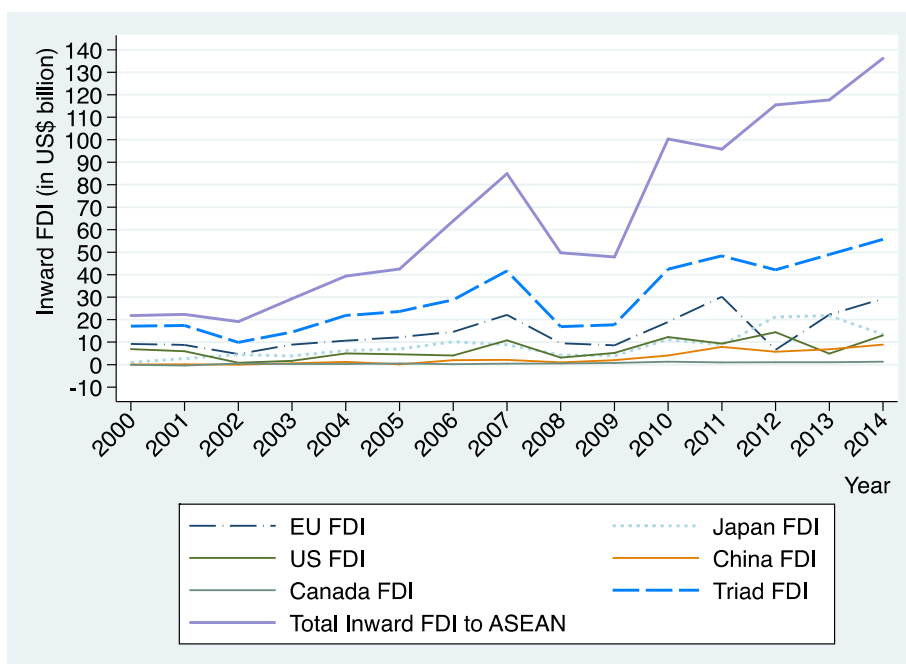
Source: ASEAN FDI Database online

Figure 5 depicts the average indexes for the six aspects of governance or institutional quality over 1996-2014. Overall, Singapore has enjoyed the highest governance quality for the period under consideration, except the quality of *voice and accountability* for which the Philippines appear to outperform Singapore (Panels A-F). This is evidence that may explain the reasons as to why Singapore has been the largest recipient of inward FDI flows to the ASEAN regional group.
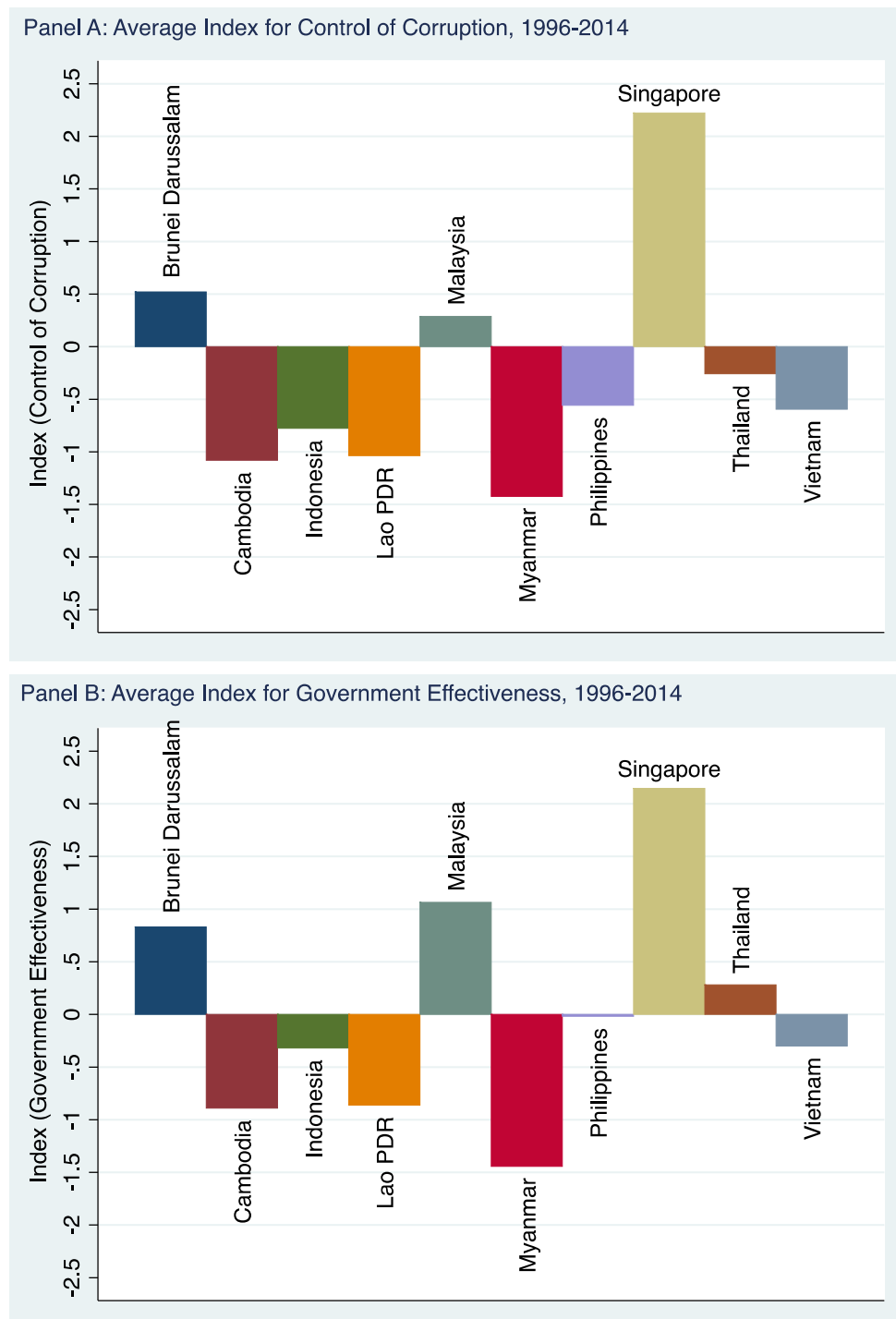
Looking at the index for individual dimensions of institutional quality, Singapore performed much better in terms of *control for corruption*, followed by Brunei and Malaysia (Panel A). CLMV experienced the lowest level of governance quality, with Myanmar being at the bottom while Vietnam being at the top of the CLMV. Concerning *government effectiveness*, Singapore also enjoyed the highest level of government effectiveness, followed by Malaysia, Brunei and Thailand (Panel B), which implies that these countries are in a better position in implementing policies more effectively. In contrast, Myanmar was by far the worst performer, being faced with the lowest quality of government effectiveness.

Brunei and Singapore have maintained the highest political stability level while the Philippines and Indonesia have experienced much lower levels of political stability (Panel C). Similarly, Singapore also enjoyed the highest regulatory quality, followed by Brunei, Malaysia and Thailand. Myanmar was invariably faced with the lowest *regulatory quality* and was the worst performer of the other governance dimensions.

Another governance indicator relates to the *rule of law*, which is one of the most important components of good governance that is often taken into consideration by economic agents. Countries with higher levels of the rule-of-law index provide agents more confidence in the quality of judiciary and the enforceability of contracts.

The last, but perhaps not the least important indicator refers to *voice and accountability*. As shown by Panel F, among the ASEAN member countries the Philippines has the highest performance in terms of voice and accountability.

Figure 5: Average Indexes for the Six Dimensions of Governance Quality over 1996-2014

Panel A: Average Index for Control of Corruption, 1996-2014

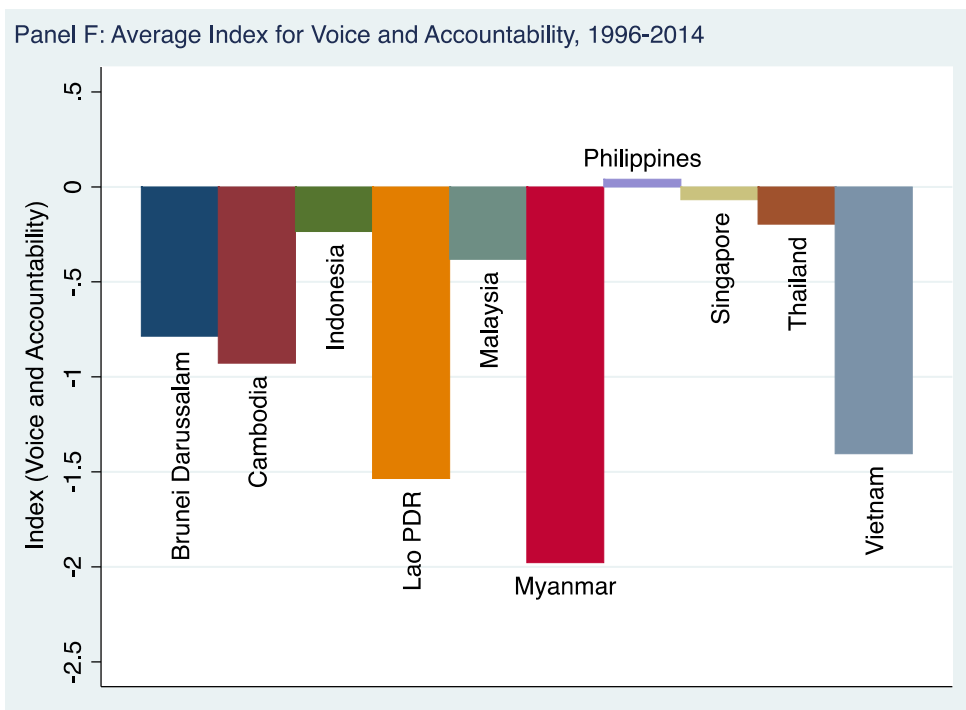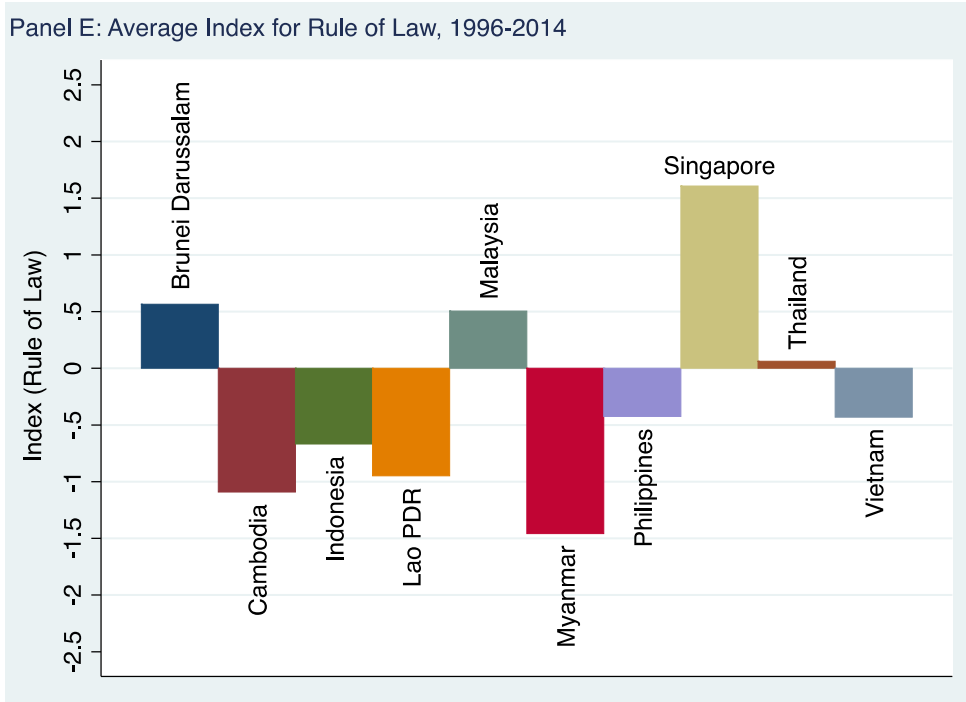Panel B: Average Index for Government Effectiveness, 1996-2014

Panel C: Average Index for Political Stability and Absence of Violence, 1996-2014
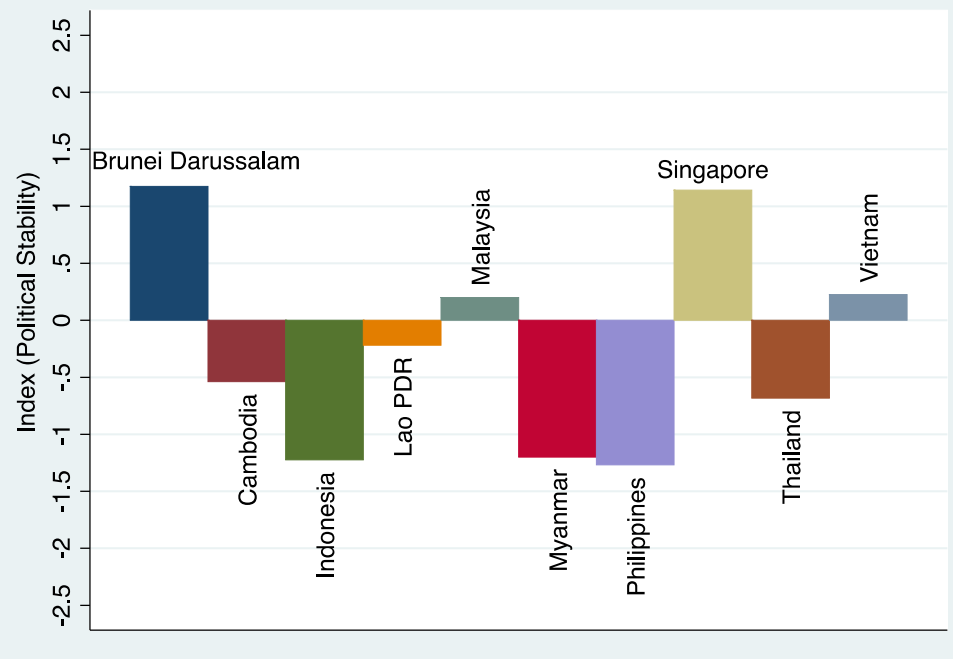
Panel D: Average Index for Regulatory Quality, 1996-2014

Panel E: Average Index for Rule of Law, 1996-2014

Panel F: Average Index for Voice and Accountability, 1996-2014
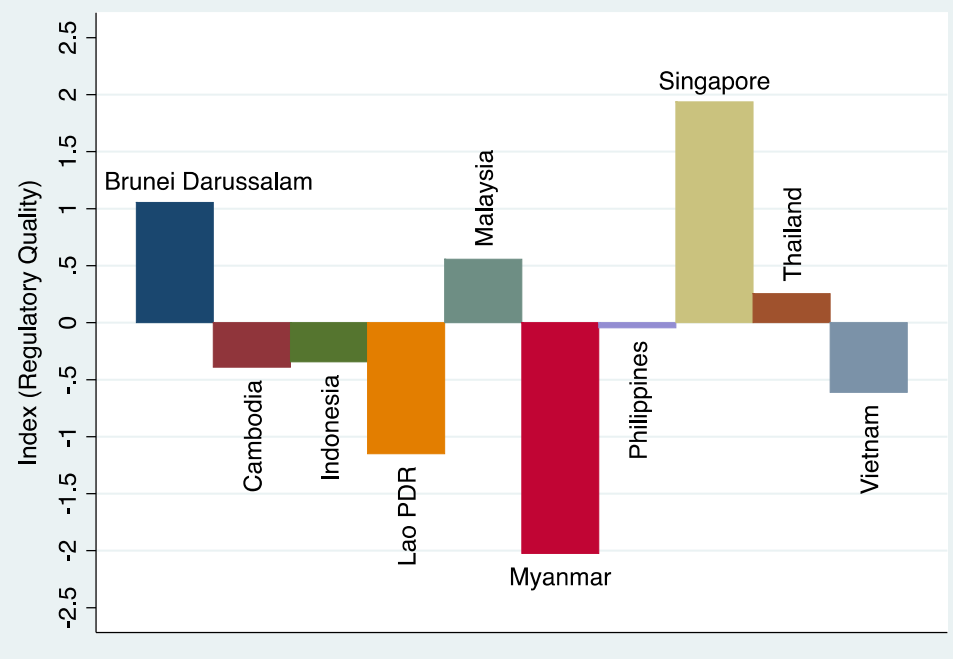
Source: World Bank's Worldwide Global Governance Indicators online (www.govindicators.org)

4.   Model, estimation techniques and data

4.1   Model and Estimation Techniques

ASEAN has attracted an increasing amount of FDI from Asian developing countries as well as advanced economies such as the EU and the United States. However, the factors that may affect EU FDI flows into ASEAN have not yet been well studied, especially with respect to the effects of institutions on FDI flows to this regional integration bloc. This paper seeks to fill the gap by testing a broader set of relevant institutional factors that may influence FDI flows to ASEAN countries over 1995-2014.

Based on the review and discussions presented above, the relationship between FDI and its influencing factors is modelled as follows:

$$LFDI_{ijt} = \beta_1 LGDP_{jt} + \beta_2 GROWTH_{jt} + \beta_3 LOPEN_{jt} + \beta_4 LWAGE_{jt}$$
$$+ \beta_5 LEXCH_{jt} + \beta_6 LDIST_{ij} + \beta_7 LORE_{ijt} + \beta_8 LINS_{jt} + \varepsilon_{ijt} \qquad (1)$$

$$i = 1, 2, \ldots, N \text{ and } t = 1, 2, \ldots, T \text{ (from 1995 to 2014, inclusive)}$$

The subscripts i, j and t refer to FDI home country, host country and time, respectively. ε_{ijt}, denoting a composite error term, is equal to $\alpha_i + u_{ijt}$, where α_i is country-specific, accounting for the unobserved heterogeneity among the home countries, and u_{ict} is a white noise error term. Both the dependent variable and the explanatory variables are in logarithms and are denoted by *L*. The use of the variables in logarithms has three advantages. First, it makes it relatively easy to interpret the estimated slope parameters of the explanatory variables. The coefficients of the logged explanatory variables are the elasticities of the dependent variable with respect to a one percentage change in the explanatory variables. Second, the use of logged values can reduce the problem of outliers. Finally, log-transformation can linearize a non-linear relationship between the variables.

Due to the inappropriateness and inefficiency of estimation with time series and cross-sectional estimation, it was decided to opt for a panel data set, i.e. the data containing time series of a number of individuals, in the estimation of equation (1). Panel data have several advantages over the usual cross-sectional or time series data (Hsiao, 2003, 2005; Plasmans, 2006). Plasmans (2006) has shown that panel data are more efficient with respect to random sampling and ease of identification, present less multicollinearity and are better for aggregation as the aggregation may vary over time. Similarly, Hsiao (2005) has indicated that an important advantage of panel data is that it allows to control for the impact of omitted variables, and

contains information on the inter-temporal dynamics, and also that the individuality of the entities allows the effects of missing or omitted variables to be controlled for. Wei and Liu (2001) have argued that the use of panel data takes into account the diversity and the specificity of the unobservables, which are not shown in specification (1).

Panel data sets allow us to use two estimation procedures, namely fixed-effects (FE) or random effects (RE) estimations. The FE estimator allows for the unobservable country heterogeneity, and is always less efficient than the RE estimator, but the latter may suffer from endogeneity bias (Hausman test) so that the FE estimator is preferred in that case. Like the FE model, RE estimations take into consideration the unobservable country heterogeneity effects, but incorporate these effects into the error terms, which are assumed to be uncorrelated with the explanatory variables.

To choose the appropriate model for the panel data set from these two competing models, the Hausman test (Hausman, 1978) is performed[7]. The Hausman test is for testing the appropriateness of the FE model against the RE model. The Hausman test statistic is computed as follows (Verbeek, 2004):

$$\psi_H = \left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right)' \left[\hat{V}\{\hat{\beta}_{FE}\} - \hat{V}\{\hat{\beta}_{RE}\}\right]^{-1} \left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right) \qquad (2)$$

where $\hat{V}_s$ denote estimates of the true covariance matrices. Under the null hypothesis that the explanatory variables and α_i are uncorrelated, the Hausman test statistic ψ_H is asymptotically χ^2 distributed with K degrees of freedom, where K is the number of slope coefficients in the random effects model. A large value of ψ_H leads to the rejection of the null in favor of the fixed effects model.

To obtain the best possible results, it is important to carry out a test for group-wise heteroskedasticity proposed by Greene (2012), which is based on the Wald statistic. Under the null hypothesis of common variance, the Wald test statistic is shown to be of the following form: $W = \sum_{i=1}^{N} \frac{(\hat{\sigma}_i^4 - \sigma^4)^2}{var(\hat{\sigma}_i^2)}$, where W is χ^2 distributed with N degrees of freedom. Failure to reject the null indicates the absence of group-wise heteroskedasticity.

4.2   Data

The data on FDI are from the ASEAN statistical yearbooks and the ASEAN FDI database online. Data for the explanatory variables are from the International Monetary Fund's Directions

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[7] Since specification (1) contains both time-variant variables and one time-invariant variable (Dist), the Hausman test is carried out without the time-invariant variable.

of Trade Statistics, the World Bank's World Development Indicators online, and the United Nations' database online.

Data on institutions are from the World Bank's global governance indicators database online and from Heritage Foundation. The World Bank provides six dimensions of governance institutions, covering more than 200 countries and territories since 1996. The six aspects of good governance include *Voice and Accountability*, *Political Stability and Absence of Violence/Terrorism*, *Government Effectiveness*, *Regulatory Quality*, *Rule of Law*, and *Control of Corruption*. According to Kaufmann et al. (2010), the definitions of the six governance indicators are defined as follows:

- *Voice and Accountability (VA)*: measuring perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
- *Political Stability and Absence of Violence (PV)*: measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
- *Government Effectiveness (GE)*: measuring the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
- *Regulatory Quality (RQ)*: capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Therefore, it potentially encourages the inflows of FDI through reducing or eliminating FDI unfriendly policies.
- *Rule of Law (RL)*: capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
- *Control of Corruption (CC)*: measuring perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

The Heritage Foundation has published several indexes since 1995, including its property rights index. According to Miller and Kim (2015), property rights refer to the ability to accumulate private property and wealth, which is an important motivation factor for investors in a market economy. Secure property rights and their protections build investor confidence to undertake entrepreneurial activity for promoting long-term growth and development. Therefore, we expect that property rights are positively related to FDI inflows. The definitions of all included variables and descriptions of the data, as well as their sources are given in Appendix A.

5. Empirical Results

Table 3 presents the correlation matrix for all institutional quality variables and the results of collinearity checks. The correlation coefficients and the variance inflation factor (VIF) values for most of the institutional variables are relatively high (Table 3), indicating that there is a high multicollinearity among institutional variables[8]. These high inter-correlations affect the estimation results as they pose difficulty in identifying statistically the influence of specific institutional factors on FDI flows. To circumvent this high correlation issue, we include the institutional or governance quality variables one by one in the estimations of specification (1).

Table 3: Correlation Matrix for Institutional Variables

Variable Name	VIF	LPR	LRQ	LPS	LCC	LGE	LRL	LVA
LPR	3.87	1.00						
LRQ	10.35	0.78	1.00					
LPS	2.52	0.19	0.44	1.00				
LCC	13.52	0.77	0.84	0.60	1.00			
LGE	24.98	0.81	0.89	0.51	0.95	1.00		
LRL	23.24	0.77	0.86	0.61	0.96	0.97	1.00	
LVA	7.49	0.79	0.87	0.13	0.68	0.75	0.71	1.00

Notes: *LPR* is the logarithm of the property rights index; *LRQ* denotes the logarithm of the regulatory quality index; *LPS* represents the logarithm of the index of political stability and absence of violence or terrorism; *LCC* is the logarithm of the control-of-corruption index; *LGE* is the logarithm of the index of government effectiveness; *LRL* is the logarithm of the index of rule of law and *LVA* denotes the logarithm of the index of voice and accountability.

Table 4 reports the estimation results, along with other important diagnostic tests, the autocorrelation, Hausman and group-wide heteroskedasticity tests. The autocorrelation test statistics of between 0.62-2.00 are not statistically different from zero at any conventional significance level, indicating the absence of damaging autocorrelation problems. Similarly, we also carried out the Hausman test to choose between FE vs. RE models[9]. The Hausman statistic is insignificant for columns (2) and (3), suggesting that the RE model is statistically preferred. Thus, further discussions are based on the RE model. From Table 4, the test for group-wise heteroskedasticity shows that the null hypothesis of homoscedasticity is strongly rejected at the 1% significance level. This suggests that heteroskedasticity is present in the data set. Therefore, our econometric specification above is estimated with heteroskedasticity-robust standard errors.

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[8] It is widely accepted that VIF>5 indicates the severity of multicollinearity (Studenmund, 2014).
[9] It is reminded that the Hausman test was carried out by excluding the time-invariant variable, Dist.

As expected, the coefficient on the GDP variable is highly significant at the 1% level, signifying the importance of market size of the host country's economy. Estimated coefficients of 0.64-0.91 imply that a one percent increase in host country's GDP *ceteris paribus* leads to an increase of 0.64-0.91% of EU FDI flows to ASEAN. This finding indicates that market-seeking has been a key motive for the EU FDI flows to ASEAN member countries. This is consistent with the recent work that points to the rise of an offensive market-seeking motive driving multinational enterprises' activities abroad (Deng, 2004; Buckley et al., 2007; Buckley, 2010; Voss, 2011). Their activities are positively associated with large markets and increased demand in a host country. As the host market expands it offers more opportunities for exploiting the economies of scale and making profits.

Two of the explanatory variables—GDP growth and openness—never retain significance (see, Table 4 and Appendix B).

Table 4: Slope Parameter Estimates for EU FDI in ASEAN

Variable	(1)	(2)	(3)
Constant	46.345* (26.344)	55.595** (23.177)	60.472** (28.078)
LGDP	0.958*** (0.055)	0.914*** (0.119)	0.639*** (0.177)
GROWTH	-0.001 (0.041)	0.052 (0.047)	0.028 (0.039)
LOPEN	0.166 (0.319)	0.636 (0.423)	0.673 (0.479)
LWAGE	-0.891** (0.410)	-0.901*** (0.284)	-0.442 (0.419)
LEXCH	-0.5×10^{-3} (0.109)	0.195** (0.091)	0.450* (0.254)
LDIST	-6.595** (3.019)	-7.932*** (2.462)	-8.285*** (3.123)
LORE	0.266*** (0.021)	0.416*** (0.130)	0.538*** (0.141)
LPR	—	1.079*** (0.414)	—
LRQ	—	—	6.685** (3.319)
No. of observations	67	67	58
Overall R^2	0.622	0.658	0.666
Autocorrelation test statistic	2.000	2.527	0.615
Hausman test statistic	17.38***	10.19	7.08
Wald test statistic for group-wise heteroskedasticity	168.03***	1.94.05***	228.15***

Notes:
1. L demotes values in logarithms
2. *, **, and *** denote that the slope parameter estimates are statistically significant at the levels of 10%, 5%, and 1%, respectively
3. Standard errors are group-wise heteroskedasticity robust standard errors in parentheses

The wage variable proxied by the minimum wage rate has the expected negative sign and is highly significant (column 2), suggesting that a higher minimum wage rate is associated with lower EU FDI flows to ASEAN countries. This is because an increase in the wage rate will suppress the expected returns of firms, thus shying away investments. Multinationals from high wage countries, including the EU, often relocate parts of their production, especially labor-intensive parts, to developing countries where labor costs are much lower to take the cost advantage.

Consistently, Vogiatzoglou (2008) reports that EU FDI flows to ASEAN are mainly attracted to the manufacturing sector, while the financial sector is the second favorite. The negative effect of the wage rate on FDI is of critical importance for transitional and developing countries whose industries are mostly labor intensive. Given labor productivity and other factors such as quality of institutions, countries with wage increase are expected to receive lower amounts of FDI from the EU.

The exchange rate is also found to have a positive effect on EU FDI in ASEAN regional bloc. This result suggests that a depreciation of the domestic currency leads to higher FDI flows from the EU to the ASEAN member states. There are several reasons why a depreciation of an ASEAN member state's domestic currency leads to an increase in FDI flows from the FDI home country to host economy. First, a depreciation of the domestic currency will provide investors from the investing country a cost advantage in terms of labor costs. Second, a depreciation of the domestic currency makes assets, valued in the investor's currency, cheaper in a host country. This incentivizes foreign investors to buy assets in the host country. Third, a depreciation will make goods produced in the host country relatively cheaper than the same goods produced in the investing country. Therefore, foreign investors may be enticed to invest in the host economy.

The coefficient estimate of geographical distance has, as expected, a negative sign, and is highly significant at the 1% level, implying that distance is a significant deterrent of FDI inflows into ASEAN. The result is consistent with the theory of economic geography, which postulates that geographical distance is positively associated with the costs of obtaining relevant and detailed local information, as well as the costs of managing foreign production facilities in foreign countries. Distance therefore acts as a measure for international transaction costs between the home and host countries of the investors.

The estimated coefficient of natural resource endowments (LORE) retains its high statistical significance in all columns (Table 4). This provides strong evidence that resource-seeking is another significant motive that entices EU investors to launch their investment projects in ASEAN countries. The finding is in line with a number of previous studies (Aseidu, 2006; Dupasquier and Osakwe, 2006; Mohamed and Sidiropoulos, 2010; Anyanwu and Yameogo, 2015).

The major findings show the important role played by the quality of institutions. Referring to column (2), the coefficient estimate of property rights protection is positive and highly significant at the 1% level. This provides the strong evidence that property rights protection has a positive and significant effect on EU FDI inflows to the ASEAN regional grouping, suggesting that better property rights protection by a host ASEAN country induces more FDI to the country. The finding is consistent with a number of empirical studies (Li and Resnick, 2003; Nunnenkamp and Spatz, 2004). Maskus (1998) contends that stronger intellectual property rights in developing countries promise long-term growth and enhanced efficiency as they attract more FDI, especially higher quality FDI with long-term commitment in host economy and spur further innovation and technology spillovers.

In column (3), regulatory quality as developed by Kaufmann et al. (2010) is introduced into specification (1). The estimate of the regulatory quality has the expected positive sign, and is statistically significant at the 5% level. This evidently suggests that regulatory quality has played a significant and positive role in determining the location of EU FDI in the case of the ASEAN countries. This finding is in line with the empirical study by Rammal and Zurbruegg (2006) who investigate the impact of regulatory quality on intra-FDI flows in ASEAN; and implies that the improvement of regulatory quality, *ceteris paribus,* leads to higher FDI inflows from the EU to ASEAN member states.

Referring to Appendix B, the impact of institutional factors is dependent on the specific aspects of the institutions being considered. Of the six dimensions, namely rule of law, control of corruption, political stability and absence of violence or termism, regulatory quality, government effectiveness, and voice and accountability, only regulatory quality is statistically significant. It also has the largest economic significance, which is reflected by its highest estimated effect on EU FDI flows to ASEAN.

6.   Concluding remarks

This paper investigates the relevance of institutional dimensions as determining factors of EU FDI flows to ASEAN member countries, controlling for the conventional determinants of FDI, such as market size, GDP growth rate, trade openness, labor cost, exchange rate, and geographic distance. Panel data analysis was used in this paper. Diagnostic tests were carried out to choose the most appropriate model and to avoid reporting spurious estimation results. The results suggest that the RE model is more suitable in the estimation of the panel data set.

Estimation results show that institutions, namely property rights protection and regulatory quality have played a positive impact on the location of EU FDI. Their impact is both statistically and economically significant. Host country's GDP and exchange rate are also found to be positively correlated with the EU FDI in the ASEAN regional bloc. Higher minimum wage rates and

geographical distance are negatively associated with the EU FDI flows to ASEAN countries. Our results also suggest the important role played by ASEAN host country's natural resource endowments in attracting EU FDI, implying that resource-seeking is one of the EU FDI motives.

The paper offers some policy implications. As institutions are evidently important for EU FDI, ASEAN host countries are likely to attract more FDI from the EU and possibly from other developed countries with similar characteristics by constantly improving their institutional framework, which tends to generate further positive spillovers to other economic activities that are key to growth and development. The results of the present paper are consistent with the empirical growth and trade literature which clearly stresses the critical importance of institutions for promoting international trade and long-run economic growth (Acemoglu et al., 2001; Góes, 2016; de Groot et al., 2004; Méon and Sekkat, 2008; Bhattacharyya et al., 2009). Thus, a country would achieve higher growth through increasing trade and FDI activities that are commonly affected positively by the enhanced quality of institutions. Additionally, improvement of institutional quality is likely to promote domestic investment that would in turn positively affect FDI (Stasavage, 2002; Aysan et al., 2007; Buchanan et al., 2012).

The minimum wage is found to negatively affect EU FDI. Given labor productivity, an increase in the minimum wage will translate into higher production costs for firms, leading to lower FDI as multinational enterprises often shift their labor-intensive production to a low-cost host country to enjoy cost advantage. Therefore, raising minimum wages in the absence of improved productivity will not only adversely affect inward FDI, but also encourage the relocation of direct investment to other FDI-competing countries.

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APPENDICES

Appendix A: Variable Name, Definitions and Data Sources

Variable Name	Definitions and Data Sources
LFDI	Logarithm of FDI inflows into ASEAN from 1995-2014. Data on FDI are *ASEAN Statistical Yearbooks (various issues)*
LGDP	Logarithm of Gross Domestic Product of each ASEAN member states, measured in US$ current prices. Sources: *United Nations' National Account Database online*
GROWTH	Economic growth rate of each ASEAN member states, measured in US$ current prices. Sources: *United Nations' National Account Database online*
LOPEN	Logarithm of the ratio of total trade (imports plus exports) to GDP. Sources: *IMF's Direction of Trade Statistics and United Nations' National Account Database online*
LWAGE	Logarithm of minimum wage rate (in US$) of each ASEAN member state. Source: *International Labour Organization's Database online*
LEXCH	Logarithm of exchange rate between national currency of each ASEAN member state and the U.S. dollar. Source: *United Nations' National Account Database online*
LDIST	Logarithm of weighted distances between each ASEAN member state and Brussels. Source: *CEPII's GeoDist database*, developed by Mayer and Zignago
LORE	Logarithm of the ratio of ores and metals exports to merchandises of each ASEAN member state. Source: *World Bank's World Development Indicators*
LPR	Logarithm of property rights index. Source: *Heritage Foundation's Index of Economic Freedom*
LRQ	Logarithm of regulatory quality index. Source: *World Bank's Worldwide Governance Indicators*, developed by Kaufmann, Kraay and Mastruzzi
LPS	Logarithm of index of political stability and absence of violence or terrorism. Source: *World Bank's Worldwide Governance Indicators*, developed by Kaufmann, Kraay and Mastruzzi
LCC	Logarithm of control-of-corruption index. Source: *World Bank's Worldwide Governance Indicators*, developed by Kaufmann, Kraay and Mastruzzi
LGE	Logarithm of index of government effectiveness. Source: *World Bank's Worldwide Governance Indicators*, developed by Kaufmann, Kraay and Mastruzzi
LRL	Logarithm of index of rule of law. Source: *World Bank's Worldwide Governance Indicators*, developed by Kaufmann, Kraay and Mastruzzi
LVA	Logarithm of index of voice and accountability. Source: *World Bank's Worldwide Governance Indicators*, developed by Kaufmann, Kraay and Mastruzzi

Appendix B: Slope Parameter Estimates for EU FDI in ASEAN

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	46.345*	55.595**	60.472**	78.297***	68.283**	71.783***	65.567**	72.127**
	(26.344)	(23.177)	(28.078)	(20.020)	(30.790)	(25.460)	(29.467)	(30.083)
LGDP	0.958***	0.914***	0.639***	0.885***	0.989***	1.310***	0.809***	0.883***
	(0.055)	(0.119)	(0.177)	(0.048)	(0.150)	(0.470)	(0.213)	(0.047)
GROWTH	-0.001	0.052	0.028	0.002	0.003	0.016	-0.002	0.002
	(0.041)	(0.047)	(0.039)	(0.052)	(0.049)	(0.063)	(0.044)	(0.045)
LOPEN	0.166	0.636	0.673	0.155	0.178	0.440	0.064	0.228
	(0.319)	(0.423)	(0.479)	(0.553)	(0.544)	(0.755)	(0.612)	(0.633)
LWAGE	-0.891**	-0.901***	-0.442	-0.805**	-0.908***	-1.050**	-0.679	-0.809**
	(0.410)	(0.284)	(0.419)	(0.373)	(0.245)	(0.460)	(0.626)	(0.395)
LEXCH	-0.5×10^{-3}	0.195**	0.450*	0.071	0.003	-0.112	0.097	0.077
	(0.109)	(0.091)	(0.254)	(0.069)	(0.091)	(0.232)	(0.225)	(0.120)
LDIST	-6.595**	-7.932***	-8.285***	-9.947***	-9.007***	-9.803***	-8.529**	-9.294***
	(3.019)	(2.462)	(3.123)	(2.270)	(3.462)	(2.309)	(3.359)	(3.522)
LORE	0.266***	0.416***	0.538***	0.384***	0.354***	0.375***	0.367***	0.389***
	(0.021)	(0.130)	(0.141)	(0.056)	(0.065)	(0.074)	(0.050)	(0.034)
LPR		1.079***						
		(0.414)						
LRQ			6.685**					
			(3.319)					
LPS				-0.314				
				(0.518)				
LCC					-0.804			
					(1.355)			
LGE						-3.561		
						(3.776)		
LRL							0.716	
							(1.852)	
LVA								0.304
								(0.395)
No. of obs.	67	67	58	58	58	58	58	58
Overall R^2	0.6222	0.6577	0.6655	0.6209	0.6200	0.6261	0.6196	0.6191
Autocorrelation test statistic	2.000	2.527	0.615	0.738	0.783	0.610	0.940	0.696
Wald test statistic for group-wise heteroskedasticity	168.03***	194.05***	228.15***	22.50***	11.98**	20.84***	21.41***	75.56***

Notes:
1. L refers to values in logarithms.
2. *, **, and *** denote that the slope parameter estimates are statistically significant at the levels of 10%, 5%, and 1%, respectively.
3. Standard errors are group-wise heteroskedasticity robust standard errors in parentheses.