



Wage rate, regional trade bloc and Location of Foreign Direct Investment Decisions

Abstract

The objective of this paper is to examine the impact of wage rate on FDI location in South East Asia in the presence of trading systems (regional and multilateral trading systems) drawing example from panel data of five ASEAN countries (Malaysia, the Philippines, Indonesia, Singapore and Thailand). The analysis is built on the extended endogenous growth model due to work of Borensztein *et al.* (1998) and utilizes the fixed effects estimation technique to estimate the parameters of the model. Three measures were constructed for each trading system and used as regressors. The results show that the decisions to locate FDI in ASEAN countries are motivated by low wage rate or labour costs in the presence of both regional and multilateral trading systems. This implies that as the MNEs (Multinational Enterprises) aim at cost minimisation whether the host country is following multilateral or regional trading system makes no difference. Too for the host country to remain competitive in the global market and attract more MNEs, it has to compromise its labour standard. Or alternatively seek high-tech FDI that requires high skilled labour force.

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Introduction

Foreign direct investment (FDI) is an important source of private capital for developing countries. With the low level of domestic saving and loans allocation to the developing nations declining, the role of FDI as a source of private capital for the low-income nations is on the increase (Asiedu, 2002). FDI not only stimulates employment but also is seen as a means of acquiring new technology, improved business management practices and market access to the developed world (Noorbakhsh, Paloni and Youssef, 2001).

Foreign owned firms, the manifestation of FDI influences the distribution of incomes partly because they demand different types of labour and pay higher wages than local firms. Economic theory postulates that some FDI is attracted to countries that are abundant in unskilled labour relative to other countries; other FDI is attracted by natural resources endowments or policy factors. However, the foreign firms may still employ labour that is relatively skilled by local standards. It is worthy to note that most developing nations, especially the middle and low-income countries, have offered various incentives like tax holiday, ensuring

expropriation laws and even lowered the labour standard to attract more FDI flows into their respective countries. De-unionisation of labour plays an important role in FDI location in East Asia, as it is obtained in Malaysia. Given that the costs to maintain stringent labour standards are largely related to the increases in labour costs, higher labour standards may discourage foreign firms from undertaking an investment in a host country. Foreign investors or Multinational enterprises locate their foreign production in countries where low labour standard and weak labour union are operative. Although, studies by Rodrik (1996, 1999) have shown that countries with higher labour standards actually have a higher amount of FDI contrary to belief that higher labour standards tend to lead to higher labour costs. According to Ross and Chan (2002) wages are dropping in developing countries in direct relation to attract FDI. Thus this study investigates whether low wage is still a driving factor in the location of FDI and whether the trading system adopted in the ASEAN does influence the location of FDI and if high-tech FDI is located in ASEAN countries (i.e. FDI that demands high skilled manpower).

The remainder of this paper is organised as follows. The next section reviews the literature on wage rate and trading systems effect on FDI

including the recent empirical evidence. Section three sets out the model framework for the analysis, providing details of data set, the methodology employed, the variables incorporated and the estimation techniques deployed. Section four reports the results and discussion, while section five concludes and discusses the implications of the results.

Wage rate, FDI and trading systems

There are reasons why Multinational enterprises (MNEs) seek foreign location of some their production units. These can be classified into host market motivated FDI, export market motivated FDI, and resource based motivated FDI. The host market motivated FDI is investment motivated by the economic potential of the customer market within the destination country. In this case the goods and services are produced within the destination country for the local market consumption (Asiedu, 2002) to avoid high import tariffs. Export market motivated FDI is investment with the purpose of establishing production facilities within the destination country for export to source and global market. The export-led FDI is more cost conscious, as its intention is to seek out the low cost production environment. The resource based FDI is investment located in the destination country primarily to reduce the cost of raw materials.

Researchers have investigated the wage rate effect on the location of FDI in developing countries but the results are mixed. In theory, investors or MNEs prefer locations with lower wage rate to those with higher labour costs. Labour cost is a highly considerable factor in investments motivated by export markets than in investments made for seeking access to customers' countries. This explains the divergent results of wage effect on FDI location. The findings of Culem (1988), Tsai (1994) and Shamsuddi (1994) support the wage rate theory, which indicates that higher wages will discourage FDI. Tsai (1994) using 51 countries from 1975 to 1978 and 62 countries from 1983 to 1986 found support for the wage theory, which is an increase in nominal wage rate in the manufacturing sector tends to discourage FDI. Also Wheeler and Mody (1992) used 42 countries and found wage the most important determinants of FDI flows in developing countries and relatively unimportant in FDI flows to industrialised nations. Although these

studies have found negative relationships between wage rate and foreign direct investment, others found wage insignificant determinant of FDI flows into developing countries and in some cases the relationship is positive (Charkrabarti, 2001). In a recent study, Baek and Okawa (2001) find wage rate and import tariff to have negative effect on Japanese FDI location in Asia. This implies that higher tariff and wage rate will significantly decrease the Japanese investment in Asia.

ASEAN Economies

With the exception of Singapore, the ASEAN countries belong to mainly middle-income developing countries. They possess a number of economic similarities attributed to their location in the same geographical area as well as to shared aspects of cultures, history and economic and social development. With regard to their economic performance, the ASEAN countries have distinguished themselves from the other developing countries by achieving relatively high rates of economic growth and domestic saving, accompanied by low rates of inflation (DeRosa, 1995). This makes the region to have some degree of economic stability. This coupled with the appreciable stock of natural and human resources and envisaged large regional market attracts large amounts of foreign direct investment by multilateral enterprises. While the economies of the ASEAN countries are similar in many ways, specific aspects of their economic development and performance show significant differences. The most advanced economy in the group is the city-state of Singapore with a per capita income level of more than US\$ 22,000 in the year 2000 followed by Brunei with per capita income of US\$ 12,751 (Table 1) and highly trained workforce of international and regional standards. At other end of economic spectrum are Myanmar, Lao PDR, Cambodia and Viet Nam. Their per capita income lies between US\$150 to US\$ 450 in the year 2000. Indonesia and the Philippines fall between the middle and lower income group. Marked by low per capita income levels, US\$731 and US\$980 respectively, these two countries have generally exhibited substantially weaker economic performance than the other ASEAN countries. Particularly, they experienced higher inflation rates, weaker export growth and in case of the Philippines lower rate of investment relative to GDP. Malaysia and Thailand are middle-income countries of ASEAN with per capita of US\$3,874, and

US\$2,026 respectively. The economic performance of these two countries has been exceptional and are said to be next emerging Asian NICs (Newly Industrializing countries). Their economic performance was impressive by developing country standards and achievements were also impressive in the decade before the onset of Asian financial crisis in 1997. Sustained rapid growth was accompanied by a dramatic decline in the rate of unemployment and rising living standards and remarkably low inflation. The financial crisis disrupted ASEAN economies with the exception of small ASEAN economies like Cambodia, Myanmar and Lao PDR. During this period the economic activities slowed down and in 1998 real growth rates contracted (Table 1). In 2000, ASEAN economies are back on the track of economic growth. Their growth performance has reached the pre-financial crisis period record. The external trade of the ASEAN economies is spectacular. The recovery of ASEAN economies after the financial crisis is attributed to improvement in their external trade and adoption of unorthodox policy by some members, which provide for expediting recovery through reflationary macroeconomic policy without deviating from the country's commitment to liberal trade and foreign direct investment policies.

Together with stable political environment in some member nations of ASEAN, increasing per capita income and potential for regional integration and consequently larger market, the ASEAN economies become attractive for the location FDI by multinational enterprises. The average FDI inflow into ASEAN from 1989 – 1994 is US\$ 13, 942 million. The influx of FDI rises till 1997 and declines after the financial crisis to US\$11,056 million in 2000. However, the FDI inflows into ASEAN countries are relatively lower compared to FDI inflows into China (Table 2), but higher than the other developing nations like Chile.

Basic Framework, Estimation Technique and Data

We may expect that variables that influence FDI will be those that reflect the future returns from direct investment in the host country. A general model will include the size of the current and potential market. Large domestic market generates scale economies; a growing market improves the prospects of the market potential.

Bhattacharya *et al* (1996) identify the growth of gross domestic product (GDP) as a major factor for Sub-Saharan Africa as a whole; while article by Mbekeani (1997) finds that market size and growth rates emerged as the most important determinants of FDI in East Asia and Pacific, and Latin America and the Caribbean. In addition, the qualities of labour force can have influence on FDI location decisions.

On the policy front, the modernization of customs administration, exchange rate controls and other incentives offered to suppliers of FDI are expected to be important considerations. The incentives include trade policy liberalization that involves the reductions of restrictions and tariffs on traded merchandise. These factors together influence the investors' decision when making a choice between locations that have similar cost related advantages. Kravis and Lipsey (1982) find that a high propensity to trade is an important factor in the decision to locate US trans-national affiliates in foreign countries. In a recent article Bende Nabende *et al.* (2001) find trade liberalization to be a major determinant of FDI into the ASEAN-5 economies. In similar fashion we expect that a measure of labour cost in the host country to be an influential factor. Schreider (1970) finds low cost labour to be the leading factor influencing the choice of Taipei, China as an offshore production site; Hill and Lindsey (1987) find it to be a vital influence for export-oriented subsidiaries in the Philippines. Likewise, in this line of literature, Hollander (1984) finds transport costs to be significant in the determining US firms' sourcing.

On the other hand Goldberg and Klein (1998) show a relationship between real exchange rate and FDI from Japan and the US into the Southeast Asian countries. This together with exchange rate controls will affect the repatriation of dividends and profit to home countries. A review of literature identifies several important variables in modeling the inflows of FDI. In this article, we follow the model suggested in Bende-Nabende (2002) and Alfaro. *et al.* (2004) to investigate the effect of wage rate and trading systems on the location decisions of FDI in ASEAN countries.

Table 1: Some Economic Indicators of ASEAN Countries, 1996 - 2000

Country	GDP Growth Rates			GDP per Capita (US\$)			Inflation rate (%)			Imports (in Million US\$)			Exports (in Million US\$)		
	1996	1998	2000	1996	1998	2000	1996	1998	2000	1996	1998	2000	1996	1998	2000
Brunei D	1.01	-3.99	2.83	17,096	11,961	12,751	1.9	-0.4	1.2	2,345	1,314	1,047	2,593	1,891	3,904
Cambodia	4.60	3.70	7.03	312	268	293	10.1	13.7	-0.8	1,072	1,179	1,935	644	900	1,261
Indonesia	7.82	-13.13	4.92	1,167	488	731	8.0	58.0	3.8	44,240	31,942	40,366	50,189	50,371	65,408
Lao PDR	6.89	3.99	5.81	393	244	333	-	90.1	23.1	690	553	535	317	337	330
Malaysia	10.00	-7.36	8.55	4,766	3,257	3,874	3.4	5.6	1.4	72,862	54,169	77,575	76,800	72,231	98,429
Myanmar	6.44	5.77	13.70	109	144	184	-	51.5	-0.8	1,869	2,451	2,169	938	1,065	1,644
Philippines	5.85	-0.59	4.38	1,184	896	980	8.1	9.7	4.3	31,885	29,524	30,377	20,543	28,726	37,295
Singapore	7.71	-0.86	9.41	25,127	20,892	22,757	1.4	-0.3	1.3	123,900	95,925	127,457	126,015	110,565	138,939
Thailand	5.90	-10.51	4.65	3,134	1,900	2,026	5.8	8.1	1.6	70,815	40,643	62,423	54,667	52,878	67,889
Viet Nam	9.34	5.83	6.76	337	361	403	5.7	7.3	-1.8	10,030	10,350	15,387	7,255	9,361	14,448

Source:

ASEAN Surveillance Coordinating Unit (ASCU) database, 2002, <http://www.aseansec.org/macroeconomic/>

Table 2: Geographical Distribution of FDI Flows to Selected Countries, 1989 – 2000 (in million US\$)

Country	1989-	1995	1996	1997	1998	1999	2000	2001
ASEAN	13942	25367	29370	30369	18504	19691	11056	13241
Brunei Darussalam	4	583	654	702	573	596	600	244
Cambodia	26	162	586	(15)	230	214	179	113
Indonesia	1524	4346	6194	4677	-356	-2745	-4550	-3277
Lao PDR	19	88	128	86	45	52	34	24
Malaysia	3964	5816	7296	6324	2714	3895	3788	554
Myanmar	135	277	310	387	314	253	255	123
Philippines	879	1459	1520	1249	1752	578	1241	1792
Singapore	4798	8788	8608	10746	6389	11803	5407	8609
Thailand	1942	2068	2271	3626	5143	3561	2813	3759
Viet Nam	651	1780	1803	2587	1700	1484	1289	1300
China	13951	35849	40180	44237	43751	40319	40772	46846
India	387	2151	2525	3619	2633	2168	2319	3403
Mexico	6952	9552	9938	14044	11933	12534	14706	24731
ANIEs								
Taiwan	1229	1559	1864	2248	222	2926	4928	4109
Hong Kong, China	4164	6213	10460	11368	14770	24596	61938	22834
Korea, Republic of	869	1776	2325	2844	5412	9333	9283	3198
South America								
Argentina	2694	5610	6951	9156	6848	24134	11152	3181
Brazil	1454	4405	10792	18993	28856	28578	32779	22457
Chile	1168	2956	4633	5219	4638	9221	3674	5508
Colombia	778	968	3112	5562	1828	1468	2374	2018
Venezuela	792	985	2183	5536	4495	3290	4464	3409
Central & E. Europe								
Czech Republic	563	2562	1428	1300	3718	6324	4986	4916
Hungary	1152	4453	2275	2173	2036	1944	1643	2414
Poland	788	3659	4498	4908	6365	7270	9342	8830
Romania	92	419	263	1215	2031	1041	1025	1137
Russian Federation	434	2066	2579	4865	2761	3309	2714	2540

Source: ASEAN FDI Database, 2002.

The model is given by the following specification.

$$FDI_{it} = F(GDP_{it}, Y_i, Hc_{it}, Lc_{it}, Emp_{it}, Z_{it}) \dots\dots(1)$$

where FDI_{it} is the foreign direct investment inflows to country i at the time t , GDP_{it} is the potential market size of the host country i at the time t , Y_i is the initial per capita GDP which reflects the convergence speed, Hc_{it} is the quality of labour (human capital) in

country i at the time t . Lc_{it} is the labour cost or wage rate prevailing in the host country i at the time t , and Emp_{it} is the employment level or labour force in the host country i at the time t . Z_{it} is a vector of control and environmental variables that are primarily determined by decisions of governments, that include trading system measures and trade exposure indexes. There are also specific characteristics of the individual country that can affect the inflows of FDI, which are unobserved. To capture these individual specific characteristics, we include a country specific dummy that is constant over time. Thus, Eq. (1) can be re-written as

$$FDI_{it} = \alpha_0 + \alpha_1 GDP_{it} + \alpha_2 Y_i + \alpha_3 Hc_{it} + \alpha_4 Z_{it} + \alpha_5 LE_{it} + \alpha_6 emp_{it} + e_{it} \quad \text{.....(2)}$$

$$i = 1, 2, 3, \dots, N$$

$$t = 1, 2, 3, \dots, T$$

where f_i is the country specific effect which does not change over time, and e_{it} the error term assumed to be independently and normally distributed with mean zero and constant variance ($IN(0, \sigma_u^2)$), N is the number cross section units and T is the time period. The general specific outline above makes no restrictions on returns to scale or the degree of competition. As a result, the sum of the input coefficients need not add up to unity. Estimating Eq. (2) may lead to a problem of multicollinearity, arising from any regressor or lagged dependent variable being correlated with country specific effect (see Soto, 2003). To solve this problem of possible collinearity, Soto (2003) suggests two options to eliminate the country specific effect - demeaning or transforming the data into first differences. Here we apply demeaning method by subtracting from each variable its cross-section average in period t and this is expressed as:

$$fdi_{it} = \alpha_0 + \alpha_1 gdp_{it} + \alpha_2 y_i + \alpha_3 hc_{it} + \alpha_4 z_{it} + \alpha_5 lc_{it} + \alpha_6 emp_{it} + e_{it} \quad \text{.....(3)}$$

where the lowercase variables in Eq. (3) are expressed in deviation form.

Data and Estimation Technique

Three alternative indexes of regional trading systems are constructed and used to investigate whether the evidence supports the view that other things being equal labour cost and regional trading systems are factors in FDI location decision. The measures are RTA, a dummy variable (RTA) used to capture the effect of participation in a regional trade arrangement, which takes the value of zero before 1977 and one thereafter (1977 being the year ASEAN established a trade arrangement). The second measure is intra-regional trade share (ROPEN), which is regional imports plus exports over GDP. The third measure is the regional exchange rate distortion (RDSTORT) using the Singapore Dollar as a benchmark. The three measures for multilateral trading system are the usual imports plus exports over GDP (OPEN), the average tariff (policy

measure) that is calculated by dividing import tariff revenue by the value of imports (AVTA) and the Dollar's real exchange rate distortion (DSTORT) that measures trade restrictions (using US dollar as benchmark). The GDP growth is calculated as log differences; hc captured by the EDEX is the log of educational expenditure while emp is the log of employment level and y_i is the log of initial GDP at 1976. The labour cost Lc is taken as the prevailing wage rate of the manufacturing sector in the host economies and is extrapolated from the GDP per capita.

To estimate the parameters of Eq. (3) fixed effects estimation technique is employed. In estimating the model we make the following assumptions: a) the form of heteroskedasticity is not known. To deal with this problem of heteroskedasticity together with serial correlation, we allow the cross-section weights and white heteroskedasticity consistent covariance in the fixed effect estimation. This implies that each pool will have an unrestricted intercept and that each pool equation is down weighted by an estimate of the cross-section residual standard deviation. b) Common long-run coefficient for the ASEAN countries is possible given that they have access to common technology markets, intensive trade and FDI. All these factors lead to similar long-run production function parameters. c) The speed of convergence to the steady state is the similar across countries; even though there are differences in the policies underlining the growth process in each ASEAN country which depend on the population growth rate. Thus, according to Nagayasu (1998) pooling the data not only increases the statistical power to accept or reject the null hypothesis without increasing the possibility of a structural shift but it also helps us draw a general conclusion that applies to a broad group of countries.

Data on exports, imports, GDP and exchange rate data are collected from the International Financial Statistics of International Monetary Fund. Trade exposure indices are constructed and they provided a measure of competitiveness of the ASEAN countries in the regional and global markets. Attempts to construct two proxies for human capital are futile as there is not enough data on primary school enrolment. The analysis is based on educational expenditure (EDEX). Educational expenditure and employment level are taken from the Asian Development Bank Key indicators database. Wage rate of manufacturing sector is from the ILO database.

Results and Discussion

The results of the investigation of whether low wage rate is a driving force and trading system adopted by ASEAN (regional and multilateral trading systems) matters in the location of foreign direct investment in ASEAN countries, covering the period 1976 to 2000, are presented in the Tables (3) and (5). The tree measures of multilateral trading system are imports + exports over GDP, Dollar's exchange rate distortion and average tariff. Test for country's specific effects is reported in

Tables (4) and (6) for multilateral and regional trading systems respectively.

The result shows strong evidence of country's specific effect in the data highlighting the variations in parameters across countries and the effect is higher in Indonesia compared to countries in the multilateral trading system (see mean residual in Table 4) and in Malaysia in the regional trading system (see Table 6). This implies that there are other variables or policies, which affect the inflows of FDI in ASEAN and are not explicitly included in our model.

Table 3: Wage rate, multilateral trading system and FDI

Variable	Dependent Variable: FDI			
	Coefficients	Std Error	T-Statistics	Prob.
GDP (-1)	0.0312	0.0017	18.314	0.0000
EMP	-0.0823	0.0116	-7.085	0.0000
EDEX	0.1977	0.0351	5.641	0.0000
IG	-0.0064	0.0026	-2.518	0.0137
WAG	-0.0258	0.0034	-7.647	0.0000
OPEN	0.0199	0.0016	12.726	0.0000
DSTORT	0.0102	0.0038	2.705	0.0083
AVTA	-0.0102	0.0007	-14.730	0.0000
EXTIN	-0.0578	0.0112	-5.161	0.0000
IMTIN	0.1019	0.0109	9.364	0.0000
No of Obs	100			
$R^2 = 0.53$	$\bar{R}^2 = 0.46$	Log Likh = 198.48	DW=1.469	F-stat=(0.0000) 6.96

t-statistics is heteroskedasticity corrected

GDP = GDP growth rate, IG = initial GDP, FDI = foreign direct investment, EMP = employment level, EDEX = human capital, WAG = wage rate, EXTIN = export intensity, IMTIN = import intensity, OPEN = Trade share (imports+exports /GDP), DSTORT = exchange rate distortion and AVTA = average tariff

Table 4: Country's Specific Effects and Mean residuals

Constants	Coefficients	Std Error	T-Statistics	Prob.	\bar{u}_i
IND--C	-0.0089	0.0151	-0.588	0.5579	1.099E-15
MAL--C	0.0151	0.0165	0.914	0.3631	-2.5E-15
PHL--C	-0.0715	0.0187	-3.820	0.0003	-8.E-16
SIG--C	0.0245	0.1592	0.154	0.8782	-8.6E-14
THA--C	-0.0565	0.0207	-2.727	0.0078	-5.7E-15
Individual specific effects test					
F-statistic = 74.618 (0.00000)					

Table (3) shows that FDI responds negatively to wage rate and employment level, implying that low wage rate is still a driving force in the location of FDI in ASEAN countries. This is coupled with low employment level. Their coefficients have expected signs and significant at least at 95 percent level. The impact of employment and wage rate on FDI are in consonant with our intuition. The results conform to theory, which states that foreign investors or multinational enterprises prefer

host countries with low employment level and low labour cost or wage rate and empirical findings (Puga and Venables, 1998; Coughlin *et al*, 1991; Onwuka and Baharumshah, 2004; Baek and Okawa, 2004). From the result an increase in wage rate by 1% will decrease the inflow of FDI by 2.5% per year, all things being equal. The effect of employment is higher than wage rate effect. An increase by 1% in employment level leads to decline in the flow of FDI into ASEAN by 8.2% a year.

Similarly FDI responds positively to two measures, trade share and exchange rate distortion index, of multilateral trading system and negatively to average tariff. With respect to trade share (imports + exports /GDP) this finding is in accord with a priori expectation after controlling for initial income, market size, human capital, wage rate, and employment level. The coefficient of trade share in this specification is positive and statistically significant at conventional significance level. The results concur with the suggestions of Bhagwati (1973) and Marino (2000) that the economies that are relatively open attract a large volume of foreign capital than closed economies.

Contrary to expectation and some empirical evidences, the exchange rate distortion has a positive effect on the inflows of FDI in ASEAN-5 economies. As shown in Table (3) the coefficient of exchange rate distortion is positive and significant. This result contradicts the findings of Dollar, (1992), Campa (1993) and Benasey-Quere (2001) who found that exchange rate distortion is negatively associated with investment. The negative effect of price uncertainty on investment crucially depends on the competitive structure of market (Ghosal and Lougani, 1996). The influence of exchange rate distortion on FDI may also depend on the external exposure of the firms or multinational enterprises. Based on this fact and the fact that the economies under study followed pegged (namely to the US dollar), and or managed float exchange rate system we do not doubt its positive impact on FDI. The results reflects the quality level of institutions and strict adherence to macroeconomic policies and guidelines in ASEAN-five economies that yield price stability, which appeals to foreign investors. The exchange rate volatility can both discourage FDI (Cushman, 1988; Kulatilaka and Kogut, 1996) and produce incentives to hedge against exchange rate shocks through foreign location (Aizenman, 1991).

The average tariff (import revenue over total imports) shows an a priori negative sign (See Table 3) and is highly significant at 99 percent level. This lends support to our earlier argument on the import restriction policies on the factor inputs – that is, foreign investors prefer to invest in economies with less restrictive import policies.

In Table (3) we also explore the effect of trade competitiveness or penetration (export and

import intensity indices) on FDI location in ASEAN-5 economies. The coefficient of import intensity index is positive and significant suggesting that the ability of a country to attract FDI depends more on its import penetration than on export penetration. It also suggests that the relaxation of import restriction policies raises the FDI permitting it to raise output. The negative coefficient of export index might be interpreted to mean that ASEAN economies under investigation are not fully represented in the export market, indicating need for more export market FDI.

The initial GDP per capita has a negative sign confirming the convergence theory, which states that economies with lower initial GDP per capita have great potential for growth than those with higher initial GDP per capita. This suggests that the growth potential is one of the factors that draw a pool of FDI to ASEAN economies. Well-articulated stock of human capital promotes FDI inflows. The positive coefficient of human capital indicates that skill manpower is vital in FDI location and ASEAN countries have a pool of skill manpower required by MNEs. This result coupled with negative coefficient on wage shows that there are two types of FDI operative in ASEAN countries. One is labour intensive and the other is high-tech FDI. The market size measured by past GDP growth rates accelerates FDI. The coefficient is positive and significant. The effect of growth rates (a measure of potential market size) on FDI conforms to theoretical expectation leading to conclusive inference. The potential market size is very important in the location of foreign direct investment. Contrarily, Bende-Nabende (1999) finds GDP growth to be statistically significant and negatively related to FDI in Indonesia, the Philippine and Singapore. This may due to the composition of the equation which influences both the significance and direction of the relationship between FDI and some of its determinant variables or it may be due to data limitations (Bende-Nabende, 2002).

The results of the effect of regional trading on FDI location are reported in Table 5. As can be seen the result is rather mixed. While FDI responds negatively to the regional trade share (ROPEN) its relationship with regional exchange rate distortion index and participation in regional trade bloc is positive. The results highlight three points. First, the volume of trade among the ASEAN members is small and or there is stiff competition among the ASEAN-5 economies. Second, a stable exchange rate (monetary policy) is crucial in

attracting the multinational enterprises. Third, participation in regional arrangement (RTA) is not an important in FDI location in ASEAN-5 economies, though it plays a role of widening the regional market. Wage rate has the correct sign but not significant. The coefficients of employment level, human capital and have correct signs and are significant. The GDP growth rate (the measure of market size) has negative effect on the flow of FDI into ASEAN unlike in the multilateral trading system and the coefficient is significant. As in the multilateral trading system, low employment and high human capital are necessary for the inflow of FDI. Also in Table (5), we test the effect of competitiveness or penetration on the inflow of FDI in the regional trading system. It is found that import and export intensity indices affect positively the location of FDI in ASEAN-5 economies. This suggests that economies under study are highly represented and or more competitive in the regional markets than in the international market. Elimination of restrictive import and export policies within the regional bloc aids FDI location decisions.

Conclusion and Policy Implications

This paper has presented a panel evidence of the effect of wage rate and regional trading systems on the FDI location decision. The empirical evidence shows that systems the effect of wage rate on the location of FDI conforms to the theoretical expectation but however the effect is more felt with the multilateral trading system than with the regional trading system. While the impact of regional trading system is rather inconclusive the effect of multilateral trading system is substantive. This shows that low wage rate, together with low employment level, is still a driving force in attracting FDI into ASEAN countries. In ASEAN economies, factors like potential market size, openness, and human capital play critical roles in the FDI location decisions. The stable exchange rate (price stability) provides a good environment for FDI flows both with regional and multilateral trading systems indicating that the exchange rate regime in ASEAN economies is engineered towards creating incentives for FDI inflows and friendly investing environment.

From the result we cannot conclude that the regional trading system failed to induce the location of FDI but rather it helps to provide incentives and widens the market for potential investments. Although, there might be different policy objectives as well as monetary

policies and significant competition among the member nations studied, harmonisations and coordination of investments in the region through establishment of the ASEAN Industrial Projects (AIP) program and the ASEAN Industrial Complementation Scheme (AIC) in 1978 and ASEAN Industrial Joint Ventures (AIJV) programme in 1980 made great inroads on the FDI inflows in the ASEAN region. As the benefits of these schemes are not fully exploited, more efforts are required for these programmes to achieve its objectives. The impact of participation in regional trade arrangement might be better felt if the region has attracted enough industrial enterprises.

It worth noting that the industrialization of ASEAN economies rely on the imports of capital machinery of the existing multinational enterprises, such that an increase in import restriction will lower the quantity of intermediate goods or factor inputs that are necessary to raise the productivity and hence economic growth. Thus, the foreign investors and or multinational enterprises will feel reluctant to invest or locate in such economies where import restriction policies are strict or do not permit the importation of factor inputs and or insists on local factor content requirements. However, the evidence from this study shows that ASEAN economies are fully represented in the import market implying that restrictions on imports are minimal and that ASEAN economies still need more export market FDI to increase its representation in export markets.

Human capital, low wage rate and employment remain a source of competitive advantage in the ASEAN countries. The low wage rate and employment, in fact, do still provide a base for sustainable development in ASEAN region considering the fact that some members are in low to middle income bracket. These factors help us to classify FDI in ASEAN countries into two types – labour intensive and high-tech FDI. The implication is that the rising wage rate and high employment level will facilitate the relocation of labour intensive FDI to another countries or regions with low labour cost as Multinational corporations are profit motivated. It needs to be emphasized however that wage rate and employment level may rise in the long run with more FDI. When this is the case, the high tech-FDI may be necessary. Or alternatively the MNCs will source their labour supply from outside the host country (e.g., Malaysia prior to Asian crisis). The human capital positive effect on FDI

underscores the importance of basic education in the host country, without which learning-by-doing and acquisition of new technology will be difficult if not impossible. If the human capital decelerates FDI, it implies that only high tech-FDI will be attracted and low-tech labour intensive FDI will be relocated to neighbouring less developed countries resulting in the effects of the later outweighing those of the former, thus impacting net deceleration effect on FDI.

Finally, the results suggest some directions for further research. The appropriate measure of trading system need be sought and wage rate data should include all sectors as wage data used is only from the manufacturing sector. Further investigation might be necessary, as the results in this study may be affected by the specification of the model as well as estimation techniques. This suggests using alternative specifications such as dynamic panel and panel cointegration.

Table 5: Wage rate, regional trading system and FDI

Dependent Variable: FDI				
Variables	Coefficients	Std Error	t-Statistics	Prob.
GDP	-0.0173	0.0086	-2.019	0.0466
EMP	-0.0487	0.0232	-2.096	0.0390
IG	-0.0080	0.0073	-1.093	0.2774
EDEX	0.4456	0.0950	4.691	0.0000
WAG	-0.0289	0.0183	-1.580	0.1179
ROPEN	-0.0893	0.0357	-2.503	0.0142
RDSTORT	0.0142	0.0079	1.798	0.0757
EXTIN	0.0011	0.0004	2.912	0.0046
IMTIN	0.0543	0.0181	2.992	0.0036
RTA	0.0057	0.0063	0.897	0.3721
No of Obs	100			
$R^2 = 0.65$	$\bar{R}^2 = 0.59$	LogLikh = 266.68	DW=1.250	F-stat= 12.05 (0.00000)

t-statistics is heteroskedasticity corrected

GDP = GDP growth rate, IG = initial GDP, FDI = foreign direct investment, EMP = employment level, EDEX = human capital, WAG = wage rate, REXTIN = regional export intensity, RIMTIN = regional import intensity, ROPEN = regional trade share (imports + exports/GDP), RDSTORT = regional exchange rate distortion and RTA = participation in regional trade arrangement

Table 6: Country's Specific Effects and Mean Residuals in Regional Trading system

Constants	Coefficients	Std Error	T-Statistics	Prob.	\bar{u}_i
IND--C	-0.0777	0.0239	-3.247	0.0017	-5.601E-15
MAL--C	-0.0322	0.0244	-1.321	0.1900	2E-15
PHL--C	-0.0821	0.0252	-3.251	0.0016	-2.8E-16
THA--C	-0.0612	0.0195	-3.131	0.0024	-2.4E-16

Individual specific effects test
F-statistic = 3.804 (0.0068)

References

Aizenman J. (1991). "Foreign Direct Investment, Productive capacity and Exchange rate regimes" NBER Working Paper 3767, Cambridge, MA.

Alfaro, L., A. Chanda, S. Kalem-Ozcan and S. Sayek (2004) "FDI and economic growth: the role of local financial markets" Journal of International Economics, Vol.64,pp. 89-112.

Asian Development Bank, Key indicators, various issues

Asiedu E. (2002) "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?" World Development, Vol.30, pp. 107-120.

Baek In-Mee, Tamami Okawa. (2001) "Foreign exchange rates and Japanese foreign direct investment in Asia" Journal of Economics and Business, Vol.53, pp. 69-84.

Barro R. J. (1991) "Economic growth in a cross section of countries" Quarterly Journal of Economics, Vol. 106, No.2, pp. 407- 433.

Bende-Nabende, A. Ford J. L. (1998) "FDI, Policy Adjustment and Endogenous Growth: Multiplier Effects from a Small Dynamic Model for Taiwan, 1959-1995" World Development, Vol.26, No.7, pp. 1315-1330.

Bende-Nabende, A. (1999) FDI, Regionalism, Government Policy and Endogenous Growth, Ashgate, Aldershot.

Bende-Nabende A., Ford J.L., Slater J. R. (2001) "FDI, Regional Economic Integration and Endogenous Growth: Some evidence from Southeast Asia" Pacific Economic Review, Vol.6, No.3, pp. 383-399.

Bende-Nabende A. (2002) "Foreign Direct investment determinants in Sub-Saharan Adrica: A co-integration analysis" Economic Bulletin, Vol.6, No.4, pp. 1-19.

Benassy-Quere A., Fontagne L., Lahreche-Revil A. (2001) "Exchange rate strategies in the competition for attracting FDI" Journal of the Japanese and International Economics, Vol.15, pp. 178-198.

Bhagwati J.N. (1973). The theory of immiserizing growth: Further applications, in M.B Connolly and A.K.Swoboda, (eds) International trade and money, University of Toronto Press, pp. 45-54.

Bhagwati J.N. (1990) The theory of political economy, economic policy and foreign investment in Maurice Scott and Deepak Lal (eds) Public Policy and Economic Development Essays in Honour of Ian Little, clarendon Press, Oxford, PP 217-230.

Bhagwati J. (1997) "The Global Age: From Skeptical South to a Fearful North" World Economy, Vol. 20, No.3 pp. 259-284.

Bhattacharya A., Montiel P. J., Sharma, S. (1996) Private Capital Flows to Sub-Saharan Africa: An Overview of Trends and Determinants, World Bank, Washington D.C

Borensztein E., De Gregorio J., Lee J-W (1998) "How does foreign direct investment affect economic growth?" Journal of International Economics, Vol. 45, pp.115-135.

Campa J. (1993) "Entry by foreign firms in United States under exchange rate uncertainty" Review of Economics and Statistics, Vol.75, No. 4, pp. 614-622.

Chakrabarti Avik (2001) "The Determinants of Foreign Direct investment: Sensitivity Analysis of Cross-Country Regressions" Kyklos, Vol.54, pp. 87-114.

Culem C.G. (1988) "The Locational Determinants of Direct Invesmtne Among Industrialized Countries" European Economic Review, Vol.32, pp. 885-904.

- Coughlin C.C., Terza J.V., Arromdee V. (1991)** "State characteristics and the location of foreign direct investment within the United States" *Review of Economics and Statistics*, Vol.73, No.94, pp. 675-683.
- Cushman D. O. (1988)** "Exchange rate uncertainty and foreign direct investment in the United States" *Weltwirtschaftliches*, Vol.124, No.2, pp. 322-336.
- Dollar D. (1992)** "Outward-oriented developing countries do grow more rapidly: evidence from LDCs, 1976-1985" *Journal of Development and Cultural Change*, Vol.40, No.3, pp. 523-544.
- Durlauf S. N., Quah D. T. (1999)** The New empirics of economics growth in J. Taylor and M. Woodford (ed) *Handbook of Macroeconomics*, North-Holland.
- Edwards S. (1998)** "Openness, Productivity and Growth: What do we really know?" *Economic Journal*, Vol. 108, pp. 383-398.
- Ghosal V., Lougani P. (1996)**. Product Market competition and the impact of price uncertainty on investment: some evidence from US manufacturing industries, *Journal of Industrial Economics*, volume 44, Number 2, pp. 217-228.
- Goldberg L., Klein M. (1998)** Foreign Direct Investment, Trade and Real Exchange rate Linkages in Developing Countries in *Managing Capital Flows and Exchange Rates*. By Glick, R. (ed), Cambridge University Press, Cambridge.
- Grossman G., Helpman E. (1991)** *Innovation and Growth in Global Economy*, MIT Press Cambridge, MA
- Harrison A. (1996)** "Openness and growth. A time series cross-country analysis for developing countries" *Journal of Development Economics*, Vol. 48, pp. 419-447.
- Hill, H. and Lindsey, C.W. (1987)** "Multinationals from larger and small countries: a Philippine case study" *Banca Nazionale del Lavoro*, Vol.40, pp. 77-92.
- Hollander A. (1984)** "Foreign location decisions by US transnational firms: an empirical study" *Managed and Decision Economics*, Vol.5, pp.7-18.
- International Financial Statistics of IMF, various issues
- Kravis I. B., Lipsey, R.E. (1982)** "The Location of Overseas Production and Production for Export by U.S. Multinational Firms" *Journal of International Economics*, Vol 2, pp. 201-223.
- Kitson, M., Michie J. (2000)** *The Political economy of competitiveness: Essays on Employment, Public Policy and corporate Performance*, Routledge, London, Chapers 2, 3, and 4.
- Kulatilaka N., Kogut B. (1996)** "Direct investment, Hysteresis and real exchange rate volatility" *Journal of the Japanese and International Economics*, Vol.10, No.1, pp. 12-36.
- Lewis W. A. (1954)** "Economic Development with Limited Supplies of Labour", *Manchester School of Social Science*, Vol.22, pp. 139-191.
- Lunn J.L. (1980)** "Determinants of US Direct Investment in the EEC" *European Economic Review*, Vol.13, pp. 93-101.
- Marino A. (2000)** The impact of FDI on developing countries' growth: Trade policy Matters, A Paper presented at the 2nd Annual Conference of European Trade Study Group, Glasgow, Scotland, 15-17 September 2000.
- Mbekeani K. K. (1997)** Foreign Direct Investment and Economic Growth" Republic of South Africa National Institute for Economic Policy Occasional Paper Series, September.
- Menon J. (2000)** "The Evolving ASEAN Free Trade Area: Widening and deepening" *Asian Development Review*, Vol.18, No.1, pp. 49-72.
- Mundell R. (1964)** "Tariff Preferences and terms of trade" *Manchester School of Economics, Social Studies*, Vol.32, pp. 1-13
- Nagayasu J. (1998)** Does the long-run PPP hypothesis hold for African: evidence from Panel cointegration, IMF Working Paper, WP/98/123
- Noorbakhsh, F., A. Paloni and A. Youssef (2001)** "Human capital and FDI inflows to Developing Countries: New Empirical

Evidence” World Development, Vol.29, pp.1593-1610.

Onwuka K. O., Baharumshah A. Z. (2004) Regional Trading System and the Location of Foreign Direct Investment: Some Further Evidence from ASEAN-5, FEA Regional Conference January 19-20, 2004.

Puga D., Venables A. (1998) “Trading arrangements and industrial development” The World Bank Economic Review, Vol.12, No.2, pp. 221-249.

Romer P. M. (1990) “Endogeneous technological change” Journal of Political Economy, Vol. 98, pp. S71-S102

Rodrik Dani. (1996) Labour Standards in International Trade: Do They Matter and What Do We Do about Them? in R. Lawrence et al (eds), Emerging Agenda for Global Trade: High Stakes for Developing Countries. Washington D.C. Overseas Development Council.

Rodrik, Dani. (1999) Globalisation and labour or : if globalisation is a bowl of cherries, why are there so many glum faces around the table?, in Baldwin, Cohen, Sapir and Venables (eds), Market Integration, Regionalism and the Global Economy. Cambridge: Cambridge University Press.

Romer P. M. (1986) “Increasing returns and long run growth” Journal of Political Economy, Vol. 94, No.5, pp. 1002-1037.

Scaperlanda A., Balough R. (1983) “Determinant of U.S. Investment in European Community” Economic Review, Vol.21, No.3, pp. 381-390.

Schreiber J.S. (1970) US Corporate Investment in Taiwan, Cambridge Press, Cambridge.

Shamsuddin A.F. (1994) “Economic Determinants of Foreign Direct Investment in Less Developed countries” The Pakistan Development Review, Vol. 33, pp.41-51.

Tsai P. (1994) “Determinants of Foreign Direct Investment and Its Impact on Economic Growth” Journal of Economic Development, Vol.19, pp. 137-163.

Vamvakidis A. (1999) “Regional trade agreement and broad liberalization: which path

leads to faster growth” IMF Staff Papers, Vol.46, No.1, pp. 42-68.

Wheeler D., Mody A. (1992) “International Investment Location Decisions: The case for U.S. Firms” Journal of International Economics, Vol. 33, pp. 57-76.

WTO (2001) WTO Annual Report Chapter 3: Overview of Developments in the International Trading Environment, p. 39.