THE RELATIONSHIP BETWEEN U.S. DIRECT INVESTMENTS AND ECONOMIC GROWTH IN SOME SELECTED ASIAN COUNTRIES

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ABSTRACT

The paper empirically investigates the relationship between U.S. foreign direct investments (FDI) and economic growth in the ASEAN4 countries of Malaysia, Indonesia, Thailand, and the Philippines. The study uses annual panel data covering 1990-2005. An augmented Solow production frontier that makes output a function of capital stock, labor, human capital, and productivity is estimated using both OLS and Seemingly unrelated regression (SUR) techniques. The results show a negative relationship exists between the ASEAN4 countries' economic growth and the US foreign direct Investments. FDI can be growth enhancing, if it complements domestic investment; otherwise, it crowds it out, and decreases domestic savings thereby resulting to negative economic growth. The presence of FDI inflows does not necessarily improve technology level of host countries especially developing economies through positive spillovers efficiency. A recipient country will only enjoy the positive externalities embodied in FDI only when there are efficiency and development of domestic financial sector and functioning infrastructures at a certain minimum level.

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I. INTRODUCTION

Countries that are unable to save enough to invest in capital stock must rely on the savings of other countries to help them develop economically. Private sources of foreign savings can take the form of direct investment, portfolio investment, commercial bank loans, and trade credits. The relative importance of direct investment and bank lending has changed over time as direct investment in developing countries early 1970s was greater than bank loans. By the late 1970s and early 1980s, bank loans far exceeded direct investments. Bank loans gave the borrowing countries greater flexibility in deciding how to use the funds, foreign direct investment on the other hand carried with it elements of foreign control over domestic resources. The fear of exploitations by foreign owner consequently created anxiety among many interested developing nations thereby warranting laws restricting a lot of foreign direct investments. Throughout the late 1990s, East Asian countries' unfolding financial crisis has to a large extent been blamed on foreign direct investments. However, foreign direct investment today is once again gaining importance as a strong source of foreign investment. Since foreign direct investment often facilitates the cross-border transfer of foreign technology as well as better access to foreign markets, a credible case can be made that it will become even more critical to East Asia's future economic growth.

The United States defines direct investments abroad as the ownership or control, directly or indirectly, by one person (individual, branch, partnership, association, government, etc) of 10% or more of the voting securities of an incorporated business enterprise or an equivalent interest in an unincorporated business enterprise. Foreign direct Investment (FDI) from the United States has actually played important roles in the economic development of most of these Asian countries namely Indonesia, Malaysia, Thailand, and The Philippines. In the early 1980s, these economies faced declines caused by the oil shocks of the 1970s. The decline in economic activities caused tremendous deterioration in the economies balance of payments and external indebtness. It also created serious inflation. However, the situation turned around in the late 1980s and early 1990s. Asset prices in Japan as well as in most of the other advanced and non-advanced Asian economies increased substantially. According to the International Monetary Fund (IMF), the combination of financial liberalization together with inadequate prudential regulations contributed to the rise in Asian countries asset prices. The increase in asset values also contributed to an expansion of domestic demand. Private consumption grew, since the ratio of net worth to disposable income of households sector in these regions grew from 5.5% in 1985 to 8.5% in 1989. Companies, at the same time, had more income, and investment grew tremendously. Triumphalism was the word that best described the way most Asians viewed the substantial achievement of their economies in the 1990s. Some

economists in Hong-Kong crowed over the fact that Asian economies were attaining levels of productivity that surpassed those of the United States. Most economists in the world held these growths of the Asian economies while some questioned the fundamentals of the growth. Krugman pointed out that the Asian economic miracle was mainly due to an intensive use of inputs, that is, to a high growth rate of capital and labor inputs. This implied that very little total factor productivity growth had occurred, and that the high rates of growth in the Asian economies were unsustainable in the long-run. This is argued on the ground that capital and labor could not be pumped into the economy for a long time at the same rates.

However, by 1997, according to critics, the same foreign investment that had helped spawn the East Asian economic growth has now aided in its unfolding financial crisis. One month after joining the Organization for Economic Cooperation and Development (OECD) in 1996, Hanbo steel in Korea, a leading industrial conglomerate, went bankrupt. The IMF had provided US $57 billion bailout loan to Korea in order to avoid total collapse of the economy. By July 1997, the Thai currency, baht, depreciated. Thailand abandoned the peg system, and sought loan from the IMF. A couple of weeks later, Malaysia's Ringgit melted down. The Philippines was suffering the same financial fate as Thailand. The inflow of foreign capital into Philippines banks declined 97%. The Government responded be selling dollars for pesos with the aim of supporting the value of the currency. This did not actually survive for a long-time. Malaysia, Indonesia, and especially Japan suffered the same declining economy. Since Japan is one of the trading partners of these other Southeast Asian countries including Korea, it was obviously clear that the other Asian financial crisis is now hitting Japan. The financial crisis in East Asia has tremendously contributed to the worsening of the financial sector problems in Japan because these countries were holding important Japanese debts. Japanese banks had to reduce risks, and cut their losses by refusing to rollover existing loans or extend new ones. It became imperative to say that prior to 1997, these Asian countries like Indonesia, Korea, Malaysia, Thailand, and the Philippines financed most of their current account deficits, and increased their foreign exchange reserves through private commercial borrowings, largely short-term debts regularly rolled over year after year. During the era of 1997, the pattern changed drastically. Foreign direct investment and non-bank credits became quickly the only remaining private financial sources. Foreign commercial banks withdrew, as did foreign portfolio investors. The institute for international finance predicted that foreign direct investment will be the sole private sources of net foreign capital inflows. The other alternatives will be funding from the IMF, the World Bank, and other multilateral institutions that consequently impose major conditions on their lending.

II. LITERATURE REVIEW

According to recent literature, the role of FDI in developing economies has become very critical because of the declines in nations' savings, official financing, and instability of private financial flows. Foreign direct investment is now seen as the remedy to the problem of resources gap and external funding greatly now experienced by developing nations. FDI now helps in increasing capital formation and economic growth by introducing new technologies such as new production techniques, managerial skills, ideas, and a variety of new capital goods.

During the 1950s, Singer (1950) argued that the contributions of FDI in the growth process of developing poor nations were appalling and unfortunate. He went further to state that FDI removed the gains from the investments such as income, employment, capital, technical knowledge, and growth of externalities from the host countries to the investing countries. During the 1960s and 1970s, the impact of FDI on growth of poor developing countries was presumed to be negative and growth retarding. One of the many functions that FDI can perform in a poor country is to supplement the meager domestic savings of the poor host countries; yet, that has not been the case. Multinational Corporations (MNCs) have been cited with the problems of transfer pricing whereby they transfer undisclosed remittances and profits making it impossible for the host countries to derive substantial gains and benefits from FDI. Hood and Young (1979) stated that most of the Transnationals (TCNs), due to their large sizes, gain easy access to domestic and local savings thereby crowding out domestic investments.

However, the 1980s and 1990s brought in more liberal views on the impact of FDI and the roles played by the foreign investors. FDI has now emerged as the most important source of external resource flows to developing nations. FDI has also become a significant part of capital formation in various developing economies. There are claims that FDI flows as a bundle of resources including Capital, Production technology, organizational and Managerial Skills, Marketing Know-how, and even market access through the marketing networks of Multinational enterprises (MNEs) who undertake FDI. These skills tend to spill over to domestic firms in the host countries. In sincerity, the shortage of capital, not only for investment but also for financing production and trade, combined with the recognition of the role that FDI can play in restoring growth and development, is leading to an even more accommodating altitude towards FDI in almost all the developing economies of the world. Governments have intensified their efforts to attract FDI. Recent moves include the further opening of certain industries to FDI, and the relaxing of rules with respect to ownership, mode of entry, and financing. A case in point is at the regional level in 1998 when member states of the ASEAN countries agreed on the establishment of the ASEAN-Investment areas. They have also undertaken other necessary measures and steps to accelerate the realization of the ASEAN Free Trade Area, and to grant special incentives and privileges to attract FDI into the region.

Although a number of studies have analyzed the relationship between Foreign Direct Investment (FDI) flows and economic growth, the issue is far from settled in the view of the mixed findings reached. These studies have typically adopted standard growth accounting framework for analyzing the effect of FDI inflows on growth of national income along with other factors of production. A number of early studies have generally reported an insignificant effect of FDI on growth in developing host countries. Singh (1998) found FDI penetration variable to have little or no impact for economic or industrial growth in a sample of 73 developing countries used in his study. Hein (1992) reported an insignificant effect of FDI inflows on medium term economic growth of per capita income for a sample of 41 developing countries. Fry (1992) examined16 developing countries for the period of 1968-1988, and found FDI not to exert significant different effect from domestically financed investment on the rate of economic growth.

However, there are other studies that found FDI to significantly impact economic growth positively. Blomstrom et al (1994) showed FDI inflows had a significant positive effect on the average growth rate of per capita income for a sample of 78 developing countries and 23 developed countries. Borensztein et al (1995) for a sample of 69 developing countries for the period of 1970-89 found the effect of FDI on host countries' growth depended on the stock of Human capital. They inferred that flow of advanced technology brought along by FDI can increase the growth rate only by interacting with country's absorptive capability. Their study concluded that FDI stimulated total fixed investment more than proportionately. As one can see, there are arguments from both isles suggesting that more studies are warranted to support either side based on empirical estimation.

III.   DATA AND METHODOLOGY

A. Data

The Asian countries selected are Malaysia, Indonesia, Thailand, and the Philippines.   They are generally known as the ASEAN4. The data set covers from 1990-2005 depending on availability. The data on growth rate of GDP, gross investment rate, FDI to GDP ratio, and labor force of Human capital came from the World Bank's World Development indicators of 2006 (CD-Rom).

B. Theoretical Background

There are many postulated theories of FDI. Two of such theories are the Neoclassical Economic theory of FDI and the Dependency theory of FDI. The neoclassical theory states that FDI brings about positive contributions to economic growth of host countries especially developing economies. The impact according to Bergsten, et al (1978) increases the level of social wellbeing of the

people.   FDI usually bring in Capital to the host country, and this tends to influence the quantity and quality of capital formation in the host country. Government revenues usually increases through taxation and other forms of payments and fees by the MNCs. FDI brings in new technology and replaces the outdated and old technology still prevalent in developing economies. FDI creates employment, influence income distribution, and generates foreign exchange thereby easing balance of payments constraints on host countries. Bergsten et al (1978) also argued that FDI induces upgrades of host infrastructures as would be requested and demanded by the foreign investors. In the Neoclassical model, economic growth results from technological progress, and   growth of the labor-force- which are both treated as exogenous variables. Economic growth also results from capital accumulation which is subject to diminishing returns. However, new growth theories are now incorporating Knowledge or technology endogenously as a factor of production. The inclusion of knowledge is very crucial as FDI is claimed to be generally now accompanied with transfer of considerable production and managerial knowledge from foreign investors. The transferred knowledge obviously spreads to the domestic enterprises in the host countries. The indirect effects of FDI on economic growth of the host country may then include the impact of externalities on domestic enterprises via vertical linkages and spillover benefits. According to Grossman and Helpman (1991) and Romer (1994), the recognition of the role of knowledge in economic growth models is very vital in the study of FDI impact. It is also prudent to point out that the externalities resulting from FDI on the economy may be positive as well as negative. Direct vertical inter-firm linkages and knowledge spillovers for domestic enterprises are examples of positive externalities. In this aspect, the presence of foreign investors may lead to demands for intermediate goods, and consequently crowds-in domestic investments. The externalities could also be negative as the foreign investors may erode market shares of domestic enterprise. Outright acquisition of domestic enterprises by foreign investors is an example of   negative externality trend. Foreign acquisitions may crowd-out domestic investment.

The Dependency theory of FDI on the other hand argues that foreign direct investments from developed nations could be harmful to the long-run economic growth of developing nations. It contends that developed nations propagating FDI become more wealthy by actually extracting labor and other resources from poor host countries without adequate compensations and payments. It is most a times viewed as exploitation, and vigorously encourages developing nations to strive for development independently without depending on the FDIs of developed nations.

C. Methodology

Based on the above mentioned contentions, the effect of FDI on economic growth is evaluated without endorsement of any particular argument. The effect is analyzed in the standard growth accounting framework. Capital stock is assumed to comprise of two components namely Domestic and Foreign owned capital stock. Hence,

$$K_t = K_{dt} + K_{ft} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

An augmented Solow production frontier that makes output a function of capital stock, labor, human capital, and productivity (see Mankiw et al (1992); Benhabib and Spiegal (1994)) is utilized. The domestic and foreign owned capital stocks are separately specified in a Cob-Douglas production function type:

$$Y_t = AK^{\alpha}_{ft} \; K^{\lambda}_{ft} L^{\beta}_{dt}H^{\gamma}_{dt}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(2)$$

Where Y is the flow of output, K_{dt} and K_{ft} represent domestic and foreign owned capital stocks respectively. L is labor and H is human skills capital stock. A is a total factor productivity that explains the output growth that is not accounted by the growth in factors of production specified in the equation.
Taking the logs and differentiating equation 1 with respect to time, one obtains the familiar growth equation:

$$y_{it} = a_{it} + \alpha \, k_{dit} + \lambda \, k_{fit} + \beta l_{it} + \gamma h_{it}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(3)$$

The lower case letters represent the growth rates of output, domestic capital stock, foreign capital stock, labor and human capital. α, β, and γ represent the output elasticity of domestic capital stock, foreign capital stock, labor, and human skills capital respectively. In a world of perfect competition and constant returns to scale, the elasticity coefficients can be interpreted as respective factor shares in total output. Equation 3 is the equation to be estimated, and is the fundamental growth accounting equation which decomposes the growth rate of output into growth rate of total factor productivity plus a weighted sum of growth rate of capital stocks, human capital stock, and the growth rate of labor. Theoretically, α, β, and γ are expected to be positive while the sign λ would depend on the relative strength of competition and linkage effect and other externalities the FDI generates in the development process. According to Bosworth and Calhi (1996), K_{dit} and K_{fit} are proxied by domestic investment to GDP ratio (l_d) and FDI to GDP ratio by l_f respectively. Given that the study is using panel data, first differencing is first applied followed by cross individual seemingly unrelated regression estimation. A panel data set while having both a cross-sectional and time series components differs in some important dimension

from an independent pooled cross sectional data. In most cases, the main reason for collecting panel data is to allow for the unobserved effect, ai, to be correlated with the explanatory variables.

$Y_{i2} = (\beta_0 + \delta_0) + \beta_1 X_2 + a_i + U_{i2}$, where (t =)…………………………………(4)

$Y_{i1} = \beta_0 + \beta_1 X_{i1} + a_i + U_i$, where =1)...………………………………...........(5)

If we subtract the second equation from the first, we obtain

$(y_{i2} - y_{i1}) = \delta_0 + \beta_1(X_{i2} - X_{i1}) + (U_{i2} - i_1)$………………………………………..(6)

$\Delta y_i = \delta_0 + \beta_1 \Delta X_i + \Delta u_i$ …………………………………………………(7)

Where ΔU_i is the idiosyncratic or time varying error, and Δ denotes the change from t = 1 to t = 2. The unobserved effect, a_i, does not appear in equation (4) because it has been differenced away. The intercept term, δ_0, in the equations is actually the change in the intercept from t=1 to t= 2. Differencing to eliminate time-constant effects makes a big difference in Panel data. The most important issue in first differencing is the Δu_i which is uncorrelated with ΔX_i. This assumption is always the case and holds if the idiosyncratic error at each time, t, Uit, is uncorrelated with the explanatory variables in all the time periods. In essence, it is another version of the strict exogeneity assumption where Xit becomes the lagged dependent variable, y_{it-1}.

$\Delta y_{it} = a_0 + \alpha_3 d_3 + \alpha_4 d_4 + --- + \alpha_T d_{Tt} + \beta_1 \Delta X_{it1} + ---- + \beta_K \Delta X_{itk} + U_{it}$ …………………….(8)

Where t = 2, 3, ------- , T for more time periods.

IV. RESULT AND ANALYSES

Table 1: USA FDI and Growth: OLS Cross-Country Regression

VARIABLES	Indonesia	Malaysia	Philippines	Thailand
Kfit=FDI/GDP (USA)	0.209 (0.810)	-0.0516 (-0.467)	-0.040 (-0.428)	-0.286 (-0.938)
Kdit = Ig/GDP	0.247 (0.962)	-0.063 (-0.589)	-0.0116 (-1.029)	-0.152 (-0.462)
Hit= Hum.Cap	0.919 (1.185)	0.314 (0.890)	0.166 (0.643)	0.313 (0.458)
Lit=Labor force	-0.023 (-0.024)	-0.235 (-0.453)	0.440 (1.454)	1.603 (1.217)
Constant	9.765	7.489	8.122	6.876
R2	0.297	0.081	0.230	0.408
Adj.R2	0.063	-0.225	-0.027	0.211
D.W	0.750	1.740	1.009	0.892
Std. Error	6.145	4.506	3.884	6.106
F-Value	1.267	0.265	0.896	2.068
P-Value	0.336	0.895	0.496	0.1483

***Notes**: Estimations are insignificant at all levels, 1%, 5%, and 10%. t-values, df critical value of 1.782. Actual estimates indicate no significances.*

Results in Table 1 from the OLS estimations of the individual ASEAN4 countries are biased and insignificant at all levels. Among the ASEAN4 countries, US FDI has positive impact only in Indonesia. There is a positive relationship between FDI and Economic growth; however, the level of the impact is quite insignificant. US FDI impact in the rest of the remaining   countries crowds out economic growth. It is also important to note that Human capital growth plays important roles in the economic growth of these countries. It has a positive relationship to economic growth; even though its degree of the relationship is insignificant.

Table 2: USA FDI and Growth: OLS Panel estimation

VARIABLES	Coefficients	P-Values
Kfit=FDI/GDP (USA)	-0.056 (-2.029)	0.0555
Kdit = Ig/GDP	-0.009 (-0.643)	0.00467
Hit= Human Capital	0.239 (1.134)	0.0627
Lit=Labor force	0.129 (0.487)	0.0261
Constant	8.071	-
R^2	0.095	-
Adj.R^2	0.037	-
D.W	0.918	-
Std. Error	5.463	-
F-Value	1.647	-
P-Value (Overall)	0.174	-

Notes: *US FDI, Kf_{it} estimation is significant at a = 5%. Other estimates are insignificant at all levels, 1%, 5%, and 10%. 1.29<t>2.632, df. 64. t-values in parenthesis.*

Results in Table 2 from OLS panel data estimation technique shows US FDI in ASEAN4 countries to have negative impact on economic growth overall. The estimated coefficient is significant; however, the negative relationship once again indicates the crowing out effect which foreign direct investment can have in an economy that is not structurally equipped to absorb the foreign resource capabilities within the domain. Human capital and labor force growth show positive relationship to economic growth; although, their impacts are insignificant. It is useful to see that in a simple model, an explanatory variable that is determined simultaneously with the dependent variable is generally correlated with the error terms which lead to bias and inconsistency in OLS.

Because the endogenous variables are correlated with the error terms, U_t, OLS estimation will suffer from simultaneity bias.

Table 3: USA FDI and Growth: SUR Estimations

VARIABLES	Coefficients	Significance
Kfi_t=FDI/GDP (USA)	-0.056 (-11.028)	0.00000
Kdi_t = Ig/GDP	-0.010 (-3.533)	0.000411
Hi_t = Human Capital	0.239 (6.191)	0.000000
Li_t=Labor force	0.130 (2.685)	0.007254
Constant	8.066	-
Log likelihood	-192.63	-
df.	63	-
N	68	-
Std. Error	0.0235	-
n/a	n/a	-
n/a	n/a	-

*Notes: SUR means seemingly unrelated regression estimations. US FDI, Kf_{it}, and all other estimations are significant at all levels-1%, 5%, and 10% etc. Df. 63. T-Values are in parenthesis.

Results in Table 3 are from the seemingly unrelated regression (SUR) estimations. Since using OLS leads to simultaneity bias, SUR technique becomes the necessary approach to estimate structural equations model (SEM). Regardless of the number of the equations in a simultaneous model, each identified equation can be estimated using 2SLS. US FDI has a negative relationship with economic growth in the ASEAN4 countries. This finding is in support of Borensztein et al (1998) study that found FDI to enhance economic growth on the premise that the FDI complements domestic investment. New technologies embodied in FDI might accelerate technological obsolescence of traditional technologies used in the developing countries and thus crowds-out domestic investment and decreases domestic savings thereby impeding economic growth. Lipsey (2000) also found that inward FDI is negatively related to domestic investment in OECD countries.

The results in Table 3 also show domestic capital growth to have negative effect on economic growth of the ASEAN4 countries. Foreign direct Investments crowd out domestic capital formation, and consequently lead to negative economic growth. Human capital and labor force growths have positive relationship to economic growth as expected. The t-values are all significant at all tested levels.

IV. CONCLUSION AND IMPLICATIONS

Using the SUR estimation technique, the study finds a negative relationship between the US FDI in the ASEAN4 countries and economic growth. Borensztein et al (1998) concluded that FDI can be growth enhancing by encouraging the adoption of new ideas and equipments, and also of foreign technologies in the production function of the recipient country. However, it is important to note that this theoretical argument is based on the premise that the FDI complements domestic investment. Otherwise, it crowds-out domestic investment and decreases domestic savings thereby resulting to negative economic growth. Khan (2007) said that FDI will have a positive impact on economic growth performance only if the domestic financial sector and other infrastructures are developed and functioning efficiently; otherwise, the effect on economic growth will be negative. The presence of FDI inflows does not necessarily improve the technology level of host countries especially developing economies through positive spillovers efficiency. A recipient country will only enjoy the positive externalities embodied in FDI only when there are efficiency and development of domestic financial sector and functioning infrastructures at a certain minimum level.

It is also important to note that domestic capital growth has a negative relationship with economic growth. This finding is contrary to predicted positive relationship. It is therefore significant to note that US FDI in the ASEAN4 countries crowds out domestic savings necessary for domestic capital formation. Human capital growth and labor force growth have positive values, and continue to be vital in the economic growth of these ASEAN4 countries. Overall, all the variables estimated in this model are significant at all levels. The joint effect of FDI and Human capital accumulation on growth is positive only when it is coupled with human capital accumulation as proxy for the absorption capacity of the developing host countries.

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