FOREIGN AID, FDI, ECONOMIC FREEDOM AND ECONOMIC GROWTH IN ASIAN COUNTRIES: A REVISIT

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ABSTRACT

This paper examines the effectiveness of foreign aid, foreign direct investment and economic freedom in the 28 ASIAN countries in a panel framework. The model includes the foreign aid, foreign direct investment, six measures of economic freedom, labor force and capital stock. Estimation analysis was carried out by using pooled annual time series data from 1998 to 2007. Before carrying out the estimation, the time series properties of the data are diagnosed and an error-correction model is developed and estimated using a fixed-effects estimator and by giving generalized least square cross-section weights. The results indicate that an increase in the business freedom, financial freedom, trade freedom and stock of domestic capital are significant factors that positively affect economic growth in these countries while investment freedom, inflow of foreign direct investment and population are significant factor which affects negatively the economic growth in 28 Asian countries.

JEL Classification: *F35, O11, O40.*

Keywords: *Foreign aid, FDI, economic freedom.*

1. INTRODUCTION

Over the last half century, foreign aid which imply a number of different activities, ranging from humanitarian support in the wake of natural disasters to military assistance and arms donations (H. Van Buren Cleveland, 1957) has emerged as a dominant strategy for promotion of economic development and welfare (usually measured by its impact on economic growth) in developing countries by acting as a supplement of domestic sources of finance such as savings. Significantly, by increasing the amount of investment and capital stock in developing economies it promotes economic growth and development. Morrissey (2001) points out that there are a number of mechanisms through which aid can contribute to economic growth for example, (a) by increasing

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investment in physical and human capital; (b) by increasing the capacity to import capital goods or technology; (c) by not discouraging domestic investment or savings rates through indirect effect; and (d) by increasing the productivity of capital and promoting endogenous technical change in case of aid linked technology transfer programs. Yet, after decades of capital transfers to developing countries, the effectiveness of foreign aid in achieving the objectives of economic development and increase in social welfare remains questionable. Many studies in the empirical literature have tried to measure the effectiveness of aid on its predefined objectives. Earlier studies found the relationship between aid and growth to be inconclusive or no impact (Papanek, 1973; Voivodas, 1973; Mosley, 1980, Mosley *et al.,* 1987; Boone, 1996; Jensen and Paldam, 2003). On one side, some studies suggest that the relation is positive (Papanek, 1972, 1973; Singh, 1985; Snyder, 1993; and Fayissa and El-Kaisy, 1999). On the other side, some studies find negative association between aid and growth (Bauer, 1991; Knack, 2000; Gong and Zou, 2001). In between, however, are some others who argue on the role of economic policy in determining the effectiveness of foreign aid in aid recipient countries (Burnside and Dollar, 1997, 2000, 2004; Easterly *et. al.,* 2004; Murphy and Tresp, 2006; Dalgaard and Hansen ,2001). When focusing on the development/growth enhancing perspective of foreign aid, it is found that the results obtained differ according to the approach used in the analysis. Studies at the micro-level, mainly using cost-benefit analyses, support the view of positive effectiveness of foreign aid on economic growth. In contrast, findings of studies at the macro-level are, particularly based on cross-country analysis by using panel data estimation technique, ambiguous. This is what Mosley (1986) called micro-macro paradox. Mosley (1986) has offered three explanations for this seeming paradox. The first explanation has to do with inaccurate measurement in micro or macro studies (or both). Second, the fungibility of aid within the public sector may also be invoked to find diversion of aid from investment to consumption. Finally, backwash effects from aid-financed activities may adversely affect the private sector- for instance displacement of foreign borrowing. It is interesting to note that in recent years there has been a significant increase in aid flows to developing countries although other types of flows such as foreign direct investment and other private flows are declining. Since 2001, aid to Africa has more than quadrupled, from $1.3 billion to $5.5 billion in FY2008. In the same period, aid to South and Central Asia has increased ten-fold, from $205 million in FY2001 to nearly $2.2 billion proposed for FY2008.

The studies investigating the linkage between economic freedom and economic growth found that there is a positive impact of various measures of economic freedom on economic growth (Ali and Crain 2001, 2002; Barro 1997; Dawson 1998; De Haan and Siermann 1998; De Haan and Sturm 2000; Heckelman and Stroup 2000). Cole (2003) concludes that "…economic freedom is a significant factor in economic growth, regardless of the basic theoretical framework." In recent study, Tiwari (2011a) found that an increase in the fiscal freedom, financial freedom and stock of domestic capital are significant factors

that positively affect economic growth in these Asian countries while freedom from corruption, inflow of foreign direct investment and foreign aid are significant factor which affects negatively the economic growth in panel countries.

As for as Foreign Direct Investment (FDI) is concerned, it is often argued that FDI has positive impact on the growth performance of the nation through various channels. For example, Trevino and Upadhyaya (2003) argued that FDI stimulates economic development by complementing itself with the local economy of the host country. Additionally, Dunning (1993) and Borenzstein *et al.* (1998) suggest that FDI can increase economic growth by encouraging the incorporation of new inputs and foreign technologies in the production function of the host country while Mello (1999) argued that FDI augments the level of knowledge in the host country through labour training and skill acquisition. Most of the empirical studies have also supported the argument that FDI is growth enhancing to host nations. For example, Borenzstein, Gregorio and Lee (1998) by analyzing the effect of FDI on economic growth in 69 developing countries over two decades find that FDI is an important vehicle for the transfer of technology and it contributes more to growth than does domestic investment. Additionally, they also suggest that FDI is more successful in enhancing economic growth only in those countries where the level of education (a measure of absorptive capacity) is high. Similarly, Bosworth and Collins (1999) by examining the effect of FDI in 58 developing countries of Asia, Africa and Latin America during the period 1978 to 1995 found that a one-dollar increase in capital inflow (of all types) is associated with a fifty cent increase in domestic investment. Separately, FDI has a one-to-one dollar increase in domestic investment. A recent study by Trevino and Upadhyaya (2003) using pooled time series data from five developing Asian countries finds that FDI positively contributes to economic growth and in open economies the impact of FDI on economic growth is more effective than that of foreign aid. However, Gorg and Greenaway (2004) have pointed out that FDI has negative rather than positive spillovers in transition economies. In similar line, Findlay (1978) also postulates that FDI increases the rate of technological progress in the host country through a "contagion" effect from the more advanced technology, management practices etc. used by the foreign firms. UNCTAD (1999) finds that the FDI has either a positive or negative impact on output depending on the variables that are entered alongside it in the test equation. However, Tiwari (2011a) and Tiwari and Mutascu (2011) found the evidence of the presence of non-linear impact of foreign aid (negative impact of high aid flows) on the economic growth of panel of countries. Tiwari (2011b) found negative impact of FDI while positive impact of tourism in the economic growth of Four Asian countries.

Therefore, in this paper the effect of aid, FDI and economic freedom on growth at the macro-level has been examined in Asian countries in the panel framework. The main purpose of this study is to find whether aid, FDI and economic freedom are the economic growth determining factor in Asian countries.

The next section presents the theoretical background and methodology. The estimation and analysis of the empirical findings are reported in section III. Finally, section IV reports the summary and main conclusions.

2.   METHODOLOGY, VARIABLES DESCRIPTION AND DATA

The factors of production and the production technology determine the level of output in an economy which can be summarized as:

$$Y = f(K, L) \qquad (1)$$

where Y denotes the output level (real GDP), K denotes the amount of capital, and L denotes the amount of labor. Assuming constant technology, any increase in the amount of labor and/or capital will increase the level of output in the economy. After adding foreign aid (AID), foreign direct investment (FDI) and economic freedom (EF) equation (1) can be written as:

$$Y = f(K, L, AID, FDI, EF) \qquad (2)$$

We would expect the coefficients of K and L, measures of domestic capital and labor supply, to be positively related to Y. Similarly, we expect the role of economic freedom i.e., economic freedom should be growth enhancing. However, as discussed above, the impact of foreign aid and FDI might have a negative impact on the economy. Therefore, the effect of foreign aid and FDI on the level of output might be expected to be ambiguous.

In the present study, we measure real GDP by GDP at constant prices in 2000 US$, domestic capital is measured by gross capital formation as percentage of GDP, FDI is measured by net inflow of foreign direct investment as a percentage of GDP and labour is measured by total population. Further, we have considered six measures of economic freedom for the purpose of empirical analysis. The first is *investment freedom* (IF), which reflects an assessment of freedom of the flow of capital (particularly foreign capital), the absence of restrictions on foreign ownership and investment and legal equality between domestic and foreign firms. The second is *business freedom* (BF), which reflects the individual's right to freely conduct entrepreneurial activities, e.g., starting and operating a business firm without government interference. The third is *trade freedom* (TF), which reflects the openness of an economy to imports of goods and services from around the world and the ability of citizens to interact freely as buyers and sellers in the international market- place. Trade restrictions can take the form of taxes on imports and exports, quotas or outright bans on trade, and regulatory barriers. The degree to which government hinders the free flow of foreign commerce has a direct bearing on the ability of individuals to pursue their economic goals. Tariffs directly increase the prices that local consumers pay for foreign imports, but they also distort production incentives for local producers, causing them to produce either a good in which they lack a comparative advantage or more of a protected good than is economically efficient. This impedes economic growth. In many cases, trade limitations also put advanced-technology products and services beyond the reach of local people, limiting their own productive development. The fourth is *Financial Freedom*

(FF), which reflects prudential supervision of banks and other financial services provided by nation. This supervision serves two major purposes. First it ensures the safety and soundness of the financial system and second it ensures that basic fiduciary responsibilities are met by financial services firms. Excessive banking and financial regulation by the state, however, limits competition, impedes efficiency, and increases the costs of financing entrepreneurial activity. In a free banking environment, the market-place should be the primary source of protection through such institutions as independent auditors and information services. Such oversight is distinguished from burdensome or intrusive government regulation or government ownership of banks, both of which interfere with market provision of financial services to consumers. Increasingly, the central role played by banks is being complemented by other financial services that offer alternative means for raising capital or diversifying risk. As with the banking system, aside from basic provisions to enforce contractual obligations and prevent fraud, increased government intervention in these areas undermines economic freedom and inhibits the ability of non-banking financial services to contribute to economic growth. If the government intervenes in the stock market, it contravenes the choices of millions of individuals by interfering with the pricing of capital- the most critical function of a market economy. Equity markets measure, on a continual basis, the expected profits and losses in publicly held companies. This measurement is essential in allocating capital resources to their highest valued uses and thereby satisfying consumers' most urgent requirements. Similarly, government ownership or intervention in the insurance sector undermines the ability of providers to make available those services at prices that are based on risk and market conditions. The fifth measure used for economic freedom is *Freedom from Corruption* (FC). Corruption is defined as dishonesty or decay. In the context of governance, it can be defined as the failure of integrity in the system, a distortion by which individuals are able to gain personally at the expense of the whole. Political corruption is a sad part of human history and manifests itself in many forms such as bribery, extortion, nepotism, cronyism, patronage, embezzlement, and (most commonly) graft, whereby public officials steal or profit illegitimately from public funds. Many societies, of course, outlaw such activities as the traffic in illicit drugs, but others frequently limit individual liberty by outlawing such activities as private transportation and construction services. Corruption infects all parts of an economy unless the market is allowed to develop transparency and effective policing. A government regulation or restriction in one area may create an informal market in another. For example, a country with high barriers to trade may have laws that protect its domestic market and prevent the import of foreign goods, but these barriers create incentives for smuggling and an informal market for the barred products. Finally, the sixth is *fiscal freedom* (FF), which measures freedom from government on the revenue side, i.e., it reflects freedom from the tax burden. Each one of these freedoms is graded using a 0 to 100 scale, where 100 represents the maximum freedom and 0 represents minimum freedom. A score of 100 signifies an economic environment or set of policies that is most

conducive to economic freedom and vice-versa. The grading scale is continuous, meaning that scores with decimals are also possible. Following the related literature to date, it is expected (*ceteris paribus*) that economic growth is an increasing function of each one of these economic freedom measures. For all variables data has been obtained from the official website of World Bank of World Development Indicators (WDI) and was accessed on May 2010.

3. ESTIMATION AND EMPIRICAL RESULTS

As indicated above, this study uses panel data from the 28 ASIAN countries from 1998 to 2007. Since the use of nonstationary data can produce spurious regression, therefore, it is first necessity to ensure that the panel data series are stationary. To test the stationary property of the data we have used Breitung's (2000) and MW test (Maddala and Wu 1999). The Breitung method differs from LLL in two distinct ways. First, only the autorgressive portion (and not the exogenous components) is removed when constructing the standardized proxies:

$$\Delta \tilde{y}_{it} = (\Delta y_{it} - \sum_{j=1}^{p_i} \hat{\beta}_{ij} \Delta y_{it-j})/s_i$$

$$\tilde{y}_{it-1} = (y_{it-1} - \sum_{j=1}^{p_i} \dot{\beta}_{ij} \Delta y_{it-j})/s_i$$

Where $\hat{\beta}, \dot{\beta}$, and s_i are as defind for LLC.

Second, the proxies are transformed and detrended,

$$\Delta y_{it}* = \sqrt{\frac{(T-t)}{(T-t+1)}} \left(\Delta \tilde{y}_{it} - \frac{\Delta \tilde{y}_{it+1} + ... + \Delta \tilde{y}_{it+T}}{T-t} \right)$$

$$y_{it-1}* = \tilde{y}_{it-1} - c_{it}$$

where

$$c_{it} = \begin{cases} 0, if\ no\ interceptor\ trend \\ \tilde{y}_{i1}, with\ intercept\ no\ trend \\ \tilde{y}_{i1} - ((t-1)/T)\tilde{y}_{it}, with\ intercept\ and\ trend \end{cases}$$

The persistence parameter α is estimated from the pooled proxy equation:

$$\Delta y_{it}* = \alpha y_{it-1}* + v_{it}$$

Breitung shows that under the null the resulting parameter $\alpha*$ is asymptotically distributed as a standard normal. The Breitung method requires only a specification of the number of lag in each cross-section ADF regression, p_i, and exogenous regressors.

Secondly, the present study employed the MW test (Maddala and Wu 1999). This test is based on the combined significance levels (*p*-values) from the

individual unit root tests. According to Maddala and Wu (1999), if the test statistics are continuous the significance levels π_i (i =1, 2, ...N) are independent and uniform (0,1) variables. They used the combined p-values, or P_{MW}, which can be expressed as:

$$P_{MW} = -2\sum_{i=1}^{N} \log \pi_i$$

where $-2\Sigma \log \pi_i$ has a χ^2 distribution with the 2N degree of freedom. Furthermore, Choi (2001) suggested the following standardized statistic:

$$Z_{MW} = \frac{\sqrt{N}\{N^{-1}P_{MW} - E[-2\log(\pi_i)]\}}{\sqrt{Var[-2\log(\pi_i)]}}$$

Since the data series are not found to be stationary at level, the same tests are performed with the first difference level of the data. The test results indicate that all the series are stationary at the first difference level. The test results are reported in Table 1.

Table 1
Results of Unit Root

		Unit root tests	
Variables	Level	Breitung	MW test (1999)
BF	Yes	-1.37836	50.6810
D(BF)	Yes	-8.20217**	133.465**
FC	Yes	-1.76142*	38.9751
D(FC)	Yes	-8.76679**	234.506**
FDI	Yes	-5.47514**	38.6958
D(FDI)	Yes	-10.4518**	293.470**
FF	Yes	-0.07831	15.9859
D(FF)	Yes	-9.21311**	251.622**
FF1	Yes	-1.82729*	26.9940
D(FF1)	Yes	-6.00986**	122.396**
GCF	Yes	-0.41190	27.7496
D(GCF)	Yes	-7.67753**	254.000**
GDP	Yes	-0.85871	6.68265
D(GDP)	Yes	-2.08795*	18.2789
IF	Yes	-0.35424	49.6871
D(IF)	Yes	-6.39674**	156.955**
NOD	Yes	-1.84054*	56.1284
D(NOD)	Yes	-12.3663**	317.733**
POP	Yes	1.06449	79.2908**
D(POP)	Yes	-0.25140	77.0713*
TF	Yes	-2.01032**	19.1332
D(TF)	Yes	-8.39220**	278.515**
Resid	Yes	-2.11425*	91.8762**

Note: (1) ** and * denotes significant at 1% level and 5% level.
Source: Authors' calculation.

After establishing the stationarity of the data series, a cointegration test is conducted which tests for the existence of unit root in the estimated error term from equation (2). The null hypothesis of no unit root is rejected in the two tests suggesting an existence of a long-run relationship among the test variables under consideration. Therefore, following Engle and Granger (1987) an error-correction model is developed in order to capture the long-run relationship among the variables. This procedure involves estimating equation (2) in the first-difference form and adding the lagged error-correction term (EC_{t-1}) as another explanatory variable. The error-correction model developed is as follows:

$$\Delta Y_{it} = \alpha_0 + \beta_1 \Delta K_{it} + \beta_2 \Delta L_{it} + \beta_3 \Delta AID_{it} + \beta_4 \Delta FDI_{it} + \beta_5 EF_{it} + \beta_6 EC_{i(t-1)} + v_{it} \quad (3)$$

where v is the error term and i and t denotes countries in the panel and years consider for study i.e., 1998-2007. It is important to note that EF includes six measures. These are Investment Freedom (IF), Trade Freedom (TF), Business Freedom (BF), Fiscal Freedom (FisF), Financial Freedom (FinF) and Freedom from Corruption (FC). Since the data used in this study is a panel data from ASIAN countries, equation (3) is estimated using a fixed-effects estimator. A GLS estimation is used in order to take care of the possible cross-section heteroskedasticity and cross-section weights has been assigned. The estimation of equation (3) is as follows:

$$\Delta Y_{it} = 3.48 \; -17439.65 \Delta L_{it} + 1.15 \Delta K_{it} \; -1.11 \Delta FDI_{it} \; -1.101 \Delta AID_{it} + 1.03 \Delta BF_{it} + 197 \Delta FC_{it} \; -427 \Delta FisF+$$
$$(9.53)** \; (-7.031)** \quad (2.732)** \; (-2.598)** \quad (-1.415) \quad (4.25)** \quad (0.732) \quad (3645)$$
$$9327 \Delta FinF_{it} - 1.26 \Delta IF_{it} + 1.13 \Delta TF_{it} + 0.056 EC_{i(t-1)} \quad\quad\quad (4)$$
$$(1666)** \; (-6.193)** \; (4.89)** \; (6.146)**$$

Weighted R^2 = 0.933 Unweighted R^2= 0.961 D.W. = 1.1995 n = 252

Figures in parentheses are t-values for the corresponding coefficients and ** indicate significant at 1 per cent level.

The coefficient of labor (ΔL) carries a negative and significant coefficient which contradicts our *a priori* expectation. In a country with abundant labor and scarce capital, the marginal productivity of labor may be negative. In such a case, the coefficient of labor may be negative and statistically significant. As expected, the coefficient of capital (ΔK) is positive and statistically significant. The coefficient of foreign direct investment (ΔFDI) is negative and statistically significant indicating that the inflow of FDI has been a significant contributor to economic growth in these countries. The coefficient of foreign aid (ΔAID), though positive, is not statistically significant. As expected, the coefficient of the Business Freedom (BF), Financial Freedom (FinF) and Trade Freedom (TF) carries a positive and significant sign, while Investment Freedom (IF) carries negative and significant sign. Though, Freedom from Corruption (FC) carries positive sign but its impact is insignificant. Similarly, Fiscal Freedom (FisF) carries negative sign but its impact is also insignificant. Importantly, the error correction term (EC_{t-1}) carries a positive and statistically significant coefficient confirming that the variables in the model are skeptically cointegrated.

4. SUMMARY AND CONCLUSIONS

This paper has examined the effectiveness of foreign aid, foreign direct investment, and economic freedom, which is measured in the six dimensions in the 28 Asian countries. The model used in the study includes total labor force and capital stock as additional variables besides foreign aid, foreign direct investment and six dimensions of economic freedom. The estimated model uses pooled annual time series data from 1998 to 2007. Before carrying out the estimation, the time series properties of the data are diagnosed through Breitung (2000) and MW test (Maddala and Wu 1999) tests and an error-correction model is developed and estimated using a fixed-effects estimator by providing cross-section weights. The coefficients of the estimated equation suggest that an increase in the stock of domestic capital, Business Freedom (BF), Financial Freedom (FinF) and Trade Freedom (TF) are significant factors that positively affect economic growth in the sample of Asian countries. Foreign aid and Freedom from Corruption, however, seem to be ineffective. Since these countries are relatively labor abundant, an increase in the labor force seems to have a negative impact on real GDP. Additionally, inflow of foreign direct investment and Investment Freedom are also found to having negative impact on the real GDP of these countries.

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