

THE IMPACT OF FOREIGN CAPITAL INFLOW ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM SELECTED ASIAN COUNTRIES

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Abstract

This study is an attempt to analyze the impact of foreign capital inflows on economic growth in selected Asian countries. In this association, we test the hypothesis “foreign capital inflows affect positively economic growth in selected Asian countries.” The Empirical analysis is made through Pooled Ordinary Least Square (OLS) estimation approach using data set of six selected Asian countries from 1990-2013. The findings of the study reveal that long run economic growth in selected Asian countries is largely explained by foreign capital inflows. In addition the findings of the study indicate that physical capital and trade openness also explain the pace of economic growth positively. The study concludes that in selected Asian countries foreign capital, physical capital, and trade openness are the key determinants of economic growth.

Keywords: Foreign capital inflows, economic growth, pooled OLS
JEL Classification: F02, O40, C23

1. Introduction

Economic growth is the fundamental policy agenda of both developed and developing economies. Policymakers in developing stress on investment to sustain long run economic growth keeping in view the predication of standard neoclassical growth model of Solow and Swan (1956), which argued that physical capital accumulation is the driver force of long-run economic growth. However, as most of the developing countries face the saving investment gap issue. Hence, due to inadequate saving, developing countries highly rely on foreign capital inflow and heaving to fill saving investment gap. Empirical studies carried out in the neoclassical growth framework are mostly optimistic about the positive

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impact of foreign capital inflows on economic growth. Most of these studies explained its view in the supplementary role of foreign capital, and argue that foreign capital inflows proves beneficial for the recipient country as it creates new resources for capital accumulation.¹

Similarly, the endogenous growth explain the role of foreign capital inflow in the diffusion of knowledge, and argued that capital flows can help to bridge the idea gap between developed and developing countries because capital. Two classes of theories, namely; push- factor and pull- factor theories (Calvo *et al.*, 1993; Chuhan *et al.*, 1998) explained the direction of international capital flows. The push-factor theory explains the role of foreign capital inflow in terms of the falling of international interest rate, variation of business cycle in industrial countries (Calvo *et al.*, 1996; Calvo and Reinhart, 1998). On the other hand, the Pull- factor theory explain the role of capital inflow though its effects on domestic factors as autonomous increases in the domestic money demand function, increases in the domestic productivity of capital (UI-Haque *et al.*, 1997), increasing integration of domestic capital market with global capital markets (Agenor and Montiel, 1999).

Empirical studies have explained the foreign capital flows and economic growth nexus with two ways that direct and indirect channels. Direct channels through which foreign capital inflow affect economic growth are diffusion of technology, reduction in cost of capital, and development of financial sector, and augmentation of domestic saving. The indirect channels' stand on the premise that financial flow promotes specialization; induces better policies and enhances capital inflows (Ayhan *et al.*, 2003).

In this study, we have analyzed the impact of foreign capital inflow on the growth performance of selected Asian countries. As the economies of these countries are mostly foreign driven that external sources play a vital role in its growth process. To analyze the impact of foreign capital inflow on the growth performances of these selected countries we segregated the foreign capital inflow into three-sub parts namely foreign direct investment, foreign portfolio investment, and foreign aid.

The rest of the study is organized as follows. Section 2 presents the base line empirical model and definition of variables under consideration. Section 3 discusses the selection criteria of sample countries. Section 4

¹ The inflow of capital from developed to developing countries reduces the cost of capital, that in turn accelerate investment activities in developing countries. Henry, (2006).

presents empirical findings and interpretation. Study concludes with Section 5, which draws main conclusions.

2. Empirical Model:

To meet the objective of the study the following base line model is empirically tested using data set of selected Asian countries spanning from 1990 to 2013.

$$Y_{it} = \beta_0 + \beta_1 PhyC_{it} + \beta_2 POPG_{it} + \beta_3 HC_{it} + \beta_4 TO_{it} + \beta_5 FDI_{it} + \beta_6 FPI_{it} + \beta_7 NODA_{it} + \varepsilon_{it} \quad (1)$$

Where Y_{it} dependent variables that is GDP growth (Annual percentage), the subscript i denotes countries $i = 1, 2, \dots, 6$ and t denotes years $t = 1990, \dots, 2013$. $PhyC_{it}$ is physical capital that proxy with gross fixed capital formation as a percent of GDP. $POPG_{it}$ population growth used as a proxy for labor force. HC_{it} human capital is captured through health expenditure, TO_{it} trade openness (trade to GDP ratio), FDI_{it} foreign direct investment is captured as a percentage of GDP, FPI_{it} is foreign portfolio investment as percentage of GDP, and $NODA_{it}$ is net official development aid is used as a proxy for foreign aid, where ε_{it} is error term.

2.1 Definition of Variables under Consideration

Our dependent variable is GDP growth (annual percentage) Y_{it} that is taken from World Development Indicators (2014) of the World Bank. Physical capital $PhyC_{it}$ that is captured with gross fixed capital formation as a percent GDP. Gross fixed capital formation is formed by gross domestic fixed investment included land improvements ,plants machinery ,equipment's ,constructions of roads ,railways including schools offices hospitals private residential and commercial and industrial buildings (World Development Indicators 2014). Annual population growth rate $POPG_{it}$ for year t is exponential rate of growth of midyear population growth expressed as percentage. Population is based on de facto definition of population, which counts all residents regardless of legal status or citizenship. Expect for refugees not permentately settled in the country who are generally considered part of the population of the country of region. In this study we have used population growth as a proxy for labor force. (Source: World Bank, World Development Indicators, (2014).

Foreign direct investment FDI_{it} is the net inflow of investments of acquires a lasting management in an enterprise operating in an economy. It is the sum of equity capital reinvestment of earning, other than long-term capital and short-term capital shows in balance of payments. This series shows net inflows in the reporting economy from foreign investors and is

divided by GDP. FDI is one of the components of foreign capital inflow; the data is taken from WDI (2014) of the World Bank. Portfolio investment inflow FPI_{it} includes net inflows from equity securities other than those recorded as direct investment and including shares depository receipt and direct purchase of share in local market by foreign investors. In this study, we have used portfolio investment net inflow as a proxy for portfolio investment inflow that is taken from WDI (2014) of the World Bank.

An official development assistance $NODA_{it}$ consists of disbursement of loans made on concessional term and grants by official agencies of the members of the development assistance committee by multilateral institutions, and by non-development assistance committee countries to promote economic Development and welfare of in countries and territories in the (ODA).” In this study we have used net official development assistance (constant US\$). (Source; World Bank, World Development Indicators, (2014).

Human capital HC_{it} is proxy with total health expenditure as a percent of GDP, which is the sum of public and private health expenditure. It covers the provision of health services (Preventive and curative), family planning activities, nutrition activities and emergency aid designated for health but does not include provision of water and sanitation.” In this study we have used proxy for human capital that is Health expenditure total as a percentage of GDP. (Source: World Bank, World Development Indicators, (2014). Trade openness TO_{it} is the sum of exports and imports of goods and services as a percent of GDP. Source: World Bank, World Development Indicators (2014).

3. Selection Criteria of Sample Countries

To test the hypothesis “whether foreign capital inflows contributes to economic growth” the study used data set of six selected countries, Pakistan, India, Bangladesh and Sri Lanka from south Asia while Indonesia and Malaysia from East Asia. The reason behind this selection criterion is that First, these regional countries share a number of common economic features. This helps to avoid the problem of assuming a common intercept in the cross-country regression. Second, regional grouping can avoid heterogeneity of initial technology across countries, as suggested by Temple (1990) that initial technology could be similar within regions but varying between regions. Second, these countries have more or less similar policies in both structure and period dimensions. In late 1980s, these countries have made sample trade liberalization and structural transformation in order to catch the dynamic export composition and to

transform structurally the productive capabilities. These trade reforms, the socio-economic developments in these countries significantly benefit to international trade. (Haq and Luqman 2014).

4. Empirical Findings and Interpretation

The empirical estimation has been carried out through Pooled OLS estimation technique. This estimation technique is directed by the Breush and Pagan Lagrange Multiplier (LM) test. As the null hypothesis of the B&P test presented in table one shows that null hypothesis $H_0: \sigma^2 = 0$ cannot be rejected in all specifications, which indicates that country-specific factors do not matter. Following table 1 presents our empirical findings.

Table 1: Empirical Findings (Dependent Variable is GDP growth)

Variables	Model-1	Model-2	Model-3	Model-4
PhyC_{it}	5.07*** (0.000)	4.95*** (0.000)	6.87*** (0.000)	5.61*** (0.000)
POPG_{it}	-0.81 (0.421)	-0.66 (0.513)	-0.09 (0.928)	-1.08 (0.282)
HC_{it}	0.27 (0.784)	0.10 (0.923)	1.33 (0.185)	0.44 (0.663)
TO_{it}	3.14*** (0.002)	0.26** (0.079)	2.32** (0.025)	2.52** (0.012)
FDI_{it}	3.86*** (0.000)	3.49* (0.001)	3.68*** (0.000)	-----
FPI_{it}	-----	3.33* (0.001)	3.89*** (0.000)	-----
NODA_{it}	-----	-----	8.17*** (0.000)	-----
FCI_{it}	-----	-----	-----	3.653*** (0.000)
Constant	0.90 (0.370)	0.16 (0.875)	3.98*** (0.000)	0.84 (0.404)
No of Observation	144	144	144	144
No of Countries	06	06	06	06
R- Square	0.62	0.52	0.69	0.65
B & P LM Test	2.67 (0.102)	2.18 (0.215)	3.72 (0.121)	1.95 (0.305)

Note: ***, **, * shows level of significance at 1, 5, and 10 respectively. P-values are in parentheses

Table 1 presents the estimated results of our base line model along with other specifications. The parameter estimates in model one (column 2) of table 1 show that population growth adjusted for depression and technological progress $POPG_{it}$ enter the model with expected negative sign, which is statistically insignificant. This finding is comparable to the standard neo classical of Solow (1956) and augmented Neo classical growth model of Mankiw et al. (1992) that a higher population growth rate leads to lower GDP growth by lowering the steady state value of capital per worker.

Similarly, physical capital ($PhyC_{it}$) enter the model with expected positive sign, which is statistically significant. It has the stronger coefficient among the explanatory variables, which indicates that physical capital is more important indicator of long run growth in selected Asian countries. The results maintain neo classical growth model of Solow (1956) physical capital is the sole determinant behind economic growth. Trade openness (TO_{it}) holds positive sign, which indicate that economies that are more open to international trade have high pace of economic growth. The result is consistent with the findings of Ramzan and Kiyani (2012), Muhammad *et al.* (2012).

As mentioned earlier, that the study is mainly concern with foreign capital inflows. Empirical findings presented in model one (column 2) of table, one shows that the first component of foreign capital inflows is foreign direct investment, which enter in model with expected positive sign and statistically significant. The following are the some possible justifications of the result. FDI is the key channel through which technology transmit to these economies. Second, FDI enhance capital formation that in turn increases domestic investment. Zhang (2001) argued that as foreign investors are usually bringing foreign capital into the host country thereby influencing the quality and quantity of capital formation in host country. In model two (column 3) the second component of foreign capital inflow portfolio investment FPI_{it} is analyzed as a variable of interest. Portfolio investment inflow enters the model with expected positive sign, which is statistically significant. Portfolio investments are used as a measure of, risk sharing and monitoring the issue of capital. This enhancement of efficiency due to internationalization makes the market more liquid, which leads to a lower cost of capital. The cost of foreign capital also tends to be lower, because the foreign portfolio can be more diversified across the national boundaries and therefore be more efficient

in reducing country-specific risks, resulting in a lower risk premium. These results are consistent with the findings of (Stulz 1997).

In column 4 (model three) our consequent variable of interest foreign aid (measure of foreign capital inflow) enter in the model with positive sign, which is statistically significant. The findings indicate that foreign aid play a crucial role in development of the sample countries especially investment and imports rely on the amount of foreign aid. It stimulates investment in both physical and human capital and help to raise the productivity of labor and capital through technological transfer, which further promote indigenous technological change. Foreign aid also brings crucial resources for development such as managerial skills, organizational capacity, research ideas, and market access. This study is consistent with the findings of (Morrissey, 2001), Shabbier and Mahmood (1992) and Khan& Rahim (1993).

In model 4 (column 5), we combine the three components namely foreign direct investment, foreign portfolio investment and foreign aid into a composite index that is constructed through principal component analysis. The results presented in the table indicates that the composite index enter the model positively and significantly, indicates that foreign capital inflow (FCI_{it}) have positive and significant impacts on economic growth in selected countries.

To check the validity of our estimated we used some diagnostics tests. First, to check the presence of cross-sectional dependence of the residuals across entities, we used Pesaran CD test which results indicates that there is no sectional dependence across entities. Second, we used the Wald test to check the hetrosocksociety. The results of the Wald test indicate that in all specifications there is no problem of hetrosocksociety.

5. Conclusion

The key objective of the study was to analyze the impact of foreign capital inflows on economic growth in selected Asian countries. In our empirical analysis, we estimate growth equation using panel data set of six selected Asian countries spanning from 1990 to 2013. The empirical analysis has been carried out through Pooled OLS estimation technique. The overall empirical analysis validates the fact that foreign capital inflows contribute positively to economic growth in selected Asian countries. For instance, in Model- 1 the first indicator of foreign capital inflows is (Foreign direct investment) bear expected positive sign and

statistically significant. Similarly, our second indicator of foreign capital inflow is (Foreign portfolio investment) in Model-2 bear an expected positive sign, which signify positive impact on dependent variable (GDP Growth). Similarly our third indicator of foreign capital inflows is (Foreign aid) in Model-3 bear a positive sign and significant impact on dependent variable (GDP Growth). In Model-4 the index of aggregate foreign capital inflows have positive and significant impact on economic growth. The other core result supports the positive implication of physical capital and trade openness. Correspondingly, population growth has expected negative sign in all our four models. Findings of the study support the claim that foreign capital inflows contribute positively to economic growth in selected Asian countries. The study concluded that selected Asian countries gain benefits from foreign capital inflows, which helps in efficient allocation of resources that eventually promote outputs by reducing the cost of capital/stimulation of investment in recipient countries. Overall findings revealed that capital inflow is beneficial for the growth in selected Asian countries.

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