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Foreign Aid, Human Capital and Economic Growth: The case of South Asian Countries

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Abstract

This study empirically investigates the long-run association between foreign aid, human capital, and economic growth in selected South Asian countries over a 34-year period. Specifically, this study is based on a human capital augmented growth model, which consider the absorptive capacity of recipient economies. We utilize panel data settings, such as, Dynamic Ordinary Least Squares (DOLS) and Dynamic Feasible Generalized Least Squares (DFGLS), to find robust long-run relationships. Empirical findings suggest that foreign aid is has an indirect effect on per capital income through the channel of domestic investment, domestic savings, and, real exchange rate. Further, foreign aid decreases both the level of domestic investment and savings, which results in crowding out. The study also reveals that foreign aid contributes positively to real exchange rate. Similarly, human capital has a significant and positive impact on per capital income. These empirical findings underline the vital role of human capital in amplifying the influence of foreign aid and offer valuable insights for decision makers to improve aid usefulness in the selected South Asian economies..

Keywords: *Burnout mitigation, Work environment training, Organizational commitment, Stress management training*

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1 INTRODUCTION

1.1Background

The relationship between foreign aid (FA) and economic growth (EG) is very much debated in the development literature. The main focus of researchers has been to measure the effectiveness of FA for EG process. The poor countries have insufficient resources to finance their investment and other demand needs; they always look for FA from the rich and wealthy countries. The donor countries give aid to the poor countries on their own terms and conditions which serve their own interests and may not match with the interests of the aid recipient countries. This difference in the interests of aid providers and aid recipient, results into different consequences for the growth and development of these poor countries.

Foreign aid (FA) remains an important source of foreign capital inflows to developing countries. The main objective of FA is to make the enhancement of economic development (ED) and welfare of the developing countries which usually measured by its impact on economic growth (EG) measured by per capita income (PCI). A large segment of empirical growth literature analyzes the impact of FA on EG. Whether external assistances are effective in increasing ED in receiver countries still remains unsettled. Many studies by different researchers have explored the impact of FA on EG and development, however, these studies differ from case to case and country to country. Some studies conclude positive impact of FA on EG of the recipient countries while other studies find negative impact. The numerous studies show that the debate over the role of foreign aid in EG in the recipient country has three strands. The studies which show a positive impact of FA on EG and development include Morrissey (2001), Asteriou (2009) and Minoiu and Reddy (2010).

In contrast some empirical studies have concluded that FA has negative impact on EG and development. They argue that FA not only increases the unproductive public expenditure but also affect the EG adversely (Mosley et al., 1992). Similarly, negative impact of FA on EG documented by the Djankov, et al., (2008), and Lehmann, et al., (2012). On the other hand, some studies found ambiguous or insignificant and mixed impact of FA on EG for instance; Hossen & Hasan (2013), Adams and Atsu (2014) Ogundipe et al., (2014).

There seems varying reasons for these diversified findings. A possible reason for these mixed results may be due to overlooking the time series properties. “As the explanatory variable (EG) is stationary variable and the other explanatory variables like Aid-to-GDP ratio are non-stationary”. So, panel time series properties guide that if the regression is run with “I(0) and I(1)” series, the long-run (LR) relationship does not exist and result will be mixed or spurious (Banerjee et al.,1993). “To overcome this problem, PCI which is non-stationary is used instead of EG”(Nowak-Lehmann et al.2012). On the other hand, non-stationery data have potential problem of autocorrelation1,which can be dealt better, with feasible generalize least square

(Wooldridge, 2009). Most of the existing studies identify potential endogeneity in aid growth empirical literature, which will be dealt here by using dynamic ordinary least square (DOLS) or dynamic feasible generalize least square (DFGLS).

In addition the theoretical foundations of most of the earlier studies are aligned with neoclassical growth framework. According to their view, physical capital is the sole determinant that explains LREG. However, these studies ignored the role of Human capital (HC) which is considered to be the engine of EG2. Moreover, it is not clear whether these different responses of FA are due to difference in HC or some other characteristics are responsible for all this. It is generally believed that countries rich in HC have the better ability to absorb the physical capital. In order to examine this dimension, HC is also modelled in the analysis.

This study focuses on LR relationship between FA and per capita income rather than EG, in order to avoid spurious regression results. By using the panel data of selected South Asian countries (SACs) for 34 years we analyse the relationship between FA and PCI by using a HC model3. Since the number of observation for the selected SACs are large so we will use (DOLS) or (DFGLS) to control the problem of autocorrelation and endogeneity. To examine the impact of the absorption capacity on EG, we used the interactive term of HC and FA. In addition, we will also investigate the indirect impact of FA through different channel [investment, domestic saving (DS), real exchange rate (RER)] on EG.

South Asian region is one of the largest aid receiving region in the world, however, the impact of FA on EG and development is not same everywhere. Although these countries have huge population, but the ratio of productive labor force is low. The alone accumulation of physical capital in the absence of HC may be amongst one of the constraints being faced by these countries on the development process. This study is an attempt to analyse this dimension of the issue and seek answer to the query, whether FA explain EG in south Asian region. In addition this study also analyse the role of absorption capacity (HC) in the effectiveness of FA.

To sum up, the voluminous literature is available on the association between foreign aid, human capital and economic growth. However, the findings are inconclusive due to differences in methodological approaches, regional contexts, and also can be due to omitted variables. In general previous work mostly focused on foreign aid in isolation, which overlooks the important variables that affect the foreign aid effectiveness. This study contributes to the literature in many aspects for instance, by incorporating human capital, domestic investment, domestic savings, and real exchange rate into the empirical analysis and thus, offers a more comprehensive understanding of the foreign aid-growth nexus. In addition to that, the inclusion of these variables in the empirical model reflect the absorptive capacity and domestic macroeconomic dynamics of the recipient economies, which are critical in findings the effectiveness of the foreign aid. Moreover, we specifically focus on selected South Asian economies, which remained underexplored although, being one of the

largest recipients of foreign aid.

The rest of the study is designed as follows: Section 2 reviews the existing theoretical and empirical literature. Section 3 presents the empirical methodology of the study however, data, variable construction and descriptive analysis is discussed in Section 4. Findings of the analysis are presented Section 5. Finally, Section 6 consists of conclusions and policy recommendations.

2. LITRATURE REVIEW

A comprehensive literature is available on the relationship between FA and EG which varies in terms of data and methodologies used in their analysis. Moreover, the literature also present different results with regarding to the relationship between FA and EG. Therefore, we have divided this section into three subsections namely theoretical literature, the empirical literature and studies in the context of SACs.

2.1 Theoretical Literature

Existing literature on EG recognizes many factors which determine the EG of a country. Particularly, existing literature focuses on the quality of labour force, physical capital, human resources of the country, technology and institutions as the key determinant of EG and development of a country. However, the ED theories of 1940s, 1950s and 1960s consider the role of physical capital as the main determinant of EG and development, which is normally available in scarce quantity in the developing countries. Therefore, those theories suggest the importance of FA as a substitute of capital formation. Harrod (1939) and Domar (1946) argues that investment is the main engine of EG that help to improve the capital output ratio. Rostow (1956) finds five stages of EG and development for an economy with the take-off stage as the most important among all. According to him, the developing economies must save 10% to 15% of their income to achieve this stage. With the help of Harrod (1939) and Domar (1946) model, suggest that the rate of investment of the developing countries can be accelerated by encouraging the inflow of FA which would increase DS without altering domestic consumption.

A few years later, Chenery and Strout (1966) argued that there is enough supply of labour. However, the main concern i.e. to boost EG is to enhance the productivity of capital. They identified the two major gaps in the economy; “saving gap” and “trade balance gap”. “Trade balance gap occurs when a country faces gap between its import requirements for a given level of production and foreign exchange earnings”. Most of the poor countries have very low level of saving and so they have to face the investment-saving gap along with trade balance gap. The fiscal gap is the gap between government revenues and expenditures (Solimano, 1990). Due to the fiscal gap, most of the developing countries have to rely on foreign resource in the form of debt or FA when government resources are not sufficient for their investment and import requirements.

It has been shown that, at any particular point of time, at least one gap is binding in the aid dependant economies and so FA is required to fill up that gap. Foreign

assistance can supplement DS that could lead to increase in direct investment. These are the first generation model of FA that is directed in explaining the significance of FA in achieving EG in developing countries.

2.2 Empirical Literature

2.2.1 Aid and Growth

A bulk of literature exists on exploring the relationship between FA and EG for both the developing and developed countries with contradictory findings over the years. Some studies have concluded that FA has a positive impact on EG and leads to development process, see for instance Arndt et al. (2009), Minoiu and Reddy (2010), Clemens et al. (2012). Further, using quantile regression Okada and Samreth, (2012) indicate that the external aid usually reduces corruption and that the impact is larger in less corrupt countries. Museru et al. (2014) find that FA has a positive impact on EG in Sub-Saharan African countries over the period from 1992 to 2011. In addition similar results are reported by Bigsten and Tengstam, (2014) and Lof et al. (2014). However, findings also suggest that the high growth countries are more likely to get benefit from development assistance in terms of economic prosperity than the low income countries (Simplice, 2014).

In contrast, some empirical studies have even concluded that FA has negative impact on EG and development. Mosley et al., (1992) argue that FA only increases the unproductive public expenditure and adversely affect the EG. Additionally FA also leads to mere assistance dependency of the recipient country (Pedersen, 1996). FA does not enhance domestic investment and so is not beneficial for poor. The impact of aid does not vary according to whether recipient powers are open minded or exceedingly repressive (Boone 1996). In addition, Burke and Ahmadi-Esfahani (2006) find that the direction of FA is managed by the governmental and the crucial thoughts and most of the aid is diverted for purposes other than the economic needs and policy performance of the recipients.

Djankov et al. (2008) reveals that external assistance has negative effect on democracy. Some other studies like Bakare (2011) and Leshoro (2013) find negative impact of FA on EG. Impact of FA at regional level is also analyzed by dividing the sample into i.e. Sub-Saharan Africa and Asia being the two main aid recipient region. It is observed that started from similar levels of real GDP per capita, both the region had different outline of development. The results conclude a negative association between external assistance and EG in both regions (Ferreira and Simoes, 2013). On the other hand, some studies found ambiguous or insignificant and mixed impact of FA on EG for instance Burke and Ahmadi-Esfahani (2006), Williamson (2010). Another study by Ekanayake and Chatrna (2010) indicate that FA has mixed effect on EG. Similarly, Hossen and Hasan (2013) found that the impact of FA on growth, in general, is both negative and positive for developing Asian economies. In addition, Ogundipe et al. (2014) and Adams and Atsu (2014) suggest that FA has a positive effect in the short run but has a negative effect in the long run.

2.2.2 Aid, Domestic saving, Investment and Growth

In the literature many researchers attempted to analyse the impact of FA on DS and investment. By using annual data for 119 countries, Similarly Baldé (2011) analyses the cooperative effect of FA and remittances in promoting saving and investment over the period of 1980-2004 for Sub-Saharan Africa. By employing OLS and 2SLS techniques, the findings suggest that FA and remittances have positive impact on saving, investment and EG. In contrast, some researchers find negative impact of FA on DS and investment. Similarly, the results of Ghura and Hadjimichael (1996) find that FA has negatively impact on DSs. In addition, FA has no effect on saving, investment or EG of the recipient countries (Doucouliagos and Paldam, 2006). Recently, Jean (2015) examines the extent to which FA explained gross DS, gross domestic investment and GDP growth rate. By using a fairly long time series data from 1975 to 2010 for Haiti, the findings suggest that there is no significant relationship between FA and gross DS, gross domestic investment and GDP growth rate in Haiti.

2.2.3 Foreign Aid and Human Capital

HC formation is the most essential source of EG. It is a source for both; increasing the productivity and achieving technological advancement. For educational attainment in LDCs, Dreher et al. (2008) investigate the impact of FA on education for a panel of least developing countries over the period 1970-2004. The findings suggest that FA has significant and positive impact on primary school enrolment ratio.

Azarnert (2008) analyze the impact of external assistance on population growth and accumulation of HC for aid depended countries. The findings highlight that the FA, although a source of revenue, has insignificant impact on the fertility and educational attainment. Further using overlapping generation model, Sirohi (2014) analysed the effectiveness of FA in tackling child labour. The study suggested that compulsory education system which is based on the FA play an important role in the elimination of child labour.

2.3 Studies on South Asian countries

A bulk of literature is available which examines the relationship between FA and EG and development at world level, ignoring the regional discrepancies in terms of growth potential and the level of aid dependency/receipt. In the context of South Asia, only a few studies are carried out. But the findings of these studies are contradictory regarding the existence and nature of the relationship between FA and EG. This section gives overview of some of the studies on the issue specific to SACs.

The impact of FA on EG in Bangladesh is investigated by Islam (1992) over the period 1972-1988. The study finds a positive but weak relationship between foreign assistance and EG. Similar analysis was carried out by Khan et al. (1993) for Pakistan, over the period spanning form 1960 to 1988. The results reveal that

FA has no instant impact on GNP growth. However, the FA has significant and positive impact on EG by considering the one year lag of FA. The study by Khan and Ahmad (1997) examine the nexus between external assistance, debt and EG. Therefore, findings provided the evidence that FA has a strong and negative impact on EG. Another study, disaggregated the FA into project aid and program aid for India over the period from 1970-1992. The results suggest that both program aid and project aid has negative impact on EG (Mavrotas, 2002). Khan and Ahmed (2007), analyse the impact of FA on EG for Pakistan. The findings show that the FA has negative but insignificant impact on EG. Similarly, Anwar (2007) critically examine the impact of FA on EG and concluded that FA did not contribute to the EG in the Pakistan. On contrary, some studies find positive impact of FA on EG and development. For Pakistan, Shabbir et al. (1992) find a positive relationship between FA and EG. Another study by Dhakal et al. (1996) find a strong positive link between FA on EG for the selected SAC countries. Bhattarai (2009) examines the impact of FA on EG for Nepal during the period 1983-2002. The results of co-integration and error correction models conclude that FA is positively related to per capita real GDP in Nepal. The effect of FA on the education sector in Pakistan is investigated by Anwar and Aman (2010) by using time series data over the period from 1991 to 2007. The results show that the FA targeted to education sector in Pakistan and total aid disbursement; both have significant and positive impact on the level of literacy in the country.

Dynamics of ED in Nepal in the context of FA, institutional change, and political instability is analysed by Cecen et al. (2014). By using time series data from 1960-2009, the findings show that FA has positive contribution for ED. Similarly, Biswas (2015) examine the effectiveness of foreign grants in case of Bhutan. The results of VAR model reveals FA in Bhutan is effective in increasing the income level as well as DS. It also has a positive effect on EG. Panel "Mean Group" and "Pooled Mean Group" approaches are employed to investigate the aid-growth relationship for a panel of five SACs and a positive aid-growth relationship is found by Asteriou (2009). A similar attempt is made by Chowdhury and Das (2011) for this regain and results suggest a positive LR association between foreign assistance and EG. In addition, FA has a positive impact on EG while negative impact on DSs in SACs (Basnet, 2013).

The FA is expected to play an important role in the ED of developing countries. However, the role of FA remains a highly controversial due to contradictory empirical support. The amounts of FA inflows to developing countries are increasing over the time and a big junk is received by the SACs. Thus it seems a dire need to investigate the impact of FA on EG especially in the context of huge potential of HC. Moreover, with the availability of more recent data and improvement in the econometric techniques, allows us to get more insights on the issue which the present study attempts.

The approach adopted to estimate aid-growth relationship in present analysis differs from above studies. From a theoretical view, it uses a HC model4where EG depends

on physical capital, HC, effective labor and FA which is followed by none of the study for SACs .The econometric approach employed in this analysis is also latest and overcome. We will focus on long run association between "FA" and "PCI" which are I(1) rather than EG I(0) in order to get rid of spurious regression result. By using the panel data of selected SACs we analyse the relationship between FA and PCI. Since the number of observation for the selected SACs are large therefore, we use (DOLS) or (DFGLS) to control the problem of autocorrelation and endogeneity.

3. METHODOLOGY

The inability of the neoclassical growth model to provide a satisfactory explanation of the role of technical adjustments in EG resulted into development of the Solow (1957) model. In this model the technical changes in growth is recognized as the residual. This residual was discovered to be highly significant, especially in the case of developing countries. This paved the way for development of growth models based on different sets of assumptions and resulted into inception of endogenous growth theories. These introduce HC accumulation as the most important complementary input to physical capital. The new production function expresses output as a function of physical capital, labor, and HC.

3.1 The Model

By following Solow (1956), consider an economy with labor augmented production function as;

$$Y_{(t)} = F(K_{(t)}, A_{(t)}L_{(t)}) \tag{1}$$

"Where $Y_{(t)}$ is the level of aggregate output, $K_{(t)}$ is the stock of physical capital, $L_{(t)}$ is the size of labor force, and $A_{(t)}$ is the effectiveness of labor or technological progress". By assuming the typical Cobb–Douglas (1928) specification which implies that the production function exhibits constant returns to scale in its each factor of production, Equation 1 takes the following form;

$$Y_{(t)} = K_{(t)}^{\alpha_1}(A_{(t)}L_{(t)})^{1-\alpha_1} \tag{2}$$

Mankiw, Romer, and Weil (1992) extend the neoclassical growth model of Solow and Swan (1956) by incorporating HC. The extended specification is given below,

$$Y_{(t)} = K_{(t)}^{\alpha_1}.H_{(t)}^{\alpha_2}.(A_{(t)}.L_{(t)})^{1-\alpha_1-\alpha_2} \tag{3}$$

"Which shows that the production function exhibits constant returns to scale in its three factors: physical capital (K), HC (H), and productivity-augmented labor (AL). Some studies have disaggregated, physical capital into three broad types namely domestically financed physical capital, externally financed physical capital and net aid transfer". The model becomes;

$$Y_{(t)} = DK_{(t)}^{\alpha_1}.EK_{(t)}^{\alpha_2}.GK_{(t)}^{\alpha_3}.H_{(t)}^{\alpha_4}.(A_{(t)}.L_{(t)})^{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4} \tag{4}$$

Physical capital and HC are assumed to be accumulating factors and grow according

to the following equations:

$$\dot{DK}_{(t)} = s_{DK} Y_{(t)} - \delta DK_{(t)} \quad (5)$$

$$\dot{EK}_{(t)} = s_{EK} Y_{(t)} - \delta EK_{(t)} \quad (6)$$

$$\dot{GK}_{(t)} = s_{GK} Y_{(t)} - \delta GK_{(t)} \quad (7)$$

$$\dot{H} = s_H Y_{(t)} - \delta H_{(t)} \quad (8)$$

Where s_{DK} represent the saving rate for domestically financed physical capital formation purposes, s_{EK} represent the saving rate for externally financed physical capital formation purposes and s_{GK} represent the saving rate for net aid transfer physical capital formation purposes respectively. $s_H Y$ shows the proportion of output that is spending on accumulation of HC. All are exogenously given and are assumed to depreciate at the same rate δ. The growth rates of labor (L) and labor-augmenting productivity (A) are as follows:

$$L_{(t)} = L_{(0)} e^{gt} \quad (9)$$

$$A_{(t)} = A_{(0)} e^{gt} \quad (10)$$

Where "n" and "g" are exogenously given growth rates.

The trick here is to find some transformation of these variables which converges to a steady-state. We divide each variable by $A_{(t)} L_{(t)}$, or the number of effective workers (productivity-augmented workers) in the economy at time t. This is also called putting the system into intensive form. We will follow the same strategy here. Define

$$y_{(t)} = \frac{Y_{(t)}}{A_{(t)} L_{(t)}}, \; k_{(t)} = \frac{K_{(t)}}{A_{(t)} L_{(t)}}, \; h_{(t)} = \frac{H_{(t)}}{A_{(t)} L_{(t)}}.$$

Hence the efficiency unit income equation becomes as follows.

$$y_{(t)} = Dk_{(t)}^{\alpha_1} Ek_{(t)}^{\alpha_2} . Gk_{(t)}^{\alpha_3} . h_{(t)}^{\alpha_4} \quad (11)$$

$$H_{(t)} = e^{\phi E} L_{(t)}$$

Where $H_{(t)}$ average per worker HC stock of a country, $e^{\phi E}$ exponentially compounded rate to education, E is average number of year of schooling of working age and ϕ shows return to education.

Now solving for this system of equations from equation (5 to 8).As we assume before that physical capital and HC are accumulating factors. Their equations of motion take the following form:

$$\frac{dDk}{dt} = s_{DK} y_{(t)} - (n + g + \delta) Dk_{(t)} \tag{12}$$

$$\frac{dEk}{dt} = s_{kE} y_{(t)} - (n + g + \delta) Ek_{(t)} \tag{13}$$

$$\frac{dGk}{dt} = s_{Gk} y_{(t)} - (n + g + \delta) Gk_{(t)} \tag{14}$$

$$\frac{dh}{dt} = s\ y_{(t)} - (n + g + \delta) h_{(t)} \tag{15}$$

"A constant steady-state level can be derived for".

$$D\,k^* = \left(\frac{Ds^{1-\alpha_2-\alpha_3-\alpha_4} . Es^{\alpha_2} . Gs^{\alpha_3} . Hs^{\alpha_4}}{(n + g + \delta)} \right)^{\frac{1}{(1-\alpha_1-\alpha_2-\alpha_3-\alpha_4)}} \tag{16}$$

$$E\,k^* = \left(\frac{Ds^{\alpha_1} . Es^{1-\alpha_1-\alpha_3-\alpha_4} . Gs^{\alpha_3} . Hs^{\alpha_4}}{(n + g + \delta)} \right)^{\frac{1}{(1-\alpha_1-\alpha_2-\alpha_3-\alpha_4)}} \tag{17}$$

$$G\,k^* = \left(\frac{Ds^{\alpha_1} . Es^{\alpha_2} . Gs^{1-\alpha_1-\alpha_2-\alpha_4} . Hs^{\alpha_4}}{(n + g + \delta)} \right)^{\frac{1}{(1-\alpha_1-\alpha_2-\alpha_3-\alpha_4)}} \tag{18}$$

$$H\,k^* = \left(\frac{Ds^{\alpha_1} . Es^{\alpha_2} . Gs^{\alpha_3} . Hs^{1-\alpha_1-\alpha_2-\alpha_3}}{(n + g + \delta)} \right)^{\frac{1}{(1-\alpha_1-\alpha_2-\alpha_3-\alpha_4)}} \tag{19}$$

Now substituting equations (16), (17), (18) and (19) into equation (11) the production function gives the steady state level of output per unit of effective labor:

$$y^* = \left(\frac{Ds^{\alpha_1/1-\alpha_1-\alpha_2-\alpha_3-\alpha_4} . Es^{\alpha_2/1-\alpha_1-\alpha_2-\alpha_3-\alpha_4} . Gs^{\alpha_3/1-\alpha_1-\alpha_2-\alpha_3-\alpha_4} . Hs^{\alpha_4/1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}}{(n + g + \delta)^{\alpha_1+\alpha_2+\alpha_3+\alpha_4/1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}} \right) \tag{20}$$

"Where the variables k and y are denoted in efficiency units, and asteriks indicate steady-state variables".

"In relation to the steady-state path, PCI growth evolves according to the following equation":

$$\ln y^* = (\ln A0 + gt) + \frac{\alpha_1}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Ds_{t,i} + \frac{\alpha_2}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Es_{t,i} + \frac{\alpha_3}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Gs_{t,i} + \frac{\alpha_4}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Hs_{t,i} - \frac{\alpha_1-\alpha_2-\alpha_3-\alpha_4}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln(n_{i,t}+g+\delta)u_{i,t} \quad (21)$$

$$\ln(y_{i,t+1}-y_{i,t}) = (1-e^{-\lambda_{i,t}}).(\ln A0 + g_t) + \frac{\alpha_1}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Ds_{t,i} + \frac{\alpha_2}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Es_{t,i} + \frac{\alpha_3}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Gs_{t,i} + \frac{\alpha_4}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4}\ln Hs_{t,i} - \frac{\alpha_1-\alpha_2-\alpha_3}{1-\alpha_1-\alpha_2-\alpha_3-\alpha_4} \ln(n_{i,t}+g+\delta) - \ln y_{i,t} + u_{i,t} \quad (22)$$

Where $\lambda i,t = (ni,t + g + \delta) \cdot (1 - \alpha1 - \alpha2 - \alpha3)$ represents the speed of convergence. This speed is not constant, owing to the variability in the population growth rate. In theory, g and δ could also vary over time.

3.2 Econometric Specification

Base on equation (21), in our empirical model PCI is estimated as a function of gross DS, external saving, net aid transfer, HC and population growth is our base line model. For statistical reason only Equation (21) can be estimated where all variables are non-stationery. The final equation will become;

$$Y_{i,t} = b_{oi} + b_1 LDs_{i,t} + b_2 LEs_{i,t} + b_3 LGs_{i,t} + b_4 LHs_{i,t} + b_5 LTo_{i,t} + b_6 LPGPTC_{i,t} + u_{i,t} \quad (23)$$

where i represent country and t represent time periods; PCI in country i during time period t; gross DS, external saving, net aid transfer, HC and population growth for ith country at time t. b_o depicts country specific constant term and Uit is the random error term following the classical assumptions. However, the model utilize in this study for empirical analysis is specified in a linear form. The selection of variables is chosen based on economic theory. The PCI is the dependent variable and FA along with DS, external saving and HC population growth and trade openness are independent variable.

3.3 Estimation Procedure

As our data set is panel nature and our depended variable is LR integration (non-stationery) that's why this study used dynamic ordinary least square (DOLS) and dynamic feasible generalize least square (DFGLS).

3.3.1 Reverse Causality

The choice of donors for giving aid vary from country to country. Sometimes, they give "more aid" to poorer countries which have a low PCI because those countries are unable to develop themselves without FA. On the other hand, some donors give assistance to countries with a relatively high PCI, as these might be countries with 'better economic policies and institutions". In a long period of time, there is a possibility of bi-directional association among foreign assistance and PCI."To control for potential above-average effectiveness of aid in wealthier countries and below-average effectiveness of aid in poorer countries, the aid variable must be purged from its correlation with the error term".

Most of the existing aid-growth literature identifies the problem of endogeneity where two or more independent variables may be correlated with error term. There may be several potential sources of the endogeneity and reverse causality is among one of them. However (Engle & Granger, 1987), provides a diagnostic mechanism to detect the possible source of reverse causality which is a further source of endogeneity. One possible way of dealing endogeneity is two stage least square (2SLS) technique. Another option is to use internal or external instruments by apply generalize method of moment (GMM) procedure. As a standard GMM procedure, mostly lagged variable are used as an instrument which aggrieved the situation in the presence of autocorrelation and solution becomes more doubtful. This highlights the inability of instruments as a solution of endogeneity. In other case, external instruments may be either too week or inadequately correlated with the explanatory variable and still "strongly connected with the error term" (Roodman, 2007).

3.4 The Endogeneity

While estimating regression model in Equation 23, there is a possibility that the variables on the right hand side for instance,FA, gross DS, external saving, HC, population growth and trade openesscan be affected by a common event or stand in a bi-directional relationship with GDP PCI. Therefore, the model can be estimate by employing the dynamic ordinary least square (DOLS) technique. This method is appropriate to control the problem of endogeneity for the explanatory variables Stock and Watson (1993) and Wooldridge (2009).

By decomposing the error terms, using leads and lags of the right hand variables in first difference form will remove the potential endogeneity of the explanatory variables. It results into super exogenous and unbiased estimates. The baseline regression model is not manipulated for endogeneity and reflects a situation whereas by all adjustments have come to an end, as depicted in Equation 23 above. Controlling for endogeneity needs the decomposition of the error term Uit into the endogenous adjustments of the right-hand side variables that are correlated with Uit, the changes in the variables and the exogenous part of the error term Vit. where

$$u_{i,t} = \sum_{p=-1}^{p=+1} b_1 \Delta LDs_{t,i-p} + \sum_{p=-1}^{p=+1} b_2 \Delta LEs_{t,i-p} + \sum_{p=-1}^{p=+1} b_3 \Delta LGs_{t,i-p} + \sum_{p=-1}^{p=+1} b_4 \Delta LHC_{t,i-p} + \sum_{p=-1}^{p=+1} b_5 \Delta LTO_{t,i-p} + \sum_{p=-1}^{p=+1} b_6 \Delta LPGTC_{t,i-p} + v_{i,t} \quad (24)$$

Substituting Equation 24 into Equation 23 results into a new equation in which all explanatory variables from the base line model can be considered exogenous.

$$Y_{i,t} = b_{oi} + b_1 LDs_{t,i} + b_2 LEs_{t,i} + b_3 LGs_{t,i} + b_4 LHs_{t,i} + b_5 LTO_{t,i} + b_6 LPGPTC_{t,i} + \sum_{p=-1}^{p=+1} b_1 \Delta LDs_{t,i-p} + \sum_{p=-1}^{p=+1} b_2 \Delta LEs_{t,i-p} + \sum_{p=-1}^{p=+1} b_3 \Delta LGs_{t,i-p} + \sum_{p=-1}^{p=+1} b_4 \Delta LHC_{t,i-p} + \sum_{p=-1}^{p=+1} b_5 \Delta LTO_{t,i-p} + \sum_{p=-1}^{p=+1} b_6 \Delta LPGTC_{t,i-p} + v_{i,t} \quad (25)$$

With b_{oi} representing country fixed effect and Δ indicates that the variables are in first differences. The error term $v_{i,t}$ fulfils the assumptions of classical linear regression model.

3.4.1 The Autocorrelation

While estimating the above model involving the non-stationary and error terms correlation, we may face the problem of autocorrelation which can be removed by applying the two-step feasible generalize least square (FGLS) procedure. In the first step, $\hat{v}_{i,t}$ s is obtained from Equation 25 which is estimated with the help of Dynamic ordinary least square (DOLS) technique and first order autocorrelation coefficient is estimated by using OLS method.

$$\hat{v}_{i,t} = \rho_1 \hat{v}_{i,t-1} + u_{i,t} \quad (26)$$

In the second step, we will transform our all the variables of Equation 25 and are described as follows;

$$\overset{*}{Y}_{i,t} = Y_{i,t} - \hat{\rho}_1 Y_{i,t-1} \quad , \quad b_1\overset{*}{LDs}_{i,t} = b_1 LDs_{i,t} - \hat{\rho}_1 b_1 LDs_{i,t-1} \quad , b_2\overset{*}{LEs}_{i,t}$$
$$= b_2 LEs_{i,t} - \hat{\rho}_1 b_2 LEs_{i,t-1} \quad , \quad b_3\overset{*}{LGs}_{i,t} = b_3 LGs_{i,t} - \hat{\rho}_1 b_3 LGs_{i,t-1} \, ,$$
$$b_4\overset{*}{LHs}_{i,t} = b_4 LHs_{i,t} - \hat{\rho}_1 b_4 LHs_{i,t-1} \quad , b_5\overset{*}{TO}_{i,t} = b_5 LTO_{i,t} - \hat{\rho}_1 b_5 LTO_{i,t-1}$$
$$b_6\overset{*}{LPGPTC}_{i,t} = b_6 LPGPTC_{i,t} - \hat{\rho}_1 b_6 LPGPTC_{i,t-1} \qquad (27)$$

where the difference of transformed variables are exactly the same way as in the case of level form. Now correcting the equation for autocorrelation in the error term by using FGLS leads to;

$$\overset{*}{Y}_{i,t} = b_{oi} + b_1\overset{*}{LDs}_{i,t} + b_2\overset{*}{LEs}_{i,t} + b_3\overset{*}{LGs}_{i,t} + b_4\overset{*}{LHs}_{i,t} + b_5\overset{*}{LTO}_{i,t} + b_6\overset{*}{LPGPTC}_{i,t} +$$
$$\sum_{p=-1}^{p=+1} b_1 \Delta \overset{*}{LDs}_{i,t-p} + \sum_{p=-1}^{p=+1} b_2 \Delta \overset{*}{LEs}_{i,t-p} + \sum_{p=-1}^{p=+1} b_3 \Delta \overset{*}{LGs}_{i,t-p} +$$
$$\sum_{p=-1}^{p=+1} b_4 \Delta \overset{*}{LHs}_{i,t-p} + \sum_{p=-1}^{p=+1} b_5 \Delta LTO_{t,i-p} + \sum_{p=-1}^{p=+1} b_6 \Delta \overset{*}{LPGPTC}_{i,t-p} + u_{i,t} \qquad (28)$$

Equation (28) is the final equation where b_{oi} shows the country fixed effect and Δ indicate that country are in first differences; * shows that variables are transformed for the sake of removing autocorrelation and that new error term Uit($u_{i,t} = v_{i,t} - {}_1 + v_{i,t-1}$) fulfils the requirement of classical liner regression model. Now it is free from the autocorrelation. The final equation which is an improved version of Equation 23, represent the fixed effect dynamic feasible generalized least square (FE-DFGLS) approach.

4. DATA, VARIABLES CONSTRUCTION AND DESCRIPTIVE ANALYSIS

4.1 Variables Definition and Construction

GDP per capita denoted with PCI is gross domestic product divided by midyear population. Data are in constant 2005 U.S. dollars. PCI is our depended variable which shows the increase in output of the economies. The growth in PCI shows the level of output that the country has experienced as a result of the presence of FA to supplement the saving in promoting physical and human investment. The gross DS is the total amount of savings accumulating in the economy by all people working in the country and is peroxide by DS to GDP ratio.

It is measured as ratio of external saving to GDP and is also known as external saving. The net external saving are equivalent to net capital import which is equivalent to the current account balance. Following the transforming procedure adopted by Nowak-Lehmann et al. (2012) and Lof et al. (2014), we take the Log (CA/GDP – NAT/GDP) = Logb2ESt,i =b2LESt,i.The term NAT/GDP is subtracted in order to avoid double-counting issue and to separate the impact of FA. As the current account can be negative (Current Account Deficit = Net Capital Inflow = Positive External Saving) or positive (Current Account Deficit = Net Capital Outflows = Negative External Saving) we might add a constant term in the variable to save number of observations. For this purpose, the number 20 is introduced to uplift external saving into a positive number.

Net Aid Transfer (NAT) is referred to any money or resources that are transferred from one country to another without expecting full repayment whereas net aid transfer is proxied by FA to GDP ratio. By assuming that FA is invested in both human and physical capital formation with the aim of increasing PCI and economic performance of the recipient country.

Human Capital According to the new growth theory, HC is an important input which is complement to the physical capital and a prerequisite for ED. HC is refers to the skills and knowledge of human being. In other word, HC is the attribute of a person who is productive in some economics context (Lucas, 1990; Romer, 1990; Barro, 1991; Mankiw et al,. 1992). It is an average workers' HC stock in a country. It is constructed as an exponential compounded rate of education with average number of schooling years and returns to education.

Trade Openness is a policy variable which shows the degree to which countries have trade with other countries. It records the trading activities include imports and exports among economies. Therefore, submission of import and export as a percentage of gross domestic product is known as trade openness.

Population Growth "Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin." (WDI). There is a variable in the model which is the "sum of population growth, technological progress and capital deprecation". It is mainly proxied by population growth rate plus 5 percentage point weight is assigned to technological progress and capital deprecation. Mankiw et al. (1992) assume that the sum of the growth rate of technology and the rate of capital deprecation are equal to 5%. For simplicity, it is called as population growth.

4.2 Data Sources

This study is based on the yearly panel data over the period 1980 to 2013 in order to estimate the impact of FA and HC on EG for selected SACs. The description of variables along with labels and data sources is mentioned in Table 4.1 below. All

the variables are in log form.

Table 4.1: Variable Definition, Label and Data Sources

Variables Name	Label	Data Source
DS to GDP ratio	$LDS_{i,t}$	World Development Indicator (WDI) 2015.
External Saving to GDP ratio	$LES_{i,t}$	International Monetary Fund (IFS)
Net Aid Transfer to GDP ratio	$LGS_{i,t}$	Roodman (2008)
HC	$LHS_{i,t}$	Penn World Table 8.0
Trade Openness	$LTO_{i,t}$	Penn World Table 8.0
Population Growth	$LPGPTC_{i,t}$	World Development Indicator (WDI) 2015.
PCIGDP per capita (constant 2005 US$)	$LY_{i,t}$	World Development Indicator(WDI) 2015.
RER	$\mathrm{LXR}_{i,t}$	Penn World Table 8.0
Gross Capital Formation	$\mathrm{LGCF}_{i,t}$	World Development Indicator(WDI) 2015.

4.3 Data Summary

Descriptive statistics for the mean, median, maximum, minimum, standard deviation (SD), skewness, and kurtosis are reported in Table 4.2. These are all indicators of the reliability of the data.

Table 4.2: Description Analysis

All variable are in log form

	Mean	**Standard Deviation**	**Kurtosis**	**Skewness**
Population growth	**0.573**	**0.392**	**5.778**	**−0.990**

DSs	**2.658**	**0.415**		
			4.707	**-0.543**
Net external savings	**2.821**	**0.343**	**48.79**	**-5.582**
Net aid transfer	**−15.7**	**1.358**		
			4.266	**-0.991**
HC	**0.588**	**0.263**	**2.575**	**0.772**
Trade Openness	**3.600**	**0.478**	**2.541**	**-0.303**
PCI	**6.176**	**0.535**	**2.545**	**0.387**

5. EMPIRICAL RESULTS

This section presents the empirical findings of our base line model which use data set of selected SACs over the time period 1980 to 2013. In order to get the empirical estimates, panel unit root test performed to check the stationarity and non-stationarity of series in the data set. In addition to check the long run (LR) association we perform the panel co-integration test . As our data set is panel in nature and our dependent variable is nonstationary therefore, we use dynamic ordinary least square (OLS) approach and dynamic feasible generalized least square approach. The findings are presented in the following sections.

5.1 Panel Unit Root Test

By applying OLS and FGLS to non-stationary data set, it will result into mis-specified and superiors regression (Engle & Granger, 1987). It necessitates for the verification of time series properties of the under lying series. The present study uses the most recent test proposed by the Im, Pasaran and Shin (2003).

TABLE 5.1: Panel Unit Root Test Results

			Degree of
Variable Name	Im, Pesaran and Shin W-stat	Probability	Integration
Growth of PCI	-2.79	0.00	I(0)
PCI	8.12	1.00	I(1)
Population growth,	-0.74	0.22	I(1)
DSs	-1.26	0.11	I(1)
External savings	-2.52	0.12	I(1)
Foreign aid	3.36	0.99	I(1)
Trade openness	1.67	0.62	I(1)
HC	3.09	0.33	I(1)

Table 5.1 show that all series are integrated of order one I(1) except growth of PCI which is stationery at level, I (0). It is generally observed that the growth rate of PCI is a stationary whereas the real PCI and aid-to-GDP ratio along with other independent variables are non-stationary. Therefore, using growth rate of per capita (dependent variable) which is stationary at level and aid-to-GDP ratio (independent variable) which is non-stationary at level will result into the spurious regression. In this situation, co-integration does not exist Baffes (1997). For this statistical reason,the aid and per capita relationship can be estimated only as all other variables are non-stationery, I (1). A non-stationery series implies that, real PCI may potentially have a LR relationship with FA and other explanatory variables which may be investigated in more depth in panel co-integration context.

5.3 Panel Co-integration Analysis

This study utilizes Engel Granger technique based co-integration test developed by Kao's (1999) based on a fixed-effects model which further validate this model. The null hypothesis H0: The variables of interest are not co-integrated with alternative H1: The variables of interest are co-integrated. The findings are provided in Table 5.2.

TABLE 5.2: Results of Co-Integration Test

Kao "residual" co-integration test	t-statistic	p-value
DF* statistics	2.540	0.000***

***"indicates a rejection of the null of no co-integration at the 1% level. All test statistics are asymptotically normally distributed. The number of lags was determined by the Schwartz criterion".

The Koa residual co-integration test rejects the null hypothesis with highly significant p-value indicating the existence of LR relationship among the underlying variables. Furthermore, Johansen co-integration approach based on the p-values of the individual country trace statistics for different co-integration ranks is also used."This method uses Fisher statistic which is distributed as χ 2 with 2 × N degrees of freedom. The null hypothesis H0: No co-integration among variables against the alternative H1: One co-integrating vector can be identified".

Both the Fisher and Koa test confirms the existence of the LR association "between PCI, DS, external saving, population growth, FAHC" as shown below in Table 5.3.

TABLE 5.3 Results of Johansen-Fisher Panel Co-Integration Test

Johansen-based panel		
Co-integration test	Fisher statistic (from trace test)	p-value
	257.0	0.00***

*** indicates 1% level of significance.

5.3 Dynamic Ordinary Least Square (DOLS)/(DFGLS)

Dynamic ordinary least square (DOLS) and dynamic feasible generalize least square (DFGLS) both generate unbiased estimates even in the presence of endogeneity problem (Stock & Watson, 1993). "These employ the leads and lags of the all independent variables in their differences to absorb the changes in the variables caused by the disturbance term". The growth model estimated by using (DFGLS) for five SACs over the period from 1980 to 2013.

TABLE 5.4 Results of DFGLS

Dependent variable: real PCI(LY)

	Partial model	Partial model	Full model	Interaction term
	(1)	(2)	(3)	(4)
FA	-0.11**	-0.06	-0.09***	-0.26***
HC	1.07***	1.08***	0.88***	4.67***
Trade openness	0.41***	0.35***	0.47***	0.15**
Population growth	-0.13	-0.15	-0.21**	-0.13
DSs	-0.19***		-0.24***	-0.16**
External savings		-0.09	-0.09	0.39
F.A*HC				0.25**
Fixed effects	Yes	Yes	yes	yes

leads and lags	**Yes**	**Yes**	**yes**	**yes**
Cross-sections	**5**	**5**	**5**	**5**
Periods included	**34**	**34**	**34**	**34**
R-squared adj.	**99**	**99**	**99**	**98**
Auto-corr. control	**not**	**not**	**yes**	**yes**

NOTES: t-values are in parentheses; ****,** and *, show the significance level at 1%, 5% and 10% respectively.

DFGLS results reported in Table 5.4 show that FA has statistically significant and negative impact on PCI (EG) in full model analysis. The findings are in line with existing literature Burke and Ahmadi-Esfahani (2006), Khan and Ahmed (2007),Anwar (2007), Djankov et al. (2008), and Nowak-Lehmann et al. (2012) reported similar results that FA has a negative impact on EG. However, for the resining Khan (2010) aruges that "FA fails as a development policy because it destroys the incentives of the marketplace and extends the power of ruling elites. Because it leads the Third World away from the free market, it actually increases Third World poverty. On the other hand, the alternative policy of free trade will give the private sector of the LDCs an opportunity to expand and flourish".

HC which is one of the important determinants of EG enter the model with positive signs, which is statically significant. The results indicate that, a one percent increase in HC is associated with 0.88 increase in EG. HC is found positive in both partial and full model analysis. These findings are consistent with Roomer (1990) who characterize that HC is main engine of the EG. The finding suggested that HC plays an important role in explaining the output growth in SACs which implies that government policies that augment HC can have high returns.

Population growth, which is proxied by the sum of population growth, technological progress and capital deprecation has a significant and negative impact on PCI in both partial and full model analysis. The coefficient of population growth is very small. One percent increase in population growth will decrease the PCI by 0.21 percent. This confirms the previous findings of researchers who point out that population negatively affects EG in south Asian region.

However, DS enter the model statistically significant with negative sign. The result can be generalized with the help of Keynes thought that saving depends on the level of income which is divided into two portions; consumption and saving. At a given level of income, increase in the saving rate will affect the consumption pattern and it leads to lower the consumption which ultimately has negative effect on the aggregate demand. This channel indicates that DS has negative effect on

PCI. Similar findings are reported by Aghion & Howitt (2005) who argued that DS cannot explain for EG. Saving and EG have a strong causal relation, when growth or PCI increases, it leads to increase in the level of DS. But it is not necessary that by increasing saving, PCI may also increase. Similarly, external saving which is our variable of interest has insignificant and negative impact on PCI.

The coefficient of trade openness is positive and statistically significant. It is a policy variable which shows the degree to which countries have trade with other countries. The estimated coefficient revealed that by increasing one percent in trade openness, PCI increases by 0.47 percent. Similar result are reported by, Billmeier & Nannicini (2009) who also resulted a positive contribution of trade openness on EG. The results of this study suggest that FA has a significant and negative impact on PCI of SACs through direct channel. However, according Romer (1990) HC is considered to be the main engine of EG where the FA is absorbed productively in the formation of HC to uplift the EG process. In order to examine the absorption capacity and the ability of low-income countries to productively absorb large amounts of external assistance, an interaction term, net aid transfer multiply with HC, is introduced to capture this dimension.

The regression result reported in Table 5.4 column four shows that FA has significant but negative impact on PCI. However, to examine the impact of the absorption capacity on EG, we used the interactive term of HC and FA that carried positive and significant coefficient, reflecting that FA contribute positively to EG in the presence of HC. The finding of this study confirm that a country rise in HC have the better ability to absorbed the physical capital. The estimated coefficient revealed that by increasing one percent yield to increase PCI by 0.25 percent. Therefore, we come up with a conclusion that FA have a positive contribution to EG in the presence of HC.

5.4 Indirect Impact of FA on PCI

Our earlier findings suggest that FA have a negative and a statically significant impact on economic PCI during the sample period. However, there are studies which are optimistic about the positive effect of FA on EG. Most of these studies have analyzed the impact of FA through different channels.The macroeconomic effect of FA has been discuss by the (Boone, 1996; Rajan and Subsramanian,2005). FA may still has an indirect effect on PCI through the channel of investment, DS and exchange rate. This mechanism assumes that a part of FA is invested for the elevation of possible shortage of DS. This necessitate to explore and estimate the indirect effect of FA on PCI through the channel of DS, investment and exchange rate, empirically. The regression results are presented in the Table 5.5 below.
TABLE 5.5 Results of DFGLS

Table 5.5 Potential transmission channels

Investment	Domestic	Real exchange	
	Channel	savings channel	rate channel
	Investment-to-	DSs-	Real exchange
	GDP ratio	to-GDP ratio	Rate
	(1)	(2)	(3)
DSs	0.26**		
External savings			
	0.08		0.68***
		−0.21***	
FA	-0.12**		-0.25**
Fixed effects	Yes	Yes	yes
leads and lags	Yes	Yes	yes
Cross-sections	5	5	5
Periods included	34	34	34
R-squ- adj.	0.91	0.66	0.76
Auto-cor. Control	Yes	Yes	Yes

NOTES: t-values are in parentheses. *, ** ,* : significant at the 1% ,5% and 10% level respectively.**

Empirically findings presented in Table 5.5 are analyzed three indirect channels through which FA can effect PCI. The investment channel shows that FA has statistically significant but negative impact on investment. This means that increase in level of FA leads to decrees in investment in SACs in the LR, however, it magnitude is very low. Similar findings have been revealed in existing studies for instance, Herzer & Grimm (2012) and Jean (2015) who find no effect or negative impact of FA on domestic investment. The second channel of this partial analysis show that FA has significant and negative impact on DS, however, its magnitude is low. The finding are in line with existing literature like Bakhtiari et al.(2013), Basnet (2013) find similar estimates on the account of crowding out effect. Another reason may be due to the fact that FA is considered to uplift or increase income. However, a large portion of these funds is consume very easily by both government and private sector through increase in consumption which result into high consumption to GDP ratio.

The third channel operates through financial market where exchange rate causes the change in the size of demand for tradable and non-tradable goods. In dual case, weather exchange rate is fixed or flexible, FA transfer leads to increase in income and ultimately additional absorption. Due to this increase, demand for tradable and non-tradable goods increase. In this case of aid recipient countries, the price of tradable goods is still the same or constant but the price of non-tradable goods increases. As a result RER will appreciate and the production sector shifts from the tradable sector to non-tradable sector Adam & Bevan (2006). The regression results of the partial analysis show that FA has significant and negative impact on RER. It means that RER appreciates with the increase in the level of FA.

6. CONCLUSION AND POLICY RECOMMENDATION

To analyze the relationship between FA, HC and PCI, this study uses the extended version of neoclassical growth model. The empirical model is estimated through employing an innovative panel time series based approach for selected SACs over the periods of 1980 to 2013. Keeping in view data characterises the study employing the dynamic ordinary least square (DOLS) and dynamic feasible generalize least square (DFGLS) approaches. These techniques prove to be robust for controlling the problem of endogeneity and autocorrelation. As we find a negative relationship between FA and EG. In addition, FA is found to be having an indirect effect on PCI through the channel of domestic investment, DS and RER. According to study findings FA decreases both the level of domestic investment and DS which result into crowding out. It is also found to be a source of appreciation in RER. On the other side, findings support that HC has a significant and positive impact on PCI. In order to examine the constraint of absorption capacity, an interaction term of HC and FA is introduced in the model. The regression results carried a positive and significant coefficient, reflecting that FA contribute positively to EG in the presence of HC. In addition, trade openness and has a statistically significant and positive impact on PCI.

This study has carried very important results from which a number of policy implication can be drown. For example, FA turned out to be negatively resulted

to economic growth in the case of SACs. This implies that FA in contrast to general perception and consistent with empirical findings, FA adversely affect the macroeconomic indicators and so EG. This study suggest, the South Asian economies to have minimum reliance on FA keeping in view its critical concern regarding EG. On the other hand, HC carried positive and significant coefficient with reasonable magnitude, indicating that HC is one the critical determinant of enhancing EG. The study therefore advances another policy implication for South Asian economies to invest more in HC as it has a leading in the determination of EG. Another important implication of this study for south Asian economies is to open there borders for international trade that yield region-wide gains to the regional economies and enhance EG as shown by the positive and significant coefficient of the trade openness variable. Overall, the study suggests the Asian economies to adopt export-promotion strategies and enhance their export potentials to reduce their dependency on FA as the reliance on FA instead harms EG. The most important results of this study is the negative impact of DS on the EG of south Asian economies. This study therefore, suggests the concerned economies to adopt appropriate fiscal and monetary policies to boost domestic demand that encourages domestic investment.

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