Understanding the Current Account Performance of Selected South Asian Economies: An Application of PMG Model

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Abstract: *Considering panel data over the time period of 1981-2018, the study attempts to investigate the major factors explaining the Current Account Deficits (CAD) of five South Asian Economies (Bangladesh, India, Pakistan, Nepal and Sri Lanka) in the Asian region. For that it specifies a basic model of CAD and another alternative variant of it based on the insights obtained from the literature on the determinants of current account balance (CAB). An application of Pooled Mean Group (PMG) estimation to our CAD model, it observes in the long run that it is largely the exchange rate depreciation which helps to improve the CAB and it is the rising real per capita income which leads to worsening of current account performance of these economies in the region. While trade openness to some extent is seen to produce CAD, the net foreign capital inflows neither seem to pose any threat to current account deterioration nor seem to aid to CAB for these emerging economies. Nevertheless, given the trends of liberalisation and consistent increase in per capita incomes of these countries being experienced over time in various phases, unless some sectoral import restrictions are undertaken along with ensuring the stability in exchange rate at an equilibrium level (for balancing both their export and import needs), these countries are likely to experience more CAD in the future years. The study in trying to relate the CAD with fiscal deficit, It did not find any effect of fiscal deficits on the CAD and therefore does not support the twin deficit hypothesis for these Asian economies from this partial modelling approach. However, the reverse way causation needs to be investigated and established in order to confirm a complete absence of twin deficits hypothesis for these countries. Further, considering gross domestic savings as a per cent to GDP in place of fiscal deficit to GDP, the study found that similar to per capita income, increase in saving has also an unfavorable influence on the CAB, contradicting the previous findings which points out that as domestic savings improves it should fund towards domestic investment, promoting exports and building up current account balance and replacing the stance to seek increased external debt which can reduce the interest payment liabilities in the future. Since domestic investment is not rising at a very much faster rate for these economies comparing the pace of growth of their domestic savings rate, on account of the strong economic fundamentals which get reflected in their sustained rising economic growth, per capita income growth, stabilisation of fiscal deficits at a lower level and strong positive relationship between GDP per capita and savings rate of the economy might have contributed to the credibility of importers, as a result giving rise to massive imports of goods and services from other countries on credits. The findings have important policy bearing for the macro adjustment and financial stability of these economies. This demonstrates that although our empirical evidence presents some contradicting findings in relation to the theory but actual observed the raw data is the pointer to our evidence.*

Key words: Current Account Balance (CAB), Exchange rates, Per capita Income, FDI inflows, Relative prices, Trade openness

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Introduction

Virtually every country on the planet now recognizes the role of trade and investment in achieving higher economic growth and improved living standards. Various regional and domestic forces influence trade from a region - some of which offer new opportunities for poorer countries to become part of the global factory, while others present barriers to negotiation and competition.[2] Inspite of this, most of the countries in the Asian region have pursued to adopting economic liberalisation measures since 1980s in terms of openness to their trade and capital investment flows. *The c*urrent account balance (CAB) is an important barometer of judging the external macroeconomic position of an economy. When the balance turns out to deficits, it tends to generate negative sentiments and future uncertainties among the economic agents and policy makers. There are alternative measures to compute the CAB. The usual way is when domestic investment (both in public and private sector taken together) exceeds domestic savings of an economy; this implies investment being financed through ways of foreign borrowing. A current account deficit may therefore reflect a low level of national savings relative to investment or a high rate of investment or simply reflects the differences in aggregate measure of income and expenditure of an economy. For capital scarce poor developing countries, which have more investment opportunities than they can afford to raise capital resources from their given low levels of domestic savings and expand investment activities, a current account deficit is quite obvious. In this situation, it may be a preferred option for this type of economies to go for a deficit which can potentially spur faster output growth and economic development and this has a greater potential of generating positive sentiments about the economy. However, on the contrary, the recent research shows that developing countries that run current account deficits do not register faster economic growth rate. One of the reasons cited could be because their weak development in the domestic financial systems (or weak institutional development) which cannot allocate foreign capital more efficiently. As a result, the capital flows in a reverse way from the developing countries to the developed countries. This is one of the reasons why the United States being one of the wealthiest countries has been persistently experiencing larger current account balance, more especially with the developing countries and emerging market economies like China, as the later has often been experiencing current account surpluses or near surpluses and this has flared the issue of global imbalances for a protectionism policies of the advanced economies like USA and European countries.[3]

Increase in current account deficits to higher levels often brings in disruptive economic situations such as sudden stops in capital flows, severe decreases in credit and spending, exchanger rate misalignment and economic slowdowns, which generate high unemployment and poverty and accumulation of foreign liabilities. However, a current account deficit led on account of higher consumption is not the same as a deficit led on account of investment in the economy as investment can boost future economic growth and which can enhance country's

[2] Technology is generating a global convergence. A "big bang" of information and education is improving human lives. And with global interconnectivity growing by leaps and bounds, all economies witness to a rapid spread of information and ideas. Given the experience of prolonged global financial crisis, interconnectedness carries grave risks as well as benefits

[3] There are also very poor countries which typically run large current account deficits, in proportion to their GDP that are financed by official grants and loans.

ability to finance and eliminate its current account deficit. Although the governments in the advanced countries undertake protectionist measures to improve their current account position, however there exist limited empirical supports suggesting the implementation of protectionism policy measure would improve the current account position through ways of enhancing the domestic savings or investment. In contrast, the intertemporal theories on the current account also stress on consumption-smoothing role of current account deficits and surpluses. It suggests that countries can import less now in order to export more in the future. Or, the countries can borrow the required capital from rest of the world when there exist negative shocks and pay back as they come out of the shock.[4]

The other widely used alternative measure of current account balance (CAB) can be expressed as the difference between the value of exports of goods and services and the value of imports of goods and services. A deficit implies that the country is importing more goods and services than it is exporting, although the current account also includes net incomes (such as interest and dividends) and transfers from abroad (such as foreign aid), which usually constitute a small fraction of the total. If the deficit reflects an excess of imports over exports, it may be indicative of less competitiveness, but because the current account deficit also implies an excess of investment over savings, it could also be equally indicative of a highly productive and growing economy. On the other hand, if the deficit reflects low savings rather than high investment, it could be indicative of reckless fiscal policy or a consumption binge. Or, it could perfectly indicate a sensible intertemporal trade, perhaps on account of a temporary shocks or shifting demographics. Without having an understanding which of these ways it works, it does make little sense to say whether a deficit is “good” or “bad” for an economy. Deficits would reflect underlying economic trends, which may be desirable or undesirable for a country only with reference to a particular point in time.

When a country experiences persistent current account deficits, it builds up own liabilities against the rest of the world as the deficit is financed by financial inflows. Eventually, these need to be paid back. If a country spends its borrowed foreign resources on projects that cannot yield adequate returns over the long period, then its ability to repay back or solvency would be at risk. This is because the solvency requires that the country should eventually be able to generate sufficient current account surpluses to repay what it has borrowed to finance its CAD. Therefore, whether a country should persistently run a CAD (borrow) or should not run the deficit depends on the extent of its foreign liabilities (its external debt) and on whether the borrowing would finance investment with a higher marginal productivity than the interest rate (or rate of return) the country has to pay back on its foreign liabilities. A country persistently running with higher current account deficits greatly at risk of facing insolvency and losing its ratings by international credit rating agencies. This adverse situation unfavourably affects foreign investment and trade with rest of the world and potentially endangering its economic growth. Sometimes the government runs fiscal deficits when their revenue realisation is not sufficient to meet their expenditures. Therefore, they borrow from domestic private sector. When there is shortage of funds with the domestic private sector, the government borrows from external sources in order to meet its domestic commitments in the

[4] The country during the period of negative shocks can spread out the pain over time by running a current account deficit.

provision of public goods and services to its citizens. Sometimes it is possible that the private sector also borrows to invest at home country. This gives rise to current account deficits by adding up to the aggregate domestic demand and raising the prices of goods at home inducing more imports. Therefore, literature relates fiscal deficits or total private and public sector deficits with the current account deficit.

However, even if the country is intertemporally solvent which means that current liabilities will be covered by future revenues, its current account deficit may become unsustainable if it is unable to secure the necessary financing. Sometimes the crisis facing economies suddenly run out of available foreign funds on account of withdrawal of funds invested by foreign countries. This is described as sudden stops or reversals of foreign capital in the literature, confronting the economy to land up in serious financially vulnerabilities. Such reversals can be highly disruptive because private consumption, investment, and government expenditures must be curtailed abruptly when foreign financing is no longer available as an option and, the country will be forced to run large surpluses to repay in short duration what it might have borrowed in the past. Therefore, large and persistent deficits call for caution, in order to avoid an abrupt and painful reversal in financing.

The theory links up fiscal balance with current account balance. A higher fiscal deficit drives up domestic demand, part of which falls on imports, therefore driving up the trade deficit. In a simpler way, when the government raises its spending, a large part of it falls on non-tradables (e.g. domestically supplied construction services) which jacks up their prices. Producers, who respond to price signals, then shift resources to the non-tradable sector, away from production of tradables (exports and import substitutes). This amounts to a real exchange rate appreciation, and what results in a bigger trade deficit position. By the same logic, when the government reduces its net spending, it lowers the price of non-tradables - equivalent to a real depreciation - thus incentivising more production of tradables, which reduces the trade deficit. Keynesian theory establishes the fact that fiscal expansion raises money demand, leading to increase in interest rates and thereby crowding out the private sector investment (lowering of investment can reduce the economy's long-run potential growth). A higher interest rate, by raising the cost of capital, also elevates the cost of doing business for domestic industry, thus adversely affecting export competitiveness. These channels can also exacerbate the trade deficit.

There are ample empirical literature studying varied number of factors incorporated in determining capital outflows and inflows for various country contexts. The evidences suggest that an overvalued real exchange rate, inadequate foreign exchange reserves, excessively fast domestic credit growth, unfavourable terms of trade shocks, low growth in partner countries, and higher interest rates in industrial countries influencing capital outflows and inflows. Research has also underscored the importance of composition of capital inflows—the relative stability of foreign direct investment compared with more volatile short-term investment flows, such as equities and bonds. Moreover, weak financial sectors can often increase a country's vulnerability to a reversal of investment flows as banks borrow money from abroad and make risky domestic loans. Similar sort of experience was observed by the East Asian economies during their crisis phases of 1996-97. Conversely, it is seen that a more flexible

policy framework of a flexible exchange rate regime, a higher degree of openness, export diversification, and coherent of fiscal and monetary policies combined with financial sector development can help a country with persistent deficits which would minimise the vulnerability to a reversal by allowing greater room for better shock absorption. Although there are studies looking into what determines the current account balance of an economy for individual country context as well as in a panel country context, this study attempts to study a restricted list of selected countries from the South Asian region (viz. Bangladesh, India, Nepal, Pakistan, Sri Lanka) which have close cultural and historical ties and similarities among themselves with the use of a recent panel econometric framework which has not been investigated. Our study excludes the other South Asian countries such as Maldives, Bhutan and Afghanistan as these economies are highly deficit countries on the one hand and they are unlike the countries under consideration as they seem to be culturally and historically different from the present selected list of countries as well. The other reason of exclusion of those from these countries is that the study attempts to explore the relationship on a historical basis and the data is not consistently available for the latter set of countries on a longer term basis. From the literature it tries to draw the broad determinants of current account performance such as real exchange rate, external debt, trade openness, FDI, per capita incomes and then investigates the major determinants of CAD of these sets of countries by using Pooled Mean Group (PMG) estimation technique.

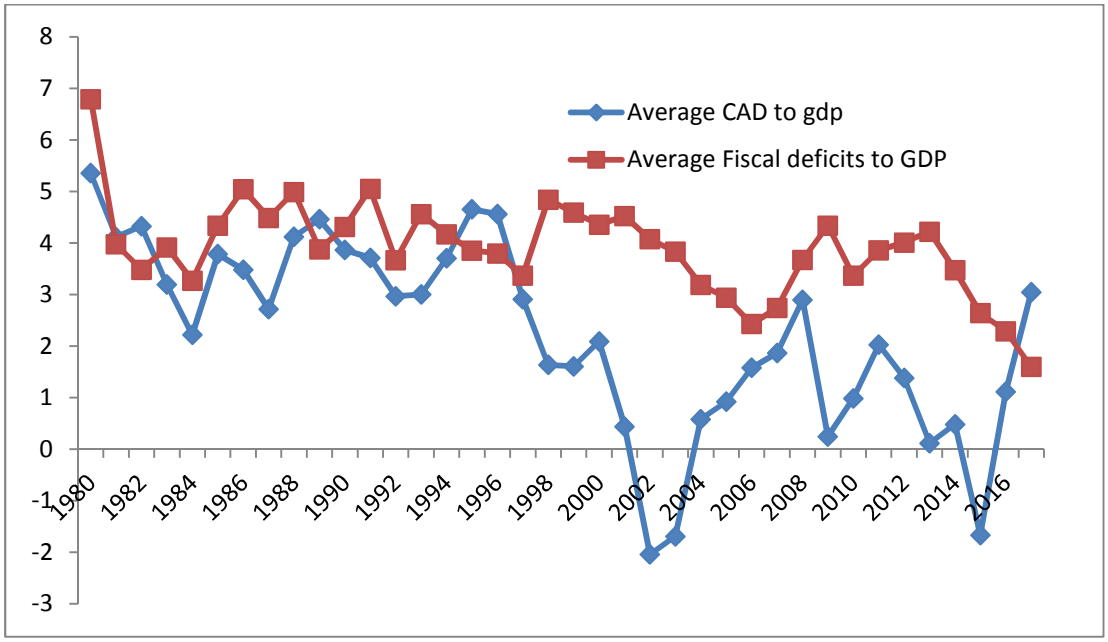
Trends of Macro Fundamentals of Countries under consideration

Among the countries, India is the largest democratic country inhabited by massive size of population and relatively growing at a very faster pace comparing other South Asian countries although its per capita income is lesser than a smaller economy like Sri Lanka which ranks one in terms of the per capita income among these 5 Asian countries considered in this study and almost having a double of India's real per capita incomes. Nevertheless, India's larger economy size is going to influence the average economic performance of the Asian region. The average real per capita income of these 5 countries together shows that it has been continuously growing at a higher rate of more than 4 percent since early 2000's (2003-04) till recent years except the global financial crisis period of 2008-09 and 2009-10 where it has put a growth rate of 3%. In contrast, the current account performance shows that as per capita income grew, the current account balance as a percent of GDP on an average has been declining during the period of 2004-2018 from its averages in 1980s and 1990s when the per capita income grew at a lesser rate comparing 2000's period. Moreover, it reflects that the pattern of per capita income growth and current account as a percentage to GDP do not move in a consistent manner or there is no definite one to one movement in their trends. At the same time, the average external debt to GDP (%) has also been declining over the years since 1994. It was 50.62 % in 1994 and with a continuous fall it has reached to 28.66% in 2017. In terms of their average trade openness (measured from export plus imports of goods and services) as a percentage to GDP have been declining over the years after reaching its high of 48.28% in 2008 later reached at 41% in 2017-18. This has been happening inspite of a continuous average depreciation in the value of these 5 countries' currencies against the representative USA's dollar. The average value of these 5 countries' currencies was 40.19 per

USA dollar in 1994 and has reached to 101.60 per USA dollar in 2017-18. This implies that even there is continuous depreciation of these Asian countries' currencies against the foreign currencies; still these economies are producing current account deficits instead of producing current account surpluses in their external account of the BOP except 3 years in between 1980 and 2018. The average real GDP growth had drastically declined in 2008-09 and now the real growth rate has recovered to 6.5 % in 2017-18 from its peak of 8.79% in 2005 before the global crisis period. There has been a decline in average FDI net inflows as a percentage to GDP for these Asian economies from its peak of 2.03% in 2008 and to 1.14 % in 2017-18. Rather, they have been experiencing net FDI outflows from the region to rest of the world although the percentage of net FDI outflows to GDP is quite marginal comparing their net FDI inflows received by them. In terms of gross private fixed investment, it is continuously increasing since 1980's at a relatively faster rate than the domestic savings to GDP (%), which might indicate continuous deterioration in their current account deficits.

The average trends of CAD as a percentage to GDP of 5 emerging countries plotted in Figure 1 shows that it has a fluctuating trend. It was at higher levels in 1990s comparing the beginning years of 21st century. However, with an increase around 2004 it had registered a further dramatic decline in 2015 and then after it is showing a further increase since then. In contrast, the average trends of fiscal deficit as a percentage to GDP shows that although it is showing a declining trend in recent years but still it is at a higher level but relatively at a lesser level comparing the levels prior to 2002.

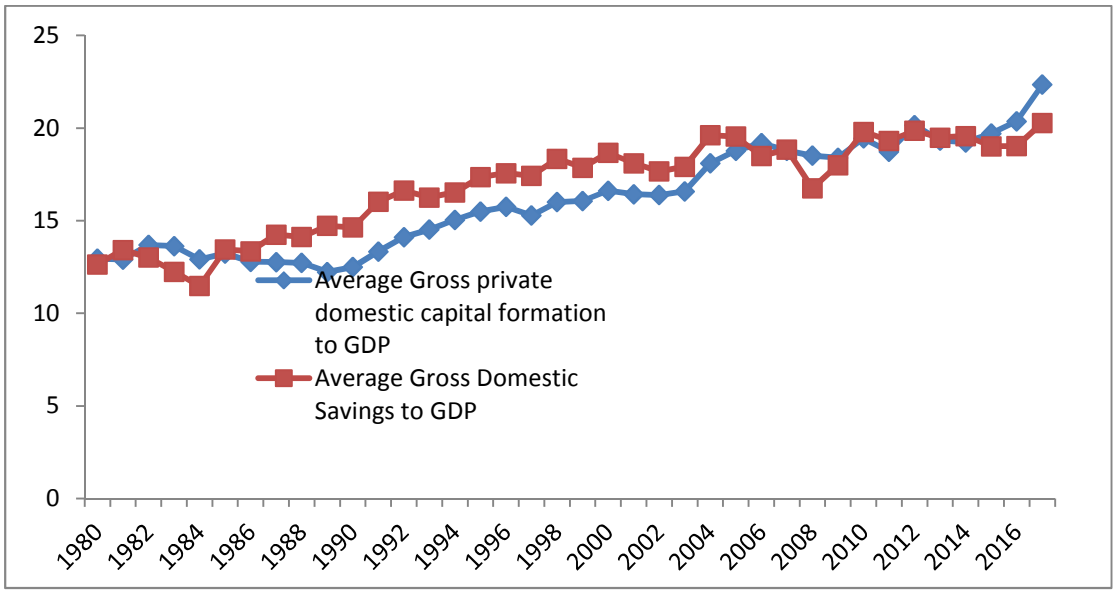
Figure 1: Average trends of CAD and Fiscal deficits to GDP of five Asian Countries (Bangladesh, India, Nepal, Pakistan, Sri Lanka)



The average trends of gross private investment and gross savings, both as percentages to GDP of 5 emerging countries plotted in Figure 2 show that there is almost a movement

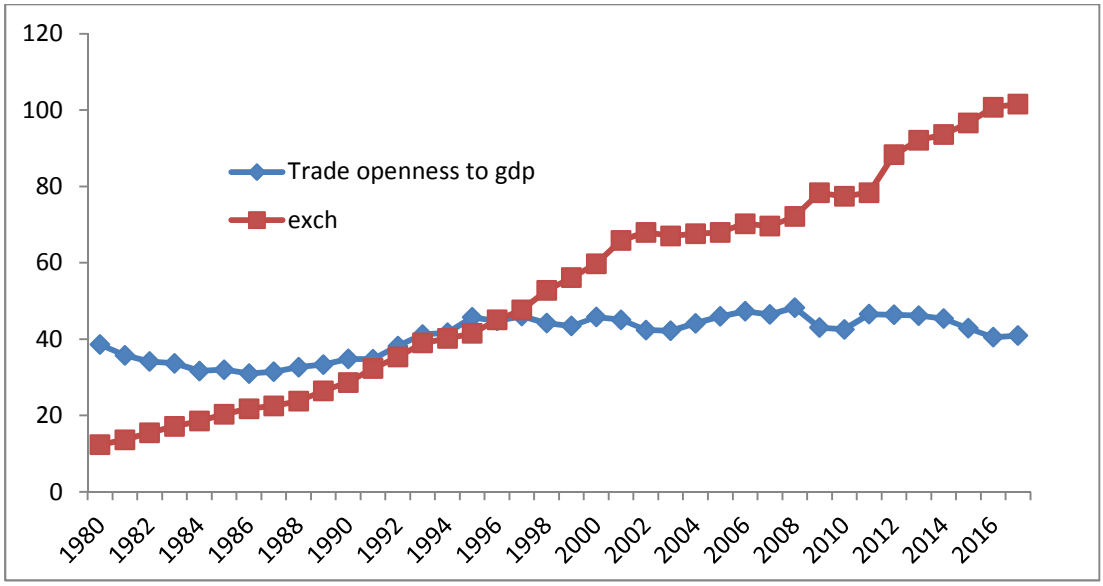
between the two. However, while for a long period of time, the domestic savings was at a higher level than the private investment from 1986 to 2006, thereafter more or less there was convergence between the two barring some exceptional deviations, in recent years it shows that gross private investment is remaining at a higher level than the gross domestic savings, implying that there is greater reliance on foreign debt or savings of foreign countries.

Figure 2: Average trends of Private Domestic Investment and Savings to GDP of five Asian Countries



Examining the trends of trade openness and nominal exchange rate in Figure 3, it shows that there is a continuous depreciation of 5 countries' currencies considered against the representative country USA's currency. In contrast, the trend of trade openness was stable for a longer period from middle of 1990s and there is a slight declining trend in the recent period from 2013-14 suggesting no clear cut relationship between them. This calls for an empirical investigation in order to identify what are the key determinants of current account performance of these 5 Asian economies and accordingly suggest policies in order to sustain macroeconomic stability with higher economic growth. In this context, before we empirically examine the determinants of current account performance for these five economies, the next section comprehensively takes a look at the existing literature in order to gain insight about the relevant determinants of current account performance for other countries and including these five countries.

Figure 3: Average trends of trade openness and nominal exchange rates of five Asian Countries



Literature Survey

Calderon, Chong & Loayza (2000) investigated the empirical links between current account deficits and a broad set of economic determinants proposed in the literature for a panel data set for 44 developing countries for the period 1966-95. Examining the role of public and private domestic savings, external savings, and national income variables and distinguishing between within-country and cross-country effects with the help of estimators controlling simultaneity and reverse causation, they observed that the current account deficits in developing countries are moderately persistent. A rise in domestic output growth worsens the current account deficit, while increase in savings rates improves the current account balance. Shocks that increase the terms of trade or cause the real exchange rate to appreciate are linked with higher current account deficits. The higher growth rates of industrial economies or higher international interest rates reduce the current account deficit in developing economies.

Lee and McKibbin (2007) in light of East Asian crisis in 1997-98 and later rising current account imbalances of the USA economy, they observed that a permanent decline in domestic investment and output growth in East Asian economies led by reduction of return on investment and financial risk are the causes of such global imbalances. From this study, they concluded that the reduction of global current account imbalances requires policies that can raise domestic investment in East Asia, such as expansion of public infrastructure investment and an increase in R&D and human capital investment. Continuous structural reforms in the corporate and financial sectors are also required to lower financial risk and improve investment efficiency and there exists a positive role for investment increase or strong productivity related growth in reducing current account surpluses in East Asia, along with a simultaneous fiscal adjustment in the United States which can be more effective in reducing the USA current account deficit and thereby correcting the global imbalances.

In one of the recent and crucial studies by Hutington (2015) among various factors that can influence current account balance of countries, explored the effects of the oil trade balance of countries (by considering their oil exports and oil imports) on their current account performance of a group of 91 countries over the period, 1980-2009. He investigated the nature of relationship for a mixture of countries engaged in oil exports and oil imports and industrially rich and developing countries by diving the countries broadly on the basis of net oil exporters with positive oil trade balance and net oil importers on the basis of negative oil

trade balance. From an initial observation of the data behaviour, he observed that for net oil exporting countries, it strongly contributes to the improvement in their current account balance, while for the oil importing countries; it does not have any significant negative relationship with their current account performance. Initial empirical result based on fixed effect confirmed what he observed from the raw data. However, separating the countries based on their development, he observed that the rich industrial countries have high trade imbalances in both oil and current accounts. However, it is seen that among the rich countries, the current account deficits rise for the oil exporters and fall for oil importers in relation to the increase in international price of oil. They also observed that current account surpluses resulting from an improvement in oil trade balance for the rich countries operate through increased savings while, for the middle income countries experiencing oil trade balance do not affect their current account balances as it does not improve their savings.

Emmanuel and Ramchander (1998) using multi-variate VAR time series model analysed the "twin deficits" hypothesis for five developing Southeast Asian economies—namely, India, Indonesia, Korea, Malaysia and the Philippines. They found that it is the current account deficit leads to fiscal deficit and there is absence of causality from fiscal deficits to current account deficits. Considering "twin deficits" hypothesis, Abell (1990) examined the linkage between federal budget deficits and merchandise trade deficits for the United States and observed that budget deficits indirectly impact the trade deficits than directly. Similarly, Anoruo and Ramchander (1998) examined the existence of "twin deficits" hypothesis for five South-East Asian countries viz. India, Indonesia, Korea, Malaysia and the Philippines for the period from 1957-1993 and observed that although fiscal deficit does not cause trade deficit; but the reverse causality is found to exist.

Several econometric studies were carried out for Pakistan. While Mukhtar et al (2007) observed a bi-directional causality between current account deficit and fiscal deficits during 1975-2005, Javid et al. (2010) observed a divergence relationship pointing out the budget expansion produces the current account surpluses for Pakistan through positive shock of budget deficits to output growth along with causing depreciation to its exchange rate during 1960-2009. They explained this contradictory relationship between the two on account of stronger output shocks surpassing the effects of the budgetary expansionary shock leading to improvement in the current account performance and its comovement with the fiscal balance. However, the latter finding and explanation were almost similar with the findings by Kim and Roubini (2008) for the USA context. In contrast, Yasmin (2015) observed the reverse causality from current account deficit to fiscal deficit over 1990-2010 pointing out that it is the increase in current account deficits which leads to higher government deficits for Pakistan. There also exists cross-country evidence on the same issue by Abbas et. al. (2011). By considering a large sample of 124 countries from all types of income grouping and using panel VAR econometrics methodology, they observed that a strengthening in the fiscal balance by 1 percentage point of GDP is associated with a current account improvement of about 0.3 percentage point of GDP and the association is especially stronger when initial debt levels are high and economies are more open to trade especially for the emerging markets and low-income countries. The effect is, however, notably weaker during episodes of large fiscal policy and current account changes, suggesting that fiscal policy may have a more limited role in correcting large external imbalances. With higher economic growth,

the relationship between fiscal balances and current account balance moves in opposite directions. Khalid and Guan (1999) considering 5 countries from the advanced and 5 from developing economies, while he discovered there exists no long run relationship between the budget deficits and current account deficits for the advanced countries, he found there exists a long run relationship between the two for the emerging economies. Investigating the causality relationship, they observed that no causality in either direction for UK and Australia, while a causality relation exists from budget balance to CA balance for the USA, France, Egypt and Mexico and there exists causality in both directions for Canada and India.

In contrast to the above studies which particularly paid attention on examining whether fiscal expansion (deficits) produce current account deficits, Lane (2010) along with considering to examine various ways that fiscal expansion can lead to current account deficits of countries, he also focussed on whether fiscal policy can prevent worsening of current account position of Euro countries or can effectively fulfil its potential stabilising role for the current account. His findings indicated that fiscal policy is indeed an important potential source of external imbalances. Therefore, fiscal policy interventions can be helpful in facilitating the external adjustment process. This is because the fiscal policy can help to engineer the type of shifts in the real exchange rate that can be accomplished via nominal currency movements for countries outside a monetary union. He suggested on the optimal design of an implementable fiscal policy that can reduce the costs from excessive external imbalances.

A Standard Specification of the Current Account Deficit (CAD) Model

Based on broad literatures discussed in the above on the determinants of current account balance, the current study specifies a general basic model in terms of current account deficits (CAD) in the following way.

$$CAD = \alpha_0 + \alpha_1 \text{Exch} + \alpha_2 \text{Domestic Price/Foreign price} + \alpha_3 \text{ external debt} + \alpha_4 \text{FDI inflows} + \alpha_5 \text{fiscal deficits} + \alpha_6 \text{Trade openness} + \alpha_7 \text{ Per capita GDP} + u_t \quad (1)$$

Whereas, CAD denotes current account deficit as a percentage to GDP and similarly, external debt, FDI net inflows, fiscal deficits and trade openness, all are expressed as a percentage to GDP. Exch denotes the nominal exchange rate of 5 emerging economies in terms of per unit of a representative foreign currency (USA dollar).

The above model (1) expresses that CAD to GDP can be a function of nominal exchange rate of individual emerging economies' currencies per unit of the USA dollar, price ratio of emerging economies to the price of USA, per capita income of the emerging economies, external debt, FDI net inflows, fiscal deficits, trade openness of emerging economies. A sustained higher CAD will only increase economies' dependence on foreign debt. But a higher external debt if it can productively utilised can raise export earnings even though current account performance of the emerging economies much depends on crude oil imports, which is quite inelastic in nature with rising incomes. However, sometimes because of high

external debt, it can force and induce the emerging economies to reduce the debt by paying in terms of raising exports and reducing their imports, implying improvement in their CAB.

The rise of wages and prices in the USA means that the Federal Reserve will continue to increase interest rates. Higher interest rates in the USA would affect capital inflows to the emerging market economies and make it difficult for managing the macroeconomic performance of the emerging economies with higher CAD. In contrast, a higher relative price in emerging economies it would make the exports of emerging economies more expensive in foreign markets reducing their volume of exports and thereby exerting negative effect on trade balance.

In line with major literature establishing the twin deficit hypothesis, the study also includes the fiscal deficits in the model. The private savings and government budgetary balances are likely to have significant influences on the current account balances of countries. If government deficit is not offset with the private sector savings, increased government sector deficits may find the private sector savings to be insufficient to meet any increased private sector investment and government spending in the economy. It may cause external sector deficits or more capital inflows into the economy on account of higher interest rates. Higher interest rate having an appreciation effects on the domestic currencies, may result in less exports and hence current account deficits. This results in imbalances in government budget and external sector current account. In view of both the deficits, the country may engage in external borrowing. If external borrowing is found to be productive it may result in more exports hence improving the current account balances.

Since trade may rise for countries with having greater openness, therefore, the model in line with Huntington (2015), it has considered trade openness as an explanatory variable. Chinn and Prasad (2003) and Huntington (2015) in their studies, they had demonstrated that trade openness improves the current account balance for countries. Since the countries under consideration are either poor or middle income countries, therefore one can expect the per capita income to generate current account deficits instead of surpluses which is a possibility for the very rich countries. Very rich countries may experience greater trade surpluses and therefore, contributing to their increased savings and outflow of investment to capital scarce poor countries.

Since fiscal deficits would be highly correlated with gross domestic savings of any economy which is the case here as well and which is a supposed to be a major determinant of current account balance of an economy, therefore in an alternative model, we replace the gross fiscal deficits of the combined government with the Gross domestic savings in order to verify whether GDS matters for CAD of the emerging economies in line with prescriptions of major theories. The alternative model can be specified as follows:

$$CAD = \alpha_0 + \alpha_1 \text{Exch} + \alpha_2 \text{Domestic Price/Foreign price} + \alpha_3 \text{ external debt} + \alpha_4 \text{FDI inflows} + \alpha_5 GDS + \alpha_6 \text{Trade openness} + \alpha_7 \text{ Per capita GDP} + u_t \quad (2)$$

Whereas, the above equation is same as equation one except the fact that GDS is replaced in place of fiscal deficit to GDP ratio. The study also considered dependency ratio, rest of the

world's GDP and financial development of emerging economies as other explanatory variables, but finding them later as insignificant in both the models, dropped those variables to conserve the space.

Data Source and Variable Used

The study covers the period from 1980-2018. The data on most of the variables used are largely drawn from the World Bank Development Indicators (WDI) of the World Bank except the data on fiscal deficit as a percentage of GDP. The statistics on current account deficit, external debt, FDI inflows, trade openness, and per capita incomes are considered from WDI, while the fiscal deficit to GDP and the annual average exchange rate are taken from International Financial Statistics (IFS) of the IMF except few cases like Sri Lanka and Bangladesh where we relied upon their respective national statistical websites. The CPI of each of the five emerging countries are expressed as a ratio to the USA CPI (representative of international price) as to capture the real exchange rate effect or relative price effects and statistics are collected from the IFS .

Application of Panel Econometric Methodology

Pearson et al. (199) propose a new estimator called Pooled Mean Group(PMG) estimation, which is based on the auto-regression distributed lags(ARDL) approach. This estimator allows the intercept, short-run coefficients and error variances to vary across the cross-sectional units, but impose the same long-run coefficients across units. The parameters estimates are found to be robust with respect to the use of panel data if we have both types of regressors; stationary, and non-stationary [only $I(1)$] but the dependent variable is $I(1)$ outliers.

Following is the representation ARDL (p,q..).

$$y_{it} = \sum_{j=1}^{p} \lambda_{ij} y_{i,t-j} + \sum_{j=0}^{q} \delta_{ij}^{'} x_{i,t-j} + v_i + \varepsilon_{it} \quad (1)$$

The above equation (1) can be written as;

$$\Delta y_{it} = \phi_i y_{i,t-1} + \beta_i^{'} x_{it} + \sum_{j=1}^{p-1} \lambda_{ij}^{*} \Delta y_{i,t-j} + \sum_{j=o}^{q-1} \delta_{ij}^{*'} \Delta x_{i,t-j} + v_i + \varepsilon_{it}$$

In the above equation y_{it}, x_{it}, v_i represent the dependent variable, explanatory variables and fixed effects respectively. ε_{it} is independent and identically distributed error term, and

'i' ,'t' represent the cross-sectional units and time respectively. The above specification (1) can be augmented with a time trend or any other fixed type regressors, like seasonal dummies (Pearson et al. 1999). The equation (1) augments with time dummies (θ_t) to control the effects of any common time-varying shocks, which can be reasons for the cross-sectional dependence in the error terms[5].

Panel Unit Root Test

There are six-panel unit root tests, and each one is different from each other in many respects. The tests are Levin-Lin-Chu (LLC), Harris-Tsavalis (HT), Breitung test(BT), Im-Pesaran-Shin test(IPS), Fisher-type test, and Hadri LM test.

IPS and Fisher type tests are applicable when one deals with unbalanced panel data (STATA Manual, 2013)[6]. Hadri, Levin-Lin-Chu(LLU), and IM et al. have a restrictive assumption on cross-sectional independence(Pesaran 2007). However, Breitung method is found to be robust in presence of cross-sectional dependence (Breitung and Das, 2005). Pesaran has proposed a new test to handle cross-sectional dependence in which standard Augmented Dickey-Fuller (ADF) regressions are augmented with the lagged levels of cross sectional averages, and the 1st difference of the individual series, which is popularly known as cross-sectionally augmented ADF or CADF (Pesaran 2007).

Each test also differs with respect to the inclusion of autoregressive parameters. LLC, HT, and BT assume that all panels have the same autoregressive parameters, and IPS & Fisher have an assumption of panel specific autoregressive parameter (STATA Manual 2013).

Since our data set used in the analysis is a balanced panel having (N=5 and T=35), thus LLC test is chosen based on its asymptotic property. However, its limitation is that it does not account for the cross-sectional dependence. Therefore, Levin et al. (2002) suggested using this test by taking cross-sectional demeaning of the data. When we detect the presence of cross-sectional dependence, the study demeans the data prior to using the LLC unit root test. One can also use the BT test which accounts for the cross-sectional dependence, but it has an asymptotic property requiring that $(N,T \to \infty)$.

Empirical Result Discussions

[5] Coban(2013), Eberhardt M.(2012) have discussed the use of time dummy to control the cross-sectional dependence in dynamic panel data.

[6] https://www.stata.com/manuals13/xt.pdf (retrieved on 15th March, 2019)

Before we dovetail into presenting rigorous empirical results, as a prelude the study attempts to present some basic characteristics and nature of the variables and their relationships among them to have a basic understanding about those.

The cross sectional correlationship matrix among the variables used in the analysis presented in Table 1 shows that except few cases like exchange rate and price ratios (.79), and per capita income and exchange rate(.68), trade openness and external debt(.6), and per capita gdp and FDI net inflows there exists very weak correlationship among other variables used in the analysis. Since nominal exchange rate measure multiplied with price ratio gives the real exchange rate and mostly there is presence of correlationship between few variables which can be theoretically expected, in all other cases the correlation is not that strong to produce biasness in our subsequent estimated results on their relationships on account of presence of multicolinearity problems.

Table 1: Cross sectional Correlation Matrix with Fiscal deficits

	CAD2GDP	CPI2USACPI	EXCH	EXTERNAL DEBT2GDP	FDI NET INFLOWS2 GDP	FISCAL DEFICITS2 GDP	PER CAPITA GDP	TRADE OPENNESS2 GDP	GDS2GDP
CAD2GDP	1	-0.39	-0.23	0.41	0.17	0.16	0.16	0.35	-0.07
CPI2USACPI	-0.39	1	0.79	-0.38	0.33	-0.16	0.39	0.007	0.27
EXCH	-0.23	0.79	1	0.1	0.34	-0.11	0.68	0.36	0.11
EXTERNAL DEBT2GDP	0.41	-0.38	0.1	1	-0.01	0.159	0.33	0.61	-0.15
FDI NET INFLOWS2GDP	0.17	0.33	0.34	-0.01	1	0.36	0.51	0.371	0.46
FISCAL DEFICITS2GDP	0.16	-0.16	-0.11	0.16	0.36	1	0.36	0.07	0.45
PER CAPITA GDP	0.16	0.39	0.68	0.33	0.51	0.36	1	0.48	0.41
TRADE OPENNESS2 GDP	0.35	0.008	0.36	0.61	0.37	0.075	0.47	1	0.11
GDS2GDP	-0.07	0.27	0.11	-0.15	0.46	0.45	0.41	0.113	1

The Table 2 presents the summary statistics of variables used model estimation of this analysis. It shows that on an average the cad to GDP ratio is negative for all 5 countries considered in the analysis. The average external debt to GDP ratio is almost 36 per cent which is at the modest level meaning it is not too high and not too less for all the 5 countries taken in the analysis. The fiscal deficit on an average is hovering at around 4% of GDP. The average per capita income is very less which is less than 1000 USAD. Trade openness to GDP on an average constitutes almost 41 % .While the average per capita income is highest, its standard deviation is quite higher comparing other variables such as exchange rate (.35) and external debt to GDP (.73). Similar to fiscal deficit , as a percentage to GDP, the gross domestic savings as a ratio to GDP also has a similar magnitude of standard deviation (6.69) with a mean of 16.88 which is higher than the mean of fiscal deficit to GDP (3.86).

Table 2: Summary Statistics of Variables used

	CAD2GDP	CPI2USACPI	EXCH	EXTERNAL DEBT2GDP	FDI NET INFLOWS 2GDP	FISCAL DEFICITS 2GDP	PER CAPITA GDP	TRADE OPENNESS2 GDP	GDS2GDP
Mean	-2.23	0.66	53.31	36.21	0.72	3.86	939.3	40.81	16.88
Median	-1.9	0.57	48.36	33.4	0.54	6	727.1	36.36	16.22
Maximum	11.43	1.52	152.45	74.84	3.67	19.2	3842	88.64	33.9
Minimum	-16.28	0.12	7.86	10.44	-0.1	-12	283.1	12.35	3.82
Std. Dev.	3.33	0.35	31.62	15.83	0.73	6.16	703.9	17.94	6.69
Skewness	-0.21	0.67	0.71	0.48	1.49	-1	2.16	0.66	0.66
Kurtosis	5.52	2.51	2.99	2.23	5.84	3.04	7.96	2.82	2.97
Jarque-Bera	51.8	15.99	16.01	11.85	134.6	31.5	342.3	14.24	13.79
Probability	0	0	0	0	0	0	0	0	0.001
Sum	-423.9	124.67	10128	6879.3	135.9	696	178462.7	7754.73	3206.99
Sum Sq. Dev.	2096	23.73	189000	47353	99.57	6787	93636005	60798.7	8446.65
Observations	190	190	190	190	190	180	190	190	190

The panel unit root test results based on LLC, IPS, ADF and PP produced in Table 3 show that all of the tests confirm that there is no root problem with GDP growth rate variable as it is level stationary. In contrast, the price ratio based on CPI of all individual countries as a ratio to CPI of USA (CPI2USACPI), exchange rate of individual countries against a benchmark currency USA (Exch), financial development, per capita GDP, Trade openness2GDP, private fixed investment 2GDP and Gross domestic savings2GDP which are found to have unit root problems across all types of unit root test statistics shown in the table are found to be difference stationary. However, the variables where there is mixed results on their unit root tests across various tests conducted here are found to be difference stationary. Those variables are CAD2GDP, fiscal deficits2GDP, FDI net inflows 2GDP,

Table 3: panel Unit Root test results on the variables used for estimating the CAD model

	In Levels				In Difefrences			
	LLC (Levin, Lin & Chu)	IPS (Im, Pesaran and Shin)	ADF-Fisher	PP-Fisher	LLC (Levin, Lin & Chu)	LPS (Im, Pesaran and Shin)	ADF-Fisher	PP-Fisher
CAD2GDP	-1.13	-2.70*	24.71*	34.0*	-7.08*	-8.5*	78.28*	377.05*
CPI2USACPI	0.15	3.09	2.77	.377	-1.65*	-1.72**	16.61***	22.60*
EXCH	1.02	3.70	1.00	1.38	-4.61*	-6.88*	64.02*	92.12*
EXTERNAL DEBT2GDP	-0.53	-0.09	7.71	7.58	-6.45*	-6.24*	58.50*	75.42*

FINANCIAL DEVELOPMENT_IN	-.68	.40	8.25	6.02	-5.24*	-6.93*	64.83*	94.22*
PER CAPITA GDP	5.83	7.26	1.50	.52	-3.33*	-3.64*	40.36*	59.60*
TRADE OPENNESS2GDP	1.99	1.31	3.31	6.29	-4.59*	-4.79*	40.82*	89.10*
Fiscal deficit 2GDP	.43	-2.05**	21.43**	39.69*	-4.32*	-7.92*	69.98*	177.92*
Private fixed investment2GDP	1.17	2.02	3.19	6.23	-1.87*	-5.13*	45.58*	122.20*
GDPgr	-3.89*	-5.70*	55.02*	84.98*				
GDS	-.45	0.63	9.95	13.37	-4.93*	-7.81*	75.38*	141.07*
FDI Net inflows2GDP	-1.22	-1.49	19.26**	16.49	-6.27*	-7.85*	74.97*	146.31*

Note: * , **, *** denotes significance of unit root statistics at 1% , 5% and 10% levels.

Given that the variables are of integrated of mixed order of integration, therefore, employing pooled mean group estimation would be a more appropriate strategy for estimating the relationships among various variables in current account deficit model. With an application of PMG model developed by Pesaran and Smith (1995), the Table 4 only produces the long run estimates from the CAD models. The first two result columns produced in Table 4 shows the estimates for CAD model which incorporates fiscal deficits and price ratios in the first model and incorporates only fiscal deficit in the second model, while later two models in the same table provides the estimates of the same CAD model but the first one with GDS with price ratios in the 4th column and only GDS in the 5th column.

Across all the estimated models, it shows that the coefficients of ECM terms are significant and negative indicating that there exist short run adjustments in all the alternative current account deficit models in case there is any short run deviation from its long run equilibrium in any direction.

The long run estimates produced in the first and second column of Table 4 suggest that price ratio of domestic country to foreign country does not have any significant effect on the current account balance of the countries under investigation. The exchange rate depreciation through promotion of exports from these emerging economies, it is helping them to reduce their CAD to GDP ratio. Although exchange rate depreciation is significantly aiding them to reduce their levels of CAD to GDP ratio, however, trade openness is resulting in higher CAD. This could imply that although exchange rate policies on an average helping these emerging economies, but given their import dependency or inelasticity in the import of oil and other basic raw materials, trade liberalisation is adding to their CAD instead of reducing it.

Surprisingly, external debt to GDP is not imposing any problem for the external sector balance of these economies. This may be because of their less proportionate reliance of these economies in seeking loanable funds from outside. This result is although surprising but can be explained by the fact that when there is a pressure of rising external debt, it might be inducing the private sector to pay off their external debt through making greater exports.

In contrast, our result shows a positive association of per capita GDP of these economies with current account deficits. It shows that with increasing per capita income of these emerging

economies, this is giving rise to increased demand for imports and therefore adding to rising current account deficits for these emerging developing economies. Further, it also shows that FDI net inflows and gross combined fiscal deficits to GDP of these economies do not have significant impact on the current account deficits of those same emerging economies.

Instead of considering fiscal deficit to GDP, when we replaced the gross domestic savings to GDP as an independent variable to our first estimated model, surprisingly it shows that although the sign of the price ratio remains same but it is emerging to have significant impact on the CAD to GDP. This indicates that when the domestic prices of economies are relatively higher than the prices of a representative international market like USA, it adversely worsens the current account balance of emerging economies, implying that it worsens the current account deficits of the emerging economies. This finding is in line with major trade theories.

The external debt is surprisingly found to have negative and significant effect on the current account deficits. This implies that when there is increased external debt, emerging economies try to get rid of their liability pressure by increasing exports and hence helping to reduce their CAD. It is also surprising to observe that trade openness is not a significant factor in influencing the CAD of emerging economies along with the consistent insignificant influence of FDI inflows into the emerging economies. In contrast, the Gross domestic savings shows that it has a positive effect on CAD of the emerging economies. This is quite surprising however it is not total opposed to the empirical findings for other countries. It suggests that when domestic savings rises, sometimes, it enhances the credibility of the domestic commercial sector to go for external financing of their trade deficits or enables them to import more on credits than they export to the foreign economies. When we drop the price ratio from the same model in order to compare the results with previous model, it shows that there are lots of consistencies of estimates along with previous results. The nominal exchange rate is consistently having a negative influence on current account deficits. This suggests that with depreciation of emerging countries' currencies per unit representative countries' currency (USA dollar), it encourages fewer imports from abroad comparing their exports to the other countries. As a result, depreciation of domestic currencies of emerging economies, results in lesser current account deficits.

Table 4: Pooled Mean Group(PMG) based Long run Estimates for the CAD model with Fiscal Deficits to GDP or GDS to GDP

Explanatory Variables	ARDL(1, 1, 1, 1, 1, 1, 1, 1)	ARDL(1, 1, 1, 1, 1, 1, 1)	ARDL(1, 1, 1, 1, 1, 1, 1)	ARDL(1, 1, 1, 1, 1, 1)
1	2	3	4	5
CPI2CPIUSA	2.54(1.11)		4.27(2.18)**	
EXCH	-.14(6.79)*	-.14(-7.03)*	-.18(-10.09)*	-.17(-9.84)*
EXTERNAL_DEBT to GDP	0.01(.33)	.027(.95)	-.039(-1.75)*	-.027(-1.16)
PER CAPITA GDP	0.0024(1.64)***	.004(3.99)*	.001(1.49)	.004(5.12)*
TRADE_OPENNESS	.054(2.01)*	.058(2.12)**	-.0005(-	.003(.15)

to GDP			.022)	
FDI_NET_INFLOWS to GDP	-0.28(-.72)	-.227(-.57)	-.36(-1.14)	-.393(-1.17)
Fiscal deficit2GDP	.016(.132)	.030(.25)	-	-
GDS2GDP			.184(3.16)*	.18(3.35)*
ECM(-1)	-.60(-6.08)*	-.51(-4.33)*	-.65(-4.23)*	-.57(-3.24)*

Note: *,**,*** denote significances of coefficients at 1%, 5% and 10% levels.

Since our primary focus is on long run determinants of CAD, therefore, we do not put much emphasis on our short run results. Therefore, in order to conserve space, we report the short run estimates for each individual countries underlying our first reported long run estimates and third reported long run estimates of Table 4. The short run estimates corresponding to the first long run estimates are produced in Table 5 and the short run estimates corresponding to long run estimates are produced in Appendix Table 1.

The short run individual country wise estimates produced in Table 5 shows the short run relationships among the variables in the current account deficit model. As it relate to establishing the short run relationships among the variables, for a country like Bangladesh, contrary to our theoretical expectation, the external debt results in reduction of current account deficits. Per capita income, trade openness and fiscal deficit, all induce greater current account deficits in the short run.

Analysing the short run results for the Indian context, it shows that contrary to the theoretical expectations, exchange rate depreciation results in increase in current account deficits. That means exchange rate depreciation of Indian rupee does not help to increase the current account balance through more exports. Further, per capita GDP, trade openness and FDI inflows result in improvement in current account balance while fiscal deficits of the combined government result in higher deficits in the short run for the Indian context.

In context of Nepal, only trade openness and fiscal deficit induce a greater CAD in the short run, while other variables play insignificant role in determining the current account performance of the Nepal in the short run.

In Pakistan context, similar to Indian situation, the exchange rate depreciation and increased fiscal deficit result in greater CAD while a greater external debt induces reduction of CAD in the short run. Increase in per capita GDP, and FDI net inflows result in increased CAD.

In Sri Lanka context, a depreciation of its currency results in significant reduction of current account deficits in the short run, while fiscal deficits, trade openness and per capita GDP and external debt result in rising CAD.

Table 5: Country-wise PMG based Short Run Estimates with Fiscal Deficits

	Bangladesh	India	Nepal	Pakistan	Sri Lanka	Common
ECM(-1)	-0.86*	-0.66*	-	-0.25*	-0.66*	-.60*

			0.59*			
D(CPI2CPIUSA)	-29.55	4.48	-17.91	26.84	44.74	5.72
D(EXCH)	-.018	.14*	-.10	.05***	-.19*	-.022
D(EXTERNAL_DEBT2GDP)	-.17*	0.046*	.10	-.13*	0.182*	-.012
D(PER_CAPITA_GDP)	0.055*	-0.001*	0.015	.053*	.016*	.027*
D(TRADE_OPENNESS2GDP)	.049*	-0.14*	.22*	.015	.13*	.11*
D(FDI_NET_INFLOWS2GDP)	.54	-.037**	6.10	1.55*	.366	1.64
D(Fiscal deficit 2GDP)	.52*	.039*	.69*	.31*	.19*	.352
C	1.45	.18	3.20	.97	1.15	1.00

Note: *,**,*** denote significances of coefficients at 1%, 5% and 10% levels.

Moreover, country wise short run analysis shows that exchange rate depreciation results in greater current account deficits in India and Pakistan, while the same results in significant reduction of CAD from Sri Lanka but no significant impact on Bangladesh and Nepal.

An increase in external debt results in reduction in CAD for Bangladesh, Pakistan but increases in CAD for India and Sri Lanka. An increase in per capita GDP majorly results in significant increase in CAD in Bangladesh, Pakistan and Sri Lanka, while it results in decrease in CAD for India and no impact for Nepal. Similarly, improvement in trade openness majorly results in increase in CAD for Bangladesh, Pakistan and Sri Lanka, while it results in decrease in CAD for India and no impact for Nepal. However, FDI inflows while it significantly reduces CAD for India but it results in increase in CAD for Pakistan only. The increase in fiscal deficit in all five countries significantly worsens the current account balance of all countries in the short run, while it does not have any impact over the long run.

Comparing the above short run results with the short run results reported incorporating the GDS and price ration variable in the Appendix Table 1, shows that most of the results remaining almost similar, the GDS reduces the current account deficit in the short run comparing its worsening effect on the current account balance in the long run.

Conclusion and Policy Suggestion

The study investigated the long run determinants of current account deficits for five Asian emerging countries in a panel context by considering the historical data from 1980-81 to 2017-18. Utilising the pooled group mean estimates, our results showed that in the long run, while exchange rate depreciation helps the emerging countries to improve in their current account balances, the per capita income results in worsening of the current account performance of these five emerging countries under consideration. While increase in fiscal deficit does not result in worsening of current account performances but on the contrary and more surprisingly, an increase in gross savings results in worsening of current account

balances. Nevertheless, given the trends of liberalisation and consistent increase in per capita incomes of these countries being experienced over time in various phases, unless some sectoral import restrictions are undertaken along with ensuring the stability in exchange rate at an equilibrium level (for balancing both their export and import needs), these countries are likely to experience more CAD in the future years. while relative price ratios, trade openness and external debt show mixed relationship with current account deficits under changing explanatory variable situation, the net foreign capital inflows neither seem to pose any threat to current account deterioration nor seem to aid to current account balance into these emerging economies. Although with some certainty trade openness is signifying that improvement in trade openness can induce greater current account deficits, however, it does not mean that these emerging countries should follow the recent protectionist policies as being pursued by some of the advanced economies. If they follow the same path by resorting to protection policies that may lead to retrograde path affecting their economic growth adversely as trade also helps all the countries to benefit from it over the long run.

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Appendix

Table 1: Country-wise PMG based Short Run Estimates with GDS

	Bangladesh	India	Nepal	Pakistan	Sri Lanka	Common
ECM(-1)	-1.18(40.57)*	-.72(45.75)*	-.38(-21.30)*	-.32 (17.68)*	-63.6(-25.80)*	-.65(-4.23)*
D(CPI2CPIUSA)	-20.63(-.14)	3.08(0.10)	-8.40 (.020)	31.43(.14)	41(14)	9.30(.79)
D(EXCH)	.023(1.77)	.186(37.23)*	-.036(-.92)	.047 (2.60)**	0.29(1.64)	.050(1.35)
D(EXTERNAL_DEBT2GDP)	-.10(-26.83)*	-.04(-12.79)*	.013(.73)	-.061(-7.39)*	.11(15.83)*	-.016(-.453)
D(PER_CAPITA_GDP)	.024(47.0)*	-.003(-59.70)*	-.035(-11.40)*	.052(92.79)*	0.020(295.96)*	.011(.78)
D(TRADE_OPENNESS2GDP)	.099(20.14)*	.135(65.37)*	.15(6.16)*	-.052(2.64)***	.12(10.26)*	.91(2.45)*
D(FDI_NET_INFLOWS2GDP)	.86(1.89)	-.39 (5.89)*	6.94(.74)	1.23(1.91)	.049(.13)	1.75(1.34)
D(GDS2GDP)	-.003(-.40)	-.15 (10.87)*	-.070(-1.10)	-.368(-12.04)*	-.51(-10.40)*	-.22(-2.32)*
C	3.63(2.09)	-.477(-1.27)	3.53(1.67)	.10(.13)	3.89(.83)	2.14(2.24)**

Note: Values in parentheses are T-statistics of corresponding coefficients

Figure 1A: Current account performance (CAB/GDP%)

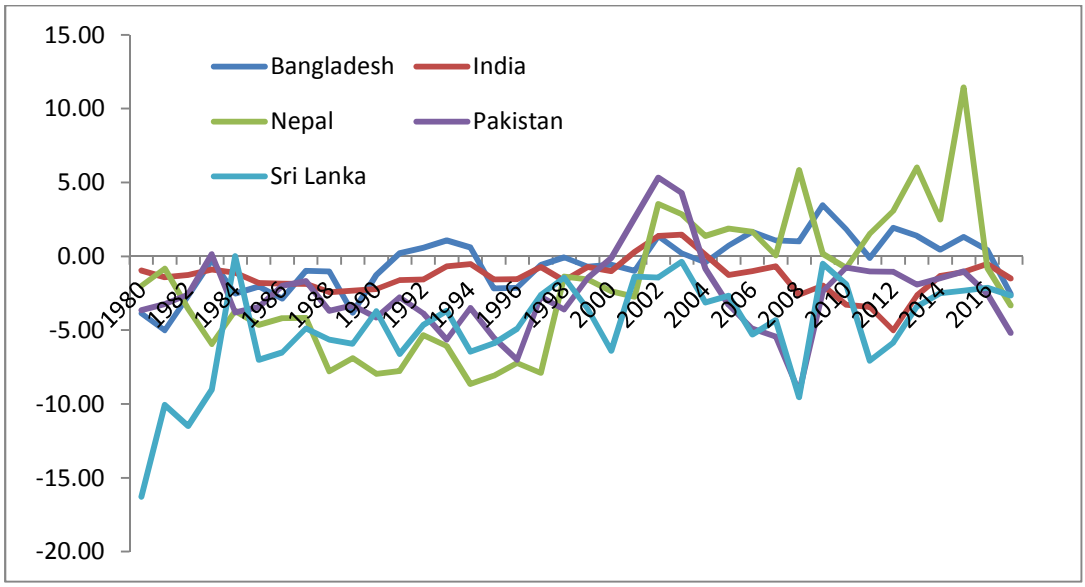

Figure 2A: Per capita GDP

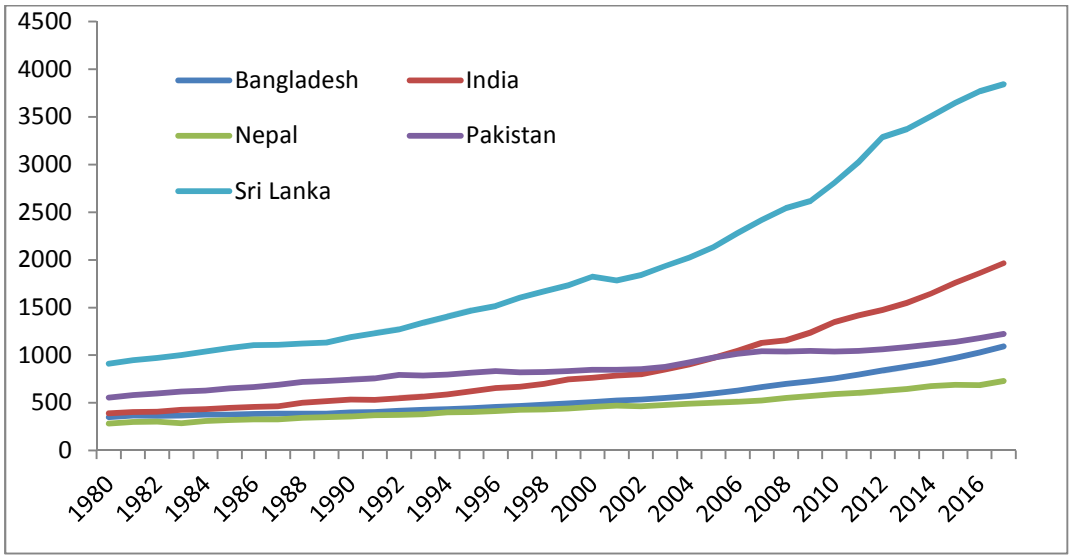

Figure 3A: Debt to GDP ratio

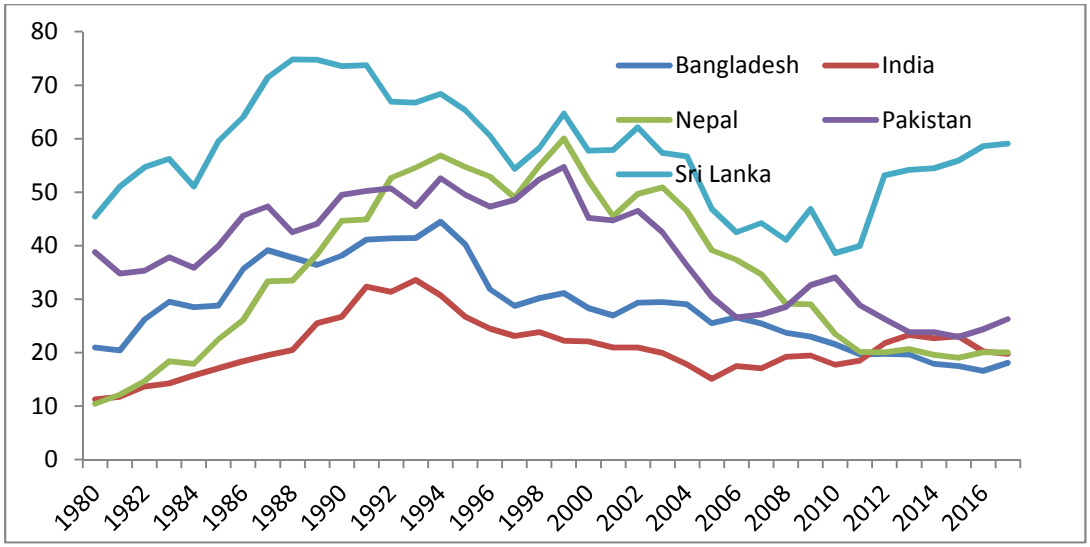

Figure 4A: Trade to GDP (%)

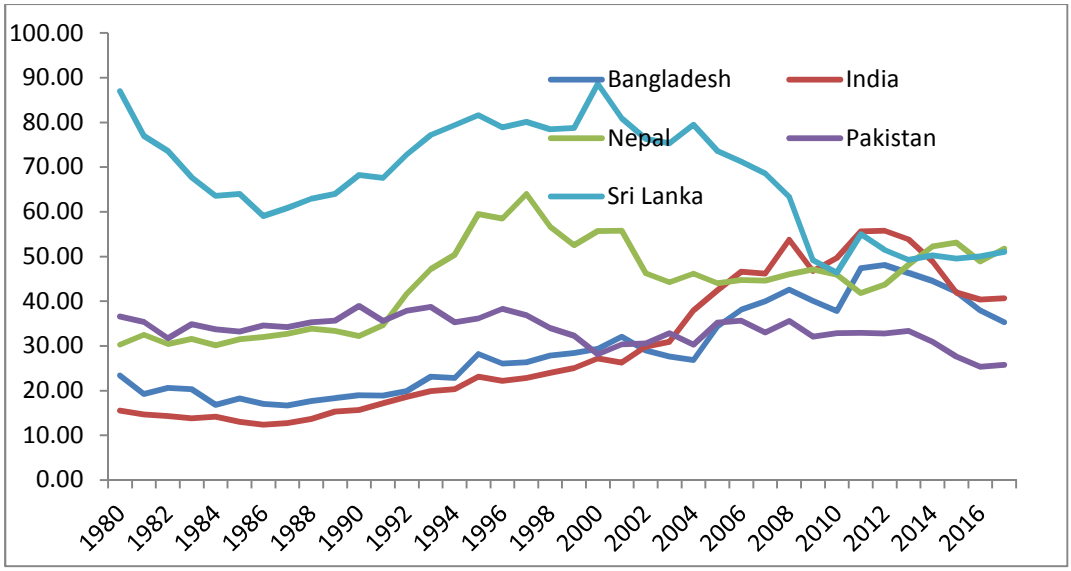

Figure 5A: FDI to GDP

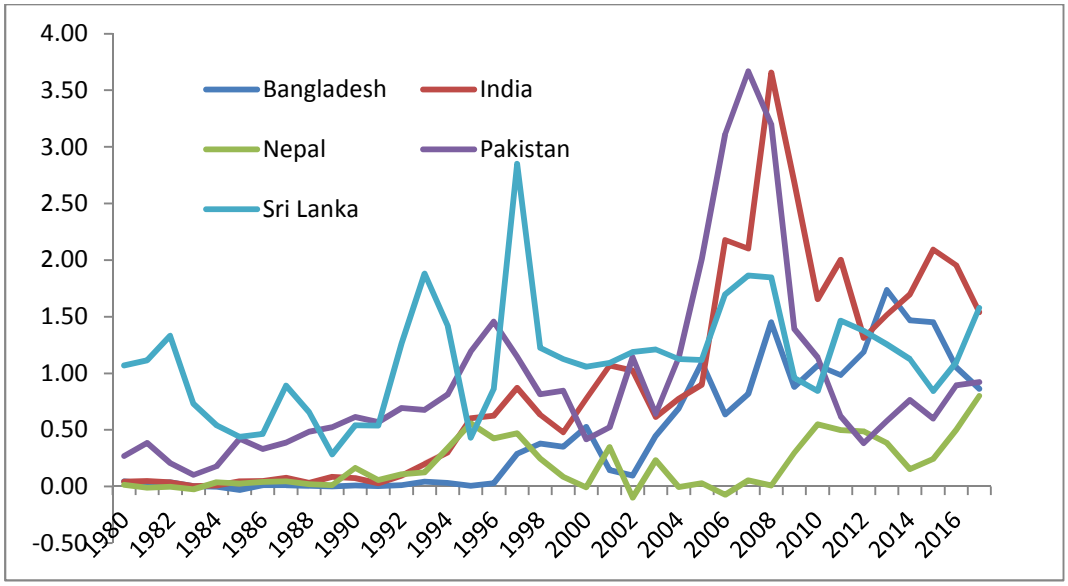

Figure 6A: Gross fixed capital formation of Private sector to GDP(%)

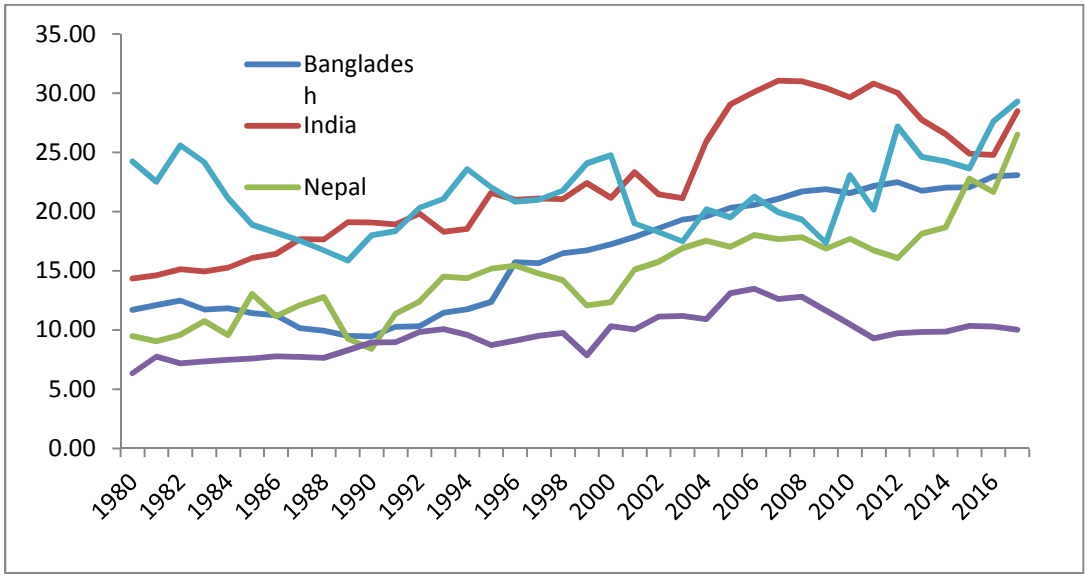

Figure 7A: GDS to GDP (%)

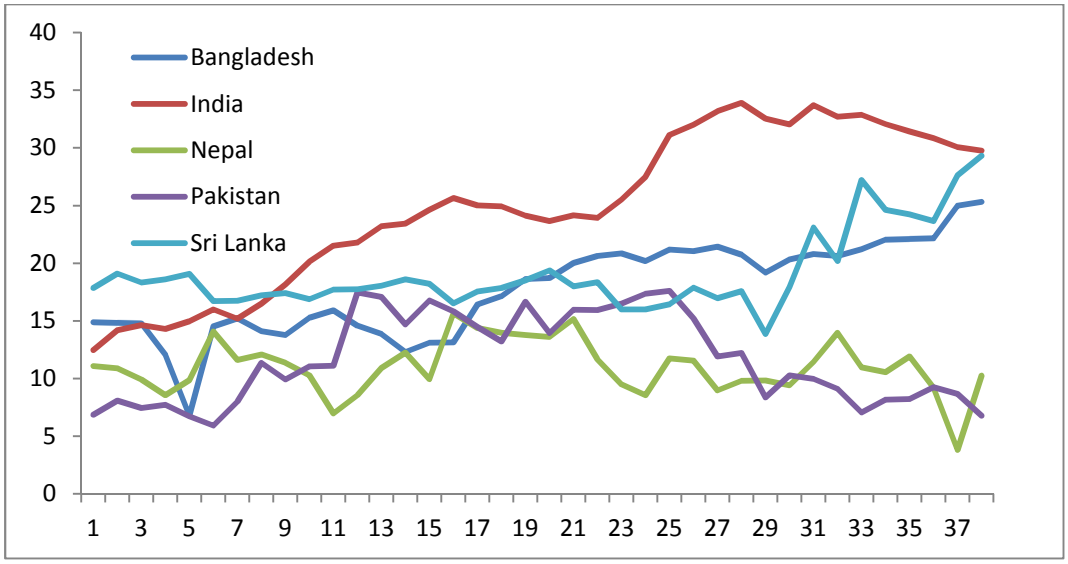

Figure 8A: Per capita real GDP Growth (%)

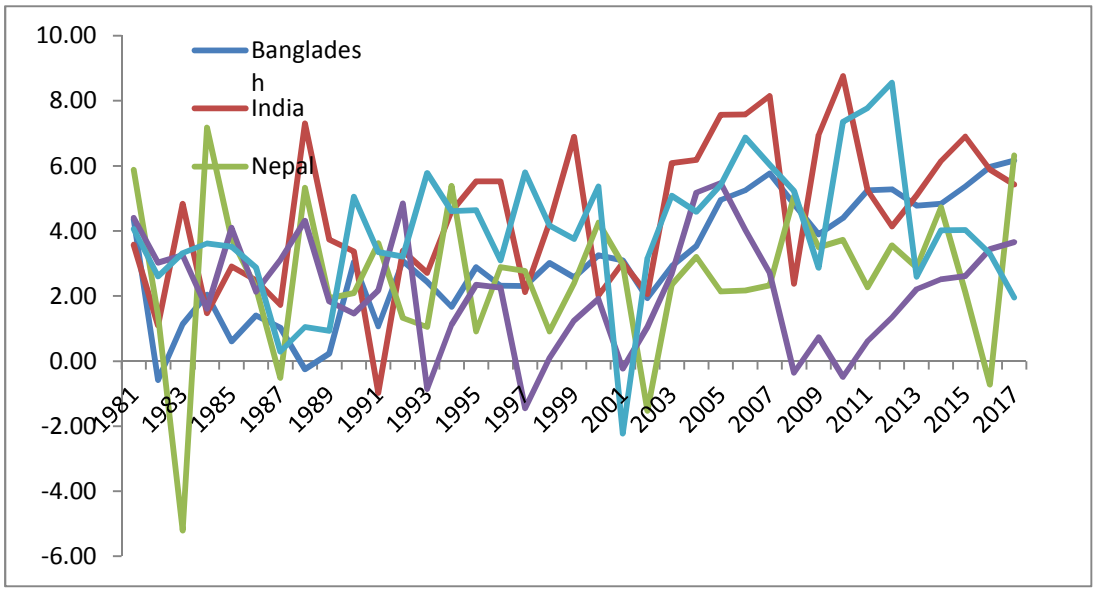

Figure 9A: Exports to GDP

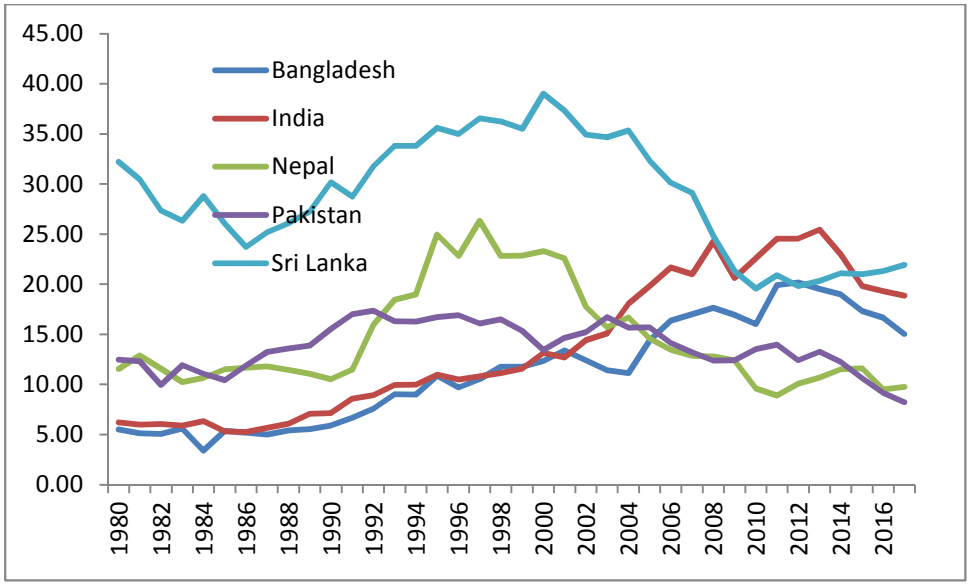

Figure 10A: Imports to GDP