Impact of Capital Inflow on Economic Growth of South Asian Economies

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Abstract
The main objective of this research is to explore the impact of capital inflow on economic growth of South Asian economies (Bangladesh, India, Pakistan and Sri Lanka). The gross domestic saving, commercial bank & other lending and portfolio equity investment are the independent variables and the gross domestic product growth is the dependent variable. This study is consisting on panel-based data and the data was taken for the period of 1981 to 2016, which are 36 years. The data was collected from World Development Indicators (WDI) and Quandl on annual basis. Panel ARDL (PMG) model is applied to analyze the data. The results related to gross domestic saving shows that there is positive and significant long - run relationship present in between gross domestic saving and gross domestic product growth on the other hand the results related to short - run shows that there is negative and non-significant relationship present in between gross domestic saving and gross domestic product growth. The results related to portfolio equity investment shows that there is positive and significant long - run relationship present in between portfolio equity investment and gross domestic product growth on the other hand the results related to short - run shows that there is positive but non-significant relationship present in between portfolio equity investment and gross domestic product growth. The results related to commercial bank & other lending shows that there is negative and non-significant long - run relationship present in between commercial bank & other lending and gross domestic product growth on the other hand the results related to short - run shows that there is negative and non-significant relationship present in between commercial bank & other lending and gross domestic product growth.
Keywords: Panel ARDL (PMG), Capital Inflow, Gross domestic Product Growth and South Asian Economies.
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1. Introduction
If any nation wants to enhance the living standard in their country they need the sustainable inflow of capital for maintain the saving and foreign exchange gap, due to this it enhances the rate of growth and capital accumulation. On the other hand, one of the resources is capital inflows. The impact of capital inflows on gross domestic product growth has gained more debate in recent years due to 2008 crisis (Macias and Massa, 2009). Empirical researches associated to capital flow and gross domestic product indicates result in favor and opposing the theoretical debate with respect to the influence of capital inflow (Gross Domestic Saving, Equity Portfolio Investment and Commercial Bank and Other Lending).

   Opschoor (2015) discussed the association between economic growth and gross domestic saving by using the panel data studies and Granger causality study.Finding from Granger causality study shows that, most of the countries have causal association among the two above variables, but the direction of association is unclear, finding shows that there is chances of causality direction is reliant on an income level of the country. The finding we get through by panel data indicated a positive association among domestic saving and economic growth. After that he divided gross domestic saving into public and private saving then results shows the positive association among domestic public saving and economic growth, but no association finds in among economic growth and domestic private saving. Jagadeesh (2015) examined the association among economic growth and gross domestic saving in Botswana. The finding shows the important association among gross domestic saving and economic growth. Najarzadeh et al. (2014) asserted the association among domestic saving and total or non-oil economic growth.Finding indicates that there is positive association among above variables. The finding also indicates the long run causal relation among above variables and the relationship of those variables are two-way.Gjergji (2014) had pointed out the association among country saving rate and gross domestic product growth (economic growth) of Albania.The finding indicates that, positive association exists among domestic saving or economic growth. Hailu (2016) considered the association among domestic saving or gross domestic product in Ethiopia. The finding suggests that there is negative association and unimportant contact among gross domestic saving and gross domestic product growth (economic growth Tsaurai (2017) showed the influence of equity portfolio investment on gross domestic product growth (economic growth) of fourteen European and Asian rising markets. The finding also indicates that they must also focus on overseas portfolio bond investment,

if they want the long-term sustainability in economic growth. Tang (2015) discussed the overseas capital flow (overseas direct investment & overseas portfolio investment) influence on gross domestic product growth (economic growth) of European Union. The finding indicates that the both capital flow have no impact on gross domestic product growth. Ibrahim and Akinbobola (2017) asserted the association among gross domestic product growth (economic growth) and overseas portfolio equity investment of Nigeria. The finding indicates that there is positive and important association present among overseas portfolio equity investment and gross domestic product growth. In long run finding indicates that there is important and positive impact of democracy present on gross domestic product growth. Ndong (2015) endeavored to find the influence of net equity portfolio investment on return on equity and gross domestic product growth (economic growth) of 11 African nations. The finding indicates that the equity portfolio investment has an unimportant but positive influence on return on equity and gross domestic product growth. Albulescu (2015) seeks the influence of overseas portfolio investment (overseas equity investment and overseas direct investment) on gross domestic product growth (economic growth). The finding shows that, in long run the overseas portfolio investment put forceful impact on gross domestic product growth (economic growth). Assibey and Adu (2016) verified the association among overseas portfolio equity investment, financial sector development and gross domestic product growth (economic growth) in fourteen Sub-Saharan African Nations. The finding related to EGLS indicates that there is an unimportant negative association present among overseas portfolio equity investment and gross domestic product growth. Ocharo et al. (2014) had pointed out the association among portfolio equity investment, overseas direct investment, cross border interbank borrowing and economic growth (gross domestic product growth) in Kenya. The finding shows that there is positive and statistically unimportant association present among overseas portfolio equity investment.

Anyanwu et al. (2017) explored the influence of bank lending (private sector borrow credit from commercial bank) on gross domestic product growth. The finding related to ordinary least square shows that the bank lending has unimportant and negative influence on gross domestic product growth. The finding related to johansen cointegration shows that, the long run association is present among gross domestic product growth and bank lending Rateiwa and Aziakpono (2017) discussed the root and long run association among other lending (non-bank financial institution) and gross domestic product growth of South Africa, Egypt and Nigeria. The finding related to Egypt indicates that there is important, positive and long run association present among other lending and gross domestic product growth. The finding related to South Africa indicates that there is important, positive and long run association present among other lending and gross domestic product growth. The finding related to Nigeria indicates that there is weak association present among other lending and gross domestic product growth, but the finding also indicates the mixed and weak results Problem Statement.

2. Literature Review
2.1 Gross Domestic Saving
Opschoor (2015) discussed the association between economic growth and gross domestic saving by using the panel data studies and Granger causality study. Relationships between above variables are estimated by using a data of eighty three countries for the period of 1971 to 2011, which is 40 years. Finding from Granger causality study shows that, most of the countries have causal association among the two above variables, but the direction of association is unclear, finding shows that there are chances of causality direction is reliant on an income level of the country. The finding we get through by panel data indicated a positive association among domestic saving and economic growth. After that he divided gross domestic saving into public and private saving then results shows the positive association among domestic public saving and economic growth, but no association finds in among economic growth and domestic private saving.

Jagadeesh (2015) examined the association among economic growth and gross domestic saving in Botswana, by using Harrod-Domar growth model on Botswana economy. Auto Regressive Distributed Lagged model based test applied to check the long term relation among these variables. Botswana Time series data is used which is 33 years over the period of 1980 to 2013. The finding shows the important association among gross domestic saving and economic growth.

2.2 Equity Portfolio Investment
Gudiskis and Urbsiene (2015) covered the association among private equity (equity investment) and economic growth. The data is taken of 13 European nations for the time period of 1991 – 2012, which is 22 years. To analyze this data the panel vector autoregressive technique is used. The finding indicates that by granted copyright, license and legal protection (patent) is treating as innovation and it boast equity investment and economic growth. The finding also indicates that in short run after legal protection, equity investment influence on the economic growth by profit oriented granted legal protection (patent).

Tsaurai (2017) showed the influence of equity portfolio investment on gross domestic product growth (economic growth) of fourteen European and Asian rising markets. Panel data was taken of those nations. To

analyze the data he used Generalize Methods of Moments. The finding indicates that there is positive and unimportant impact of equity investment (overseas portfolio equity investment) on economic growth. The finding also indicates that they must also focus on overseas portfolio bond investment, if they want the long term sustainability in economic growth.

Ibrahim and Akinbobola (2017) asserted the association among gross domestic product growth (economic growth) and overseas portfolio equity investment of Nigeria. Data was taken for the period of time 1986 – 2013 from Nigerian Central Bank. To analyze this data the Phillip Peron and augmented dickey fuller test was used. The finding indicates that there is positive and important association present among overseas portfolio equity investment and gross domestic product growth.

2.3 Commercial Bank & Other Lending
Tahir et al. (2015) had pointed out the correlation among bank lending to private sector and gross domestic product growth (economic growth). Secondary data of Pakistan was taken in this study and the data was taken from the World Bank for the time period of 1973 – 2013, which is approximately 40 years. To check the causality and relationship among above variables they used granger causality and vector error cointegration model. To analyze the influence of bank lending to private sector on gross domestic product growth they use regression analysis. The finding related to regression analysis indicates that there is negative association present among bank lending to private sector and economic growth. The finding also indicates that in short run as well as in long run; there is important association present in between bank lending to private sector and gross domestic product growth. The finding also indicates that the bank lending to private sector has causal impact on gross domestic product growth.

3. Methodology:
3.1 Conceptual Framework
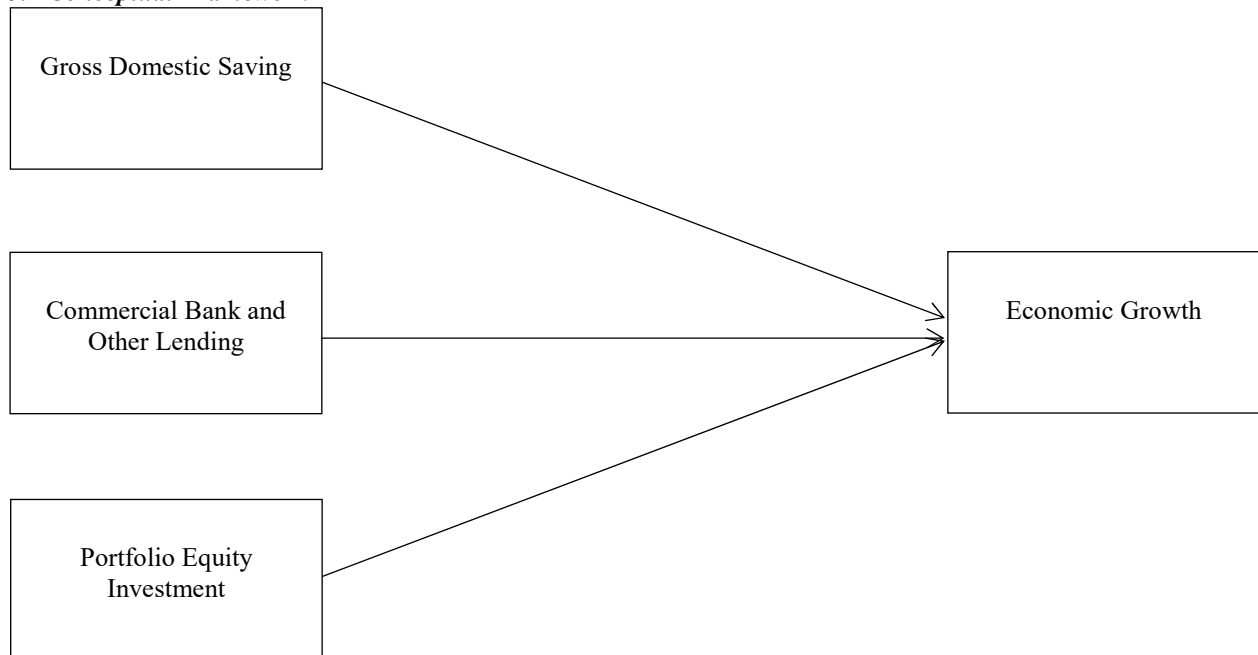
In above diagram the gross domestic saving, commercial bank and other lending and portfolio equity investment are the independent variables and on the other hand the economic growth is the dependent variable. The above diagram shows that the gross domestic saving, commercial bank and other lending and portfolio equity investment are some few variables and due to their influence the change occurs in economic growth.

3.2 Variables and Data Sources
In this study four variable are used (economic growth, gross domestic saving, commercial bank and other lending and portfolio equity investment). This study is consists on panel based data and the data was taken for the time period of 1981 to 2016. The data was collected from World Development Indicators (WDI) and Quandl on annual basis. The purpose of this study is to check the impact of independent variables (gross domestic saving, commercial bank and other lending and portfolio equity investment) on dependent variable (economic growth).

Table #1

Variable	Description	Units	Source
GDS	Gross Domestic Saving	% GDP	WDI &Quandl
CBOL	Commercial Bank & Other Lending	(PPG + PNG) (NFL, current US$)	WDI &Quandl
PEI	Portfolio Equity Investment	(BoP, current US$)	WDI &Quandl
GDPG	Economic Growth	(GDP growth (annual %))	WDI &Quandl

4. Results and Analysis

This study consists of 4 variables which are gross domestic saving, commercial bank & other lending, portfolio equity investment and economic growth. While, conclusion presents in the coming segment which are in following manner, descriptive statistics, Panel unit root, optimal lags selection, Hausman test, PMG/MG, short run for each country and long run for each country.

4.1 Descriptive Statistics
Table # 2

	GDPG	GDS	PEI	CBOL
Mean	4.951787	18.92496	1.83	1.80
Median	5.045125	17.75601	24368776	60474000
Maximum	9.144579	38.33277	3.29	4.18
Minimum	-1.545408	5.929348	-1.50	-2.22
Std. Dev.	1.937960	7.972970	6.18	6.45
Skewness	-0.515253	0.456543	3.138547	2.898394
Kurtosis	3.730715	2.488896	14.88499	19.08744
Jarque-Bera	7.114995	4.881669	805.4194	1303.654
Probability	0.028510	0.087088	0.000000	0.000000
Observations	107	107	107	107

In this study data was taken for the period of 1981 to 2016, which are approximately 36 years of observation. The descriptive statistics is applied on EViews 9 to check that what is going on in there in data. This table shows that the gross domestic product growth mean value is 4.95. The standard deviation value of gross domestic product growth is 1.938. The maximum and minimum values of gross domestic product growth are 9.14 and -1.545 respectively. The minimum values of gross domestic product growth showing that there are nations include in this panel which have less gross domestic product growth, but the maximum values of gross domestic product growth showing that some of the panel nations have high gross domestic product growth.

This table shows that the gross domestic saving mean value is 18.92. The standard deviation value of gross domestic product saving is 7.97. The maximum and minimum values of gross domestic saving are 38.33 and 5.93 respectively.

4.2 Panel Unit Root Test
Table # 3

Variables	Levin–Lin–Chu unit root test (LLC)		Im-Pesaran-Shin unit root test (IPS)		Decision
	Level	**First Difference**	**Level**	**First Difference**	
Commercial Bank And Other Lending	0.60291 (0.2733)	-2.61640 (0.0044)	2.67039 (0.0038)	-6.82005 (0.0000)	**I(1)**
Gross Domestic Saving	-0.2793 (0.3900)	-2.6448 (0.0041)	0.57130 (0.7161)	-6.25403 (0.0000)	**I(1)**
Portfolio Equity Investment	-3.2794 (0.0005)		3.18172 (0.0007)		**I(0)**
Economic Growth	-2.2119 (0.0135)		-2.7168 (0.0033)		**I(0)**

Unit root test is considered very important in research before any statistical analysis, because if data is not stationary then the results not come accurate, so it became very important for making data stationary therefore the unit root test is conducted. To check unit root in data there are lots of methods available but in present study only two unit root test is applied first one is IPS test and the second one used in this study was LLC test. The LLC test is not good in small sample size due to their serial correlation but their forte is in large sample, in large

sample their results is accurate, to overcome their disadvantage we use IPS test. IPS test is good in small sample size because this test minimizes the serial correlation and this is their forte but this test is not good for the large sample size and this is their disadvantage. Both tests have one advantage and one disadvantage this is why in this study we chose both of them to enhance the accuracy of results (Wang et al., 2011;Im et al., 2003;Levin et al., 2002).

4.3 Optimal Lag Selection
Table # 4

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-4829.946	NA	1.62000	106.2406	106.3509	106.2851
1	-4669.329	303.5848	6.76000	103.0622	103.6140	103.2848
2	-4653.685	28.19319	6.82000	103.0700	104.0633	103.4707
3	-4596.950	97.26028*	2.80000*	102.1747*	103.6095*	102.7536*

In above table the results of optimal lags are extract by using EViews 9. The selection procedure of optimal lags is very difficult. The main difficulty to select optimal lag is that if we choose lots of lags then the result comes up with lots of errors. Therefore, if you chose limited lags then it gave optimal information. Practice, theory and learning are the best technique to select the optimal lag selection. On the other hand, there are many ways to select the optimal lag selection on the bases of mostly used information criterion which are AIC, SBIC etc. (M Saeed, 2016). In above table we selected 3 lags and the result indicates that the optimal lag according to above table is 3rd lag.

4.4 Hausman Test
If the framework is in case similar, then the estimates of pooled mean group believe more efficient than mean group. Null hypothesis is that the preferred model is pooled mean group (PMG). If the null hypothesis is accepted, then it believed that pooled mean group is more efficient, and it preferred over mean group and vice versa. If the probability value is more than 5% than we accept null hypothesis and apply PMG on the other hand if the probability value is less than 5% then we reject null hypothesis and apply MG (Chu and Sek, 2014). Following are the results of Hausman test by using the Stata 14.

Table # 5

	Coefficients		
	(b) MG	(B) PMG	(b-B) Difference
CBOL	-9.99	-2.97	-7.02
PEI	-5.29	1.33	-6.62
GDS	.1246688	.1270953	-.0024265
Probability Value = 0.9620			

In above table the results show that the probability value is more than 5% which is **0.9620** so we accept null hypothesis and apply PMG estimator.

4.5 PMG Analysis
The PMG (pooled mean group) evaluator grants short-run coefficients, as well as the cut off and the alteration speed to the long-run equilibrium to be dissimilar among nations. Im et al. (1999) assessed the long run and short run coefficients with the help of adopting the MLE (pooled maximum likelihood estimation) and the results are following.

4.6 Long-Run and Short–Run Relationship of South Asian Economies

Table # 6

D.GDPG		Coef.	Std. Err.	T value	Prob
ECT					
	CBOL	-2.97	4.20	-0.71	0.479
	PEI	1.33e-10	5.81e-11	2.29	0.022
	GDS	.1270953	.032733	3.88	0.000
SR					
	ECT	-.7606255	.1057771	-7.19	0.000
	CBOL **D1.**	-1.71	4.14	-0.41	0.680
	PEI **D1.**	5.28	5.83	0.91	0.365
	GDS **D1.**	-.0377068	.1380281	-0.27	0.785
	_cons	1.87285	.585439	3.20	0.001

In above table the results related to long and short – run shows is in the average form for all four nations by using Stata 14. In above table the results related to long - run shows that there is negative and non-significant long-run relationship present in between gross domestic product growth and commercial bank & other lending because in above table the probability value is 0.479 and it is more than 5% so there is no significant relationship present in these variables and the coefficient value of CBOL is -2.97 which indicates that there is negative relationship present in between CBOL and GDPG. In above table the results related to long - run shows that there is positive and significant long-run relationship present in between gross domestic product growth and portfolio equity investment because in above table the probability value is 0.022 and it is less than 5% so there is significant relationship present in these variables and the coefficient value of PEI is 1.33 which indicates that there is positive relationship present in between PEI and GDPG. In above table the results related to long - run shows that there is positive and significant long-run relationship present in between gross domestic product growth and gross domestic saving because in above table the probability value is 0.000 and it is less than 5% so there is significant relationship present in these variables and the coefficient value of GDS is .1270953 which indicates that there is positive relationship present in between GDS and GDPG.

4.7 Results Related To Short–Run Relationship for Each Economy

Following are the short-run results of each nation by using Stata 14.

Bangladesh

Table # 7

D.GDPG	Coef.	Std. Err.	T value	Prob
ECT	-.8222028	.1620435	-5.07	0.000
CBOL D1.	-1.28	8.12	-1.57	0.116
PEI D1.	2.22e-09	1.43	1.55	0.120
GDS D1.	-.4260917	.1500388	-2.84	0.005
_cons	2.839612	.6587459	4.31	0.000

In above table the results are showing is related to short–run relationship for Bangladesh. The results related to Bangladesh CBOL indicates that there is negative and non-significant short-run relationship present in between gross domestic product growth and commercial bank & other lending because in above table the probability value is 0.116 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of CBOL is -1.28 which indicates that there is negative relationship present in between CBOL and GDPG. The results related to Bangladesh PEI indicates that there is positive and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth because in above table the probability value is 0.120 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of PEI is 2.22 which indicates that there is positive relationship present in between PEI and GDPG. The results related to Bangladesh GDS indicates that there is negative and significant short-run relationship present in between gross domestic saving and gross domestic product growth because in above table the probability value is 0.005 and it is less than 5% so there is significant relationship present in these variables and the coefficient value of GDS is -.4260917 which indicates that there is negative relationship present in between GDS and GDPG.

India
Table # 8

D.GDPG	Coef.	Std. Err.	T value	Prob
ECT	-.9513222	.1717863	-5.54	0.000
CBOL D1.	-1.14	3.31	-0.34	0.731
PEI D1.	-3.78	3.83	-0.99	0.324
GDS D1.	.1796731	.1590707	1.13	0.259
_cons	.4728962	.9128767	0.52	0.604

The result related to India CBOL indicates that there is negative and non-significant short-run relationship present in between gross domestic product growth and commercial bank & other lending because in above table the probability value is 0.731 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of CBOL is -1.14 which indicates that there is negative relationship present in between CBOL and GDPG. The result related to India PEI indicates that there is negative and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth because in above table the probability value is 0.324 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of PEI is -3.78 which indicates that there is negative relationship present in between PEI and GDPG.

Pakistan
Table # 9

D.GDPG	Coef.	Std. Err.	T value	Prob
ECT	-.4580126	.1596307	-2.87	0.004
CBOL D1.	-1.22	4.50	-0.27	0.786
PEI D1.	3.18	6.03	0.53	0.598
GDS D1.	.1369661	.146488	0.93	0.350
_cons	1.339599	.5749546	2.33	0.020

The result related to Pakistan CBOL indicates that there is negative and non-significant short-run relationship present in between gross domestic product growth and commercial bank & other lending because in above table the probability value is 0.786 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of CBOL is -1.22 which indicates that there is negative relationship present in between CBOL and GDPG. The result related to Pakistan PEI indicates that there is positive and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth because in above table the probability value is 0.598 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of PEI is 3.18 which indicates that there is positive relationship present in between PEI and GDPG.

Sri Lanka
Table # 10

D.GDPG	Coef.	Std. Err.	T value	Prob
ECT	-.8109646	.1643597	-4.93	0.000
CBOL D1.	7.28	3.38	2.15	0.031
PEI D1.	-3.90	1.31	-0.30	0.765
GDS D1.	-.0413747	.1442435	-0.29	0.774
_cons	2.839292	.8131904	3.49	0.000

The result related to Sri Lanka CBOL indicates that there is positive and significant short-run relationship present in between gross domestic product growth and commercial bank & other lending because in above table the probability value is 0.031 and it is less than 5% so there is significant relationship present in these variables and the coefficient value of CBOL is 7.28 which indicates that there is positive relationship present in between CBOL and GDPG. The result related to Sri Lanka PEI indicates that there is negative and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth because in above table the probability value is 0.765 and it is more than 5% so there is non-significant relationship present

in these variables and the coefficient value of PEI is -3.90 which indicates that there is negative relationship present in between PEI and GDPG. The result related to Sri Lanka GDS indicates that there is negative and non-significant short-run relationship present in between gross domestic saving and gross domestic product growth because in above table the probability value is 0.774 and it is more than 5% so there is non-significant relationship present in these variables and the coefficient value of GDS is -.0413747 which indicates that there is negative relationship present in between GDS and GDPG.

5. Conclusion

The main objective of this research is to explore the impact of capital inflow on economic growth of South Asian economies with the help of these variables which are gross domestic saving, portfolio equity investment and commercial bank & other lending. The gross domestic saving, commercial bank & other lending and portfolio equity investment are the independent variables and the gross domestic product growth is the dependent variable. This study is consisting on panel-based data and the data was taken for the period of 1981 to 2016, which is approximately 36 years. The data was collected from World Development Indicators (WDI) and Quandl on annual basis

Results Related To Short-Run for Each Country

Bangladesh

The result related to Bangladesh CBOL indicates that there is negative and non-significant short-run relationship present in between gross domestic product growth and commercial bank & other lending. The result related to Bangladesh PEI indicates that there is positive and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth. The result related to Bangladesh GDS indicates that there is negative and significant short-run relationship present in between gross domestic saving and gross domestic product growth.

India

The result related to India CBOL indicates that there is negative and non-significant short-run relationship present in between gross domestic product growth and commercial bank & other lending. The result related to India PEI indicates that there is negative and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth. The result related to India GDS indicates that there is positive and non-significant short-run relationship present in between gross domestic saving and gross domestic product growth.

Pakistan

The result related to Pakistan CBOL indicates that there is negative and non-significant short-run relationship present in between gross domestic product growth and commercial bank & other lending. The result related to Pakistan PEI indicates that there is positive and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth. The result related to Pakistan GDS indicates that there is positive and non-significant short-run relationship present in between gross domestic saving and gross domestic product growth.

Sri Lanka

The result related to Sri Lanka CBOL indicates that there is positive and significant short-run relationship present in between gross domestic product growth and commercial bank & other lending. The result related to Sri Lanka PEI indicates that there is negative and non-significant short-run relationship present in between portfolio equity investment and gross domestic product growth. The result related to Sri Lanka GDS indicates that there is negative and non-significant short-run relationship present in between gross domestic saving and gross domestic product growth.

6. Research Limitation

In this research, the study has found the large number of limitations, but this type of discrepancies can be upgraded by the upcoming research scholars in near future. In this research study I only focused on Four South Asian Nations which are India, Pakistan, Bangladesh and Sri Lanka. This study involves the direct relationship between the independent as well as dependent variables. This study does not involve any mediating variable. In this research study I only chose four variables which are economic growth (GDPG), Portfolio Equity Investment (PEI), gross domestic saving (GDS) and commercial bank & other lending (CBOL). Whereas economic growth takes as dependent variable and remaining variables takes as independent variable. In this research study I only applied one methodology to analyze the data which is panel ARDL (PMG).

7. Future Recommendations

This research study has few recommendations for other researchers for usage in future research. In this study I only use four nations and data of 36 years, so in future the researchers will increase panel nations and data. In this research I don't use any mediator variable, so in future the researchers will add any mediator. The

methodology used in this research was ARDL, so in future the researchers will use any other methodology.

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