ABC Research Alert
Vol 11, Number 1
Published Online: 18 February 2023
https://abc.us.org/ojs/index.php/abcra

Macroeconomic Indicators of Economic Growth using Panel Data: A Study from South Asian Countries

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Abstract

Economic development is a most imperative element in figuring out the well-being of the citizens in a country. The present study analyzes the effect of key macroeconomic indicators on the Economic development of South Asian countries. The study intends to scrutinize the long-run and short-run association between Economic development and several macroeconomic variables by using panel data analysis. During ultimate 10 years, a few South Asian countries (SA) had economic instability. The study is aimed to investigate the macroeconomic indicators of some selected SA countries' economic growth. The static linear panel statistics model had been used for figuring out the consequences of unbiased macroeconomic variables on the gross domestic product (GDP) of SA member countries including Bangladesh, India, Pakistan, and Nepal. While explained variable of examines is analysis is gross domestic product (quantity), the unbiased variables are current account balance general government gross debt, general government revenue, general government total expenditure, inflation (average consumer prices), population, the volume of exports of goods and services, volume of imports of goods and services. The analysis proposed is grounded on a panel data (cross-sectional time series data) approach. The data set of this exploration involves four SA members among 9 countries (cross-sectional units). The effects of 8 macroeconomic indicators on gross domestic product volume were examined. The paper also empirically analyzes the (negative impacts of the global financial crisis) on four SA countries' economic growth during the 1980 – 2020 periods (time series). In this environment, the goods of macroeconomic parameters are anatomized using panel data series. The main findings of this model indicate that the level of population, general government revenue, inflation (average consumer prices), and volume of exports of goods and services, positively affects economic growth. The findings of this paper will be used for increasing the economic growth of south Asian countries.

Keywords

Gross Domestic Product, Macroeconomic factor, Panel Data, South Asian Countries.

INTRODUCTION

Bangladesh is a developing country. It has enormous natural coffers. The deficit of capital and technology, and proper use of our natural coffers aren't duly exploited. As a result, we've to depend on foreign trade to import artificial products and raw accouterments to alleviate our demands. Bangladesh has a notable track record of growth and development. It has been among the fastest-growing economies in the world over the past decade, supported by a demographic dividend, strong ready-made garment

(RMG) exports, remittances, and stable macroeconomic conditions. The country made a strong economic recovery from the COVID-19 epidemic. In this study, the main focus is on examining the relationship between GDP and other variables like current account balance general government gross debt, general government revenue, general government total expenditure, inflation (average consumer prices), unemployment rate, the volume of exports of goods and services, volume of imports of goods and services. As, GDP is one of the most important determinants of economic substance, therefore the relationship between GDP and other variables are frequent content of discussion when economists endeavor to explain different stages of GDP.

A new World Bank report said that "The economic growth faces new headwinds as global commodity prices increase amid the uncertainty created by the war in Ukraine. In Bangladesh, a rebound in manufacturing and service sector activities led to strong growth in FY21 and the first half of FY22. In the medium term, GDP growth is expected to remain strong. Headline inflation rose to 6.2 percent in February 2022, driven by a rise in both food and non-food prices. The war in Ukraine and associated sanctions may lead to a higher current account deficit and rising inflation as global commodity prices surge. Public debt remains sustainable, and the March 2022 joint World Bank-IMF Debt Sustainability Analysis assessed that Bangladesh remained at low risk of external and public debt distress.

Mercy Tembon, Country Director for Bangladesh and Bhutan said, "Following a strong economic recovery from the pandemic, estimated poverty declined to 11.9 percent in FY21 from 12.5 percent in FY20, as per the international poverty rate,". The report projects the region to grow by 6.6 percent in 2022 and by 6.3 percent in 2023. The 2022 forecast has been revised downward by 1.0 percentage points compared to the January projection. Countries in South Asia are already grappling with rising commodity prices, supply bottlenecks, and vulnerabilities in financial sectors. The war in Ukraine will amplify these challenges, further contributing to inflation, and deteriorating current account balances.

According to Hartwig Schafer, World Bank Vice President for South Asia, 2021, "South Asia has faced multiple shocks in the past two years, including the scarring effects of the COVID-19 pandemic. High oil and food prices caused by the war in Ukraine will have a strong negative impact on peoples' real incomes". Another challenge the region faces is the disproportionate economic impact the pandemic has had on women. The report includes an in-depth analysis of gender disparities in the region and their link with deeply rooted social norms, and recommends policies that will support women's access to economic opportunities, tackle discriminatory norms, and improve gender outcomes for inclusive growth.

The relationship between economic growth and macroeconomic indicators has long been a popular issue of debate in the literature on economic development. In this context, the primary purpose of this research is to analyze macroeconomic indicators of SA, acceding, and candidate countries' economic growth using a panel data approach. The main objective of this study is to investigate the macroeconomic factors and analyze the impact and significant effect of macroeconomic indicators on some selected South Asian Countries.

OBJECTIVES OF THE RESEARCH

- To identify the Macroeconomic factors that affect the economic growth of South Asian Countries.
- To find out the relationship between macroeconomic factors and the economic growth of South Asian countries.
- To provide insights and recommendations that affect economic growth by using macroeconomic factors of SA countries.

LITERATURE REVIEW

Tsoukas (2011) used a panel of five Asian economies – Indonesia, Korea, Malaysia, Singapore, and Thailand – over the period 1995–2007 for analyzing the links between firm survival and financial

development. He found that country-level indicators of financial development have an important role to play in influencing firm survival and large firms would benefit the most from developments in the stock market, while small firms are most severely affected by high levels of financial intermediation.

Several types of research investigate determinants of economic growth within the frame of economic growth theory. This study limited the literature review by starting with some influential studies, then some of the major empirical studies focusing on developing countries especially, the MENA region.

Within the framework of economic growth, two important theories include many of the studies that argue the determinants of economic growth. These theories are the neoclassical theory (exogenous growth theory) and endogenous growth theory. Their main concentration was on factors such as physical and human capital accumulation (Solow1956; Romer, 1986; Lucas, 1988 and others).

Solow, 1956, explained economic growth as capital accumulation, human capital or population growth, and an increase in productivity. Its core was the neoclassical production function. Romer, 1986; specified a model of long-run growth in which knowledge is assumed to be input in production that has increasing marginal productivity. His model was essential with endogenous technological change instead of that based on diminishing returns. Lucas (1988),

Sergio, (1991), omitted technological change and replaced it with investment in human capital, which has a spillover effect on the economy. There is a vast empirical study on determining key macroeconomic factors of economic growth. Most econometric methodologies adopted in these studies include cross-country, panel data, and single-country regression analysis.

The study of Dollar (1992), covered the period 1976-1985 in 95 developing countries. Using cross-sectional regression analysis, the study showed that key determinants with significant impact on growth include investment rate which is positively associated with economic growth and real exchange rate which is negatively associated with economic growth.

Most and Van Den Berg (1996), examined empirical evidence for 11 Sub-Saharan African countries. They used a country-specific time series regression instead of the cross-section. Analysis. They focused on the relationship between economic growth and three sources of investment funds that are: foreign aid, foreign direct investments, and domestic savings.

The study showed that, while foreign direct investment is positively and significantly associated with economic growth in Ivory Coast, Niger, Kenya, and Togo; associated negatively and significantly in Mauritius and Rwanda. This mixture of results across the 11 countries implies that it is not possible to rank one source of investment ahead of any other.

Piazolo (1996): aimed to determine factors of growth in Indonesia. Using time series analysis over 1965-1992 periods. He investigated that human capital, investment, government consumption, imports, and inflation, enhance economic performance in the long run, while in the short run, the effect of exports is strongly positive.

Barro (2003), studied 87 developing and developed countries through the period 1965-1995 and investigated from cross-country panel regression that the differences in per capita growth rates relate to a set of variables. For a given per capita GDP and human capital, growth depends positively on the rule of law and investment ratio. It depends negatively on the fertility rate, the ratio of government consumption to GDP, and the inflation rate. It also revealed that growth increases with favorable movements in terms of trade and increased international openness.

Both exports and imports represent a degree of openness and Globalization indicator which has been a meaningful effect on economic growth in many studies. Several studies examined their influence on economic growth (Saaed and Hussain 2015; Sheshgelani and Badri, 2017). Although exports play an important role in easing the pressure on the balance of payment and creating job opportunities, and represent one of the most important sources of income and employment, its causality effect with economic growth has been subject to empirical research. Abou-Stait (2005) examined the causal

relationship between exports, imports, and GDP. Applying co-integration and causality analysis for Egypt over the period 1977-2003, the results supported that both exports, imports, and GDP, are not co-integrated and exports Granger cause GDP growth. But they don't support the Granger causality between exports and capital formation.

Although the study of Kabir (2003), used a panel of 95 countries and 8 MENA countries over the period 1980-2001, the results found that domestic and foreign investments, positively influence GDP growth, but, government expenditures, human capital, and inflation rate significantly negative at 0.1 percent. However, comparing the results of all countries in the study, GDP growth in MENA countries was poorly explained by those factors.

When Makdisi et al. (2006) studied the determinants of growth in the MENA region through the period 1960-1998, they used cross-country regression analysis. They found that capital is less efficient, and trade openness is less beneficial to growth. That was because of the economic growth pattern in the MENA region, which referred to heavy reliance on oil, weak economic base, high population growth, and unemployment rates, the dominance of the state in the economic sector, low level of integration with the world, underdeveloped financial and capital markets, underdeveloped institutions, and low rates of returns on human and physical capital. They also concluded that the quality of institutions and human capital accounted for the low economic performance of MENA countries.

Relation between government consumption expenditures and economic growth had a great deal of interest among researchers, not only for theoretical importance but also for policy decisions (Piazolo, 1996; Dewan and Hussein, 2001; Amin, 2011; and Havi et al., 2013). However, the results have differed. Chimobi, 2009, suggested that the relationship runs from government consumption expenditures to income, depending on Keynesian theory and public expenditure. On the other hand, Amin, 2011; proposed that the relation runs from income to public expenditures.

Nihat Ta, Ali Hepen, and Emrah Önder, 2013 used a panel data approach to analyze the individual effect of some of the key macroeconomic indicators (current account balance, general government gross debt, general government revenue, general government total expenditure, gross national savings, inflation (average consumer prices), population, total investment, unemployment rate, volume of exports of goods and services, volume of imports of goods and services) on economic growth (GDP) of 31 EU member countries, acceding and candidate countries over during the 2002–2012 period. The main findings of the static model indicate that the level of the population positively affects economic growth and the level of the unemployment rate and total expenditure negatively affects economic growth.

This study includes a panel data set of four south Asian countries for a period of 40 years (1980-2020). However, due to changes in time risk factors, political situations, technological changes, and inflation affect the determinants of economic growth. So, this research is needed to reflect those factors. Every variable used in this study has a significant effect on economic growth. This study is unique because included factors that no other study has considered from the South Asian Perspective. In the present study, the researcher wants to show the fixed effect and random effect models. This paper seeks to redress this gap.

RESEARCH METHODOLOGY

This study carried out analytical and empirical which emphasizes the relationship between economic growth and its determinants in Bangladesh. In this research, the Gross domestic product GDP is the dependent variable but current account balance, general government gross debt, general government revenue, general government total expenditure, inflation (average consumer prices), population, unemployment, the volume of exports of goods and services, volume of imports of goods and services, are independent variables of the model.

Data Source

This research paper is mainly concentrated on secondary data from 1980-2020. The GDP and the other variables are collected from the World Bank website. Stata 13 software is used for this analysis purpose. To examine the determinants of macroeconomic indicators of economic growth in Bangladesh are analyzed through the Fixed and random model.

Data sources & Description

The data used in this study is time series of annual data covering the periods 1980-2020. The economic variables included in the study are GDP, current account balance, general government gross debt, general government revenue, general government total expenditure, inflation (average consumer prices), unemployment rate, the volume of exports of goods and services, the volume of imports of goods and services. All data sets are taken from world development indicators.

Variables Description

For the current study, nine variables have been selected to analyze the impacts of macroeconomic variables on growth in a selected Asian country. These variables are then divided into dependent and independent variables. The dependent variable of the study is the real GDP while the other variables are taken as independent variables. A brief description (economic justification) concerning the dependent variable is given:

GDP

Gross domestic product (GDP) is a standard measure of the value added created by a country's production of goods and services over a given period. As such, it also accounts for the income generated by that production, as well as the total amount spent on final goods and services (fewer imports). While GDP is the most important single indicator for capturing economic activity, it falls short of providing a suitable measure of people's material well-being, for which other indicators may be more appropriate. This indicator is based on nominal GDP (also known as GDP at current prices or GDP in value) and comes in two forms: US dollars and US dollars per capita (current PPPs).

Current account balance

The current account balance (CAB) is a component of a country's record of financial inflows and outflows. It is part of the balance of payments, which is a statement of all transactions between countries. The balance of payments (BOP) is the record of a country's monetary transactions with the rest of the world. The current account balance is the total of net goods and services exports, net primary income, and net secondary income.

Population

South Asia has the second highest population density. India, Pakistan, Bangladesh, and Sri Lanka make up the region. South Asia is home to more than 20% of the world's population, with India accounting for more than three-fourths of the region's population. The population is counted as 1000000.

Inflation, average consumer prices

Consumer price index (CPI) inflation is defined as the change in the prices of a basket of goods and services typically purchased by specific groups of households. Inflation is measured in terms of annual growth rate and index, with a breakdown for food, energy, and total excluding food and energy for the 2015 base year. Inflation is a measure of the deterioration of living standards. A consumer price index is calculated as a series of summary measures of the proportional change in the prices of a fixed set of consumer goods and services of constant quantity and characteristics acquired, used, or paid for by the

reference population from period to period. Each summary measure is created by averaging a large number of elementary aggregates.

The volume of exports of goods and services

Transactions in goods and services (sales, barter, and gifts) from residents to non-residents constitute exports of goods and services. Goods are exported when economic ownership of goods shifts between residents and non-residents. This is true regardless of the physical movement of goods across borders. Goods sent abroad for customs work, for example, are no longer counted as exports of goods, and processed goods are not counted as imports of goods. However, importing industrial services in the payer's country of an amount equal to the difference between the value of the finished product and inputs is recognized. The overall foreign trade balance remains unchanged.

The volume of imports of goods and services

Imports are the value of foreign goods and services purchased by a country's households, businesses, government agencies, and other organizations over a specific period. Payments for final products and intermediate goods, such as oil and other commodities, finished and semi-finished goods, and components, are examples of visible imports. Payments for financial services, management services, and foreign tourist spending are examples of invisible imports. Import spending is a leakage (or withdrawal) from the circular flow of income in terms of the flow of economic activity.

General government gross debt

The general government debt-to-GDP ratio calculates the general government's gross debt as a percentage of GDP. It is an important indicator of the long-term viability of government finances. Debt is calculated as the sum of the liabilities listed below (as applicable): currency and deposits; debt securities, loans; insurance, pensions, and standardized guarantee schemes; and other accounts payable. Government debt changes over time primarily reflect the impact of previous government deficits.

General government revenue

Governments collect revenues primarily to finance the goods and services they provide to citizens and businesses, as well as to fulfill their redistributive role. Comparing government revenue levels across countries reveals the importance of the government sector in the economy in terms of available financial resources. The government's total revenue collection is determined by past and current political decisions. This indicator is expressed in thousands of dollars per capita and as a percentage of GDP.

General government total expenditure

General government spending indicates the size of government in different countries. The wide variation in this indicator reflects the diverse approaches of countries to delivering public goods and services and providing social protection, rather than differences in resources spent. This indicator is expressed as a percentage of GDP and in thousands of dollars per capita.

Sl No.	Code	Variables	Units
1.	GDP	Gross Domestic Product	Total GDP in USD
2.	CAB	Current account balance	% GDP
3.	POP	Population (*10,000,000)	Persons
4.	INF_ACP	Inflation, average consumer prices	Percent change
5.	VEXGS	Volume of exports of goods and services	% Change
6.	VIMGS	Volume of imports of goods and services	% Change
7.	GR_GGGD	Growth rate in general government gross debt	Rate
8.	GR_GGR	Growth rate in general government revenue	Rate
9.	GR_GGTE	Growth rate in general government total expenditure	Rate

*Source: World Bank online data bank

Fixed effects model and random effects model can be shown as follow: -

Fixes Effects Model:

$$y_{it} = \alpha_i + \sum_{k=1}^{K} \beta_k x_{kit} + u_{it}, \qquad i = 1,\ldots,N, \qquad t = 1,\ldots,T \qquad (1)$$

Random Effects Model:

$$y_{it} = \sum_{k=1}^{K} \beta_k x_{kit} + (\alpha_i + u_{it}), \qquad i = 1,\ldots,N, \qquad t = 1,\ldots,T \qquad (2)$$

Index i differentiates the subjects and ranges from 1 to N. N is the number of subjects. Each subject is observed T times and the index t differentiates the observation times through 1 to T. K is the number of the explanatory (independent) variables.

The Multicollinearity Problem

Multicollinearity, or intercorrelation, means that the variables in the study correlated with one another. It can mean that the data have less predictive value because the variables are not fully-independent. Using the VIF method, there would be multicollinearity if tolerance < 0.1 but VIF > 10.

Table 1 shows that the selected independent variables of this study are not multicollinear. All the VIF factors are well below 10 and the mean is 7.42. Therefore, we need not be concerned about this issue, although it was necessary to test for it in order to be sure of the validity of our variables and our conclusions.

Variable	VIF	1/VIF
GR_GGTE	15.41	0.064899
Population	12.65	0.079078
GR_GGGD	10.09	0.09909
VEXGS	6.79	0.147231
VIMGS	5.12	0.195212
GR-GGR	4.5	0.222033
CABOFGDP	3.19	0.313427
INF_ACP	1.61	0.621762
	Mean VIF	7.42

Table 1: Collinearity Statistic (VIF)

* Source: World Bank online data bank and outcomes of Stata 13

Reliability Test

Cronbach's alpha is a metric used to evaluate the internal consistency or reliability of a group of scale or test items. Cronbach's alpha is one way to gauge the strength of that consistency. In nutshell words, the reliability of any measurement refers to the degree to which it is a consistent measure of a concept.

The score for each scale item is correlated with the overall score for each observation (often individual survey respondents or test takers), and the variation of all variables scores is compared.

The resulting α coefficient of reliability ranges from 0 to 1 in providing this overall assessment of a measure of reliability. If all of the scale items are entirely independent of one another (i.e., are not correlated or share no covariance), then α = 0; and, if all of the items have high covariance's, then α will approach 1 as the number of items in the scale approaches infinity. In other words, the higher the α coefficient, the more the items have shared covariance and probably measure the same underlying concept in part because these items exhibit strong face validity and construct validity and researchers feel comfortable saying that these items do indeed tap into an underlying construct of egalitarianism among respondents.

Descriptive Statistics

The descriptive statistics that include observation, average, minimum, maximum and standard deviation of all variables is represented in the following table.

Variable	Observation	Mean	Std. Dev	Min	Max
GDP of SA	164	1.2E+12	1.07E+12	2.36E+11	3.60E+12
CABOFGDP	82	-0.92695	1.587537	-5.02042	3.470143
Population	164	3.36E+08	4.30E+08	1.50E+07	1.38E+09
INF_ACP	161	0.404597	2.543565	-0.93977	24.50323
VEXGS	161	0.082637	1.204141	-.3502617	.4085654
VIMGS	162	0.089703	0.141454	-0.26659	0.585638
GR_GGGD	53	57.41362	11.02386	31.20445	79.08469
GR_GGR	111	11.98535	2.337024	8.141415	22.40135
GR_GGTE	164	51.54749	45.24829	4.030633	108.5757

Table 2: Descriptive Statistics

* Source: World Bank online data bank and outcomes of Stata 13

Correlation Matrix

	GDP of SA	GAB of GGD	Population	INF_ACP	VEXGS	VIMGS	GR_GGGD	GR_GGR	GR_GGTE
GDPof SA	1								
GABofGGD	-0.6262	1							
Population	0.4734	-0.4266	1						
INF_ACP	-0.023	0.1574	-0.2108	1					
VEXGS	0.1417	0.1296	0.3555	0.3803	1				
VIMGS	0.1691	-0.0439	0.2644	0.4141	0.8665	1			
GR_GGGD	0.0903	-0.0466	0.8519	-0.0548	0.4507	0.2944	1		
GR_GGR	0.2914	-0.4001	0.815	-0.1533	0.4335	0.3296	0.7325	1	
GR_GGTE	0.1871	-0.354	0.9407	-0.2324	0.312	0.2053	0.8839	0.8428	1

Table 3: Correlation Matrix

* Source: World Bank online data bank and outcomes of Stata 13

Table 3 reinforces this conclusion that multicollinearity is not a problem here by another test. This test is a direct test of the correlation between independent variables. Perfect correlation is a value of 1. Thus, all the variables correlate with each other at a value of 1. Again, we dismiss the multicollinearity issue: the problem has not arisen.

Regular Multiple Regressions

Now we turn to the inferences which we can draw from the study. We consider the correlation of independent variables with the dependent variable. A sufficient degree of correlation means that our independent variable is significant in predicting the level of the dependent variable: it could be a factor in the decision on leverage. Then we must also consider whether it is positively correlated (more of the independent variable yields more leverage) or negatively correlated (more of the independent variable yields less than leverage).

Source	SS	Df	MS
Model	1.0426e+25	8	1.3032e+24
Residual	4.7650e+23	18	2.6472e+22
Total	1.0902e+25	26	4.1931e+23

* Source: Outcomes of Stata 13

Variables	Coefficient	T	p>ItI
CABOFGDP	-1.69e+11	-4.41	0.000
Population	4564.999	13.14	0.000
INF_ACP	1.65e+11	1.06	0.302
VEXGS	1.39e+12	1.97	0.064
VIMGS	-1.41e+10	-2.38	0.028
GR_GGGD	-1.41e+10	-1.21	0.242
GR_GGR	6.05e+10	1.20	0.245
GR_GGTE	-4.21e+10	-10.67	0.000

The R-squared value becomes = 0.9563. The adjusted R squared becomes 0.9369, and the root MSE becomes 1.6e+11. The total number of observations was 164. It indicates that among all the independent

variables, the Growth rate in general government gross debt, Population, the Growth rate in general government total expenditure, and Volume of Import of Goods and services become significant at 5% level of significance. It is observed that some companies have highly different values while some companies are best for their different other variables.

R-Square:			
Within	0.9694	No of Observation	27
Between	1.0000	No of Groups	2
Overall	0.2596	F(8,17)	= 67.37
corr(u_i, Xb)	-0.9254	Prob > F	0.0000

* Source: Outcomes of Stata 13

Variables	Coefficient	t	p>ItI
CABOFGDP	-1.24e+11	-3.40	0.003***
Population	4496.716	15.17	0.000***
INF_ACP	1.79e+11	1.35	0.193
VEXGS	1.03e+12	1.68	0.112
VIMGS	-9.89e+11	-2.43	0.027**
GR_GGGD	-2.23e+10	-2.16	0.045**
GR_GGR	5.47e+10	1.27	0.220
GR_GGTE	7.08e+09	.40	0.697
Cons	-3.70e+12	-2.51	0.022**
sigma_u	3.180e+12		
sigma_e	. 1.384e+11		
rho	.99810937		
F(9, 85) = 7.87			
Prob > F = 0.0122			

Table 4: Fixed-Effects (within) Regression

* Source: Outcomes of Stata 13
>Note. *** significant at 1%, ** significant at 2%, *significant at 3%

Here R square is within 0.9694, between 1.0000, and overall 0.2596 F(9.85). Prob>F=0.0122. Corr=-0.9254. It means all the independent variables can impact by 25.96 % on GDP. The p-value indicates that the model is significant.

The random effects model is just the opposite of the fixed effects model. Here variables are random and unpredictable. Here model parameters are considered a random effect. The random effects model follows the GLS regression equation. The outcome of the random effects model is given below:

R-Square:			
Within	.9553	No. of observations	27
Between	1.0000	No. of groups	2
Overall	.9563	Wald chi2(5)	393.83
corr(u_i, Xb)	= 0	Prob > chi2	0.0000

Table 5: Random-Effects GLS Regression

* Outcomes of Stata 13

	COEFFICIENT	Z	p>IzI
CABOFGDP	-1.69e+11	-4.41	0.000***
POPULATION	4564.999	13.14	0.000***
INF_ACP	1.65e+11	1.06	0.288
VEXGS	1.39e+12	1.97	0.048**
VIMGS	-1.13e+12	-2.38	0.017**
GR_GGGD	-1.41e+10	-1.21	0.226
GR_GGR	6.05e+10	1.20	0.230
GR_GGTE	-4.21e+10	-10.67	0.000***
CONS	2.25e+11	0.41	0.679
SIGMA_U	0		
SIGMA_E	1.384e+11		
RHO	0		

Table 6: Random Effect Generalized Square Regression Estimation

* Source: Outcomes of Stata 13

>Note. *** significant at 1%, ** significant at 2%, *significant at 3%

For the cross-section data general OLS regression method is followed by the random effect models. Here R square is within 0.9553, between 1.0000, overall, 0.9563. Wald chi2 (8) = 393.83 Prob > chi2 = 0.0000. Corr=0. It means all the independent variables can impact by 95.63% on GDP. A p-value of 0.000 indicates that the model is not weak.

The Hausman Test

Through conducting the Hausman test, we can understand the fixed effect and random effect models and which option provides the best result for our model. Here is the outcome of the Hausman test:

Variables	FIXED	RANDOM	DIFFERENCE
CABOFGDP	-1.24e+11	-1.69e+11	- 4.54e+10
POPULATION	4496.716	4564.999	-68.28284
INF_ACP	1.79e+11	1.65e+11	1.40e+10
VEXGS	1.03e+12	1.39e+12	-3.61e+11
VIMGS	-9.89e+11	-1.13e+12	1.44e+11
GR_GGGD	-2.23e+10	-1.41e+10	-8.20e+09
GR_GGR	5.47e+10	6.05e+10	-5.86e+09
GR_GGTE	7.08e+09	-4.21e+10	4.92e+10

Table 7: outcome of the Hausman test:

* Source: Outcomes of Stata 13

Hausman fixed random reveals that the difference in coefficient is not systematic (Prob>chi2=0.3381). If p > 0.05, the random effect outcome is best suitable for the test. Thus, the random effect model can be used for analysis.

Random-effect regression analysis in Table 4 reports that there are 164 observations on company years, reflecting N=4 countries, each observed for an average of 20 years. Beside the P-value is lower than 0.05 this signifies liquidity, profitability, and size have a significant influence on the dependent variable. The calculated Prob>chi2=0.0000 is less than 0.05. Hence the random-effect model is reported to be significant at 5% levels of significance. Therefore, this study indicates that, there exists a significant association between economic growth and macroeconomic factor in selected south Asian countries.

Throughout the study, we found that the level of population, general government revenue, inflation (average consumer prices), and volume of exports of goods and services positively affects economic growth. Whereas current accounts balance, general government gross debt, general government total expenditure, and the volume of imports of goods and services negatively affect economic growth.

The study shows that Government expenditure has positive effects on economic growth, supported Piazolo, 1996; Dewan, and Hussein, 2001; Amin, 2011; and Havi et al., 2013. However, the results differ. Chimobi, 2009, suggested that the relation runs from government consumption expenditures to income, depending on Keynesian theories and the public expenditure. Inflation has positive effects on economic growth which supported by Benhabib and Spiegel, 2009 but varying of (Gillman and Harris, 2010; Baharumshah et al. 2016). Another relation reveals that inflation affects economic growth according to certain thresholds (Aydin et al., 2016; Vinayagathasan, 2013; Tung and Thanh, 2015), or differentiate between developed and developing countries (Abbott and De Vita, 2011). Nihat Ta et al 2013, illustrate that levels of the population positively affects economic growth, on the other hand unemployment rate and total expenditure negatively affect economic growth. When an economy grows as per GDP, it creates more opportunities for the firms to make more profits by expanding the market demand for the products through infrastructure and development projects.

RECOMMENDATIONS

1. The study is rigorous for policymakers to reduce inflationary growth in the country by implementing tools such as managing the market money supply through open market operations, setting interest rates, and setting bank reserves.

2. The governments of South Asian Countries need to take the following serious steps to control inflation: Reducing imports and increasing exports, reducing government spending, prioritizing the agricultural sector, seriously consideration of food prices, increase and utilizing energy resources at low production costs, and eliminating security threats.

3. It recommended that the study this phenomenon further by removing the restrictions of this work, and the findings of this paper will be used for increasing the economic growth of south Asian countries by taking policies.

DISCUSSIONS AND CONCLUSION

In this paper, the panel data approach is used to analyze the specific effect of some of the key macroeconomic indicators (current account balance, general government gross debt, general government revenue, general government total expenditure, inflation (average consumer prices), population, volume of exports of goods and services, volume of imports of goods and services) on economic growth (GDP) of some selected SA countries, over during the 1980–2020 period. The main findings of this model indicate that the level of population, general government revenue, inflation (average consumer prices), and volume of export of goods and services, positively affects economic growth. Whereas current accounts balance, general government gross debt, general government total expenditure, and the volume of imports of goods and services negatively affect economic growth. For instance, a low government gross debt to GDP percentage is an indication of economic health, and a high debt to GDP percentage can indicate financial trouble for a country.

It is estimated that inflation can have different impacts on economic activity depending on size. The analysis shows that it has positive effects inconsistent and positively related. However, these results may serve as a basis for conducting more comprehensive research in this area, rather than the final word on the impact of macroeconomic variables on economic growth in South Asian countries. As a result, it is strongly advised to investigate this phenomenon further by removing the constraints of this work.

LIMITATIONS

To make a report on various aspects and experience is needed. But, the study has faced some barriers to making a complete and perfect report. This study only focuses on secondary data from the annual reports of the World Bank and ADB outlook. This study is mainly based on economic data, there is no chance to take primary data and personal interviews. These barriers or limitations, which hinder the present study, are as follows:

- Time was not adequate to prepare the article,
- Some of the data were not available for the total analysis.
- Some variables are not taking such as Gross Savings, Total Investment, and Unemployment rate. Further research can be done on these variables.
- The researcher had not used enough periods to do the analysis.

The findings of this paper will be used to increase the economic growth of south Asian countries. Policymakers will be helpful by these papers analyzing issues.

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