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Electricity Consumption, Foreign Direct Investment and Economic Growth in SAARC Countries

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ABSTRACT

Electricity Consumption effects have been hotly debated, as it is a promising electricity source. However, scholars have not achieved an agreement on this hot topic. Therefore, this article re-examines the foreign direct investment and economic effects of electricity consumption in SAARC countries from 1992 to 2022. Using the Granger causality test to conduct empirical analysis, the result suggests there is a Levin, Lin & Chu Test between electricity consumption, foreign direct investment and economic growth. Then, AK Model of Economic Growth is used for further analysis. The results suggest that economic growth is positively affected by electricity consumption. Meanwhile, electricity consumption can also indirectly affect economic growth through gross capital formation, the labor force, trade openness, research and development expenditure, and foreign direct investment. Based on the evidence this article provides, policymakers can issue corresponding policies to maintain sustainable economic growth while maximizing foreign direct investment.

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1 Introduction

Foreign direct investment and energy consumption plays very important role in an economic growth. Today's economy has been increased with the high level of daily use of energy. It's happening and becoming a fact that today's use of electricity has a positive effect on the economy of any state and has been increased in gross domestic product. It is argued by some other different national studies that the new units of power which are consuming high level of forces and increase its growth under the limitations of natural resources. In the rise of foreign direct investment resulted with increase in wealth establishment and additions into the investment resources for keeping the rise of the money store of any economy.

Different theorists of growth especially Solow growth model analyzed that the position of the world's various countries. A standard Solow model prophesies that in the long run, the economies converge to their stable phase of stability and that stable development is attainable solitary by the technical advancement. Investments and population growth cause individual special effects in the long-run.

Economists have often ignored the effect of important demographic procedures from growth. Canning and Bloom (2001) were economists and they explored that the demographic revolution in the growth of the

economy. The discussion was that, due to the positive association among the electricity uses it is resulted that the increase in the economy of states.

The role of these studies in this present study is explaining as following as:

There are lots of studies present on economic growth effecting by electricity consumption and foreign direct investment.

With the comparison of previous study, it is examined that preceding studies did not focus on fiscal policy keeping association with other variables. In the economic growth of any economy the most important and powerful support is electricity consumption which is focused through this study.

The existing study has some important purposes and objectives to discover and regulate the selected variables that are electricity consumption, foreign direct investment and growth of an economy. There are some variables that are selected by this study for measuring the growth for an economy in SAARC countries that are the gross domestic product, labor force, domestic credit, trade, and gross capital formation. Some main objectives of this study are presented here which are following as:

1. To evaluate and better know about the association among the gross domestic product, energy consumption and foreign direct investment.

2. To notice and observe the effects of electricity use and foreign direct investment on economic growth in South Asian association for Regional Cooperation states.

The current study is supported to the economic literature in various directions. An overview on all real and nominal variables which utilized in this study is represented here. This study is perceived the degree of association between many sets of variables in nominal and real forms. This study is discovered the causal relationships in the real and nominal variables. Similarly in this study discussed that the fiscal policies efficiencies on self-productiveness of economic growth is also observed by using all the real and nominal forms of variables.

The role of these studies in this present study is explaining as following as:

There are lots of studies present on economic growth effecting by energy use and external assets.

With the comparison of previous study, it is examined that preceding studies did not focus on fiscal policy keeping association with other variables. In the economic growth of any economy the most important and powerful support is electricity consumption which is focused through this study.

Fan and Hao (2019) analyzed that the association of the electricity consumption, financial growth and external inflows from China. The consequences specify about the long run and constant stability affiliation among uncivilized domestically produce goods, external direct asset and renewed energy uses per capita. In the results displayed that all of these variables that are gross national product per capita and renewable electricity use per capita show that if once they break their relationship so then they turn back to the short term by the long-term equilibrium. Furthermore, the results suggests that external direct investment per capita growth rate and renewed energy use per capita growth rate have negatively influence from gross national invention per capita growth rate, on the other side it presents the gross national product and renewed electricity per capita growth rates will positively affect from foreign direct investment per capita growth rate.

Sharma et al (2018) discovered that the association among energy use, external direct asset and development. Our findings originate that all the variables that are electricity depletion, external direct asset and financial development are fixed at first difference and on level. The findings show that there is bilateral causation among the energy use and gross domestic product and external direct investment and GDP both have bilateral causal relationship among each other. External direct investments, electricity uses both will positively affect growth of a country.

Salahuddin et al (2018) observed that about the electricity has effect on growth. The results indicates that there is a positive and important effect as well as in the long and short run of all variables in which including external direct investment, growth of an economy, fiscal improvement and energy consumption on the emissions of carbon dioxide. While on the other side in the case of short and long run monetary expansion and carbon dioxide productions are minor in relationships. The results show that the unilateral weak causality exists among the growth of an economy and financial growth and there is a two-way causative relationship among the financial development and electricity depletion. This study suggested that Kuwait should decrease the unexpected wastage of electricity consumption.

Hao et al. (2018) analyzed that the dynamic association with the consumption of energy, gross national product and economic development in China's rural regions. This study examined that there is causality links amongst the rural gross domestic product, rural energy use and asset. The results show that the rural investment is positively inducing in economic growth and that has effect of little bit decline after rising and then eventually stabilizes. Inverse than that there is identifying a helpful long run unilateral and bidirectional causation in short run from country's energy use to the economic development. The Results exposed that the existence of unidirectional causality has an impact of energy use on rural gross domestic product that which will raise first and then decline. The Results indicates that the rural investment may be explains the difference of rural gross domestic product by the rate of 3.77%. The findings suggest that there is highly need to improve economic growth and energy use in villages sectors, could be settled and enabled. On another side the contrary selection has an impact on combusting vestige energy on the environment should be partial.

These are some important theories of economic growth it gives the input that is based on our research and our research is totally depending on it. The theories of economic growth are following as

AK Model of Economic Growth

The AK model is an endogenous growth model which is used in the theory of economic growth; it is included in the subfield of modern macroeconomics. In 1980s it developed gradually stronger that the normal neoclassical exogenous growth models that were theoretically inadequate as implements to discover long run growth, as these models expected to the economies without technical changes and thus, they would finally converge to the stable state, with zero per capita growth. An essential aim for this is the falling profit of capital; the property of the AK endogenous-growth model is that the lack of falling profits to capital. In lieu of the falling profits of capital implicit by the standard consideration of a Cobb–Douglas manufacture function, the AK model practices on a linear model where production is a direct function of capital. Its presence in the most texts is to introduce as endogenous growth theory.

In neoclassical growth models the economy is supposed to extent a fixed state in which all macroeconomic variables grow at the same proportion and in the lack of technical growth, per capita growth of these macroeconomic variables will finally conclude. These kinds of neoclassical prepositions have the similarity with the logical substances in Ricardo and Malthus. The basic fundamental assumption of neoclassical philosophical is that the diminishing return to capital controls to the construction and development.

Mathematical representation of the model

The mathematical representation of this model is given as. In this model the equation represents a Cobb–Douglas model at which the representations are following as;

$Y=AK^{\alpha} L^{(1-\alpha)}$

Y is for the total production in an economy.

A represents the total factor of productivity,

K stands for capital of an economy,

L stands for the labor of an economy

α It is the parameter of measures to the output and elasticity of capital.

Now it represents a special case that is $\alpha = 1$, which tells that there is a manufacture purpose that develops from a linear equation in capital and it does not have the possessions of decreasing returns to scale in the money stock, it would overcome by any other value of the money strength lies among 0 and 1.

n = population

σ = depreciation

k = capital

y = output

L = labor force

s = saving rate

In another form Y = AK, K represents corporeal capital and social capital.

$Y = AK$

In this calculation which is given above A is equal to the technology and it is positive and K signifies the capacity of investment. So, production per capita is given following as;

$Y/L = A \cdot K/L$ i.e. $y = AK$

The model indirectly accepts that the normal creation of capital is a main cause of low creation of investment that is equal to:

$A > 0$

According to the accepting model there is a rise in labor force at a continuous rate 'n' and it will not decrease in investment. ($\delta = 0$) is the simple variance of comparison of neo-classical growth model is:

$K(t) = s \cdot ʃ(k)\text{-}nk$

Therefore, $(k(t))/k = s \cdot ʃ((k))/k$ –

This is a final equation of AK model of economic growth.

This study is essentially based on inferior records that are gathered from the source that is World Bank which is commonly used for secondary data, from 1980 to 2018 in which included international monetary stock and intercontinental monetary data. By using these types of foundations, data is collected for some SAARC countries.

This study contains on SAARC countries data is collected from some selected countries on the basis of availability of complete data. These are the following countries which are selected for this research study.

Bangladesh

India

Nepal

Pakistan

Siri Lanka

Model Specification

In this part we signify a model that tells us about the link of dependent and independent variables. It may be a very significant period in any investigation of work. The association of Gross national product, electricity consumption, and external direct investment, and Gross investment development, amount of labor participation, money supply and Employment can be showed as in this model.

The efficient form is,

$GDP = \alpha + \beta 1LFPR + \beta 2GCF + \beta 3FDI + \beta 4EC + \beta 5DCPS + \beta 6Trade + \mu t$

According to this model which specifies that the GDP is dependent variable. That's why it will be a function of all independent variables. So,

GDP = Gross Domestic Product

FDI = Foreign Direct Investment

EC = Electricity Consumption

LFPR = Labor force participation rate

GCF = Gross Capital Formation

DCPS = Domestic Credit to Private Sector

Tr = Trade

There is also presented the econometric form of this model

$GDP = \beta i + \beta 1\ (LFPR)it + \beta 2(GCF)it + \beta 3(FDI)it + \beta 4(EC)it + \beta 5(DCPS)it + \beta 6(T)it + \mu it$

Methodology

This study is about to examine the affiliation among savings, investments and its determinants we are applying on the normal minimum square method by the autoregressive lag model. Here savings are used as dependent variable and its gap, Growth Domestic Product, as dependent variable and Labor Force Participation rate, external direct investment, trade, Electricity Consumption, Gross Capital Development, General Credit to Private Sector are all independent variables in growth model.

Descriptive analysis

This elementary analysis explains that some basic properties of panel data which developed in this study. This analysis consists on the descriptive analysis. Mean, median, minimum and maximum values are the basic factors of descriptive analysis which use for the analysis of variables, as well as the analysis of jarque-bera, sum of squared deviations, skewness, standard deviation, kurtosis, number of observations and probability from one another. In this descriptive statistics analysis, the economic growth or the other indicators which are the electricity consumption, external direct asset, exports, gross capital formation, money supply and labor force which are using in the econometric regression analysis with the basic variables are given in segment.

Table 1: Descriptive analysis

	GDGP	LFPR	GCF	FDI	EC1	DCPS	TRADE	
Mean	5.78	64.32	24.50	0.72	64.20	28.33	40.83	
Median		7.04	59.28	23.81	0.55	61.57	24.91	36.85
Maximum		34.85	89.26	51.76	3.67	99.76	87.71	88.63
Minimum		-100.00		50.47	14.12	-0.09	26.08	5.77 12.22
Std. Dev.		15.44	12.78	6.90	0.72	18.20	14.27	17.79
Skewness		-4.89	1.063	0.95	1.45	0.28	1.259	0.65
Kurtosis		34.11	2.46	3.88	5.69	2.09	5.154	2.84

Source: E-view 2009 Econometric analysis

The average value of Gross domestic product (GDP) is 5.78 percent and the mid value is 7.04 percent. The maximum value of GDP during the 1980 to 2018 is 34.85 percent and the smallest value is -100. The normal deviancy of overall growth of SAARC countries is 15.44 and the value of skewness for gross domestic product (GDP) is -4.89 percent with the value of kurtosis 34.11 percent and the value of Jarque- Bera for all GDP is 8640.94

Similarly for the other variable that is labour force participation rate (LFPR) the average value is 64.31percent with the mid value of 59.28 percent. The variable LFPR has maximum value is 89.26 percent and its minimum value is 50.47 percent. The value of standard deviation for LFPR is 12.79 percent and the skewness value is 1.06 percent with the value of kurtosis for LFPR is 2.45 percent with the value of Jarque-Bera which is 39.14percent.

GCF is the gross capital formation and its average value is 24.50percent furthermore its mid value is 23.80 percent with maximum value of 51.75 percent and minimum value is 14.12 percent. The GCF has the standard deviation value is 0.95percent with the value of kurtosis which is 3.88percent and the gross capital formation has 35.80percent the value of Jarque –Bera.

The fourth one variable is FDI which is foreign direct investment has the average value is 0.72percent with maximum value of 3.67percent. The median value of FDI is 0.55percent with minimum value of -0.09 percent. The value of standard deviation value of FDI is 0.72percent and the foreign direct investment has the value of skewness is 0.29percent with the value of kurtosis which is 5.69 then it is lepto kurtic and 127.18 is the value of Jarque- Bera for FDI.

The other one variable is electricity consumption (EC) has the average value of 64.20percent with the maximum value of 99.76percent and the mid value in this statistical analysis for electricity consumption is 61.57percent with the analyzed minimum value of 26.08percent. The value of standard deviation for EC is 18.20percent with the value of skewness is 0.29 percent and the value of kurtosis for EC is 2.09 percent. The electricity consumption has the value of Jarque-Bera is 9.34percent.

The average value of money supply (DCPS) and Trade is 28.33percent and 40.83percent with the maximum values 87.71percent and 88.63 percent respectively, the mid values are 24.92percent and 36.85percent with the minimum values of 5.77percnet and 12.22percent for the DCPS and trade respectively. The value of standard deviation for the DCPS is 14.27percent; similarly, the trade has the value which is 17.79percent of standard deviation. Skewness of DCPS is 1.26percent and its value for trade is 0.65percent. As well as kurtosis value of DCPS is 5.15percent with the value of Jarque-Bera is 89.25percent and for trade the value of kurtosis is 2.84percent, Jarque-Bera value is 14.14percent as well as for trade.

Table 2: Correlation Matrix for the GDP Model.

Probability	GDGP	LFPR	GCF	FDI	EC1	DCPS	TRADE
GDGP	1.00						
LFPR	0.06	1.00					
GCF	0.00	0.24	1.00				

FDI	-0.00	-0.37	0.36	1.00			
EC1	0.12	0.84	-0.09	-0.55	1.00		
DCPS	-0.08	0.04	0.80	0.38	-0.29	1.00	
TRADE		0.05	0.28	0.42	0.41	0.19	0.26	1.00

Source: E- view 2009 Econometric analysis

Note: GDP is gross domestic product (% OF Annual Growth), LFPR is labor force participation rate (% of GDP), FDI foreign direct investment (% OF GDP), EC1 is electricity consumption (% OF GDP), and DCPS is domestic credit to private sector (% OF GDP) and trade (% OF GDP).

In this table 2 we are explaining the correlation matrix which is about the relationship among the variables. Correlation shows the relationship of one variable with the variable. Through the table 2 we explain the correlation background of GDP and its variables which shows the linear relationship. Correlation expresses the power of two variables that how much they are correlated in which direction with each other and the coefficient of correlation expresses the degree of contingency and sign shows the trend of correlation. The transverse of the matrix shows that the correlation of variable with itself, that's why it remains constant at level 1.

The table 2 represents the correlation matrix which indicates the degree and nature 0f relationship among two variables. This table represents the results of both for the dependent and independent variables. The value 0.7 to 0.9 of correlation shows the moderate and strong correlation among the variables and the value of correlation is less than 0.7 shows the weak correlation among the variables. The signs of coefficient show the direction among the variables like positive sign indicate the direct correlation while, the negative sign indicates the negative correlation among the variables.

In this table 2 the first two variables shows the relationship with each other one is growth domestic product GDP and the other one is labor force participation rate LFPR they both have weak correlation among them because the correlation coefficient of GDP and LFPR is 0.06 that indicate that there is a weak but positive association in both of them. This correlation among the variables growth and gross capital formation (GCF) is 0.00 which shows that they both have weak correlation among them and the coefficient sign is positive which shows the positive weak correlation in positive direction.

In gross domestic product GDP and foreign direct investment FDI the correlation value is -0.00 which shows the weak correlation of GDP with FDI but the sign of correlation coefficient is negative which tells that here exists a negative weak relationship among GDP and FDI which indicate that both are weak negatively correlate with each other. The Correlation between the GDP and electricity consumption EC is 0.12 which also express that there is a weak correlation among both of these variables but positive sign shows that they have weak positive correlation among them. They increase in positive direction with weak correlation.

The correlation coefficient between the variables which are GDP and domestic credit to private sector DCPS is -0.08 shows that they both have weak relationship with each other and the negative sign also tells that they both are negatively correlate which also shows that they both are in negative direction. The correlation coefficient between GDP and Trade is 0.05 which also shows that there is weak correlation among them and the coefficient 0f 0.05 is positive which shows that both are positively correlated with each other.

GCF and LFPR both have correlation is 0.24 which indicates that they both have weak correlation among them and the coefficient of 0.24 which shows that there is a positive but weak correlation among them. The correlation among the variables FDI and LFPR is -0.37 which shows that there is moderate relationship but the negative sign of coefficient denote that they both have negatively moderate correlation.

The correlation coefficient among the variables EC and LFPR is 0.84 which specifies that there is a strong association among EC and LFPR and the coefficient of 0.84 is positive which obviously shows that EC and LFPR both strong positive relationship. They both are increase in same direction in positive direction with same ratio. The variables DCPS and LFPR both have coefficient is 0.04 which designates that a feeble relationship exists among both of them and positive sign shows that they either they have positive weak correlation or move in positive direction. Trade and LFPR have correlation coefficient value is 0.28 which also shows that they both have weak correlation and positive sign shows that both have positive correlation between them.

The correlation coefficient between the GCF and FDI is 0.36 which tells us that they both have moderate positive correlation among them and the positive sign shows that they are completely connected with one another. The association of coefficients GCF and EC is -0.09 shows that there is weak but negative relationship with each other. The variables GCF and DCPS have correlation coefficient is 0.80 which shows that they are highly correlated with each other and the coefficient of 0.80 is positive which express that they both have strong positive relationship with each other. The correlation coefficient between GCF and Trade is 0.42 illustrate that in the both variables positively moderate relationship exist among them.

The relationship of coefficients between FDI and EC is -0.55 express that they both have a realistic association but the factor shows that both variables have negatively moderate correlation with each other. The correlation coefficient of FDI and DCPS is 0.38 which shows the moderate and positive relationship among them. The variables FDI and Trade have the correlation coefficient are 0.41 which also indicates that there is an optimistic but moderate association among them.

Correlation among the variables EC and DCPS is -0.29 specify that there is a feeble association among them and value of coefficient which is -0.29 shows that there is a weak and negative correlation between them. The correlation coefficient between the EC and trade is 0.19 shows that there is a weak but positive relationship among the EC and Trade.

Similarly the correlation among the DCPS and Trade is o.26 which shows that these both variables are weak correlated with each other and the coefficient 0.26 shows that these variables have positive weak correlation among each other.

LLC Unit Root Test

This (LLC) test is commonly applied for the all variables to cut off mutually at level and first difference. This test is applying for the all variables to see the stationarity of all the variables. This test shows that either the variables are level at first difference or not. This analysis uses the Levin, Lin test to find the component root problems lie among the disturbed variables;

Table 3: Levin, Lin & Chu Test

This table 6.1 is represented all the variables and, here we can check the Unit root of all variables to check stationary between all the variables. In the first column there is listed the name of all the variables and the second column is for the unit root rest and names are listed there as level and first difference. And the third column consists on the categories of level and first difference. The fourth column is about t-statistic. The fifth column is consisting on the probability values which are 0.00 that show the variables are stationary. The sixth and last column shows the conclusion about the results; if the value is 0.00 and the variables are stationary at level then we show I (0) and the values are stationary at first difference then we denote form I (1) in the last column of conclusion. The table of unit root test is given below,

Variables	Unit root test at	Included	t - statistic	Probability	Conclusion
Gross Domestic Product	Level	Individual Intercept	11.05	1.00	I (0)
		Individual trend &Intercept	15.40	1.00	
		None	-4.17	0.00	
Foreign Direct Investment	Level	Individual Intercept	-1.64	0.05	I (0)
		Individual trend&Intercept	-2.08	0.018	
Electricity Consumption	Level	Individual Intercept	0.76	0.78	I (0)
		Individual trend&Intercept	0.68	0.75	
		None	-6.87	0.00	
Gross Capital Formation	Level	Individual Intercept	2.20	0.97	I (1)
		Individual trend&Intercept	-0.61	0.27	
	first Difference	Individual Intercept	-3.23	0.00	
Domestic Credit to Private Sector	Level	Individual Intercept	2.12	0.98	I (1)
		Individual trend&Intercept	-1.02	0.85	
	First difference	Individual Intercept	-5.12	0.00	

Trade	Level	Individual Intercept	0.22	0.59	I (1)
		Individual trend&Intercept	1.37	0.91	
	First Difference	Individual Intercept	-4.59	0.00	
Labor					
Force Participation Rate	Level	Individual Intercept	-1.29	0.09	I (0)
		Individual trend	-1.89	0.02	

Source: Author's estimation from E-Views 9 statistical software.

The examines that the results about this Test is expressed that all the variables are fixed at level and first difference by single intercept, individual trend& intercept and none. In the Table there is the list that is included on variables in first column, unit root estimation lies in next column. The principles of T- Statistics and possibility values are listed in the fourth and fifth column. The sixth column consists on the conclusion related to this test.

Unit root problem is tested for the entire variables included in this survey. The dependent variable is gross domestic product is tested at level by including individual intercept and there is its Possibility value is 1 which is clearly express that it can be non-stationary at level by including individual intercept. Then it is again tested at level through containing the individual tendency & intercept the P- value is 1.00 at level by including individual intercept that also shows that it is non-stationary. Then it is tested at level by including none and the possibility value is 0 and now it indicates that it is stationary at level by including none and the T-Statistics value shows that it is significant.

Similarly unit root is verified and the results examined that all the variables are static, and then some are stationary on level with individual intercept, individual trend &intercept, and none. The other some are also stationary but at first difference with individual intercept. The probability value 0.00 which shows that the variable is stationary.

Table 4: ARDL Long Run results

Dependent variable: GDP (gross domestic product)

Long run Equation

Variables	Co-efficient	Std. Error	t-Statistic	Prob.
Labor Force Participation Rate	2.376111	0.896533	2.650332	0.0092
Gross Capital Formation	0.158553	0.506673	0.312930	0.7549
Foreign Direct Investment	7.127148	2.809907	2.536435	0.0126
Electricity Consumption	0.954531	0.301931	3.161419	0.0020
Domestic credit to Private				

Sector	0.056734	0.193552	0.293121	0.7700
Trade	0.705112	0.263750	2.673407	0.0086

Table 5

ARDL Short Run results

Variables	Co-efficient	Std. Error	t-Statistic	Prob.
COINTEQ01	-1.136791	0.494368	-2.299483	0.0233
D(GDGP(-1))	0.205429	0.317767	0.646476	0.5193
D(LFPR)	6.069530	5.613041	1.081327	0.2818
D(LFPR(-1))	-0.201161	6.707751	-0.029989	0.9761
D(GCF)	-0.247037	0.477317	-0.517554	0.6058
D(GCF(-1))	-0.982055	1.089660	-0.901249	0.3694
D(FDI)	2.045444	5.329062	0.383828	0.7018
D(FDI(-1))	-7.875459	3.136816	-2.510654	0.0135
D(EC1)	0.585105	1.862493	0.314151	0.7540
D(EC1(-1))	2.361601	1.279505	1.845715	0.0675
D(DCPS)	-1.334489	1.030974	-1.294396	0.1981
D(DCPS(-1))	-0.331496	0.521710	-0.635402	0.5264
D(TRADE)	-0.790767	0.183930	-4.299295	0.0000
D(TRADE(-1))	-0.655274	0.748731	-0.875180	0.3833
C	-245.7782	100.2340	-2.452043	0.0157

The table 4 given above is about the Auto regressive and distributed lag model. ARDL model specify that a connection between the GDP and its other variables. The outcomes from this model show the connection of Electricity use, FDI and growth among the SAARC countries. Table 5 represents the list of variables in the first column and we are finding the relation of these variables with dependent variable. The second column shows the sign of values which specify the relationship either it is positive or negative, we can find it through the sign of co-efficient. The values of the standard error and t-statistics respectively are showed in the third and fourth column. The last column indicates that the values of probability, shows that the results are significant.

The results express that the value of the coefficient of LFPR is 2.376111; the factor is positive and has extremely significant influence with growth. It may be express that there is one percent rise in LFPR gets 2.38 percent rise in gross domestic product. From the SAARC countries the labor force participation rate is so high

and they can also highly influence in GDP and influencing strongly with the growth of an economy. Co-efficient of Gross Capital Formation is 0.158553 that is indicating about the helpful and insignificant effect on GDP. So the results are about that the one percent rise in gross capital formation will lead to 0.158553% increase in GDP of SAARC nations. These results show that the consideration is insignificant but positive as SAARC countries have higher negligible competence of capital formation than industrialized nations that's why a minor change in gross capital formation carries a massive conversion in gross domestic product.

The co-efficient of foreign direct investment is 7.127148 which show that a highly significant effect and influence of foreign direct investment with growth. The result tells about a single change of the external direct investment increases to the 7.12148% in GDP. As for as the external direct assets have a good trend of investment which ultimately increases the GDP. The results show that the parameter is highly significant and positive because external direct investment has optimistic effect happening with GDP.

The amount of electricity consumption is 0.954531 which express that there is a positive association of electricity consumption with GDP. The Possibility significance specify about an important and positive impact of energy consumption on GDP. The results estimate that there is a one percent increase in electricity use and in the result of it that there is 0.954531% also increase in GDP. There is a positive effect of electricity consumption on GDP and with the increase in energy use the gross domestic product will also rise.

The variable that is the domestic credit to private sector is also specified in this model. It's co-efficient is 0.056734 which displays that there is an optimistic but insignificant effect on gross domestic product. The result shows that the GDP and domestic credit to private sectors are influencing with each other because monetary expansion has a dynamic work in the betterment of growth. The reason is that private domestic investment positively influences with growth but it is not statistically important for the era of observation of study.

The other and last variable in the model is trade and its coefficient is 0.705112 which also express that there is a positive highly significant association among the exports and GDP, The results show that trade is positively and highly substantial impact on Growth. As the result estimates that one percent rise in trade will increase 0.705112% in GDP. There is an ultimately increase in GDP with the surplus of Trade.

Conclusion

In this study, we discussed that the theoretical and conceptual background of growth of an economy. Several kinds of definitions of growth of an economy are available there; basically, these are all maintained in the high level of the size of an economy for the production and providing the facilities from one era to the other. These are all also discussed about the trends and factors of economic growth. This chapter includes on the some important factors of economic growth. This chapter is supported from some important theories on economic growth. These theories play an important role in the growth for the developing countries. We are focused her on some definitions, concepts, factors trends of economic growth and some different growth theories. These theories are supported for the method for measurement and theoretical structure of economic growth.

This study is totally based on basic concepts of all variables which are related to this study. This study is included on the definitions and basic concepts of all variables that are related to economic growth; gross domestic product, electricity consumption, external direct investment, gross capital formation, labor force, domestic credit and trade. This study is concluded on the definitions and concepts of all the methods which we are using in this chapter. In our research we originate that there is an optimistic association among the variables

dependent and independent variables. Through this research study we investigate that all the variables are significant relationship with dependent variable that is economic growth except two variables that have insignificant relationship among the dependent variable. The variables are gross domestic product and domestic credit to private sector these two independent variables that have insignificant but positive association with the growth of an economy it is a dependent variable. All independent variables positively influence with dependent variable.

In this study, features of the dataset are discussed in detail. After that the process of definitions of variables (only that are taken from World development indicators) are given with sources of data described by the World Bank. Those are included in the gross domestic product, electricity consumption, external direct asset, labor force participation rate, gross capital formation, domestic credit and imports or exports. In the other part of the study, the preliminary analysis is made which include the descriptive statistics, correlation analysis results and in these sections the descriptive analysis used the methods to handle the panel data and to conduct the growth analysis. The econometric method of growth analysis includes that he uni-variate unit root tests, panel and cointegration tests. While the econometric methods for panel data model involved the ARDL model.

This chapter concludes that the statistical and econometric analysis. In the last chapters the discussion is on results of the gross national product model presented that in the growth model the variables are significant at first difference and on level at 1%, 5%. The variables electricity consumption, foreign direct investment, labor force, money supply, gross capital formation and trade all will positively effect on the growth of an economy. The results of this study estimated that all the variables are stationary at level except domestic credit to private sector and trade these both are fixed at first difference. For the estimation of findings from this study we used that the ARDL method which is tested for the panel data estimation.

Some policy implications have been taken from this analysis that is briefly explained as follows:

Energy use for the regions that are supported by growth would become an essential matter that developing the new structures of market for economies in the long view.

Growth and income both are central aspects that have positive impact of energy use and would be taken that involve to the electricity consumption strategy making procedure.

Furthermore the electricity preservation strategies like as fewer uses of non-renewable means in direction to protect capitals for the upcoming reduce in the conservational contamination or expanding in the effectiveness of fuel for transport and warming may not inhibit in the growth of an economy.

Electricity imitations that emphasis on the imminent electricity uses that must take expansion into concern in calculation to the economic growth and more elements.

The Expansion is estimated as controlled variables and extensively resolute from the other elements slightly except the pay and electricity use. That's why; the developers of strategy expansion would not incorrectly measure like the expansion proceeds habitation as the findings of the growth of an economy. On the conflicting base, our outcomes suggest that expansion can be added in the economic growth.

Furthermore the inquiry by investigating about the more nations from the organizations into various countries collections or estimating these communally to attract more particular and concrete the assumption for the electricity use, foreign direct investment and development associations. Furthermore from the upcoming survey

we can observe that the connection among the energy consumption, external direct investment, gross investment formation, trade, the growth of an economy and determine the direction and magnitude of impact for energy use and external direct investment on the growth of an economy.

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