

Linkage between Gross Fixed Capital Formation, Trade Deficit, exchange Rate and Economic Growth of Pakistan

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Abstract

The current research scrutinizes the effect of gross fixed capital formation, trade deficit and rate of exchange on growth rate of Pakistan economy since 1986 to 2013 with time series analysis. The data is attained through the secondary sources. Ordinary least squares (OLS) method is used for the analysis of the data. The result indicates that there is positive but significant influence of gross fixed Capital Formation on GDP. While Trade Deficit has negative but also significant effect on GDP. Moreover, Exchange Rate has insignificant and positive impression toward GDP. The result also demonstrates that the effect of exchange rate on economic growth is insignificant, but a good interpretation of an economy in term of exchange of currency.

Keywords: Gross Fixed capital formation, trade deficit, rate of exchange, gross domestic product, OLS, Pakistan.

Introduction

Pakistan is a fast developing country, irrespective of a lot of political and economic tasks. Despite, the fact that it has been considered as an underprivileged nation since 1947, but its GDP rate has been recovered and well improved than the worldwide average over the consequent eras, however due to no proper policies its growth rate has been detained in the late 1990s. Moreover, in recent times the inclusive sort of economic performance has caused of robust economic growth. Although Pakistan has attained a steady and stable growth rate in previous 5 years, but due to high prices, more consumption, low rate of saving, trade deficit and some more economic variables, it is problematic to carry and maintain great economic growth.

According to Asian Development Bank report (ADB) in 2007 and 2008, 7% growth rate in industrial, export and consumption would lead to bring additional development in the upcoming years. But during the period of 2008 the macroeconomic performance of Pakistan was not satisfactory. In accumulation, the major causes were the underprivileged monetary and fiscal policies, enormous debt duty, and trade deficit, lack of modern plants and machinery, unemployment, lack of infrastructure facilities, economic, political and social problems in the country.

The tendency of economic growth in Pakistan, which is based on the performance of some major macroeconomic variables, particularly

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capital formation, balance of payment, term of trade, inflation, government expenditure, rate of exchange and foreign direct investment. A lot of research have been carried out concerning these issues and prevailing study indicates a respective analysis allied to Micro level and Macro level with the importance of economic growth. For this purpose, the current study has taken three variables such as trade deficit, gross fixed capital formation and rate of exchange to recognize its effect on growth rate of Pakistan.

Problem Statement

Economists recognize several factors that contribute to the growth of a nation's output such as an increase in government spending, foreign direct investment, productivity, capital flow, employment, trade balance. To stimulate and promote economic growth, the most important factor in the economy is capital formation. Through capital formation, output, income and employment is increasing and also stimulates production in the country and such as import decrease and export will be increased.

The recent research is deliberate to find the effect, nexus and volatility of capital formation, trade deficit and rate of exchange as well as its tendency on economic growth and contradiction between them in all the adverse and favorable conditions.

Objectives of the Study

- To estimate the effect of gross fixed capital formation, exchange rate and trade deficit with growth rate of Pakistan economy.
- To investigate the correlation among gross fixed capital formation, trade deficit, rate of exchange, and growth rate of Pakistan economy.

Hypothesis of the study

H_0 = the gross fixed capital formation, the trade deficit and rate of exchange are insignificantly associated with GDP.

H_1 = the gross fixed capital formation, the trade deficit and rate of exchange are significantly associated with GDP.

Limitations of the study

The limitations of the current study have many such as the first limitation of the current study is occupied merely an economy of Pakistan; more than one country could be chosen for present research to understand the international economy. Secondly, this study is based on only three variables. It could be enhanced by including a few other variables. Thirdly, only quantitative data are used for this study as compared to qualitative

data. Fourthly, the time period of the current study depends on only 28 years.

Literature Review

Abayomi, Awujola (2013) reconnoitered the impact of foreign trade on the economy of Nigeria during 1970 to 2010. The conclusion, presenting that in short run and long run, export, inflation rate, exchange rate, import, capacity utilization, interest rate was significantly positive and consumption of government was statistically negative influence on total trade of Nigeria.

Soliu, Adegboyege, & Odusanya Ibrahim (2010), investigated the nexus among foreign direct investment (FDI), trade openness, capital formation and gross domestic product of Nigeria from 1986 to 2011. The OLS result showed a significant positive effect among capital formation, trade openness while insignificant positive correlation among FDI and gross domestic product growth rate.

Adhikary, Bison Kumar (2011), considered the linkage and effect between foreign direct investment, trade openness, capital formation and growth rate in Bangladesh since 1986 to 2008. The OLS result indicated the capital formation and FDI were positive, but significant interrelated with real GDP. The trade openness was adversely and weak effect on the growth rate of GDP.

Adeniran, J. O., S. A. Yusuf, and Olatoke A. Adeyemi. (2014), investigated the exchange rate effect on Nigeria economy from 1986-2013. The finding of OLS techniques demonstrates that the rate of exchange has positive but insignificant while rate of interest and inflation were insignificant and negatively correlated with economic growth.

Fatima, Goher, Mehboob Ahmed, and Wali Rehman (2012), observed the link related to the budget deficit and economic growth from 1978-2009. The OLS outcome exposed that gross investment has positively but inflation, the trade deficit and exchange rate has significant negative impact on GDP of a country and rise in inflation also affect the interest rate which affects the growth rate of economy. The finding demonstrated the negative and significant relation between interest rate and GDP.

Joshi, Himanshu (2007), examined the impact of foreign capital flows and domestic saving on capital formation of India. This study showed that both individual and government savings have positively strong significant long term effect on capital Formation.

Jakob, Brigitte (2015), anatomized the correlation between exchange rate regimes and economic growth by observing the data through

74 countries for the year 2012. The gross capital formation, inflation rate, index of human capital per person and index of government spending are independent variables. The result displays that the fixed exchange rate regime has significantly positive correlation with GDP.

Methodology

The foremost objective of the existing paper is to scrutinize the impact and correlation among the given variables. The study depends on the data of time series since 1986 to 2013 eras. Therefore, the data are obtained from the secondary sources; such as Pakistan Bureau of Statistics and World Development Indicators.

Empirical Techniques

The empirical techniques of the variables are founded on the model.

$$EC = (GFCF, TD, EXCH)$$

$$EC = \beta_0 + \beta_1 GFCF + \beta_2 TD + \beta_3 EXCH + \mu_t$$

EC = Economic growth,

GFCF = gross fixed capital formation

TD = trade deficit,

EXCH = exchange rate

μ_t = random error

The various estimated method used for examining the effect and relationship among variables such as Ordinary Least Square (OLS) Technique, Correlation, Normality Test, Heteroscedasticity, Multicollinearity, Ramsey Reset test, Cusum test and autocorrelation test through E-VIEW version 9 for detailed analysis.

Data Analysis

Table: 4.1 Result of Data Descriptive Statistics

	GDP	GFCF	TRD	EXCH
Mean	14.27074	23.27341	8.284891	15.04583
Median	14.21586	23.12351	7.792959	14.98936
Maximum	16.06367	24.15352	11.69615	16.52588
Minimum	12.74322	22.41537	6.923136	14.44486
Std. Dev.	1.252572	0.558120	1.180427	0.431171

Linkage Between Gross

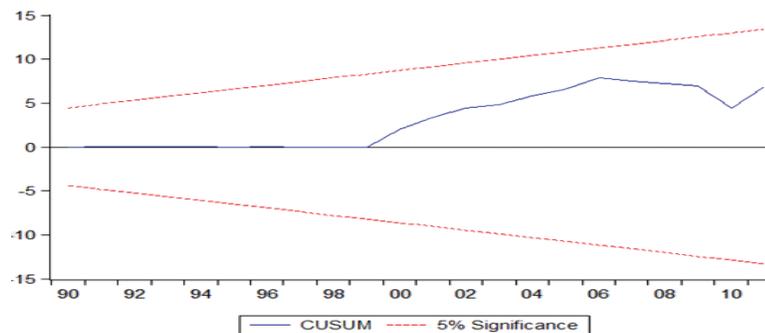
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Jarque-Berra	3.770215	2.225100	5.841730	21.63733
Probability	0.151813	0.328720	0.053887	0.000020

Source; E-views Statistical Package Version 9 (1986-2013)

The overhead table shows that included variables under the study are generally normal distributed. The ratio of mean-to-median of all the variable is almost equal to one. The standard deviation of all the variable is less than mean, indicating a minor variation of the coefficient. The differences sort among maximum and minimum is too sensible and equitable. The Jarque- Berra test shows the acceptance of H_0 of normal distribution with each variable instead of the exchange rate with changeable probabilities.

4.2 Stability Diagnostic Model (Cusum Test)



The overhead graph shows the Cusum test line is located within these two lines of 5% significant meaning that the model is stable, which indicates that the dependent variable like GDP is a stable variable so we can accept the model.

Table: 4.3 Ordinary Least Square Model

Variable	Co-efficient	Std. Error	t-Statistics	Prob.
CONSTANT	44.93308	7.005027	6.414406	0.0000
GFCF	2.626131	0.476458	5.511780	0.0000
TRD	-0.367829	0.155757	-2.361559	0.0275
EXCH	0.075244	0.419331	0.179438	0.8592
$R^2 = 0.826997$				
Adjusted $R^2 = 0.803406$				
F-Statistics = 35.05524				
Probability = 0.000000				

Durbin-Watson Stat = 2.596303

Source; E-views Statistical Package Version 9 (1986-2013)

The overhead table shows an OLS regression model for the economy growth effects of gross fixed capital formation, exchange rate and trade deficit in Pakistan. The result indicates that GFCF have positively, but significant relationship with GDP in Pakistan. The coefficient of GFCF is 2.626131 means that the economic growth increase by 2.626131 units due to a one unit change in gross fixed capital formation. The coefficient of TRD is -0.367829 display negative still statistically significant ($p < 0.05$) relationship with GDP. The coefficient of EXCH is 0.075244 while the t- value < 2 and p-value > 0.05 , meaning that positive along with an insignificant relationship with GDP.

The result of R^2 and its adjusted R^2 are 0.827 and 0.803 indicates that goodness of fit is present in the model which meaning that 83% variation in GDP is explained by the variance of GFCF, TRD and EXCH. The statistics value of Durbin Watson is 2.596303 which is more than 2 shows autocorrelation is not exist in the model so that is a good sign.

The F- statistics value is more than 2 and probability value is smaller than 5% that's mean all the independent variables have equally effect to dependent variable and it is also a good sign.

Table; 4.4 Result of Correlation Coefficient

	GDP	GFCF	TRD	EXCH
GDP	1	0.883721	-0.371213	0.526169
GFCF	0.883721	1	-0.496220	0.608137
TRD	-0.371213	-0.496220	1	-0.222706
EXCH	0.526169	0.608137	-0.222706	1

Source; E-views Statistical Package Version 9 (1986-2013)

The overhead table shows that GDP is correlated to gross fixed capital formation, exchange rate and trade deficit. The result expresses that GFCF and EXCH rate are positively correlated with GDP, but the TRD is negatively correlated with GDP as shown by its correlation value is -0.371213. The GFCF is highly positively linked with GDP, but EXCH is less greatly positively associated with GDP as exhibited by their values are 0.883721 and 0.526169. The result further shows that GDP is more highly strong and positively correlated with GDP than the remaining variables of the model.

Table; 4.5 End result of Breusch-Godfrey Serial Correlation LM test and Heteroscedasticity

	Prob (F-statistics)	Prob (R-squared)
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Breusch-Godfrey Serial Correlation LM Test:	0.9258	0.8932
Heteroscedasticity Breusch-Pagan-Godfrey	0.9960	0.9905

Source; E-views Statistical Package Version 9 (1986-2013)

The result of Breusch-Godfrey serial correlation LM expresses that all the included probability value is more than 5%. So, as a result H_0 cannot reject rather accept of H_0 which demonstrates no serial auto correlation in the model. Similarly, the result of Breusch-Pagan-Godfrey for Heteroscedasticity test also indicates that the mention values are greater than 5% indicating that acceptance of the H_0 and rejection of H_1 which meaning that there is no heteroscedasticity in the model.

Multicollinearity Test

Table 4.3 indicates that two variables have become significant out of three variables, and Durbin Watson value is also more than 2 meaning that the issue of Multicollinearity has been erased.

Table; 4.6 Normality Test

Jarque-Berra value = 3.770215	Probability = 0.151813
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Source; E-views Statistical Package Version 9 (1986-2013)

The Normality test illustrates that Jarque-Berra value is 3.770215 and its probability figure is equal to 0.151813 which greater than 0.05, it's mean the H_0 can accept while reject the H_1 which shows the residual is usually normal distributed.

Table; 4.7 Result of Ramsey Reset Test

	value	Df	prob
F-statistics	3.625830	(1, 21)	0.0707

Source; E-views Statistical Package Version 9 (1986-2013)

In the result of Ramsey Reset test the F-statistics value is insignificant at 5% of critical value, because its probability value is greater than 5%. The study signifies that all the included variables like gross fixed capital formation, trade deficit, exchange rate and gross domestic product are an appropriate as well as functional form of the model is also identify clearly.

Conclusion

The study investigates the effect of Gross Fixed Capital Formation, Trade Deficit, and rate of exchange on GDP of Pakistan from the period of 1986-2013. After finding, the OLS results shown Gross Fixed Capital Formation has significant positive influence of GDP. The logic may be that a country has ability to save and spend more on investment out of the given total income, which further to increase output, income

export, and employment opportunity and promote economic welfare. While Trade Deficit has statistically negative affect on GDP. The reason may be that in Pakistan the trade deficit is increasing very fast. As a result, the imports become more expensive as compared to exports and have also developed the cause of devaluation of home currency, which are adverse effect on growth rate of economy. Moreover, Rate of Exchange has progressive and positive insignificant impression toward GDP. The result also demonstrated that the rate of exchange has insignificant effected to growth rate of economy, but a good performance of an economy in term of exchange of currency. The logic may be that the government of Pakistan provides exports incentive's, subsidies, increasing the volume of investment, employment opportunities, promoting foreign direct investment, and build up import substation industry, which are positively influenced on economic growth.

Suggestions

The existence study endorses the following steps for achieving considerable and sustained economic growth on the basis of the above results.

- The government should work on creating of favorable climatic investment and improved infrastructural technology in the country to increase capital accumulation.
- The government of Pakistan should work on her possibly exportable commodities. The earnings from exportable commodities should be consumed for the importation of needed technical tools and components.
- The government should rise to the creation of goods and services and it is also essential for government to increase the imports of intermediate goods.
- The government should work to fascinate more foreign direct investors into the country by improving the infrastructure facilities, such as it has counted as a great source to expand the capital formation within the country which have led to enlarge economic growth at a huge scale.
- The Government should encourage Industrial based agricultural production for the earning of the huge amount of foreign exchange reserve.

- The government should work to establish domestic industries in order to decrease the imports and increase of exports to overcome the trade deficit in the economy.
- The government should decline the capital flight out rate of the country. Inflows of capital should be tight to precise, applicable as well as purposeful schemes. As a result, in the long run this will helpful to bring employment opportunities.

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