



# Impact of macroeconomic factors on development of Pakistan

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## Abstract

Macroeconomic factors play a fundamental role in attracting the growth the country. This research examined the impact of various macroeconomic factors on GDP of Pakistan for the period of 1975-2015. The core objective of this research was to check the impact of inflation, investment, exchange rate and net export on development of Pakistan. The tool for analysis was Ordinary Least Square (OLS) multiple regression model. This research used Descriptive Statistics, Harvey's test for checking the heteroscedasticity and Breusch Godfrey LM test to check autocorrelation among variables. The results of this study show that inflation exerts negative significant effect on Pakistan GDP whereas investment shows positive significant effect and exchange rate have positive insignificant effect on GDP of Pakistan. Moreover net export has been highly positive significant on Pakistan GDP.

**Keywords:** Macroeconomic Factors; OLS; Economy of Pakistan.

## 1. Introduction

Throughout the years, the weak and decreasing trend in economic development in Pakistan is troubling for Policy makers, experts, and foreign aid donor agencies. The weak economic development has been faulted predominantly for the high inflation rate, a mounting fiscal deficit, expanding foreign debt and debt servicing, weak foreign demand for Pakistani items. One of the primary purposes behind low development rate of Pakistan is terrorism that is expanding step by step with the progression of time. There exist much discussion between economic development and its determinants. Recent improvements in development hypothesis have been fundamentally hypothetical although critical advancement has additionally been made in development empirics. Among the different determinants of economic growth, foreign investment and net export development is progressively getting to be imperative components to effect upon it. Total national output (GDP) is utilized as a marker of financial strength of a nation furthermore, gages a nation's way of life. It is money-related estimation of all the final products and services made inside a nation's border in a predetermined time and calculated on annual premise. Economically developed nations have possessed the capacity to decrease their poverty reinforce their political and social institution, enhance their personal satisfaction, protect natural environment and accomplish political security measures. Some macroeconomic variables influence the GDP of any nation as Pakistan GDP rely on numerous macroeconomic components however here we just examine some main factors like inflation, investment, exchange rate and net export. Every one of these variables exceptionally impacts the improvement of Pakistan.

There should not any doubt that a dynamic improvement of economic indicators advances the economic development of a country. Economic indicators are too much, for example, domestic investment, inflation, exchange rate, net export, factors productivi-

ty and literacy rate. Moreover, this study selected growth indicators that are inflation, investment, exchange rate and net export is considered as the life blood for economic development of a nation. Investment prompts to make occupation open doors, increase the production of goods and services and then increase the national income. For developing nations like Pakistan, foreign investment must be considered in growth model in light of the fact that foreign investment can easily bridge the saving investment gap in case of country domestic capital shortage. Finally net export are fundamental for favoring trade balance, increasing foreign exchange reserves and for open economy is the engine of development. Partially these key variables are displayed in key development equation to check for their part in Pakistan's financial development.

The role of the economic indicators affecting economic development of any country such as Pakistan has been long debated in history of Pakistan economic literature perspective. Since the publication of Adam Smith's "Wealth of Nations" in 1776 to the present time economists contributed a considerable measure to economic improvement and its determinants. With the progression of time, business analysts have determined different elements that influencing economic growth of a nation. Studies of assorted nature have researched the economic growth determinants, paying little respect to various theoretical and methodological purposes of perspectives. Moreover, no discussion has come to the agreement to discover what measurements of the economic indicators matter most. Developing nations like Pakistan, having all normal natural resources are still in reverse and proceeding with its economic level is going decrease with time to time. These components are indirect and direct, inside and outside, and they vary from nation to nation. Because of the socioeconomic conditions, the components of economic development might be different in the developed and developing countries.

In this study, we have distinguished the effect of investment, inflation, net exports and exchange rate on the GDP of Pakistan. The

core purpose of this research is to affirm the significance of these macroeconomic determinants in the improvement of economy of Pakistan and to check empirically the impact of these variables on GDP. For this reason data of (from 1975 to 2015) taken from the distinctive sources like IMF, World Bank, State Bank of Pakistan. Past researchers have found the effect of net exports very significant on the economic development and prosperity. The other autonomous variables are exchange rate, inflation and investment. Economic development is an essential requisite to economic development. In economies, most commodities delivered are created available to be purchased and sold. In this way, measuring the aggregate use of cash money used to buy things is a strategy for measuring production. This is said to be as the consumption technique for determining GDP.

Investment incorporates business investment in apparatus for instance, development of another mine, to buy a software or buy of apparatus and equipment for an industrial facility. Investment by a family on new houses is additionally incorporated into Investment. GDP covers the sum a country produces, including goods and services conveyed for other nation's use in these case exports are included.

The cyclical movement of rate of inflation and economic development, particularly in creating nations, has gotten much consideration among the business analysts, policy makers and the national investors. High and sustained economic development with low inflation is the central goal of the macroeconomic policy makers (Khan and Senhadji, 2001). The rate of inflation negatively impacts the real economic development and in this manner causes unfriendly outcomes for economic performance at the total level. However, it may be the nature of relationship between economic growth and inflation and the channels through which inflation influences real economic exercises is still a debatable issue (Li, 2006).

The net export performance is a basic device of employment creation, change of parity of balance of payment, quickened economic development and expansion the level of income and expectation for everyday comforts of the masses. In such way, Pakistan is attempting best to expand its exports. In the early years 1948-49, 99% of Pakistan's exports income were comprised of only five essential products; raw, raw jute, hides, cotton, raw wool and tea. A change started to happen ahead of schedule in the example of exports as Pakistan's economic strategies moved towards an accentuation on industrialization. During the years of 1951-52, five primary products added to the tune of 93% of exports profit and by 1958-59 that had tumbled to 75%. However, consequently all these macroeconomic variables like Inflation, Investment, Net exports and Exchange rate exceedingly influence to Pakistan development. These variables assume an essential part toward Gross Domestic Product (GDP) of any nation.

The core objective of this study is to check the impact of various selected macroeconomic variables on Pakistan economic development. In this study we have analyzed the impact of Inflation, investment, net export and exchange rate on GDP of Pakistan.

## 2. Review of literature

Gross domestic product (GDP) is used as an indicator of economic well-being of a nation, furthermore gauges a nation's way of life. It is monetary value of all the completed goods and services, delivered inside a nation's border in a predefined era and calculated on yearly basis.

The scholars have revealed that the impacts of some macroeconomic variables on Pakistan's economic development. Multiple regression framework is used to isolate out the impacts of macroeconomic factors on development over the time period 1959-60 to 1996-97 (Iqbal and Zahid, 1998). The quantitative proof demonstrates that primary education is an imperative essential for accelerating development. Similarly, expanding the supply of physical capital would be helpful to increase development. The empirical results recommend that openness of Pakistan's economy promotes

economic development. On the other hand, the budget shortage is adversely identified with both yield development variables. The external debt is negatively identified with economic growth, proposing that depending on domestic resources is the best contrasting option to finance development. However, the outcomes suggesting reinforce the significance of sensible long-run development oriented strategies to get feasible growth.

To find the impact of macroeconomic factors on economic development of Ghana (Antwi, Mills, & Zhao, 2013) used co-integration and ECM methods and proposed that there exist long run relation. They prescribed that the frame work of tax should be by government and enhance its budget. Government ought to keep on foreign direct assistance into the projects that produce capital for the public since this enhances the profitability of masses and consequently, is liable to a positive long-run impact on development of a nation.

The scholars have analyzed the effect of inflation on economic development and set up the presence of inflation development relationship in Tanzania (Kasidi & Mwakanemela, 2013). The Co-integration and Correlation coefficient method built up the relationship between GDP and inflation. Coefficient of elasticity was applied to gauge the level of progress in GDP to changes all in general price level. Results proposed that inflation negatively affects economic development. They also found that there was no co-integration between economic growth and inflation during that specified period. However the, conclusion is that no long run relationship between economic development and inflation in Tanzania.

Ullah and Rauf, (2013) assessed the effects of macroeconomic determinants on economic development by using panel data over the time period 1990 to 2010 in Asian countries and found that the nation's economic development is positively influenced by saving rate and FDI while exports depict negative effect on economic development and labor force and the ratio of tax have no effects on economic development.

The scholars explored the relationship of exchange instability and economic development in Pakistan by using ECM and ARDL techniques (Javed & Farooq, 2009). In any case, relationship among exchange rate instability, reserve money, manufacturing and economic growth are identified over the long term except imports and exports. They proposed that economic progress is extremely delicate to the exchange rate instability over the long run time frame.

Gudaro, Chhapra and Sheikh, (2010), analyzed that the effect of FDI (foreign direct investment) in Pakistan. It assessed the GDP development and proposed the chronicled trend of the CPI and FDI in Pakistan. As per the findings, the considered model is completely significant with positive and critical relationship of FDI and GDP while a negative and vital relation established between inflation and GDP. On the basis of the exact results procured, Policy recommendations are encouraged to pull in FDI in Pakistan. FDI is a fundamental component for economic development in the developing nations.

The scholar have concluded that FDI is often seen as a vital catalyst for economic growth in the developing nations (Falki, 2009). It influences the economically progress by expanding human capital formation, animating domestic investment and by encouraging the innovation transfer in the host nations. The fundamental motivation behind this study is to explore the effect of FDI on economic development in Pakistan. The relationship exists between economic development and FDI is examined by production function in view of the endogenous economic development theory; different variables that influence economic development. Their examination demonstrated a negative and harmful connection between the FDI Inflows and GDP in Pakistan.

According to the analysis (Sial, Hashmi, & Anwar, 2010) part of investment has impact on development of Pakistan. They examined the part of the private and public investment and the effect of the macroeconomic vulnerability and political/economic development of Pakistan by applying the VAR (vector autoregressive method). In long term both private and public investment has posi-

tive relation with development while in short period the three exist positive relationship between GDP and economic instability (proxy for inflation) in short run.

Ghani and Din(2006), explored the part of public investment during the process of economic development, with regards to Pakistan's economy, by applying the vector autoregressive methodology (VAR). In light of hypothetical contemplations, the model additionally incorporates private investment and public consumption other than public investment. The consequences of their study demonstrated that development is to a great extent driven by private investment and that no solid inference can be drawn from the impacts of public investment and public consumption on economic development.

Auranzeb and Haq (2012), examined the effect of investment on the economic development of Pakistan by using multiple regression strategy explore the relationship between GDP and explanatory variables (private investment, foreign direct investment and public investment). Findings revealed that explanatory variables exert vital and positive effect on the economic development. It is prearranged that Pakistan should focus on strong measures to pull in however much FDI as could reasonably be expected to the foreign exchange sectors in the short-run. Political stability and satisfactory law and order are moreover basic to pull in FDI.

To check the relationship between economic development of Pakistan (Ullah, Khan, & Ullah, 2014)used ADF, ECM and ARDL test for both long run and short run. The findings of their study recommended that there exist long run relationship between explanatory variables and Pakistan development.

The scholars have inspected the effect of domestic investment on economic development in Nigeria (Ilegbinosa, Micheal, & Watson, 2015).The multiple regression and co integration techniques were used to investigate the data. The results of their study partitioned private investment and government productive investment had positive but vital impact on economic growth; while government protective investment had negative and no impact on economic growth within the period under study.

According to (Chaudhry, Ayyoub, & Imran, 2013), have selected three main parts (agriculture, manufacturing and services) to find out the exactly the effect of inflation on sectoral development of Pakistan. It is found that effect of inflation on sectoral yield contrasts considerably as indicated by the way of the division. Existing inflation is dangerous to the assembling manufacturing development; while, the impact of inflation on services sector development is in sharp contrast differently in relation to the manufacturing sector development. It is concluded that agriculture sectors and inflation have direct relation and low inflation rate is not beneficial for Pakistan economy.

Rahman and Salahuddin(2010) empirically revealed the impact of macroeconomic factors on economic growth. They applied ARDL bounds testing and ECM to check the long-term and short run dynamics respectively. The results concluded that stock market and economic development have direct relationship whereas economic instability and inflation have indirect relationship. Moreover stock market liquidity, FDI and human capital have positive relationship with economic development.

For studies conducted in Nigeria, (Kolawole, 2013)analyzed impact of different macroeconomic determinants on Nigeria development by using ECM and Granger causality test. The outcomes revealed that the economy of Nigeria has direct relation with real exchange rate and indirect relation with external debt. Finding suggested that government should make some measures in this regard. However, to check the determinants of development in Nigeria (Machi, 2011) applied Johansen's test to check long run relationship and found that policies and tools should be used to improve the manpower, investment in research in both form i.e. human and physical capital, training and technology for short run and long run as well.

According to (Khan, Babar, Jaskani, Omair, Ameen, & Sameen, 2014)reported that the components of economic development from 2008-2012 on account of Pakistan. They suggest that Pakistan ought to make some policies to improve its imports and ex-

ports and other tools in order to increase its economic development. However, to find the long run relationship between Nigeria development and global trade (Edoumiekumo & Opukri, 2013) used OLS technique and proposed that there exist positive relationship among different selected variables, exports, imports and RGDP. There is need to increase or decrease their imports or exports in order to enjoy more fruits of global trade.

Munir and Mansur (2009) examined the non-linear relationship between Malaysia economic growth and inflation for the period of 1970-2005. The conclusion of their study revealed that inflation has positive impact on Malaysian economy. Existing inflation is better for the development of Malaysia. However, to check the casual relationship between exports and development of Jordan (Shihab, Soufan, & Khliq, 2014) used Granger causality test. The study exert that there exist causal relationship going from the economic development to Export, and not the other way around. In light of the result of causality tests, the variation in the economic development clarifies the changes that happen in the Export.

Exchange rate is a positive variable for Pakistan development so (Khan, Sattar, & Rehman, 2012) applied causality test to check relationship among FDI, exchange rate, inflation, trade and GDP. The findings recommended that there exist long run equilibrium between exchange rate and FDI but there is no long term equilibrium between inflation and exchange rate. Conclusion proposed there is direct relationship between GDP and exchange rate. According to the (Ahmad, Ahmad, & Ali, 2013), examined the effect of nominal exchange rate, FDI, inflation and capital stock on economic development of Pakistan. They used OLS and ADF test to check relation between independent variables (FDI, capital stock, and Exchange rate) and dependent variable (GDP). The consequences of OLS demonstrate that exchange rate and inflation has negative and significant influence economic development of Pakistan. Capital stock (GFCF) does not significantly influence economic development. FDI exert positive and vital impact on economic development of Pakistan. Government should take significant measures to increase the standard of exporting commodities to make smooth balance of exchange.

Kilavuz and Topcu, (2012) contended the relationship between development in exports and economic development. They selected 22 for their analysis and found that investment, high-tech manufacturing industry export and low-tech producing industry import have a positive and vital impact on development.

### 3. Methodology

In this research, we used the secondary data that is taken from various official sites like World Bank, IMF, State Bank of Pakistan. We selected the data of various macroeconomic variables like Gross Domestic Product (GDP), Investment (INV), Inflation (INF), Exchange rate (EX) and Net export (NEXP) is ranging from 1975 to 2015. Gross domestic product is considered as Economic development of Pakistan that we used as dependent variable and investment, Inflation, Exchange rate and Net export as independent variables. The multiple regression analysis is used to explore the impact of Investment, Inflation, Exchange rate and net export on Pakistan GDP. The technique of data analysis adopted as Ordinary Least Square, Harvey heteroskedasticity test and Breuch-Godfree serial relationship test.

General Form of Model

$GDP = f(INF, INV, NEXP, EX)$

ECONOMETRIC MODEL

$Ln(GDP) = \beta_0 + \beta_1 \ln(INF) + \beta_2 \ln(INV) + \beta_3 \ln(NEXP) + \beta_4 \ln(EX) + \epsilon_t$

Where,

GDP = Gross Domestic Product

INF= Inflation

INV= Investment

NEXP = Net Export

EX = Exchange Rate

$\varepsilon_t$  = Stochastic Error Term

#### RESEARCH HYPOTHESIS

H<sub>01</sub>: There is significant relationship between Inflation and Gross Domestic Product

H<sub>A1</sub>: There is no significant relationship between Inflation and Gross Domestic Product

H<sub>02</sub>: There is significant relationship between Investment and Gross Domestic Product

H<sub>A2</sub>: There is no significant relationship between Investment and Gross Domestic Product

H<sub>03</sub>: There is significant relationship between Net Export and Gross Domestic Product

H<sub>A3</sub>: There is no significant relationship between Net Export and Gross Domestic Product

H<sub>04</sub>: There is significant relationship between Exchange rate and Gross Domestic Product

H<sub>A4</sub>: There is no significant relationship between Exchange rate and Gross Domestic Product

## 4. Data analysis and discussion

In this research we used E-Views software to regress GDP on the other components like Investment, Inflation, Exchange rate and Net export. Harvey-Godfrey test for checking the problem of heteroskedasticity. The results of the Harvey Heteroskedasticity test are given below:

**Table 1:** Results of Descriptive Statistics

Variable	Maximum	Minimum	Mean	Standard Deviation
GDP	25.9305	22.9771	24.53903	0.8171
INF	2.8387	-1.2799	1.4702	0.9887
INV	24.1335	20.39928	22.7585	0.9410
NEXP	2.8541	2.223616	2.5957	0.1732
EX	4.5926	2.292535	3.3369	0.8082

The above table is representing the results of descriptive statistics. The sample size containing for the period of 1975 to 2015. The maximum and minimum value of GDP is 25.93053 and 22.97716 respectively. Whereas, the mean value and standard deviation of the GDP is 24.53903 and 0.817051. The mean values of independent variables (inflation, investment, net export and exchange rate) are 1.470202, 22.75850, 2.595739 and 3.33693 and the values of standard deviation for independent variables are 0.988755, 0.941015, 0.173231 and 0.808226 respectively.

**Table 2:** Results of Harvey Heteroskedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.7618	19.0625	0.1973	0.8447
INF	0.2166	0.6073	0.3566	0.7234
INV	-0.3436	0.8894	-0.3863	0.7015
NEXP	2.1083	2.6935	-0.7827	0.4389
EX	1.0601	1.1849	0.8947	0.3769

The results of the Harvey test show that there is no problem of the heteroscedasticity among variables as when we compare the p-value with F-value. As its hypothesis are as under; H<sub>0</sub>: There is no heteroscedasticity; H<sub>1</sub>: There is heteroscedasticity. If probability value is less than  $\alpha$  then we reject H<sub>0</sub> and accept H<sub>1</sub>. Here there is no problem of heteroscedasticity among variables when we compared the p-value with 5% level of significance.

For checking the problem of auto correlation we applied the Breusch Godfrey Serial Correlation LM test. E-views results for checking the auto correlations are given below:

**Table 3:** Results of Breusch-Godfrey Serial Correlation LM Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.3410	3.8742	-0.0880	0.9304
INF	-0.0001	0.0189	-0.0056	0.9955
INV	0.0177	0.1944	0.0913	0.9278
NEXP	-0.0175	0.1773	-0.0987	0.9219
EX	-0.0052	0.1816	-0.0290	0.9770
Durbin-Watson Statistic				2.0114

There is no auto correlation as the value of Durbin-Watson 2.0114. Its mean there is no auto correlation in our data.

We used E-Views software to regress GDP on the other components like Investment, Inflation, Exchange rate and Net export. The results of Ordinary Least Square are given below

**Table 4:** Results of Ordinary Least Square

Variable	Coefficient	Std. error	t-statistic	Prob.
C	8.4004	3.3336	2.5198	0.9166
INF	-0.0569	0.0177	-3.2121	0.0325
INV	0.5911	0.1695	3.4872	0.0014
NEXP	0.8304	0.1774	4.6789	0.0000
EX	0.1830	0.1724	1.0610	0.2961
R-Squared	0.9825			
Adjusted R-Squared	0.9794			
F-Statistic	118.2292			
Prob(F-Statistic)	0.0000		Durbin-Watson Statistic	2.1207

The E-views software is used to assess the regression line. The estimation of model coefficients is measured for partial and joint impact significance of their consequences for economic development of Pakistan. On the basis of assessment are the F-statistics and t-statistics respectively at 0.05 level of significance and relevant degrees of freedom. The results of OLS demonstrate that inflation has negative and significant relation with the GDP of Pakistan which means that as one percent increase in inflation will decrease GDP by 0.056. The other independent variable which is investment has positive and significant relation with GDP. This positive significant means that one percent increase in investment will increase GDP by 0.59%. The net export has positive and highly significance association with GDP of Pakistan which means that one percent increase in net export will resultant increment in GDP by 0.83% in economic growth. Each of the three variables investment, net export and exchange rate has positive association with GDP of Pakistan. The elasticity of investment and net export is 0.59 and 0.83 respectively. The value of R<sup>2</sup> (Coefficient of determination) in our model demonstrate that 98% of the variation in the dependent variable is explained by the explanatory variables that are incorporated into our model. The overall model shows the F-statistics which is value are 118.2292 and its Prob-value is highly significant which means that the overall model is good. Therefore, there are no other dynamic which are manipulate the result of dependent variable because our C (Constant) is statistically insignificant. Our model is free from the issue of autocorrelations as the value of Durbin Watson is 2.1. The value of Durbin Watson representing no autocorrelation in our data.

## 5. Conclusion

In the past years, Pakistan's economic growth has stayed unsustainable to an alarming situation, which has serious apprehension for policy makers, experts, and foreign donor agencies. As unsustainable economic development has been caused by various factors, the fundamental purpose of this paper has been to investigate the impacts of some macroeconomic variables on Pakistan's economic development. This research has inspected the impact of various macroeconomic variables like Inflation, Investment, Net export and Exchange rate on GDP (Economic Development) in Pakistan for the time of 1975 - 2015. Existing literature demonstrates that macroeconomics determinants exceedingly effects the economic development in Pakistan but how much this question is

still emerge. In this way, the impact of macroeconomic determinants is yet to be well established. This study has played a vital role to the research effort at empirical measure of the impact of these variables on economic development of Pakistan. The data analysis depicted that a relationship exists among these macroeconomic variables and economic advancement, and that while some macroeconomic determinants applied negative impact on development, others applied positive impact. As inflation exert negative and significant effect on economic development of Pakistan. Investment and Net export played positive and significant impact in the economic development of Pakistan. Beside the Net Export apply positive but insignificant effect on Economic development of Pakistan. Exchange rate has positive but insignificant association with GDP of Pakistan.

On the basis of findings from the empirical analysis, the study proffers the some suggestions that the inflation should be remaining stable as it exerted negative but vital role in the development of Pakistan. The portion of investment should increase as if investment increase then automatically, growth rate of Pakistan will rise. In that case more employment for the Pakistani people will be generated. In developing countries like Pakistan, employment rate plays an important role toward economic growth. The net export played very important role in the development of Pakistan. As in our data analysis we found that net export has positive and highly significant relationship with GDP of Pakistan. Pakistan should increase their net exports. When net export will increase, Pakistan would be able to earn more revenue that will increase the GDP of Pakistan.

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