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Impact of Unemployment and GDP on Inflation: Imperial study of Pakistan's Economy

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Abstract:
This study has inspected the effect of inflation on the GDP and unemployment in Pakistan. Time series data has been taken from secondary resources from 2002-2014. Inflation existence is different in different countries. The result shows that inflation has insignificant impact on unemployment and GDP in Pakistan. The correlation between inflation and GDP is negative at 0.05 which is -.527. The correlation between the Inflation and Unemployment also found insignificant with the negative value of -0517. This means that if we want to increase the GDP of the country, the Inflation rate can be decreases and vice versa with Unemployment.

INTRODUCTION

Developing countries like Pakistan is facing fluctuating inflation rates in its economy. According to the World Bank report on Pakistan in 2015 out of 187 countries Pakistan is on 147 numbers in the human development index (HDI) with lowest indicators as compared to the other south Asian countries. (world bank).

The inflation and unemployment is very different in different countries. (Slesnick, 1993). The impact of inflation on the unemployment is very different in different countries, some times higher inflation tends to higher unemployment, sometimes there is relation of high inflation moderately impacts on unemployment and sometimes higher inflation leads low unemployment.(Raza, 2013). The meaning of high inflation is different in different countries.

With the decrease in unemployment in the country, labor class in the country demands more wages and at the end this cost is bear by the final consumer which is increase in the commodity prices and leads to high inflation in the country the whole process is Phillip curve. The mostly used method in the world for measuring the inflation is Consumer price Index (CPI) it excludes the food and energy in its calculation.

GDP (gross domestic product) is the total productivity level of the economy. And the price of inflation is already adjusted in GDP calculation. The relationship of inflation and GDP can be understand by the slippery slope which is if the GDP of the country will decrease then the profit earning position of the countries will also decline and also Higher ratio of GDP will increase the supply of money which at the end increase the inflation in the economy.

Most economists believe that 2.5% to 3.5% GDP will not impact the economy negatively. And GDP increases from 2.5% will decrease the unemployment with 0.5% but when employment will become very low or high employment then the supply of money will increases which will result in high prices of commodity and services leads to high inflation.
So, in this study as the students of research we will identify how inflation has impact on unemployment and GDP of the current situation in the country. Either their relationship is significant or not and their impact is on positive direction or negative direction.

Problem Statement

Symptom

The unemployment rate and GDP is very low and the inflation is very high.

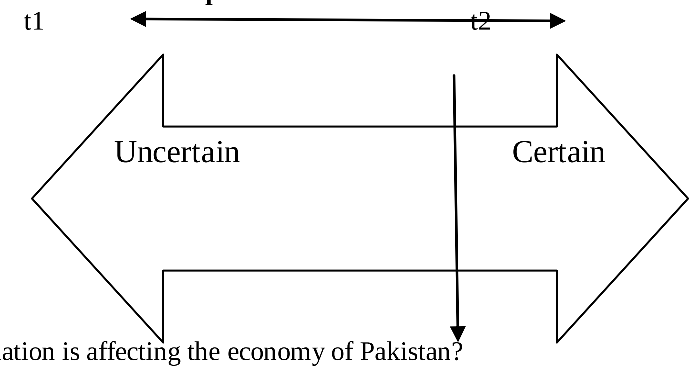
Problem Definition

The higher level of prices (Inflation) in the country increases the financial problems of that country due to increase in the prices of commodities and services. And high prices will impact on value of money which will be decreased. So, inflation can badly impacts the prices and value of money in the country. And may be higher inflation can increase the unemployment in the country. That's why in this study we will see the critical role of inflation the growth of the economy and on unemployment of the economy.

Purpose of the Study

Our purpose of research is descriptive research here that is we will deal with how, where, what, how and when but not with why. It can be explained through this diagram

Figure 1 -Research on Basis of Purpose



- How inflation is affecting the economy of Pakistan?
- What is the contribution of GDP in Pakistan's economy?
- How we can interpret unemployment in Pakistan?
- What is the relationship between Inflation and GDP in Pakistan?
- How inflation influencing the unemployment in Pakistan?

Uses of this research

The use of this research is basic for the academic and knowledge enhancement not for practical implication.

Time dimension of this research

Longitudinal research design has been selected to this research in shape of time series data from 2002-2014.

LITERATURE REVIEW

For our project we have studied the different related thesis, conference proceedings, websites, books, journals etc. where the relationships between the inflation and GDP and unemployment have been discussed. Inflation is a major problem in our country. There are two types of inflation, the first one is demand pull inflation and the second one is cost push inflation. Many of the writers think that there is a positive relationship between inflation and unemployment. As the rates of unemployment have been increasing same like the rates of inflation has been increasing. There is a continuous rise in inflation which effects the economy's growth. The results of the study are in between 2005 to 2015. So we can say that inflation and unemployment leads to GDP (Slesnic 1993).

In Pakistan, the inflation rate is increased by 2.73% in November. The most rising prices are in food and beverages, clothing, utilities etc. In Pakistan the inflation rate is about 7.93% from 1957 to 2015. The current inflation rate is 2.73%, the previous is 1.61, the maximum is 37.81, and the lowest is -10.32. So these are the rates of the inflation which tells us about the economic situation of the country (pakistan inflation rate, 1957-2016).

If we talk about the unemployment then we can say that it is a situation when people are available but there are no job opportunities for them. In other words, it can be say that when people are ready to work but there is nothing to do. This problem is arising in our country rapidly. The unemployment is affecting our economy day by day. The main issues are buying and spending power of the people when they are unemployed, they cannot save in this situation. If we talk about the unemployment related to financial cost then we can say that in this situation nation bears and suffers. Govt. should give some benefits to the unemployed people so that they can survive but in this situation nation not only deal with loss of income, reduces their production but also increases the cost. Another problem is recession, when the rates of unemployment increases, each and everything related to life are affected badly.

It is badly effected on the society in these ways like health problems, tension at homes, suicide cases, loss of abilities, disappointment, violence and crime etc. (The effects of unemployment on society and the economy, 2009-2015).

Basically it is an aspect which is negatively related with the inflation. With the help of integration analysis, the study proved so many important facts. Inflation also influences the unemployment in many ways. Many substitutes have been taken for the risk of changes of unemployment in its employment rate (Metin, 1991)

The worth gross domestic product (GDP) in Pakistan was about 246.88 dollars in 2014. Hence Pakistan represents the value of GDP is about 0.40% and the average value of GDP is about 59.62 dollars. The World Bank group reported the GDP in Pakistan as well. It is equal to the total expenditures for all goods and services produced within the country with a specific period of time. The actual value of GDP in last is 4.14%, the previous is 3.70%, the maximum is 10.22% and the minimum is -1.80%. These are the actual rates of GDP in Pakistan.(Pakistan GDP, 1960-2016).

Inflation means decreasing the value of money and when it happens many problems arises. This problem greatly effect on the economic growth of the country. Many researchers says that there is a negative correlation between the inflation and growth of the economy (Gokal and Hanif, 2004)

It is also examined that the negative relationship occurred between the inflation and growth of the economy. When inflation increased by 10% than growth of the economy decreased by 2% to 3% in the country so it is proved that there is negative relationship between these two variables (Inflation and economic growth, 1995)

Theoretical Framework

Concept

— Unemployment increased and GDP decreased

Proposition

— There are chances that Unemployment may increase and GDP may decrease due to inflation

Variables

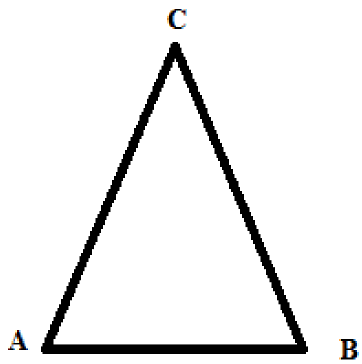
Independent Variable

- GDP
- Unemployment

Dependent Variable

- Inflation

Figure 2- Theoretical Model



Where;

A = Independent Variable, (GDP and Unemployment)
B = Dependent Variable, (Inflation)
C = Moderating Variable (Government Control)

Diagram

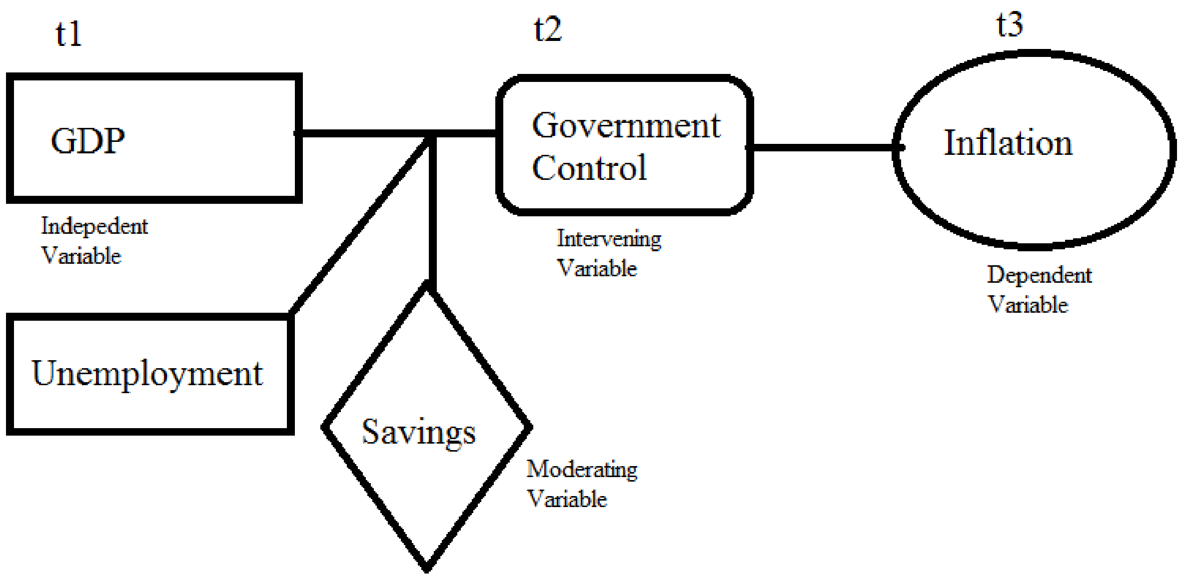


Figure 3- Complete Theoretical Framework

Independent Variable
- GDP
- Unemployment

Dependent Variable
- Inflation

Moderating Variable
- Savings

Intervening Variable
- Government control

Equation
- Inflation = f (GDP rate, Unemployment rate)
- Inflation = a+ B1 (GDP rate) + B2 (Unemployment rate) +ei

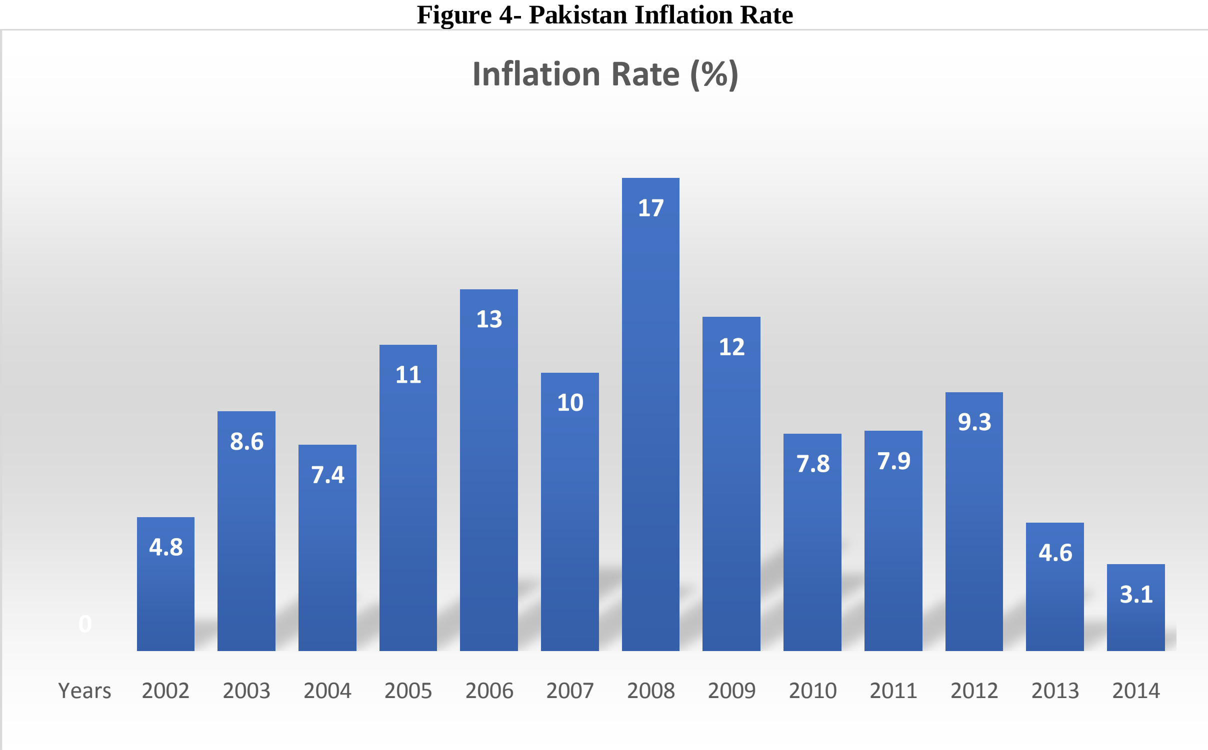
Whereas,
A: representing the coefficient intercept term as constant
B: representing the slop intercept as vibrant due the multiplicative value of inflation in time series and e_i: representing the error term of the study.

Research hypothesis
H_0: Inflation rate has insignificant impact on GDP % and Unemployment rate.
H_1: Inflation rate has significant impact on GDP percentage in Pakistan's economy.
H_2: Inflation rate has significant impact on unemployment rate in Pakistan.

Operational Definition

Inflation
Inflation occurs when there is an increase in the prices of the products or service and due to this increase the buying power of the people decreases. From the start there has been an increase in the inflation rates of Pakistan as the price level increases without specific time period that is type of hyperinflation. The highest inflation rate in Pakistan as recorded by the Pakistan bureau of statistics was 37.81 percent in 1973 and the lowest recorded was -10.32% in 1959. Following graph represents the data of inflation from 2002 to 2014 which shows that there has been an increasing trend in the inflation rates up to 2008 and after that the decreasing trend started.

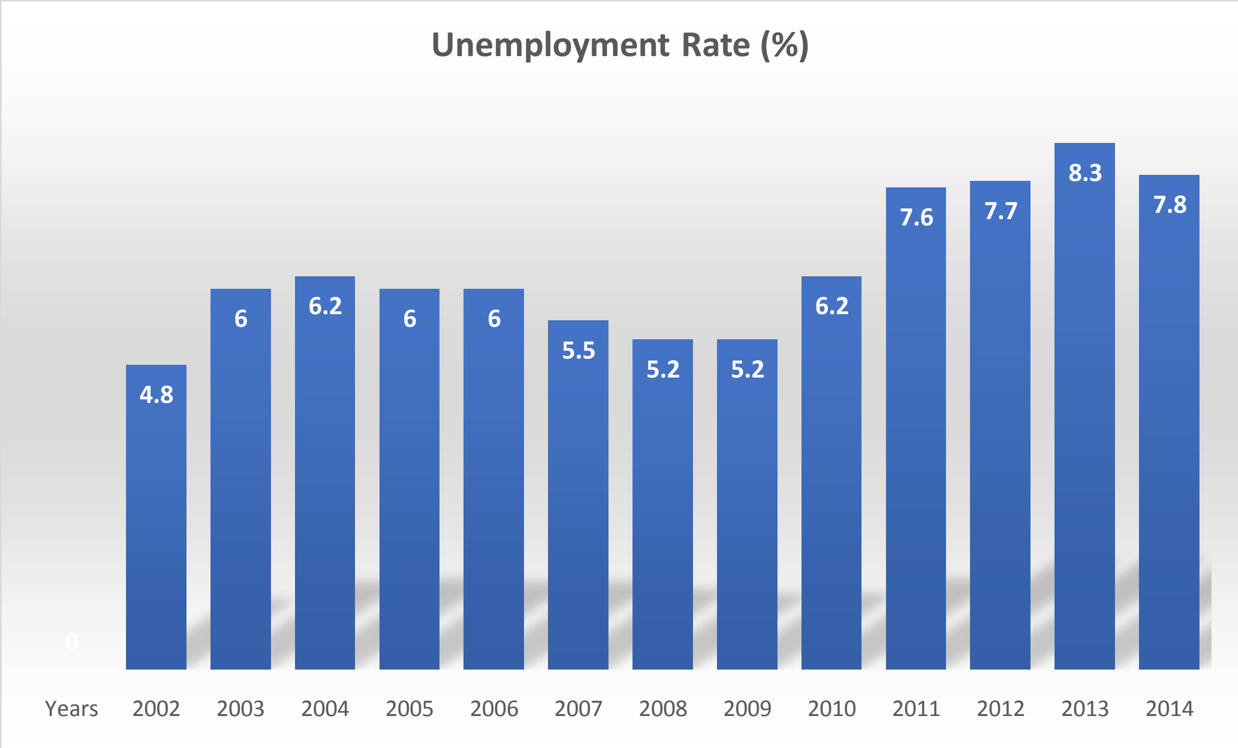
Figure 4- Pakistan Inflation Rate



Un-employment
The situation of economy where the labor class, professional, served, and serving workforce face problems for career prospects which raise the number of employed workforce towards unemployment due to uncertainty and economic issues (Jamshaid, 2010)

The high unemployment rate in a country causes lot of issues for an economy to be sustainable because when the educated people will not have the jobs they cannot contribute for the growth of the economy and unemployed people will thus not have the purchasing power to buy the goods and services and this will cause the inflation in a country. The following graph represents the data of unemployment rate from 2002 to 2014 which shows that there has been an increasing trend in the unemployment rate of Pakistan as from 2002 to 2006 the unemployment rate was stable at 6% but after that there was a small decrease for three years and then an instant increase in the unemployment was there which lead to 7.8 % in the 2014.

Figure 5-Pakistan Unemployment Rate

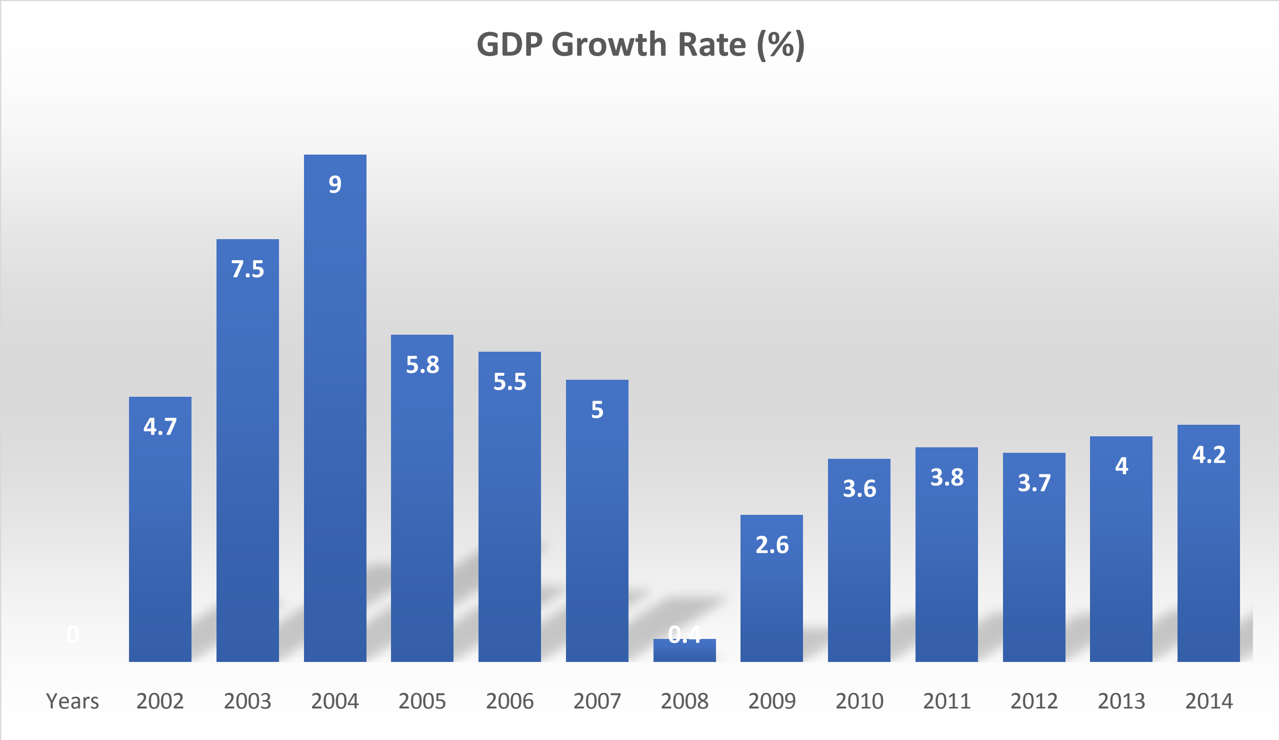


Gross Domestic Product

GDP is what a country has produced over a year in its borders which includes services and products. Government securities, welfare payments, financial assets value changes. It consists of legal activities and excludes all illegal activities like drug dealings etc.

Pakistan's GDP growth rate has been not as good as it has previously been, as we look in the following table that year 2004 has been best as compared to all years. In 2004, GDP growth rate was 9% but in the year 2008, it was only 0.4% which is extremely poor comparatively with the previous years. Pakistan has increased its productions and services which results in less unemployment rate in 2014 which is about 4.2% then previous year 2013. GDP growth rate should increase more than this rate to make Pakistan's economy stronger.

Figure 6- Pakistan GDP Growth Rate



Research Design

Current study is focused on the observed relationship between inflation, GDP and unemployment rates of the Pakistan's economy. Because of this intention, the data is taken from the WORLD BANK and economic survey of Pakistan website. The time that has been chosen for the present study is from 2000-2014. For the research study data has been gathered from the financial reports of the WORLD BANK and economic survey of Pakistan website of the last 14 years from 2000-2014. 14 years are taken because it will provide us an echo methodical situation for observing inflation, GDP and unemployment rates at national level of the Pakistan's economy. The research study would be complete on the basis of correlation, regression analysis, t-test and ANOVA model. The conclusion of the research study would provide statistical facts for probing the stated phenomena numerically.

Table-1 Inflation GDP and Unemployment rates

Years	GDP	Inflation	Unemployment
2014	4.7	6.9	5.2
2013	4.4	7	5.1
2012	3.5	6	5.1
2011	2.7	19.6	5.1
2010	1.6	10.9	6
2009	2.8	20.7	5.5
2008	1.7	13.2	5.2
2007	4.8	7.3	5.2
2006	6.2	19.1	6.2
2005	7.7	7	7.6
2004	7.4	7.7	7.7
2003	4.8	4.4	8.3
2002	3.2	2.5	7.8
2001	2	7.9	7.8
2000	4.3	24.9	6

Experiential Results Approach
The present study data was include into SPSS for examination mathematical calculation. All the data has been experienced from the economic survey of the last fourteen years (2000-20114). The initiatives are to be taken in a plausibly acceptable system to understand the working position affectively.

Experiential Results Analysis
Formerly the research study provides the numerical outcome of the stated relationship of the phenomenon then it would be important to critically elaborate the observed conclusion on the basis of process tests. The procedure already mentioned would be taken in to considerations for the sake of bringing well-suited link in the findings of the stated hypothesis and objectives. Research study would be focused to provide adequate material for the sake of planned topic on the basis of this result the data would be considered as a baseline to describe the conclusions and suggest important recommendations for the sake of perfection and compatible initiatives.

Analysis of Data
On the basis of the quantitative data processed, results provided us the very important information related to the impact of GDP and unemployment on the inflation. We have taken 13 years data of GDP, unemployment and Inflation rates in Pakistan from the time series of 2002-2014. All the findings are calculated by using the SPSS software. The findings are discussed below along with their critical explanations

Table 1- Descriptive Statistics
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Inflation	13	.4	9.0	4.600	2.1370
GDP	13	3.1	17.0	8.962	3.7777
Unemployment	13	4.8	8.3	6.346	1.1355
Valid N (list wise)	13				

Interpretation
Descriptive statistic is use to analyze data and to describe and summarize it in a systematic way. The above table shows the descriptive statistics about the GDP, Unemployment and Inflation. The gap in the maximum and minimum value of the Inflation can be clearly seen in the duration of thirteen years. This gap indicates that the Pakistan's inflation is not highly volatile.

Table 2- Correlation between Inflation, GDP and Unemployment
Correlations

		Inflation	GDP	Unemployment
Inflation	Pearson Correlation	1	-.527*	.713**
	Sig. (1-tailed)		.032	.003
	N	13	13	13
GDP	Pearson Correlation	-.527*	1	-.517*
	Sig. (1-tailed)	.032		.035
	N	13	13	13
Unemployment	Pearson Correlation	.713**	-.517*	1
	Sig. (1-tailed)	.003	.035	
	N	13	13	13

*. Correlation is significant at the 0.05 level (1-tailed).
**. Correlation is significant at the 0.01 level (1-tailed).

Interpretation
The above model shows the correlation between Inflation, GDP and Unemployment. According to the Pearson Correlation results, all the three variables show the negative values. This is called the negative correlation. The correlation between the Inflation and GDP shows the insignificant result with unimpressive value of -.527. The correlation between the Inflation and Unemployment also found insignificant with the negative value of -0517. Which means that if we want to increase the GDP of the country, the Inflation rate can be decreases and vice versa with Unemployment.

Table 3-Model fit between Inflation, GDP and Unemployment
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.737[a]	.543	.451	1.5827

a. Predictors: (Constant), Unemployment, GDP

Interpretation
R square value
It tells us that how much variation is explained due to the dependent variable for independent variable. The above data shows the value of R square is 54% which means that 54% variation is occurred in Inflation during the time period of 2002-2014 due to the GDP and Unemployment. R square value results by taking the square of the R value.
R value
It tells us about the strength and direction of the model. According to the above results, R value is 74 percent of correlation between observed and predicted values of inflation is explained by the model and this value also shows that the model is good.
Adjusted R square
Adjusted R squared value shows that only 45 percent of chances that the model is explained the variation in inflation after added more variables into the model.
St. Error of estimates
The standard error shows the standard deviation of error term which is mostly used for the precision or reliability of the independent variable. The standard error the average distance of the data points from the fitted line is about 1.6 percent.

Table 4- Significance level or F value
ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.752	2	14.876	5.939	.020[a]
	Residual	25.048	10	2.505		
	Total	54.800	12			

Interpretation
F value or significance level
It tells us about the goodness of fit of the model. It is use to determine if the variances of the two population are significantly different. It determines the P-value that is our probability value or Significance level. It should be less that 5% or 0.05.According to the above results, the P-value is 0.2 which means that the model is good fit and also that this model is contributed by 2%.

Table 5- Coefficient Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.491	3.823		-.390	.705
	GDP	-.122	.141	-.216	-.864	.408
	Unemployment	1.132	.470	.602	2.408	.037

a. Dependent Variable: Inflation

Interpretation
The estimated coefficient value of GDP shows that if there is one percent increase in output the inflation rate decreases by about 21.6 percent on average while holding the effect of other variables constant. The value of estimated coefficient of unemployment shows that if there is one percent increase in unemployment rate the inflation is goes up by 60 percent on average holding effects of other variables constant. According to Phillips curve which is modeled by A.W. Phillips there is tradeoff between unemployment and wage inflation. The output is plays an important role in stock market

investors. If the economic output is very low in an economy, the companies make no profits. And if the GDP is much higher so it will causes inflation. It may be because of two reasons. First if the aggregate demand of goods and services increases more than increase in aggregate supply so it will cause rise in prices. Other reason is when firms increase wage rate to increase the output, so it will increase the cost of production which causes high price level passed on to consumers.

Chart

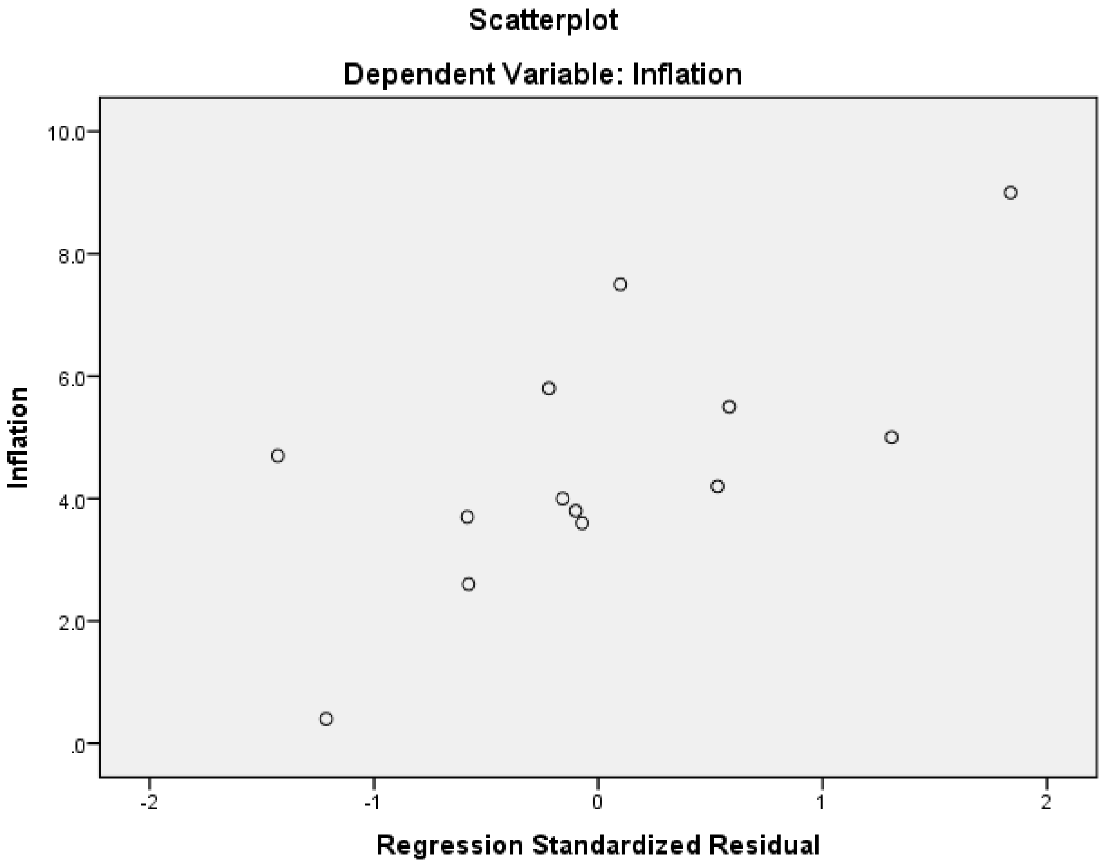


Figure 7- Scattered Diagram

<u>Interpretation of Scatter plot</u>

It can be used to determine that whether the relationship is linear, detect outliers and graphically shows the relationship. According to the above diagram, it shows the positive association between the variables. When the data move from left to right it is generally considered or known as the positive association.

Talking about its form, we further need to know that is there any association between the data or the data is linear or not because the relationship between the variables might be linear, curved or there might be no underlying form. The above diagram shows the linearity in the relationship of the variables that is Inflation, GDP and Unemployment. Above results also shows the moderate positive correlation between the relationships of the variables.

Summary Report

After testing the hypothesis through SPSS software H1 and H2 is rejected and H0 is accepted. All the above findings are based on the secondary research in which we take data of Inflation, GDP and Unemployment during the time series of 2002-2014. The conclusive outcome of the study shows that there is significant relationship between the Inflation and the GDP. The significance level of our model is 2% and the value of R is 74% which means that the data is good and the model is good fit. 54% variation is explained in Inflation due to our Independent variables that is GDP and Unemployment. Coefficient result of study tells us that if we increase one percent increase in output, the Inflation can be decreased by 22%. Pearson correlation also shows the negative correlation between the Dependent and the Independent Variables included in our study.

Scatter plot shows the positive association between the data of variables. Strength of the relationship between the variables tells us the moderate positive association phase and the cluster of points of data of Inflation, Unemployment and GDP shows that the relationship is linear.

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