"PHILIPS CURVE AND INDIAN EXPERIENCE"

Prof. Babasaheb R Jadhav[*]

Abstract

This research paper revisits the empirical existence of the Phillips curve in the Indian context. To estimate the Phillips curve we need two variables- Inflation Rate and the Unemployment Rate. Empirical evidence is obtained from the annual data collected from various sources. Empirical results are obtained by using the statistical test which is Correlation Coefficient. The experimental result shows there is a negative relationship between Inflation and Unemployment in Indian Context. So the Phillips curve is present in the Indian Economy.

Keywords: Philips Curve, Indian Economy, Inflation, Unemployment

I) Introduction and Back Round

This research paper seeks to examine the relationship between inflation and unemployment rate in India. The Indian economy has one of the highest inflation rates among emerging market economies and is in danger of overheating. In other words India has been under high inflationary pressures since the last fiscal year with headline inflation touching 10.23% in March 2010. The average headline inflation from April-December 2010-11 was nearly 9.4%, the highest ever in the last decade. Major drivers of this have been primary commodities, where price rise has ranged from 14.75% to 21.5% during the same period. As per the reports inflation rate has become a major cause of concern these days among the common men of the country.

On the other hand, since independence India is facing one major problem of unemployment. In last 62 years, as per the reports, the Indian unemployment rate 2011 has also remained a cause of concern among the people. The latest reports indicate that the unemployment rate of the country is at 9.4% this year which is quite high. According to the reports, forty million people are still unemployed in the country and more employment opportunities are required for balancing the condition. Indian Government is trying to solve this problem. In every five year plan Indian Government has introduced new plan for creating new employment opportunities. The root of the problem is 'jobless growth' in the Indian economy. So the question is arising that is there any tradeoffs between these two.

A. W. Phillips discovered a relationship between unemployment and inflation. Phillips showed that unemployment and inflation shared an inverse relationship: inflation rose as unemployment fell, and inflation fell as unemployment rose. So there is a curiosity in existence of Phillips Curve in the Indian context.

II) Research Methodology

1) Research Objectives:

a) To evaluate the Philips Curve in the context of India.

b) To study the relationship between Inflation and Unemployment in India.

2) Hypothesis:

There is relation between Inflation and Unemployment rate in the Indian context.

3) Scope of Research:

The present research study concentrates upon India's Ten (10) years data of Inflation and Unemployment rate.

4) Data Collection Methods:

a) Type of Data:

Secondary data has been collected and used for the present research study.

b) Sources of Data:

Secondary data was collected from internet, reference books, journals, articles, publications and various printed material.

c) Tools for Data Analysis:

Line Chart, Percentages and **Correlation Coefficient** are used for data analysis

d) Duration:

The study covers time duration for last ten years i.e. from 2001-02 to 2010-11.

5) Limitations of study:

a) Present paper is based on available info of Inflation and Unemployment rate of India.

b) Time span taken for this study is last decade.

c) This paper also concentrates upon only Indian scenario of Inflation and Unemployment rate.

III) Data Analysis and Interpretation

1) Unemployment

a) Introduction of Unemployment

Unemployment can be defined as a state of worklessness for a man fit and willing to work. It is a condition of involuntary and not voluntary idleness.

In other words, Unemployment is the state of an individual looking for a paying job but not having one. Unemployment is the time period when an individual is without work, available for work and currently looking for work.

In economics, unemployment refers to the condition and extent of joblessness within an economy and is measured in terms of the unemployment rate, which is the number of unemployed workers divided by the total civilian labor force.

Economists have classified unemployment broadly into two groups:

Types of Unemployment:

1) Voluntary Unemployment:

In this type of unemployment a person is out of job of his own desire doesn't work on the prevalent or prescribed wages. Either he wants higher wages or doesn't want to work at all. It is in fact social problem leading to social disorganization. Social problems and forces such as a revolution, a social upheaval, a class struggle, a financial or economic crisis a war between nations, mental illness, political corruption mounting unemployment and crime etc. threaten the smooth working of society. Social values are often regarded as the sustaining forces of society. They contribute to the strength and stability of social order. But due to rapid social change new values come up and some of the old values decline. At the same time, people are not is a position to reject the old completely and accept the new altogether. Here, conflict between the old and the new is the inevitable result which leads to the social disorganization in imposed situation. In economic terminology this situation is voluntary unemployment.

2) In-Voluntary Unemployment:

In this type of situation the person who is unemployed has no say in the matter. It means that a person is separated from remunerative work and devoid of wages although he is capable of earning his wages and is also anxious to earn them.

According to Hock, Unemployment can be classified in following categories:

3) Cyclical Unemployment:

This is the result of the trade cycle which is a part of the capitalist system. In such a system, there is greater unemployment and when there is depression a large number of people are rendered unemployed. Since such an economic crisis is the result of trade cycle, the unemployment is a part of it.

4) Sudden Unemployment:

When at the place where workers have been employed there is some change, a large number of persons are unemployed. It all happens in the industries, trades and business where people are employed for a job and suddenly when the job has ended they are asked to go.

5) Unemployment caused by failure of Industries:

In many cases, a business a factory or an industry has to close down. There may be various factors responsible for it there may be dispute amongst the partners, the business may give huge loss or the business may not turn out to be useful and so on.

6) Unemployment caused by deterioration in Industry and business:

In various industries, trades or business, sometimes, there is deterioration. This deterioration may be due to various factors. In efficiency of the employers, keen competitions less profit etc. are some of the factors responsible for deterioration in the industry and the business.

7) Seasonal Unemployment:

Certain industries and traders engage workers for a particular season. When the season has ended the workers are rendered unemployed. Sugar industry is an example of this type of seasonal unemployment.

Unemployment Rate:

The unemployment rate represents the number unemployed as a percent of the labor force.

Unemployment Rate = (Unemployed Workers/Total Labor Force) $\times$ 100%.

b) Indian Scenario of Unemployment

India as a nation is faced with massive problem of unemployment. The problem of unemployment has becoming a colossal. Since independence India is facing one major problem of unemployment. In last 62 years, Indian Government is trying to solve this problem. In every five year plan Indian Government has introduced new plan for creating new employment opportunities. The root of the problem is 'Jobless Growth' in the Indian economy, that is, despite acceleration in the growth rate in India; the pace of creation of work opportunities has not kept

pace with the growing requirement. Various problems have caused this problem. There are individual factors like age, vocational unfitness and physical disabilities which restrict the people. External factors include technological and economic factors. There is enormous increase in the population. Every year India adds to her population afresh. More than this every year about 5 million people become eligible for securing jobs. Business field is subject to ups and downs of trade cycle and globalization. Economic depression or sick industries are often close down compelling their employees to become unemployed. Technological advancement contributes to economic development. But unplanned and uncontrolled growth of technology is causing havoc on job opportunities. The computerization and automation has led to technological unemployment. Strikes and lockouts have become inseparable aspect of the industrial world today. Due to these industries often face economic loses and production comes down. Since workers do not get any salary or wages during the strike period they suffer from economic hardships. They become permanently or temporarily unemployed. Today young people are not ready to take jobs which are considered to be socially degrading or lowly.

India's educational system has its own irreparable defects and its contribution to the unemployment is an open truth. Our education does not prepare the minds of young generation to become self-employed on the contrary it makes them dependent on government vacancies which are hard to come.

India's State right from the beginning of Five year plans has introduced several employment generating schemes and programmes over the years but in the absence of proper implementation and monitoring have failed to achieve the required targets. Recently UPA Government has come up with Rural Employment Guarantee Program which aims to provide minimum days of employment to people living in the villages. This is a laudable programme if implemented sincerely because it will provide employment to people during natural calamities like drought, floods etc. The remedial measures for reducing unemployment may lay greater emphasis on creation of opportunities for self-employment, augmentation of productivity and income levels of the working poor, shift in emphasis from creation of relief type of employment to the building up of durable productive assets in the rural areas and instead of attempting to revert somewhat to protectionist policies the pace of privatization may be accelerated.

The following table shows the unemployment rate on current Daily Status basis in India since 2001-2002 to 2010-11.

Table No. 1: Unemployment Rate										
Years	2001 -02	2002 -03	2003 -04	2004 -05	2005 -06	2006 -07	2007 -08	2008 -09	2009 -10	2010 -11
Unemploymen t rate	8.87	9.12	9.13	8.28	9.20	8.90	7.80	7.20	10.80	9.4
Source: globalrates.com										
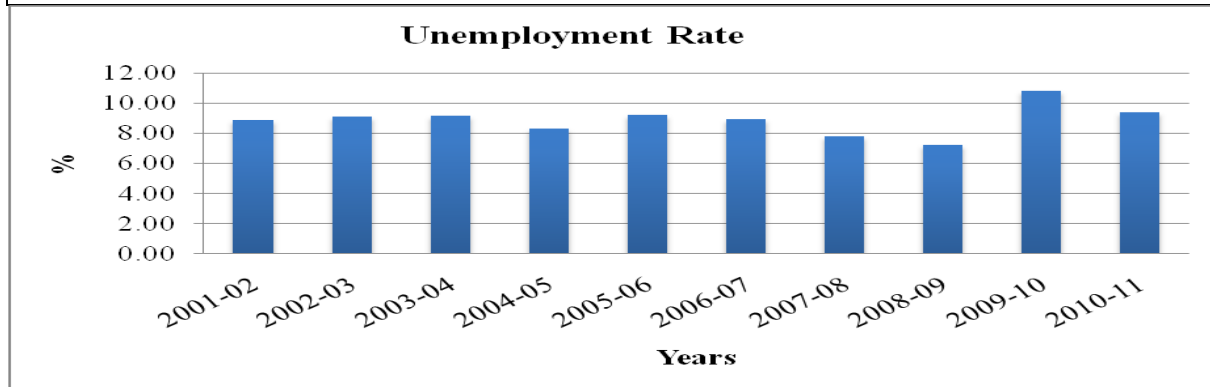
Graph No. 1: Unemployment Rate

Interpretation:

On the above overview, Unemployment is a one of the very huge problem in India. It is a most important obstacle in the growth of India. The graph shows the Unemployment rate is nearly constant in the last decade.

2) Inflation

a) Introduction about Inflation

Inflation means a rise in the general level of price of goods and services in an economy over a period of time. In other words, Inflation means a persistent rise in the price levels of commodities and a service, leading to a fall in the currency's purchasing power. Inflation is an increase in the price of a basket of goods and services that is representative of the economy as a whole. Inflation means there is an increase in the cost of living.

Types/Causes of Inflation:

There are four main types of inflation. The various types of inflation are briefed below.

1) Wage Inflation:

Wage inflation is also called as demand-pull or excess demand inflation. This type of inflation occurs when total demand for goods and services in an economy exceeds the supply of the same. When the supply is less, the prices of these goods and services would rise, leading to a situation called as demand-pull inflation. This type of inflation affects the market economy adversely during the wartime.

2) Cost-Push Inflation:

As the name suggests, if there is increase in the cost of production of goods and services, there is likely to be a forceful increase in the prices of finished goods and services. For instance, a rise in the wages of laborers would raise the unit costs of production and this would lead to rise in prices for the related end product. This type of inflation may or may not occur in conjunction with demand-pull inflation.

3) Pricing Power Inflation:

Pricing power inflation is more often called as administered price inflation. This type of inflation occurs when the business houses and industries decide to increase the price of their respective goods and services to increase their profit margins. A point noteworthy is pricing power inflation does not occur at the time of financial crises and economic depression, or when there is a downturn in the economy. This type of inflation is also called as oligopolistic inflation because oligopolies have the power of pricing their goods and services.
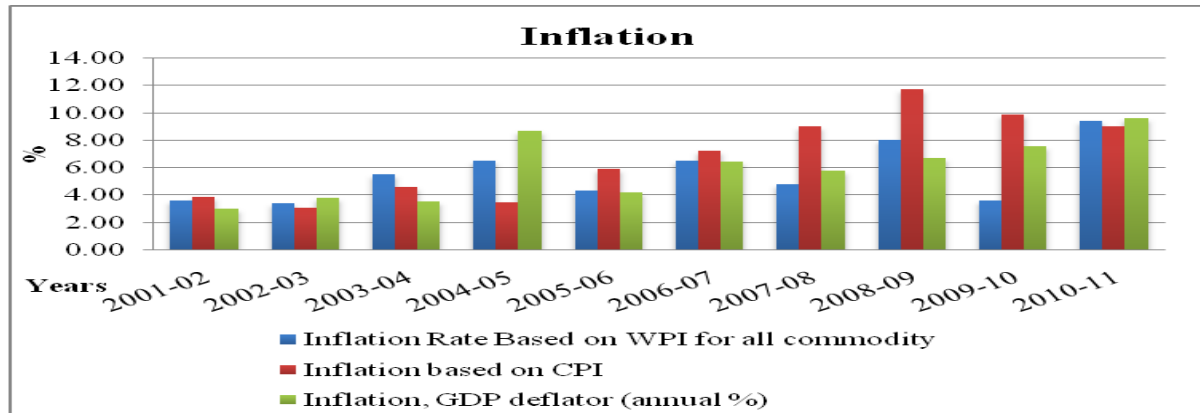
4) Sectorial Inflation:

This is the fourth major type of inflation. The sectorial inflation takes place when there is an increase in the price of the goods and services produced by a certain sector of industries. For instance, an increase in the cost of crude oil would directly affect all the other sectors, which are directly related to the oil industry. Thus, the ever-increasing price of fuel has become an

important issue related to the economy all over the world. Take the example of aviation industry. When the price of oil increases, the ticket fares would also go up.

b) Indian Scenario of Inflation

Table No. 2: Indian Scenario of Inflation			
Years	**Inflation Rate Based on WPI for all commodity**	**Inflation based on CPI**	**Inflation, GDP deflator (annual %)**
2001-02	3.60	3.86	3.03
2002-03	3.40	3.10	3.80
2003-04	5.50	4.61	3.56
2004-05	6.50	3.45	8.70
2005-06	4.30	5.94	4.18
2006-07	6.50	7.26	6.41
2007-08	4.80	9.02	5.75
2008-09	8.00	11.72	6.69
2009-10	3.60	9.88	7.54
2010-11	9.40	8.99	9.62
Source: globalrates.com			

Graph No. 2: Inflation in India

Interpretation:

The Graph shows the Inflation Rate based on WPI for all commodity, based on CPI and based on GDP deflator (annual %). It shows the rising trend of Inflation rate.

3) Relation Between Inflation and Unemployment

a) Phillips Curve:

A fundamental concept in inflation analysis is the relationship between inflation and unemployment, called the Phillips curve. This model suggests that there is a trade off between price stability and employment. Therefore, some level of inflation could be considered desirable in order to minimize unemployment. The Phillips curve model described the U.S. experience well in the 1960s but failed to describe the combination of rising inflation and economic stagnation experienced in the 1970s.

A. W. Phillips discovered a relationship between unemployment and inflation. Phillips showed that unemployment and inflation shared an inverse relationship: inflation rose as unemployment fell, and inflation fell as unemployment rose. Since two major goals for economic policy makers are to keep both inflation and unemployment low, Phillip's discovery was an important conceptual breakthrough, but also posed a troublesome challenge: how to keep both unemployment and inflation low, when lowering one result in raising the other.
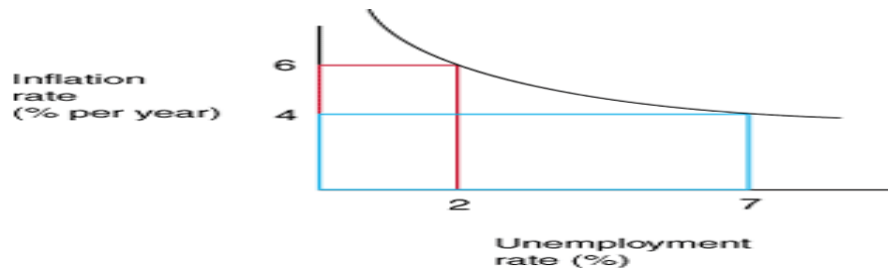
The Phillips Curve:

Figure No. 1: Phillips Curve

It is important to remember that the Phillips curve depicted above is simply an example. The actual Phillips curve for a country will vary depending upon the years that it aims to represent.

b) Indian Experience:

Table No. 3: Inflation and India Experience				
Years	Inflation Rate Based on WPI for all commodity	Inflation based on CPI	Inflation, GDP deflator (annual %)	Unemploymen t Rate
2001-02	3.60	3.86	3.03	8.87
2002-03	3.40	3.10	3.80	9.12
2003-04	5.50	4.61	3.56	9.13
2004-05	6.50	3.45	8.70	8.28
2005-06	4.30	5.94	4.18	9.20
2006-07	6.50	7.26	6.41	8.90
2007-08	4.80	9.02	5.75	7.80
2008-09	8.00	11.72	6.69	7.20
2009-10	3.60	9.88	7.54	10.80
2010-11	9.40	8.99	9.62	9.40
Correlation	**-0.3664**	**-0.1239**	**0.03159**	
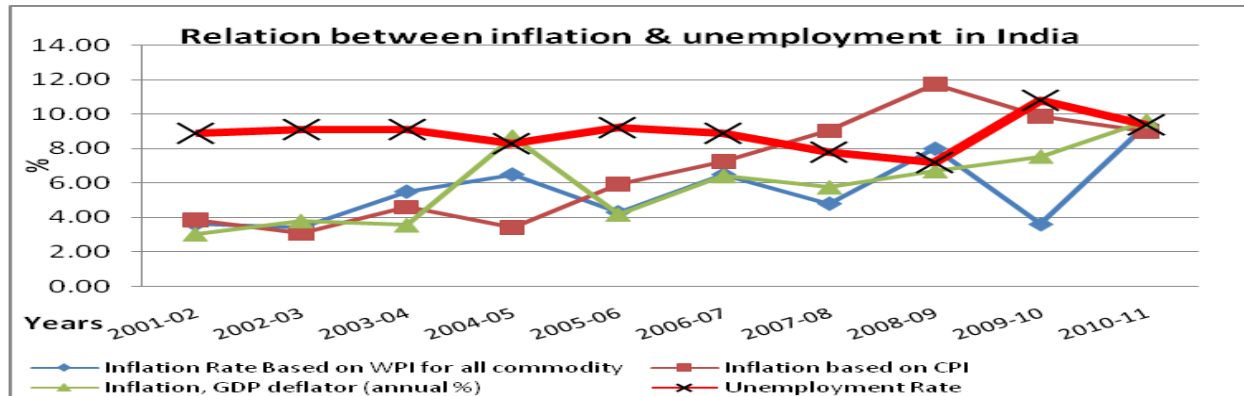
Graph No. 3: Relationship between Inflation and Unemployment

Interpretation:

Graph clearly shows the relation between Inflation and Unemployment rate of India. Both lines are fluctuating in apposite direction for the some period. After 2005-06 the Inflation rate are continuously increasing, on the other hand Unemployment rate is decreasing in the same duration. It shows the inverse relationship between Inflation and unemployment.

IV) Hypothesis Testing

H_0: There is a Positive relation between Inflation and unemployment rate in the Indian context.

H1: There is a Negative / Inverse relation between Inflation and unemployment rate in the Indian context.

Sr. No.	Particulars	Correlation Coefficient
	**Table No. 4: Hypothesis Testing Results**	
1	Inflation Rate based on WPI for all Commodity & Unemployment Rate	-0.3664
2	Inflation based on CPI & Unemployment Rate	-0.1239
3	Inflation Rate based on GDP deflator (annual %)& Unemployment Rate	0.03159

The statistical result shows the relation between Inflation and Unemployment Rate. The correlation coefficient between Inflation Rate based on WPI for all Commodity and

unemployment Rate is -0.3664 and others two result are clearly analysis the inverse relation. The correlation coefficient is in minas **So Reject H_0 and Accept H_1**

There is an Inverse relation between Inflation and unemployment rate in the Indian context.

V) Conclusion

The study attempts to answer the question whether a tradeoff exists between Inflation and Unemployment rate in India. We empirically estimate the Phillips curve for India, subsequently incorporate the extended part of the Phillips curve and find that a tradeoff does exist in the choice between Inflation and Unemployment in the short-run in the economy. The findings show that the conventional Phillips curve remains present in Indian Economy. There is an inverse relationship between the Inflation rate and Unemployment in the Indian context.

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