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Unemployment and inflation in India: A study

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Abstract
The productive capacity of the economy down due to stagnation and excess capacity was increasing. The trade on between unemployment and inflation along with the sectors used high level modern technology machinery and excess labour force of the nation. The economy happened underemployment was nature in short run period but unemployment is very crucial problem for it. The famous British economist A. W. Phillips who first identified it, it expresses an inverse relationship between the rate of unemployment and the rate of increase in money wages (Real Income or Labour Productivity). The objectives was study on trends of unemployment and inflation rate in India and examine trade -off between unemployment and inflation in Indian economy - The Phillips curve concept. The present paper used secondary data in period from 2009 to 2017. Therefore, data were sourced from Reserve bank of India (RBI) statistical bulletin and Ministry of labour and Employment and using with simple average, percentage method and trend line and The result of the test revealed that unemployment and inflation are inversely related, thus confirming the existence of the Phillips curve in India.

Keywords: Labour force, unemployment, inflation, wage rate

Introduction
Indian economy facing stagnation which means the unemployment and inflation belong same time. The cheap monetary and fiscal policy which is creates money supply and income of the country's people while the real GDP goes down, the reason for that like unproductive growth that is problem of our economy. The productive capacity of the economy down due to stagnation and excess capacity was increasing. The trade on between unemployment and inflation along with the sectors used high level modern technology machinery and excess labour force of the nation. The economy happened underemployment was nature in short run period but unemployment is very crucial problem for it. The famous British economist A. W. Phillips who first identified it, it expresses an inverse relationship between the rate of unemployment and the rate of increase in money wages (Real Income or Labour Productivity). The increase in labour productivity or real income, were equilibrium of demand and supply of labour. When equilibrium of demand and supply of labour is very low level of unemployment. The demand for labour depends upon labour productivity and wage rate and the supply of labour depends upon wage rate and population. When supply of labour excess over demand for labour condition of unemployment situation. The inverse relationship between inflation and unemployment rate as represented by Phillips curve is only a short - term relationship the factor which influences this inverse relationship between money wage rate and unemployment is the nature of business activity. In a period of rising business activity when unemployment falls with increasing demand for labour, the employers will bid up wages. Conversely in a period of falling business activity when demand for labour is decreasing and unemployment is rising, employers will be reluctant to grant wage increases. Rather, they will reduce wages. But workers and unions will be reluctant to accept wage cut during such periods. Consequently, employers are forced to dismiss workers, thereby leading to high rate of unemployment. Thus when the labour market is depressed, a small reduction in wages would lead to large increase in unemployment. Phillips concluded on the basis of the above argument that the relation between rates of unemployment and a change of money wages (Inflation) would be non- linear. Such a curve is called the Phillips curve.

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Problem of unemployment in India

The huge population pressure the main causes of increasing unemployment, in India's population nearly 45 per cent of people under 15-35 age group, therefore heavy labour force. Shortage of skilled labour, lack of capital formation of MSME and inefficient industrial location which are the other unemployment problem in India.

Problem of inflation in India

Higher level inflationary gab, excess supply of money, very low productivity and excess import this are the problems of inflation in India.

Objectives

1. To study on trends of unemployment and inflation rate in India
2. To examine trade -off between unemployment and inflation in Indian economy - The Phillips curve concept.

Methodology

The present study used secondary data in period from 2009 to 2017. Therefore, data were sourced from Reserve bank of India (RBI) statistical bulletin and Ministry of labour and Employment. The simple average, percentage method and trend line were used in the study

Theoretical Background of the Study

In 1958, the Zealander economist William Phillips carried out Empirical Study of the British economy, using data for the period from 1861 to 1957. This study estimates the relationship between the unemployment rate and the rate of change in the money wage as an indicator of inflation, given that wages represent a large proportion of the cost and thus the price, the results of the study reveal the presence of a trade-off between the unemployment rate and the rate of change in wages as a representative of the rate of inflation.
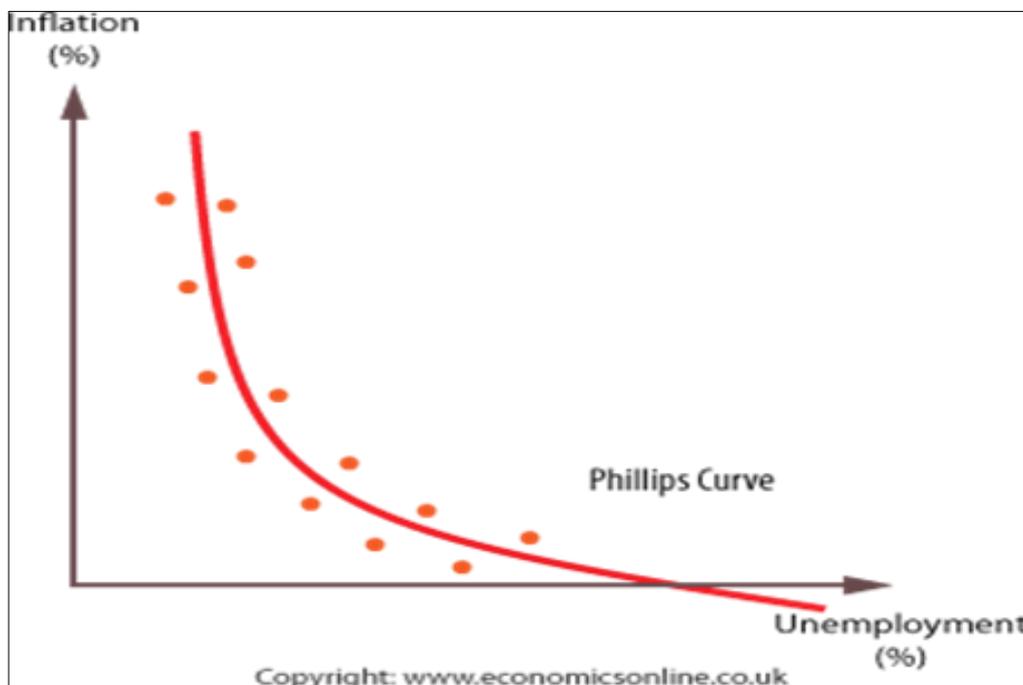

Fig 1: The presence of a trade-off between the unemployment rate and the rate of change in wages as a representative of the rate of inflation

Phelps interpreted the result of the study, that in booms, the demand for labor increase and the unemployment rate decrease then workers have the opportunity to request higher wages while in periods of depression, the demand for labor decrease and unemployment rate increase then the ability of workers to demand higher wages is limited and decreasing wage rate increase significantly. This finding supports Keynesian thought; therefore, a number of economists in the United States were encouraged to measure the relationship between inflation and unemployment using data on the U.S. economy. The studies revealed the inverse relationship between the two variables, which led to consolidate the results of a Phelps' study and dubbed this relationship as the Phillips curve.

One of the earlier studies by Solow (1970) examined the relationship between the two variable inflation rate and unemployment in the context of the United States. The results led to a conclusion that there existed an inverse relationship between unemployment and inflation rates in the USA. Furthermore, Gordon (1971) also confirmed the

existence of a negative trade-off relationship between unemployment and inflation using
U.S. macroeconomic data.

Lucas (1976) strongly opposed the proposition of the existence of the Phillips curve. He argued that there could have existed a trade-off relationship between unemployment and inflation if the workers did not expect that the policy makers would try to create an artificial situation where high-inflation is paired with low unemployment. Otherwise, the workers would foresee the high inflation in the future and would demand wage increase from their employers. In this case, there could be coexistence of high unemployment and high inflation rate, which is known as the "Lucas critique".

Furuoka, (2007) [3] examined the trade-off the relationship between inflation rate and unemployment rate in Malaysia. This paper used vector error correction (VECM) to test the relationship. The results revealed the existence of the long run relationship among the variables. In other words, this

paper has provided an empirical evidence to support the existence of the Phillips curve in the case of Malaysia. Afzal and Awais, (2012) [1] also investigated the Inflation-Unemployment Trade Off in Pakistan. The empirical results show that the Phillips curve holds in Pakistan. Similarly, Singh, and Verma, (2016) [2] estimated the short-run tradeoff between inflation and unemployment for the Indian economy over the period 2009-2015 using bi-variate regression. The result showed the existence of the inverse relationship of inflation with the unemployment in the short run.

Friedman (1968) in an alternative explanation argued that short-run Phillips curve, which are not vertical, arise due to the misperception of workers as to whether real wages have also increased following an increase in the nominal wages. Friedman claimed that Phillips had made three mistakes (i)

he failed to distinguish between nominal wages and real wages (ii) he ignored temporary and, permanent trade-offs between wage inflation and unemployment rate and (iii) he did not assign a role to expected inflation. According to Firedman, there is only one long run, i.e. natural rate of unemployment which is compatible with any perceived rate of inflation. Hence, there is a series of short run Phillips curves each conditional on expected rate of price inflation.

Result and Discussion
Unemployment rate in India
The result and discussion based on objectives of the study firstly we have discussed about unemployment rate in India. The unemployment rate in India during 2009 to 2017, the table and trend line as given below.

Table 1: Unemployment rate of India in percentage during 2009-2017

Years	Unemployment rate (%)
2009	3.75
2010	3.54
2011	3.53
2012	3.62
2013	3.46
2014	3.41
2015	3.49
2016	3.51
2017	3.52

Source: International Labour Organization (ILO)

From the figure 2, it has seen that unemployment rate is 2009 higher level indicate3.75 per cent compare to other years, while the year of 2014 the unemployment rate is very low point of 3.41 per cent. In 2012 increased after two years at 3.65 per cent. The year of 2011 0.16 per cent decrease in

unemplotment rate in India, The happened of huge level unemployment in 2009 which refected US recession in 2008. Finally in 2017 India's unemployment rate at 3.52 per cent.
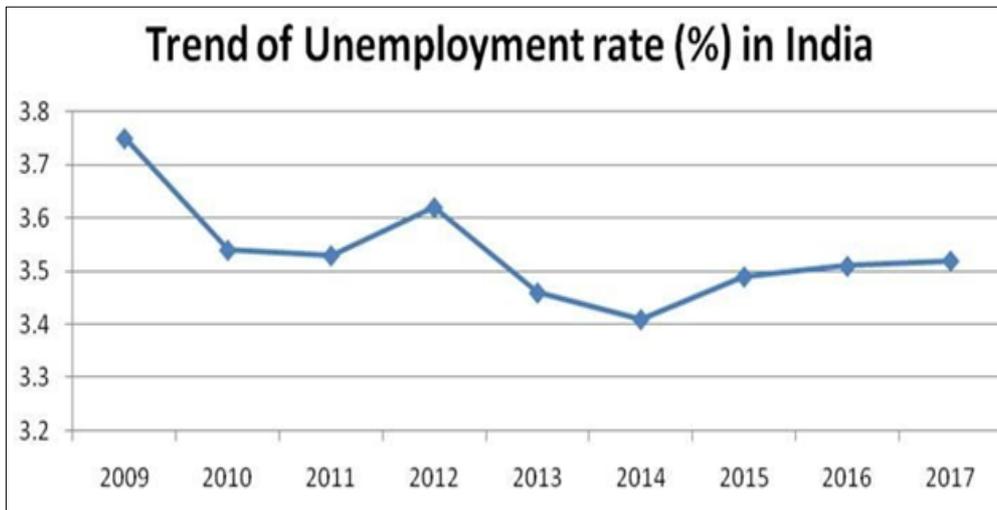

Fig 1: Unemployment rate (%) in India

Inflation rate in India
The result and discussion based on objectives of the study firstly we have discussed about inflation rate in India. The

inflation rate in India during 2009 to 2017, the table and trend line as given below.

Table 2: Inflation rate of India in percentage during 2009-2017

Years	Inflation rate (%)
2009	10.83
2010	12.11
2011	8.87
2012	9.30
2013	10.92
2014	6.37
2015	5.88
2016	4.97
2017	2.49

Source: RBI Bulletin

The figure 1 shows average inflation rate (%) in India increased by 12.11 per cent in period of 2010, then inflation rate is increased by 10.92 per cent at 2013 but decreased by 6.37 per cent in 2017. It was decreased continuously and reached to 2.49 per cent in 2017. From the above data we can conclude that situation of inflation in India sometime increased or decreased i.e., fluctuated not linearly changed.
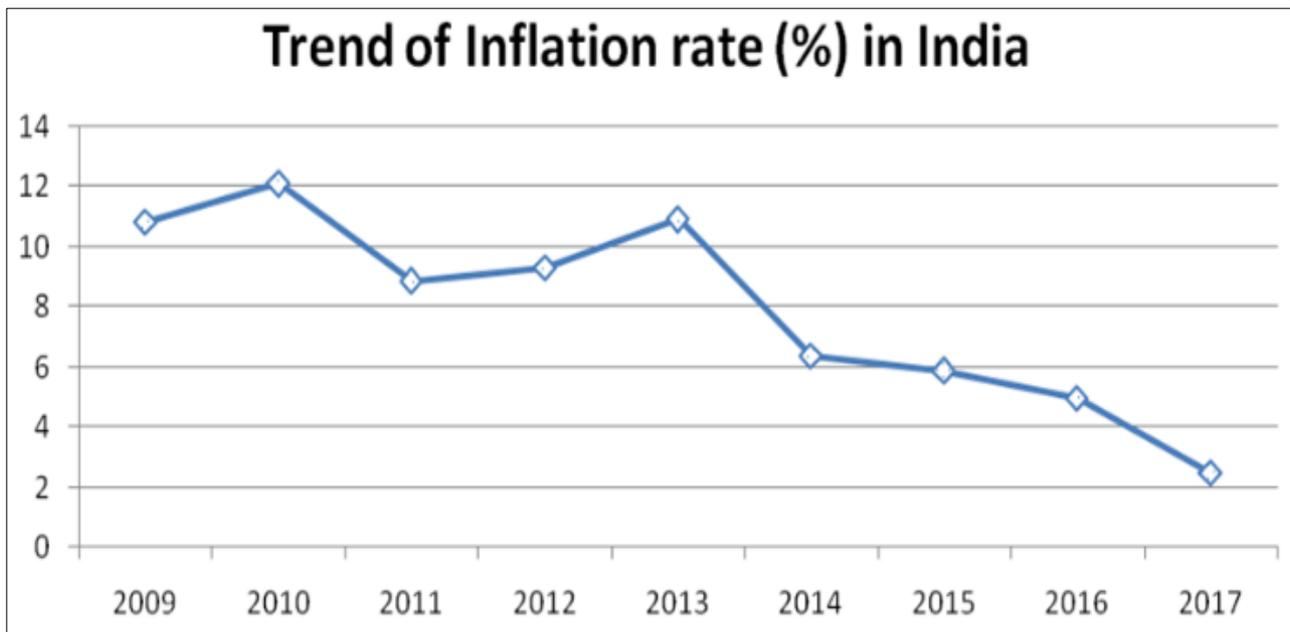

Fig 2: Inflation rate (%) in India

Trade-off between Unemployment and Inflation in Indian economy during 2009 to 2017
The concept related to Phillips curve fall in unemployment increase in inflation and increase in unemployment fall in inflation. The following table and diagram which is expressed variation or change in unemployment and inflation.

Table 3: Relationship between inflation-unemployment in India

Years	Change in unemployment rate (%)	Change in inflation rate (%)
2009	0.21	-1.28
2010	0.01	3.24
2011	-0.09	-0.43
2012	0.16	-1.62
2013	0.05	4.55
2014	-0.08	0.49
2015	-0.02	0.91
2016	-0.01	2.48

Source: Computed by Author

From the table and figure 3, it has seen that whether Phillips curve situation exist in our Indian economy during study period. Phillips curve means inverse relationship between inflation and unemployment in the short run period. In 2009 registered above table unemployment rate change in 0.21 per cent while same period inflation rate negatively 1.28 per cent. The years of 2014, 2015, 2016 the change in unemployment rate is negatively respect of 0.08, 0.02 and 0.01 per cent when at the same time the year of 2014, 1015, 2016 the change in inflation rate positively like 0.49, 0.91 and 2.48 respectively, therefore trade-off between unemployment and inflation in Indian economy during short run.
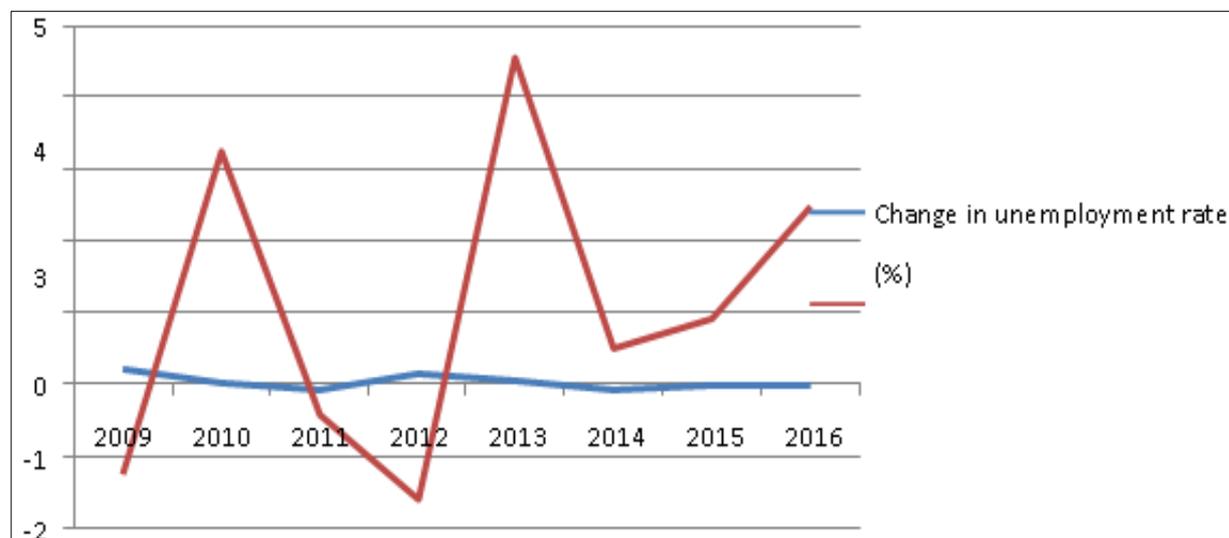
Fig 3: Relationship between unemployment and inflation in India

Findings
The unemployment rate is 2009 higher level indicate3.75 per cent compare to other years, while the year of 2014 the unemployment rate is very low point of 3.41 per cent, the reason of huge level unemployment in 2009 to refected US recession in 2008. Average inflation rate (%) in India increased by 12.11 per cent in period of 2010, then inflation rate is increased by 10.92 per cent at 2013 but decreased by 6.37 per cent in 2017. It was decreased continuously and reached to 2.49 per cent in 2017. In 2009 registered unemployment rate change in 0.21 per cent while same period inflation rate negatively 1.28 per cent. The years of 2014, 2015, 2016 the change in unemployment rate is negatively in respect of 0.08, 0.02 and 0.01 per cent when at the same time the year of 2014, 1015, 2016 the change in inflation rate positively like 0.49, and 2.48 respectively, therefore trade-off between unemployment and inflation in Indian economy during short run.

Policy Implication
1. Need to capital account surplus which is creates capital accumulation and employment of the country.
2. To active skill training programme which is help remove natural rate of unemployment
3. Increasing productive efficiency and import substitution of commodities, therefore reduce the price of commodities
4. Essential to wage rigidity and labour unions there are help to promoting effective demand.
5. The economy follow the constant capital - labour ratio
6. Uniform and reliable imposing taxes
7. Improve self - employment, entrepreneurship development progamme and autonomous investment of the country.

Conclusion
Therefore the Arthur Phillips relation of unemployment and inflation clearly show that Indian economy. The another way of approach of Friedman indicates in short run relationship of unemployment and inflation is inversely related but long run period of relationship of unemployment and inflation is directly related therefore the natural rate of unemployment is interrupted. The natural rate of unemployment means that structural plus frictional unemployment, therefore, the researcher in other to validate the existence of a Phillips curve carried out various tests, using the Indian economy as a case study. The result of the test revealed that unemployment and inflation are inversely related, thus confirming the existence of the Phillips curve in India, with inflation having a significant impact on unemployment in India.

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