Phillips' curve and Inflation versus Unemployment trade off

In 1958 A.W. Phillips published an article entitled "Relation between Unemployment and the Rate of Change of Money Wage Rate in the UK 1861–1957".

In this study it was found that there was a stably inverse relation between the unemployment rate and rate of change in money wage rate. — this is originally known as the Phillips' curve hypothesis.

However what Phillips actually showed in his study is exactly not the conventional Phillips' curve hypothesis, rather which is related to the inverse relation between the rate of increase in price level of the overall economy or inflation rate and the rate of unemployment.

If Rate of inflation $\pi_t = \frac{P_t - P_{t-1}}{P_{t-1}}$

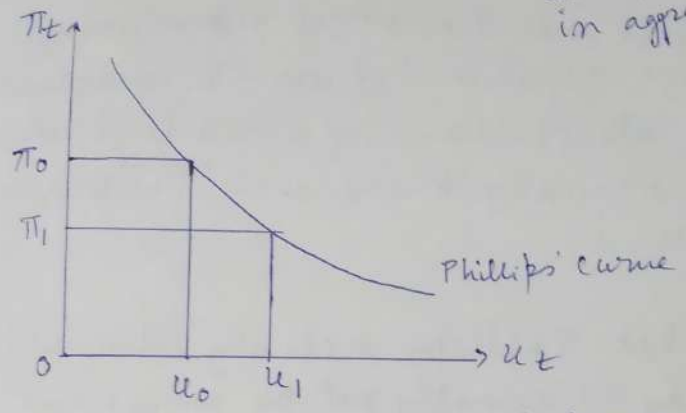
and

Rate of Unemployment $u_t = \frac{U_t - U_{t-1}}{U_{t-1}}$

then the Phillips curve can be expressed as $\pi_t = \beta u_t$, where $\beta < 0$

This inverse relation implies a trade-off, i.e., to reduce unemployment, price in the form of higher rate of inflation has to be paid and to reduce the rate of inflation, a higher rate of unemployment has to be borne.

Keynes explained it with the help of increase in aggregate demand.



Implication of ~~Phy~~ Phillip's Curve

Sacrifice Ratio

It is the ratio of cumulative percentage loss of GDP (due to disinflationary policy) to the reduction in inflation that ~~that~~ is actually achieved.

i.e. Sacrifice Ratio = $\frac{\text{Loss of level of output}}{\text{percentage fall in rate of inflation}}$

Suppose inflation rate is decreased from 10% to 6% over 3 years at the cost of fall in output by 10%, 8% and 6% in 3 successive years, then

total loss of GDP = (10% + 8% + 6%) = 24%

Decrease in Inflation Rate = 10% − 6% = 4%

∴ Sacrifice Ratio = $\frac{24\%}{4\%} = 6$ i.e. 6:1.

It implies for every 1% of decrease in inflation rate 6% of GDP has to be sacrificed. Thus Sacrifice Ratio is the cost of fighting inflation.

Criticism: ① Though during the 1960's PC became an important concept of macroeconomic analysis, a stable Phillips curve could not hold good during the 1970s and 1980s, especially in the US.

In 1970s there was observed coexistence of a high rate of inflation with high unemployment rate in US and Great Britain. This simultaneous existence of both high rate of inflation and high unemployment rate during the 1970s and early 1980s has been described as Stagflation.

From the data it appears that instead of remaining stable, the Phillips curve shifted to the right in the 1970s and early 1980s and to the left during the late 1980s

② According to Milton Friedman, while the short run Phillip's curve is downward sloping indicating trade-off between inflation and unemployment rate in the short run, the long run Phillips curve is a vertical straight line showing no existence of trade off between the two. According to Friedman the trade-off existed in the short run due to the difference between the actual inflation rate and the inflation rate expected to prevail by economic agents. This difference disappears with the passage of time in the long run.

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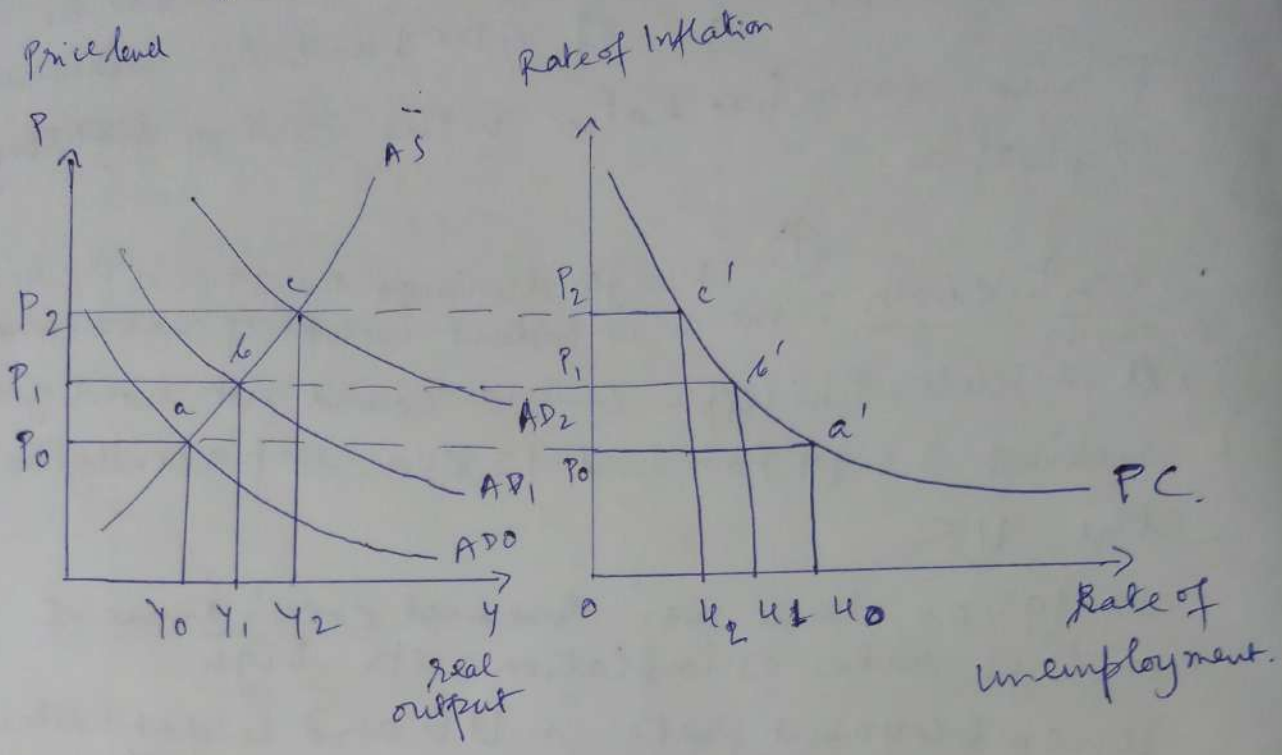

Explanation by Keynes