MACROECONOMICS II (ECO00002I)

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MONETARISM
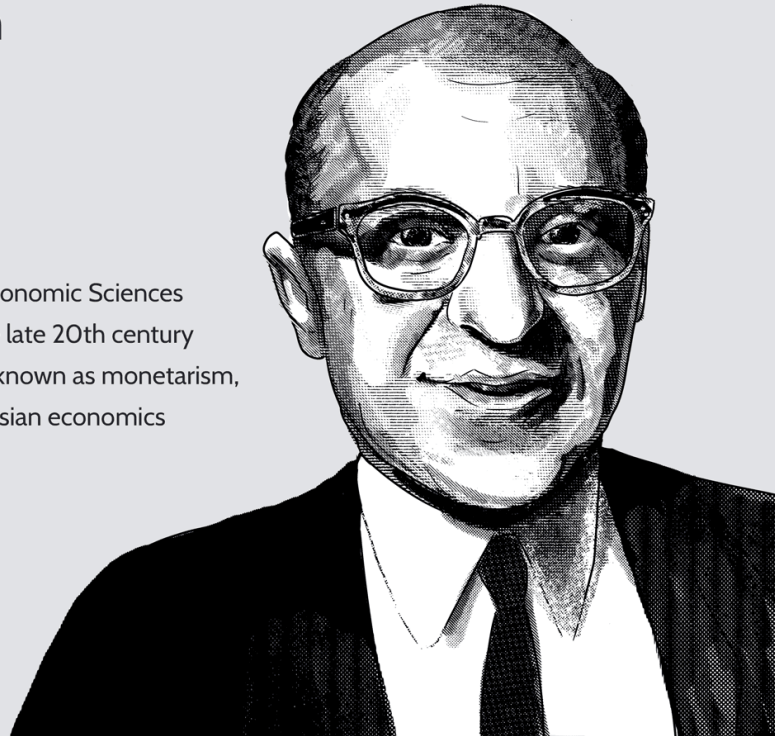
Introduction

Milton Friedman

Born: July 31, 1912

Economist

• 1976 Nobel Prize Recipient in Economic Sciences
• A leading economic voice of the late 20th century
• His economic theories became known as monetarism,
  and refute key aspects of Keynesian economics

Investopedia

Source: Who Was Milton Friedman and What Is Monetarism?

- As mentioned in the introduction, the New Classical and the following RBC schools grew out of another school of thought: monetarism

- Milton Friedman developed the first ideas associated with monetarism.

Learning Objectives

Under this topic, we will learn about:

- The monetarist policy prescription

- The main assumptions of the policy prescription

- How Friedman suggested a modification of the original Phillips Curve to describe the natural level of output

Monetarist Policy Prescription

Monetarism is best known for its policy prescription by Milton Friedman:

"To achieve price stability, money supply growth rate should be equal to the trend growth rate of real output."

Assumptions

The assumptions that underpin the monetarist policy prescription are:

1. $M^d = k(...)PY$

   where M^d denotes money demand, k velocity of money, and $(...)$ shows k is a function of various interest rates. P and Y denotes price level and real output, respectively.

- This is a more sophisticated version of the Quantity Theory of Money:

  $MV = PY$ or $M = (1/V)PY$

  where M denotes money supply, V velocity of money and $k = 1/V$.

Assumptions

2. In the long-run (or medium-run using Blanchard's terminology) output is at its natural level, which is independent of the money supply.

- Using $M = kPY$, this implies P must be proportional to M.

- More realistically, if Y grows at a trend rate of g_y, then

  $\pi = g_m - g_y$

  where π denotes the inflation rate and g_m denotes the growth rate of money supply.

The Phillips Curve (PC)

- To introduce the natural rate of unemployment, Friedman started from the original idea of the Phillips Curve (PC).

- Phillips plotted the rate of inflation against the rate of unemployment in the UK from 1861 to 1957.

- Samuelson and Solow replicated Phillips's exercise for the US, using data from 1900 to 1960.

- The original PC showed that there is a permanent trade-off between inflation and unemployment:

$$\pi_t = \beta - \alpha u_t$$

Inflation versus Unemployment in the US for 1900–1960
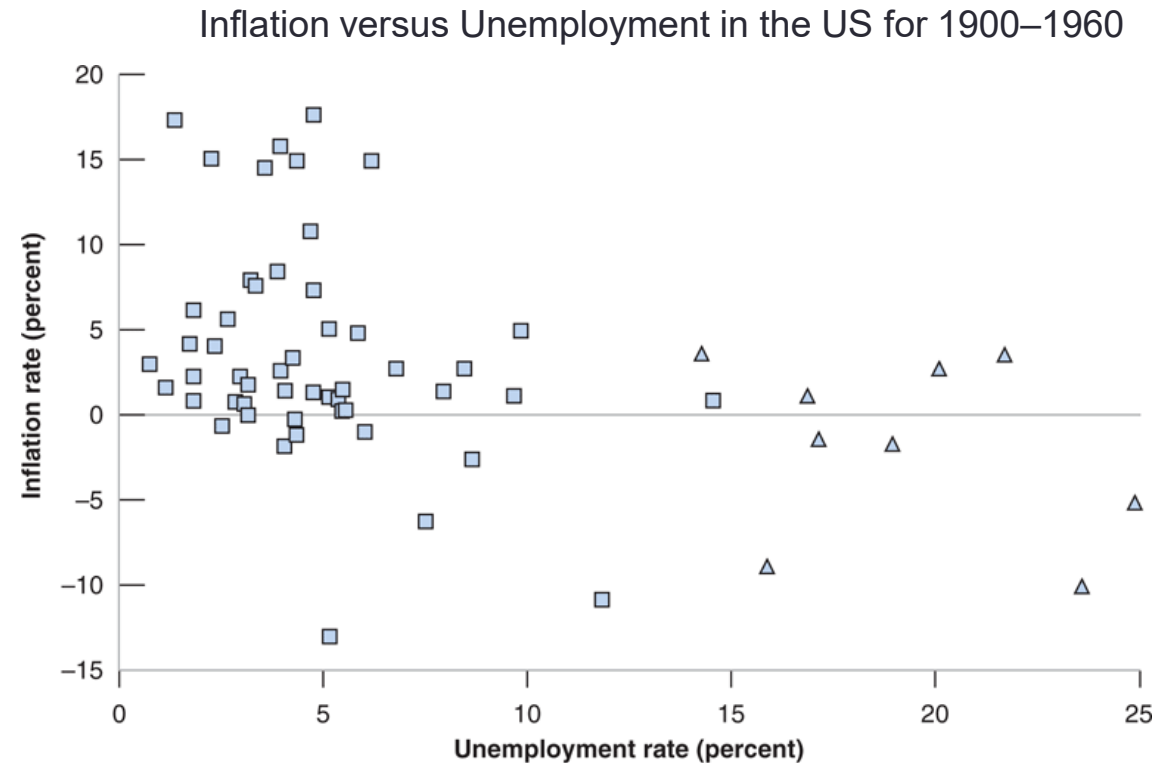
Source: Historical Statistics of the United States. http://hsus. cambridge.org/HSUSWeb/index.do
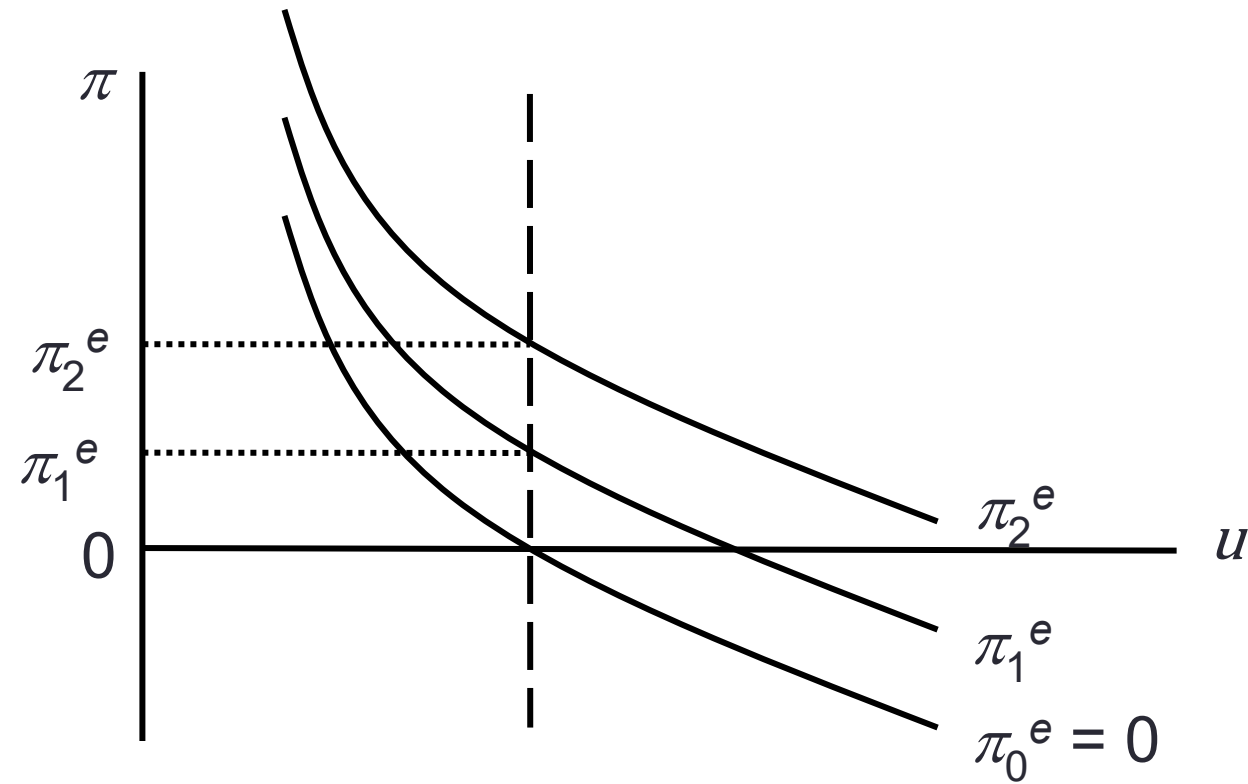
Expectations-augmented PC

- Friedman's argument (1968) was that the original PC only made sense if people expected inflation to be equal to zero. Otherwise, the permanent trade-off would break down.

- If workers expected inflation to be positive, this would mean the expectations-augmented PC is given by:

$$\pi_t = \beta + \pi_t^E - \alpha u_t$$

- This implies there are various PCs, one of which is the original PC, with $\pi_t^E = 0$.

Inflation versus Unemployment in the US for 1970–2010
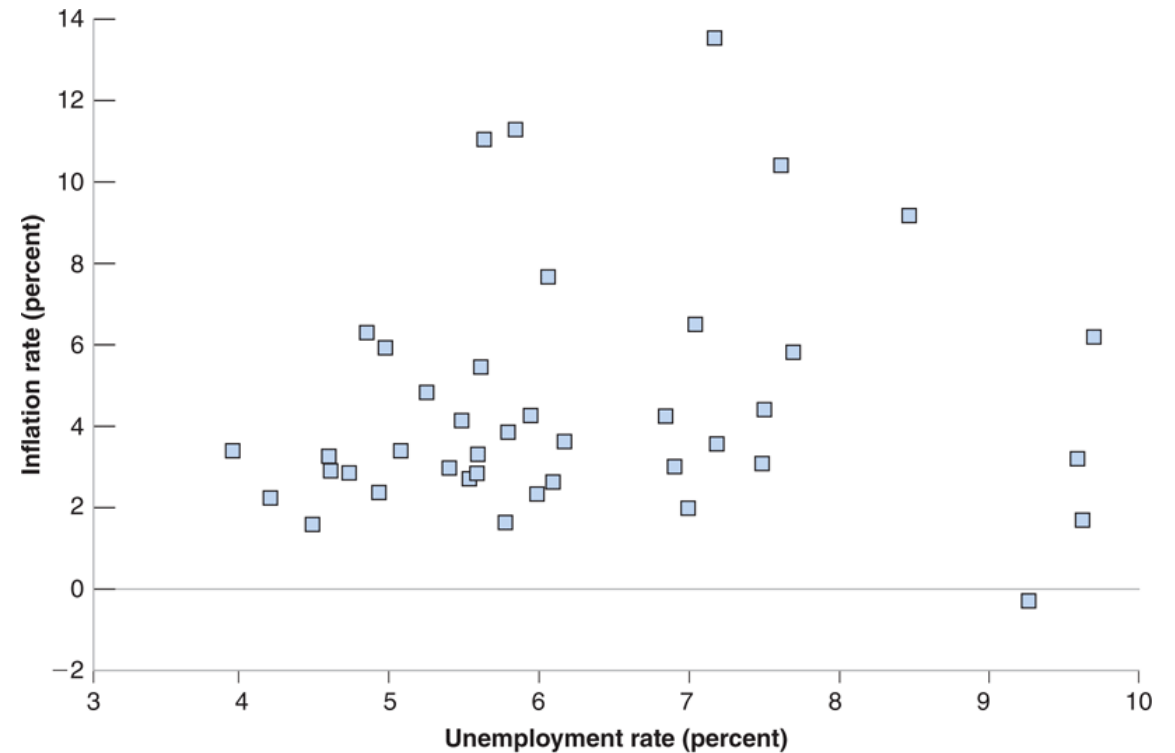
Expectations-augmented PC

- Graphical representation of the various Phillips Curves:

Expectations-augmented PC

- The PC trade-off arises as workers base their labour supply decisions on the expected real wage, $\frac{W}{P^e}$, whereas firms base their labour demand decisions on the actual real wage, $\frac{W}{P}$.

- Imagine now P (or π) is higher than expected.

- Firms can then offer higher W, incentivising workers to supply more labour as their expected real wage is now higher.

- It is the error in workers' expectations that makes it possible for unemployment to change temporarily.
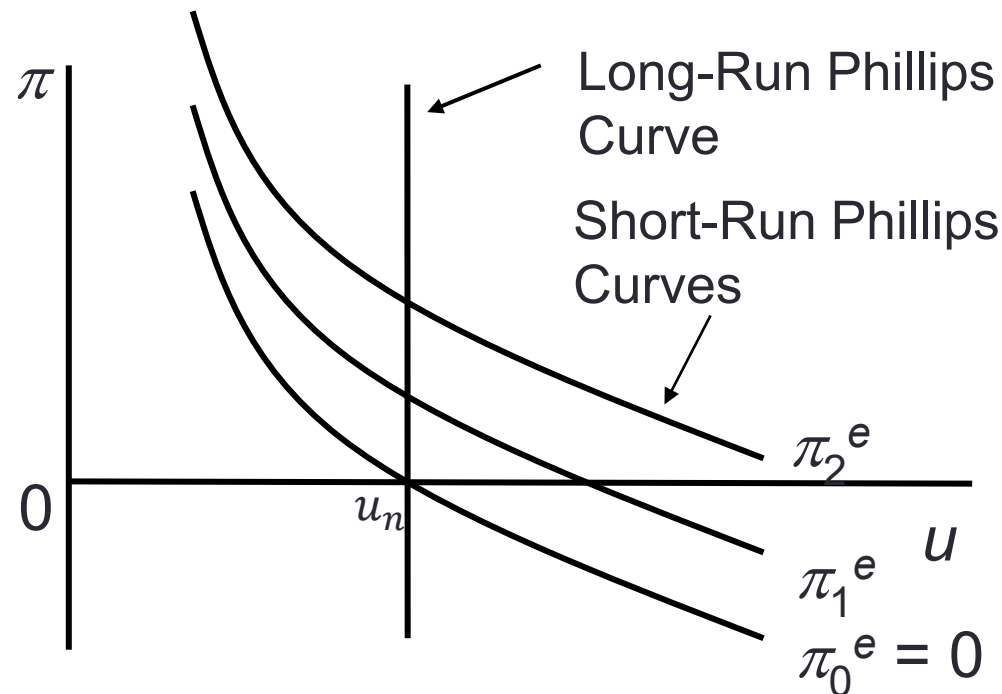
Expectations-augmented PC

- Now consider what happens when the government wants to permanently lower unemployment, starting from point A.

- In the short-run, the economy shifts from point A to B, inflation increases.

- With a lag, workers revise their expectations: $\pi_1^e = \pi_0$ and the economy moves to point C.

- The government then needs to move the economy to point D to lower unemployment.

- This increases actual and then expected inflation even further.
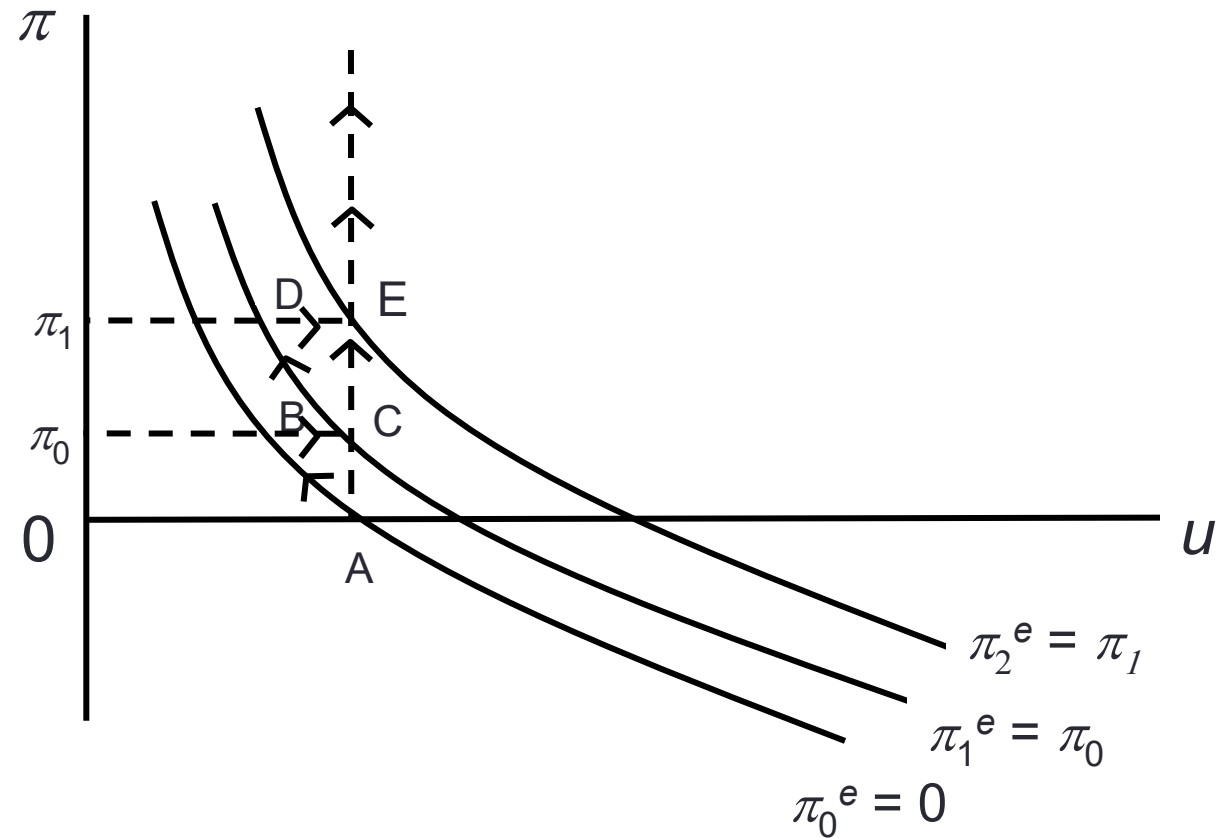
Natural level of output or natural rate of unemployment

- If we define the long-run as where P = P^e (or $\pi = \pi^e$) and $u = u_n$ (natural rate of unemployment), then the long-run PC is vertical.

- Implication: if the government wants to keep inflation constant, this is possible only at u_n.

Natural level of output or natural rate of unemployment

- The expectations-augmented PC can be rewritten as

$$\pi_t - \pi_t^E = -\alpha(u_t - u_n)$$

- Corresponding to the u_n in the long-run, we have a natural level of output, Y_n. Accordingly, the expectations-augmented PC curve can be written as:

$$y_t - y_n = \theta(\pi_t - \pi_t^e)$$

  where y_t is the natural log of real output.

- As before, we assume people form their expectations such that

$$\pi_t^e = \pi_{t-1} \quad \textbf{(1)}$$

- Substituting this in the equation above, we get

$$y_t - y_n = \theta(\pi_t - \pi_{t-1})$$

- This is called the "accelerationist" version of the PC.

Adaptive Expectations

- A generalisation of the assumption $\pi_t^e = \pi_{t-1}$, known as the "adaptive expectations" formula is $\pi_t^e - \pi_{t-1}^e = (1 - \lambda)(\pi_{t-1} - \pi_{t-1}^e)$, where $0 \leq \lambda \leq 1$.

- This can be rewritten as
  $\pi_t^e = (1 - \lambda)\pi_{t-1} + \lambda \pi_{t-1}^e$

- Using the above formula lagged and continuing to substitute out the lagged expected inflation terms, we get
  $\pi_t^e = (1 - \lambda)(\pi_{t-1} + \lambda\pi_{t-2} + \lambda^2 \pi_{t-3} + \ldots)$ **(2)**

- A further generalisation gives
  $\pi_t^e = \sum_{i=1}^{\infty} \gamma_i \pi_{t-i}$ **(3)**
  where γ_i are arbitrary sequence of weights

Adaptive Expectations

- In his argument, Friedman (1968) did not explicitly use any "adaptive expectations" formula, but from his explanation it was clear that this is the type of expectations-formation that he had in mind.

- In the 1960s, this was generally how macroeconomists thought the public made their forecasts.

References

- Friedman, M., "The Role of Monetary Policy", *American Economic Review* 1968, vol. 58, pp. 1-17 [Reading advice: **Essential**].