AP Macroeconomics

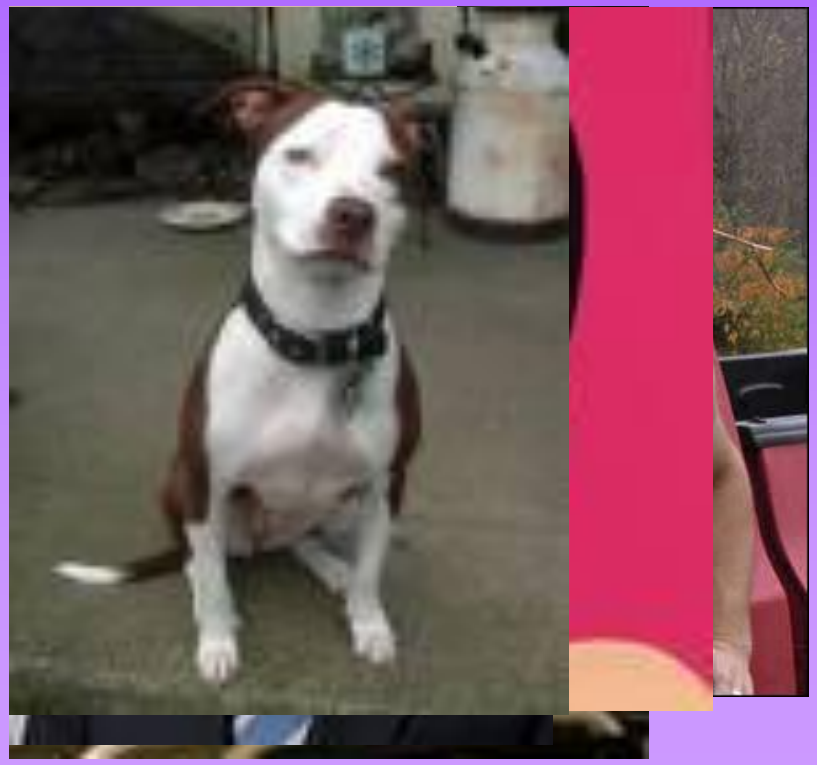
The Phillips Curve

The Phillips Curve

- In a 1958 paper, New Zealand born economist, A.W. Phillips published the results of his research on the historical relationship between the unemployment rate (u%) and the rate of inflation (π%) in Great Britain. His research indicated a stable inverse relationship between the u% and the π%. As u%↓, π%↑ ; and as u%↑, π%↓. The implication of this relationship was that policy makers could exploit the trade-off and reduce u% at the cost of increased π%. The Phillips curve was used as a rationale for the Keynesian aggregate demand policies of the mid-20th century.

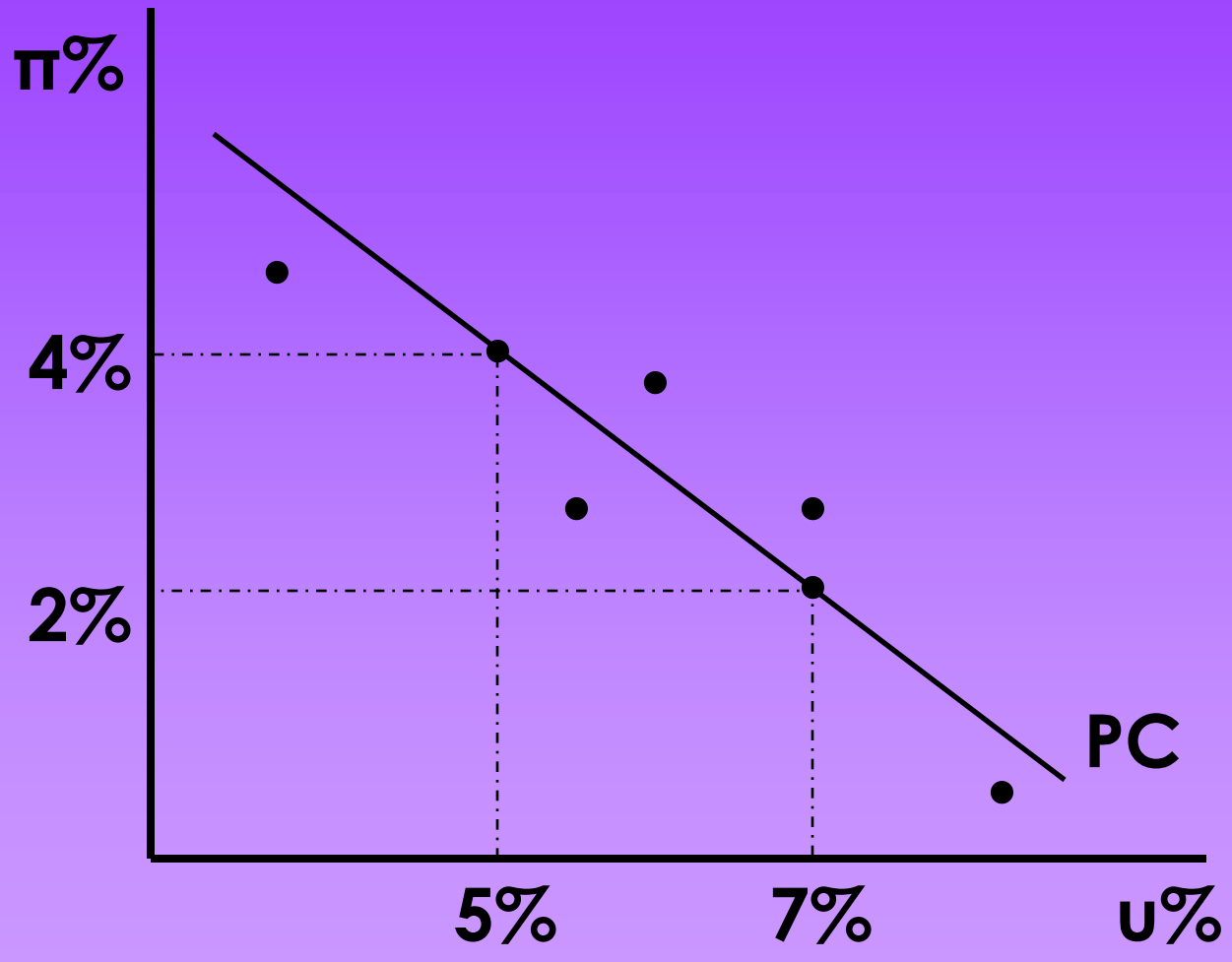
A.W. Phillips

- It's customary in a presentation to include the picture of the person whose work is being studied. I didn't have much luck, but here's what I've got.



I like to think that Phillips looked like this. Thanks Google.

The Phillips Curve (hypothetical example)

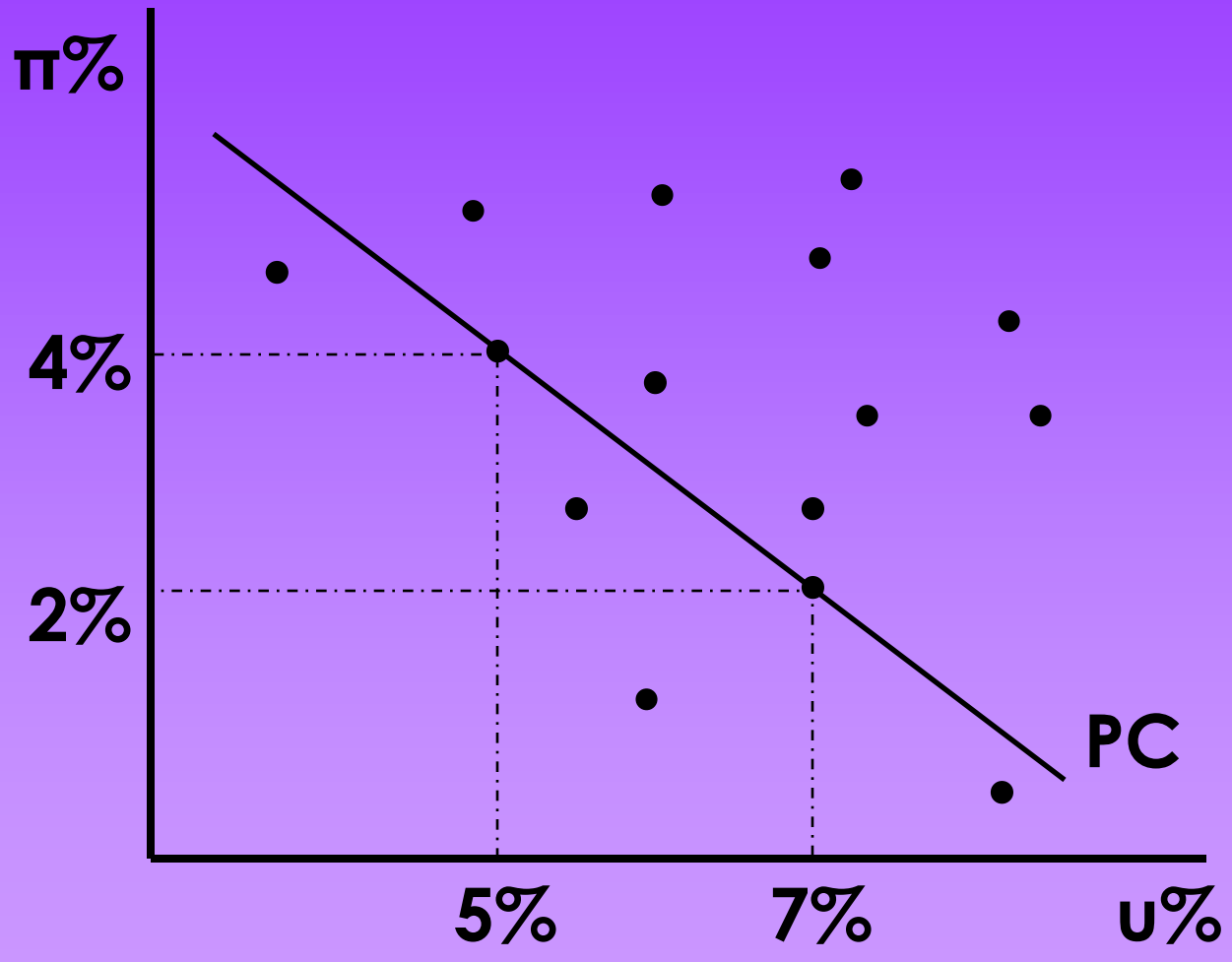


Note: Inflation Expectations are held constant

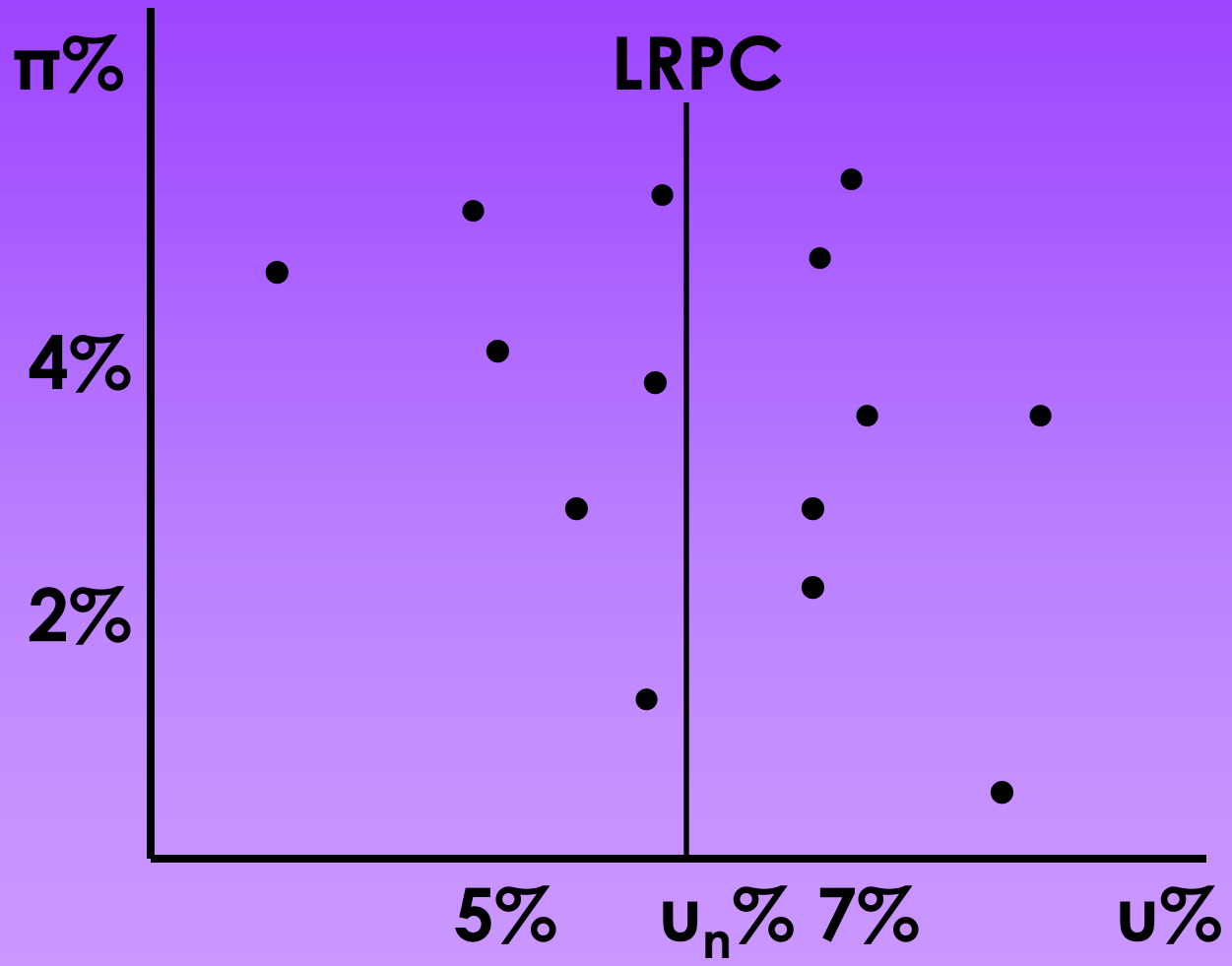
Trouble for the Phillips Curve

- In the 1970's the United States experienced concurrent high u% & π%, a condition known as stagflation. 1976 American Nobel Prize economist Milton Friedman saw stagflation as disproof of the stable Phillips Curve. Instead of a trade-off between u% & π%, Friedman and 2006 Nobel Prize recipient Edmund Phelps believed that the natural u% was independent of the π%. This independent relationship is now referred to as the Long-Run Phillips Curve. I believe it's relevant that by this time the Bretton-Woods system had collapsed.

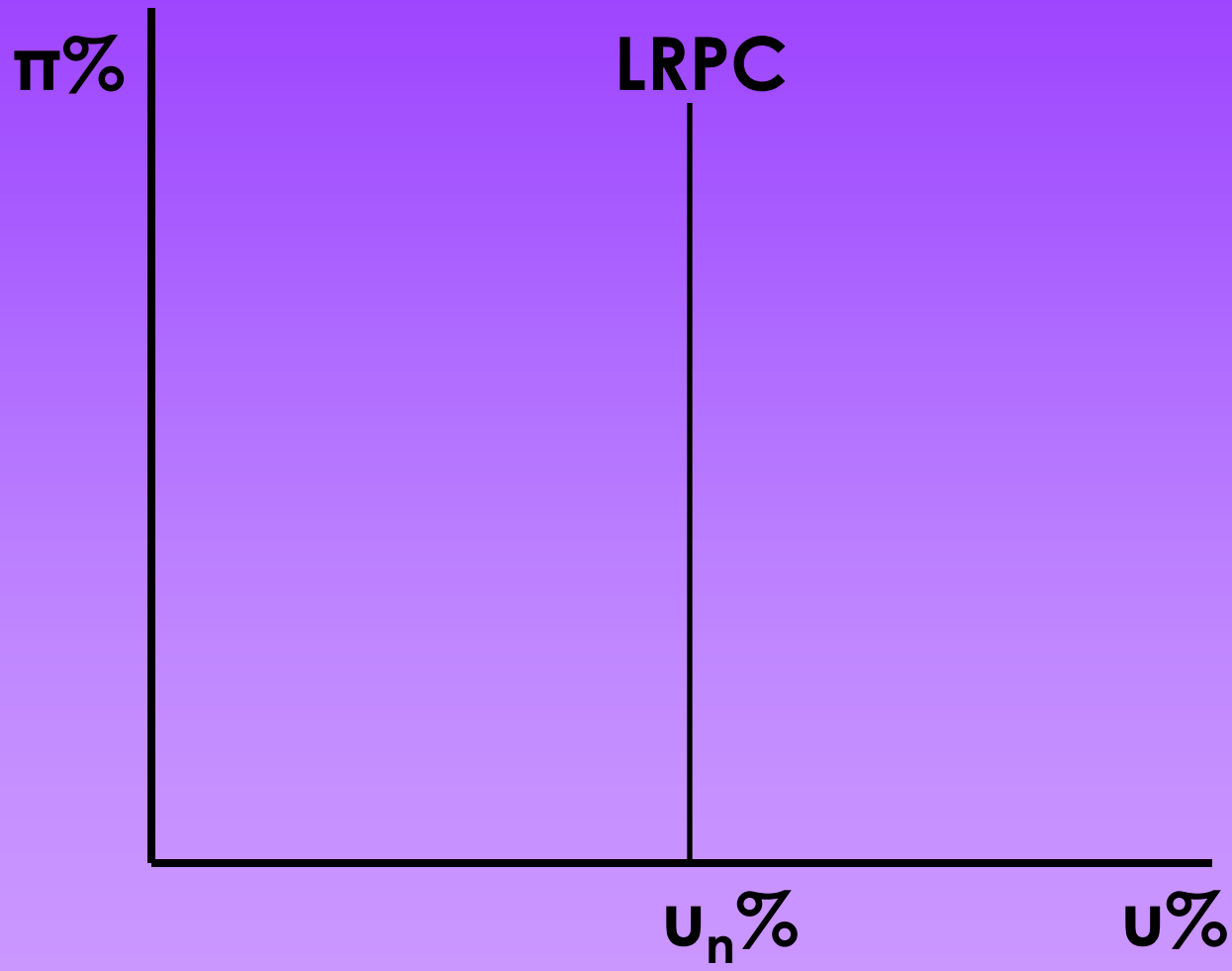
Trouble for the Phillips Curve



Trouble for the Phillips Curve



The Long-Run Phillips Curve



Note: Natural rate of unemployment is held constant

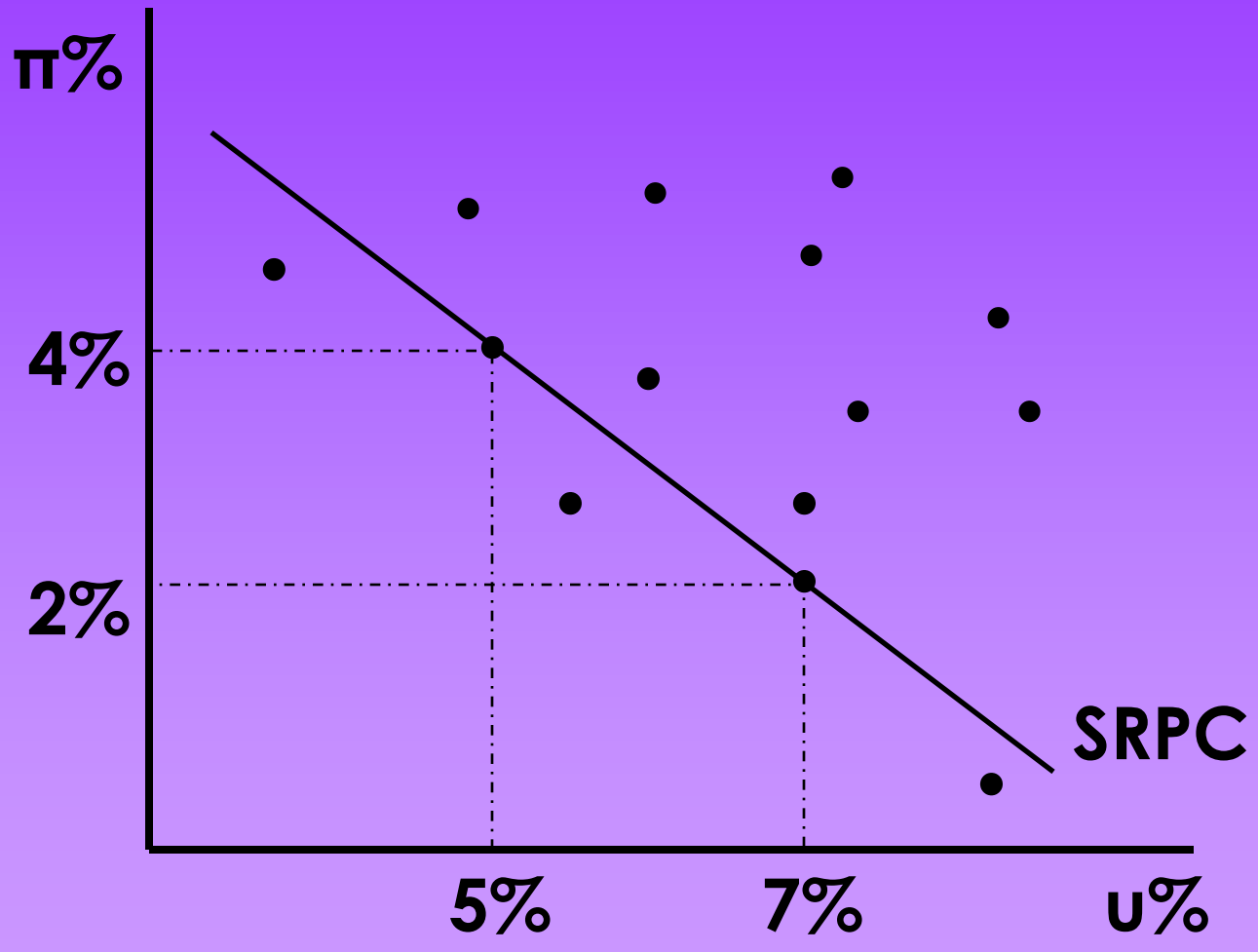
The Long-Run Phillips Curve (LRPC)

- Because the Long-Run Phillips Curve exists at the natural rate of unemployment (u_n), structural changes in the economy that affect u_n will also cause the LRPC to shift.
- Increases in u_n will shift LRPC →
- Decreases in u_n will shift LRPC ←

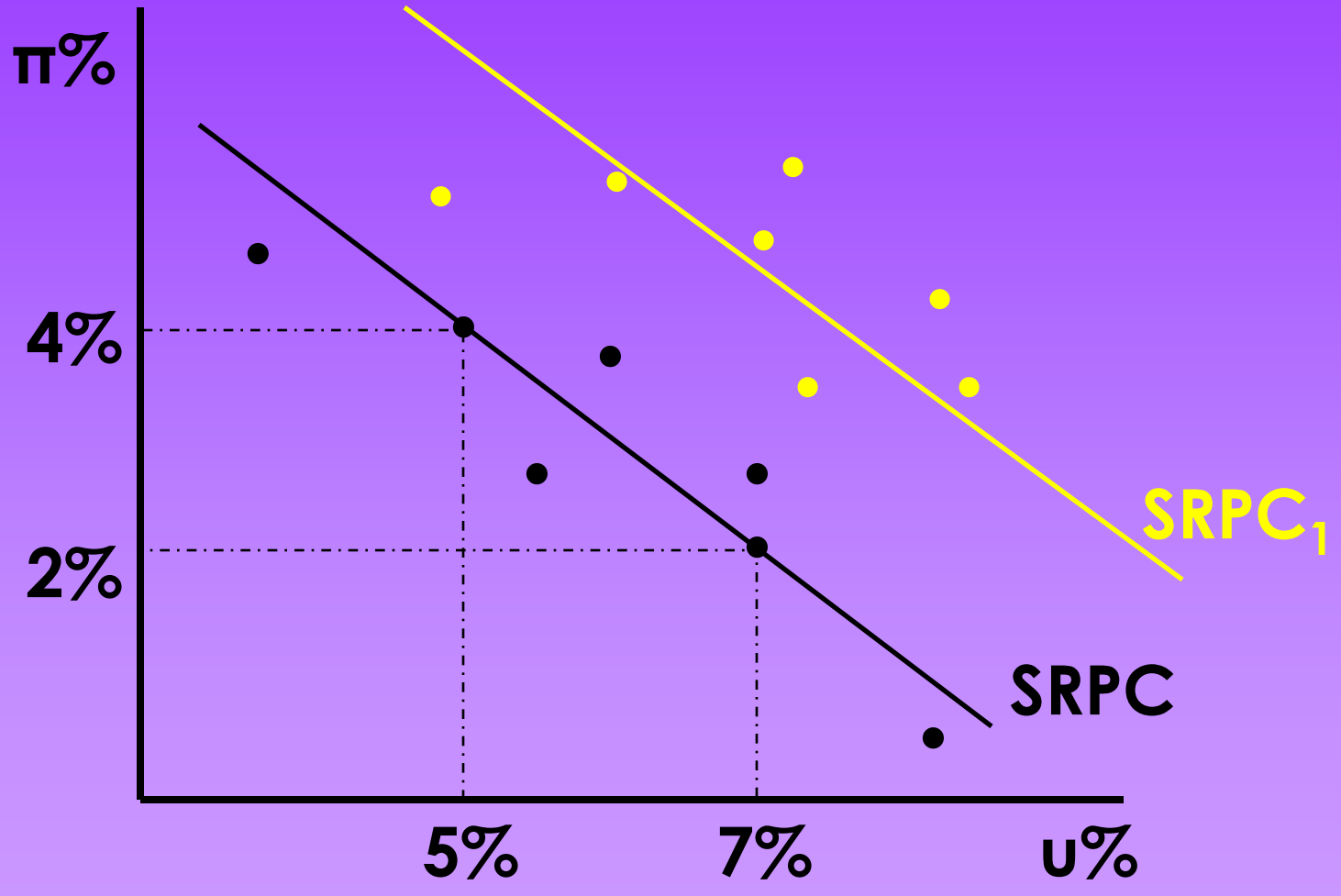
The Short-Run Phillips Curve (SRPC)

- Today many economists reject the concept of a stable Phillips curve, but accept that there may be a short-term trade-off between u% & π% given stable inflation expectations. Most believe that in the long-run u% & π% are independent at the natural rate of unemployment. Modern analysis shows that the SRPC may shift left or right. The key to understanding shifts in the Phillips curve is inflationary expectations!

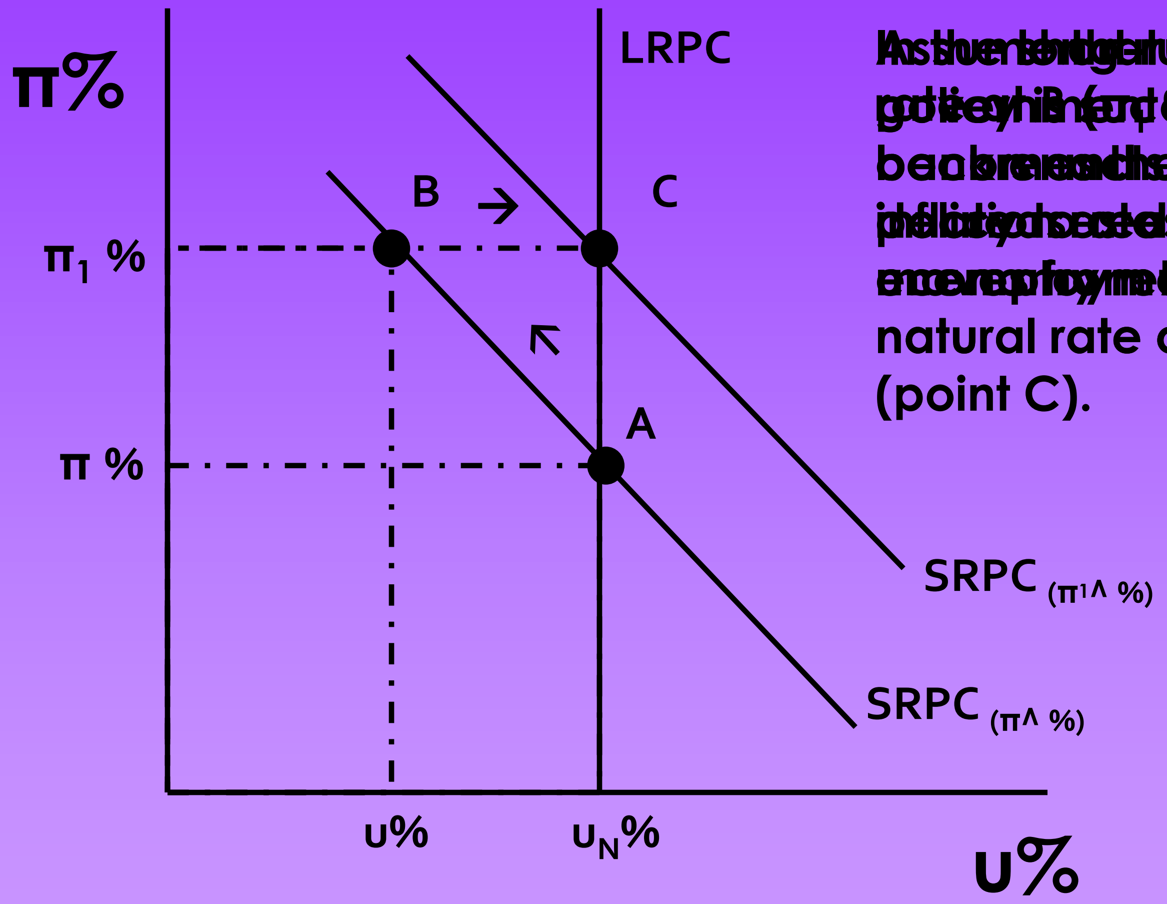
The Short-Run Phillips Curve (SRPC)



The Short-Run Phillips Curve (SRPC)

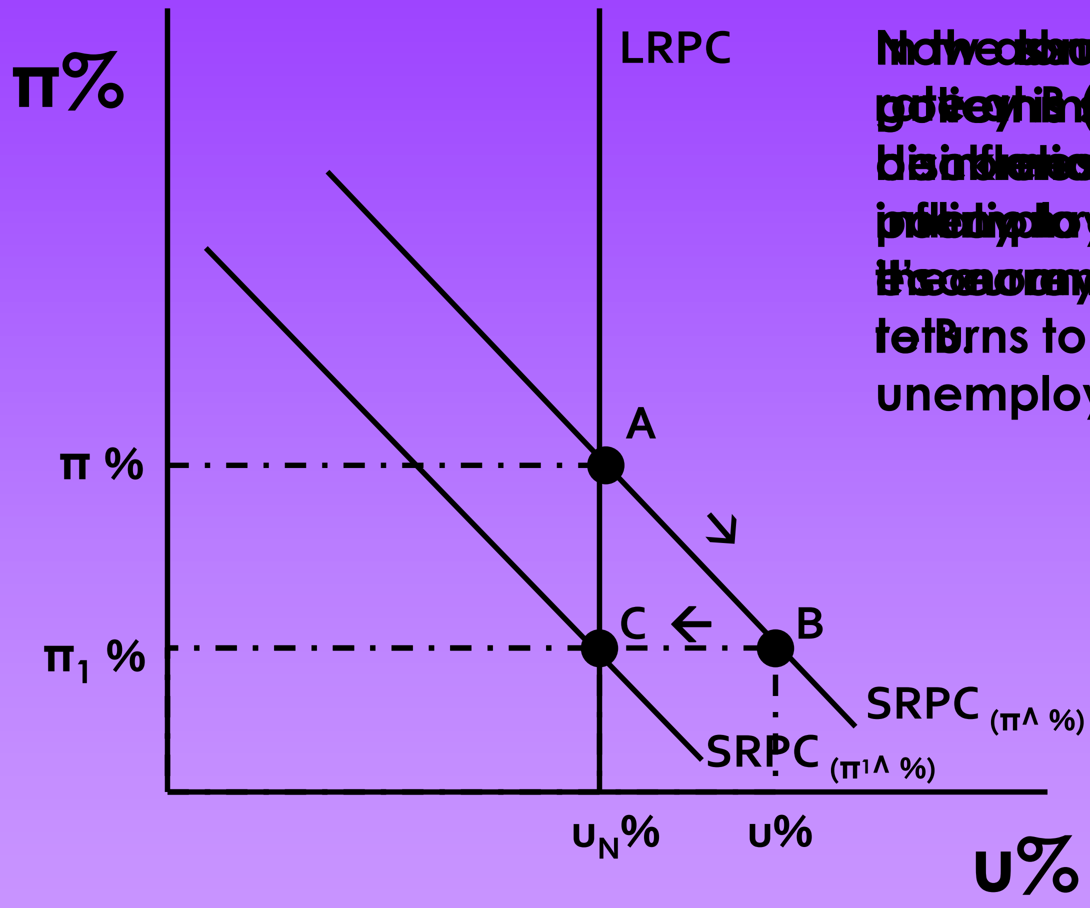


Reconciling the LRPC and SRPC



[illegible] natural rate of unemployment (point C).

Reconciling the LRPC and SRPC

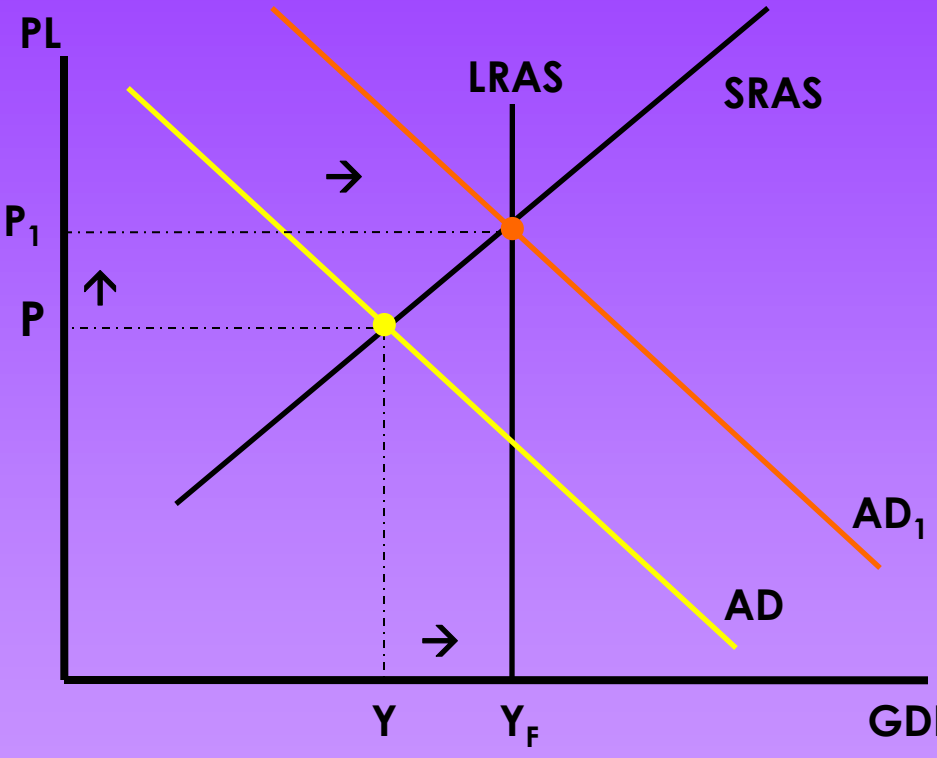


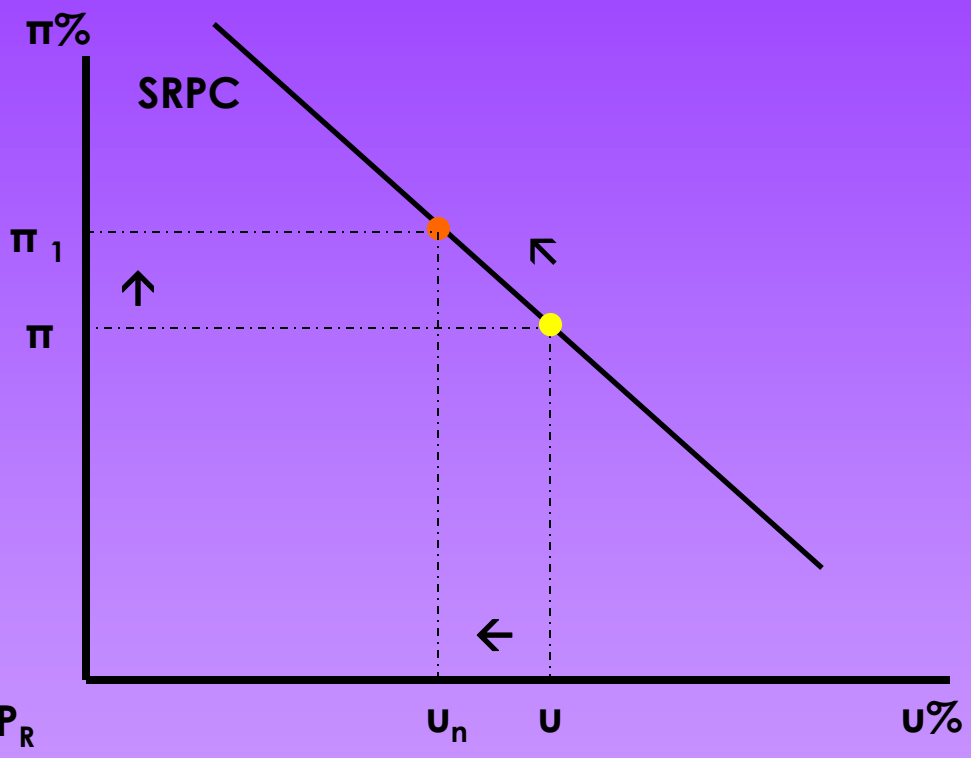
[illegible] rns to the natural rate of unemployment (point C).

Relating Phillips Curve to AS/AD

- Changes in the AS/AD model can also be seen in the Phillips Curves
- An easy way to understand how changes in the AS/AD model affect the Phillips Curve is to think of the two sets of graphs as mirror images.
- NOTE: The 2 models are not equivalent. The AS/AD model is static, but the Phillips Curve includes change over time. Whereas AS/AD shows one time changes in the price-level as inflation or deflation, The Phillips curve illustrates continuous change in the price-level as either increased inflation or disinflation.

Increase in AD = Up/left movement along SRPC

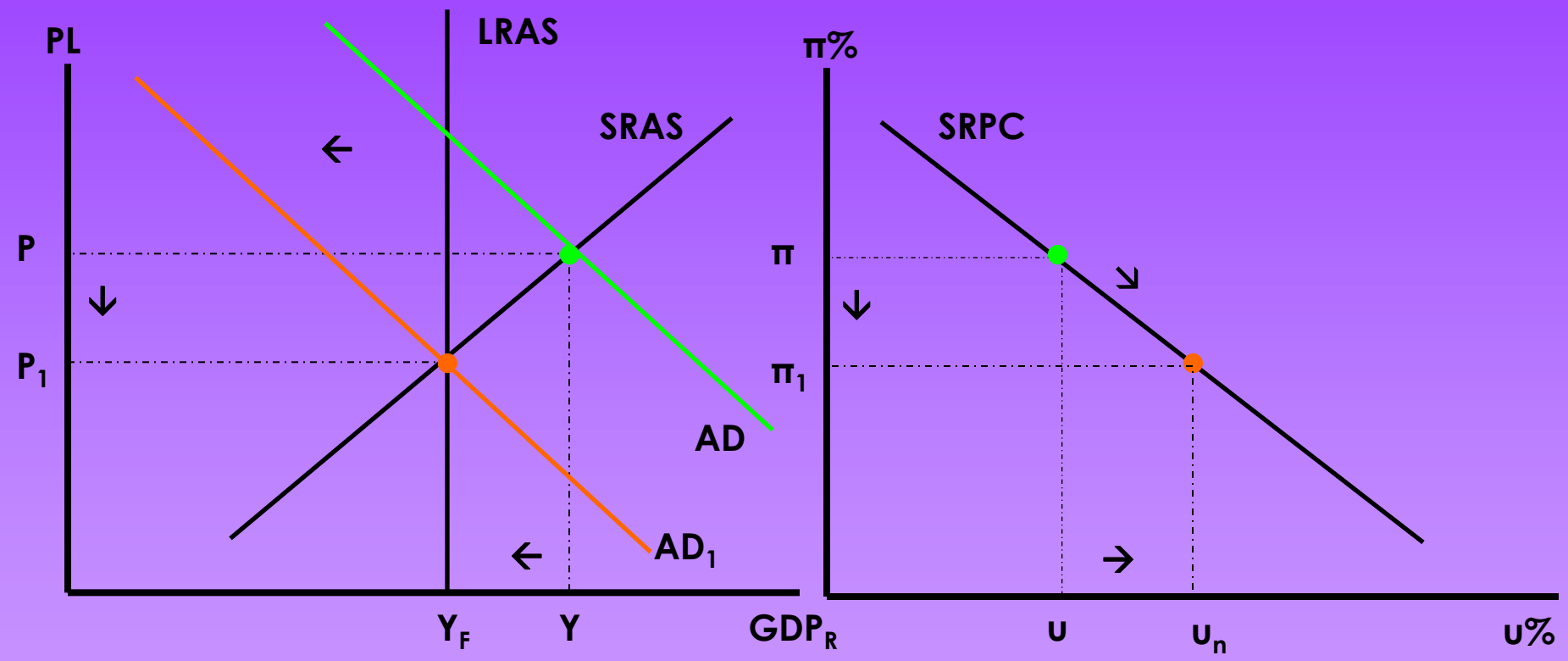




$C\uparrow$, $I_G\uparrow$, $G\uparrow$ and/or $X_N\uparrow$

$\therefore$ AD → $\therefore$ $GDP_R\uparrow$ & PL↑ $\therefore$ u%↓ & π%↑ $\therefore$ up/left along SRPC

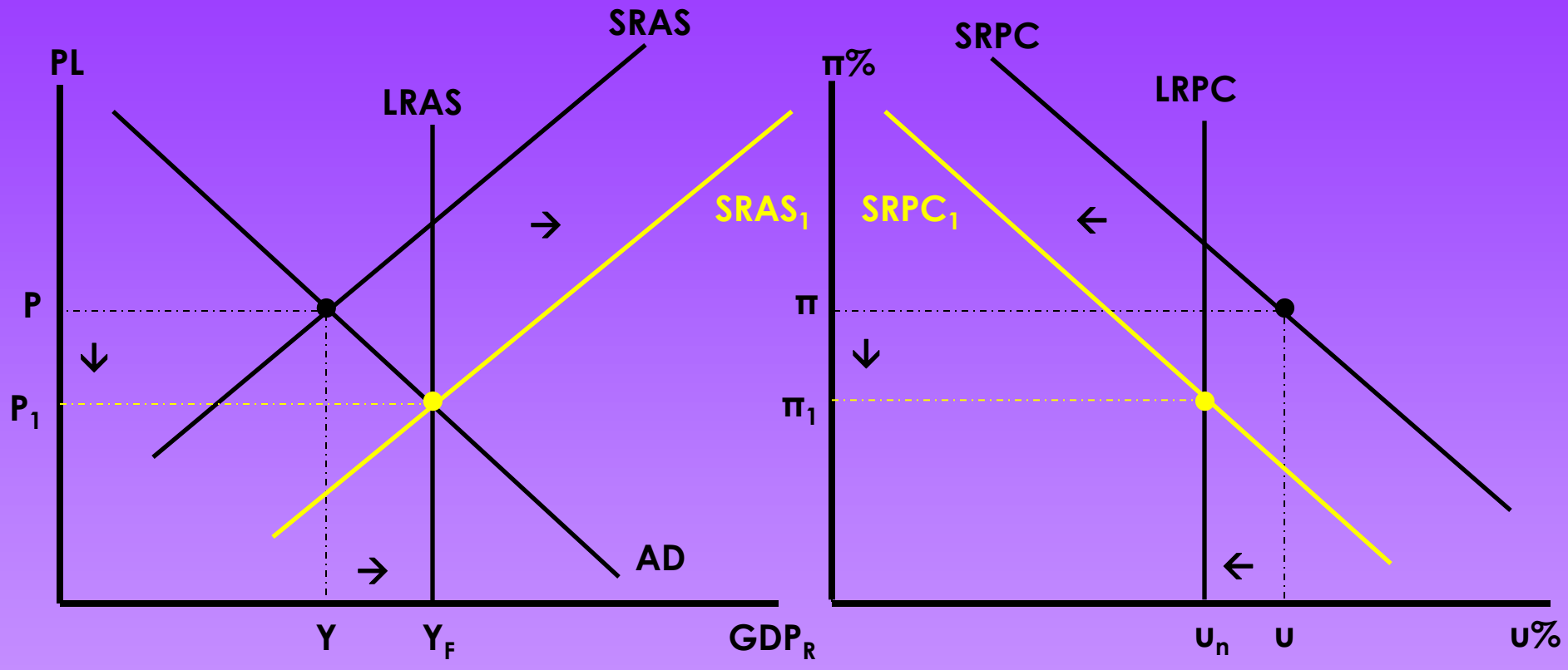
Decrease in AD = Down/right along SRPC



$C\downarrow$, $I_G\downarrow$, $G\downarrow$ and/or $X_N\downarrow$

.: AD ← .: $GDP_R\downarrow$ & PL↓ .: u%↑ & π%↓ .: down/right along SRPC

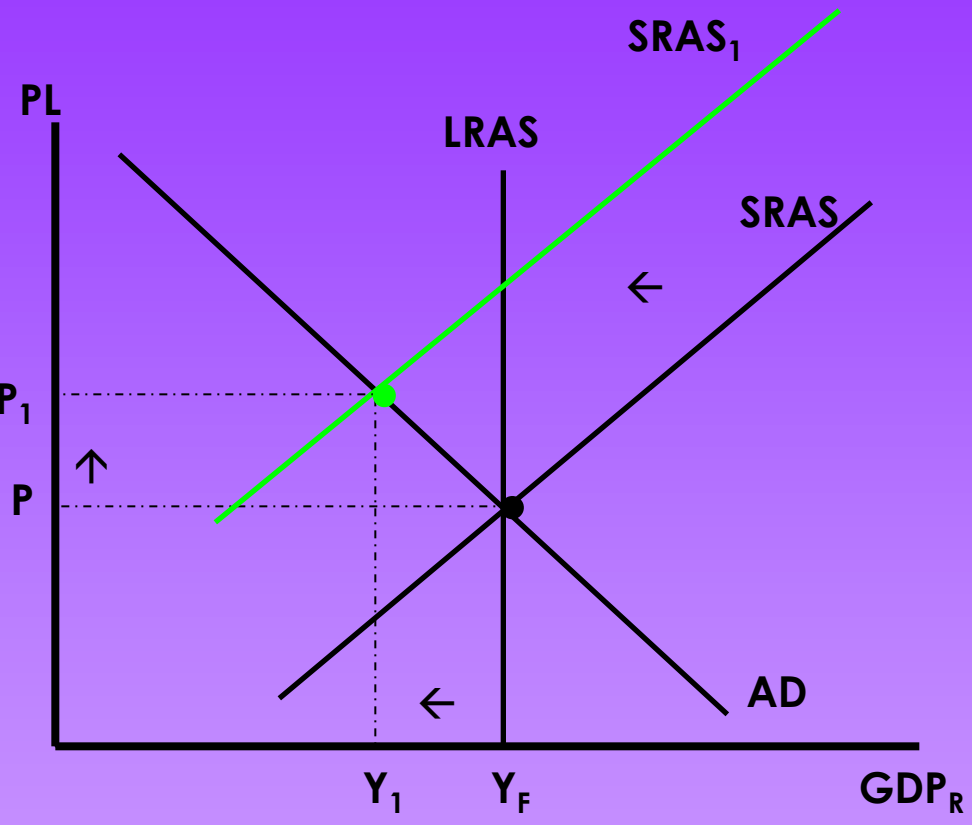
SRAS → = SRPC ←

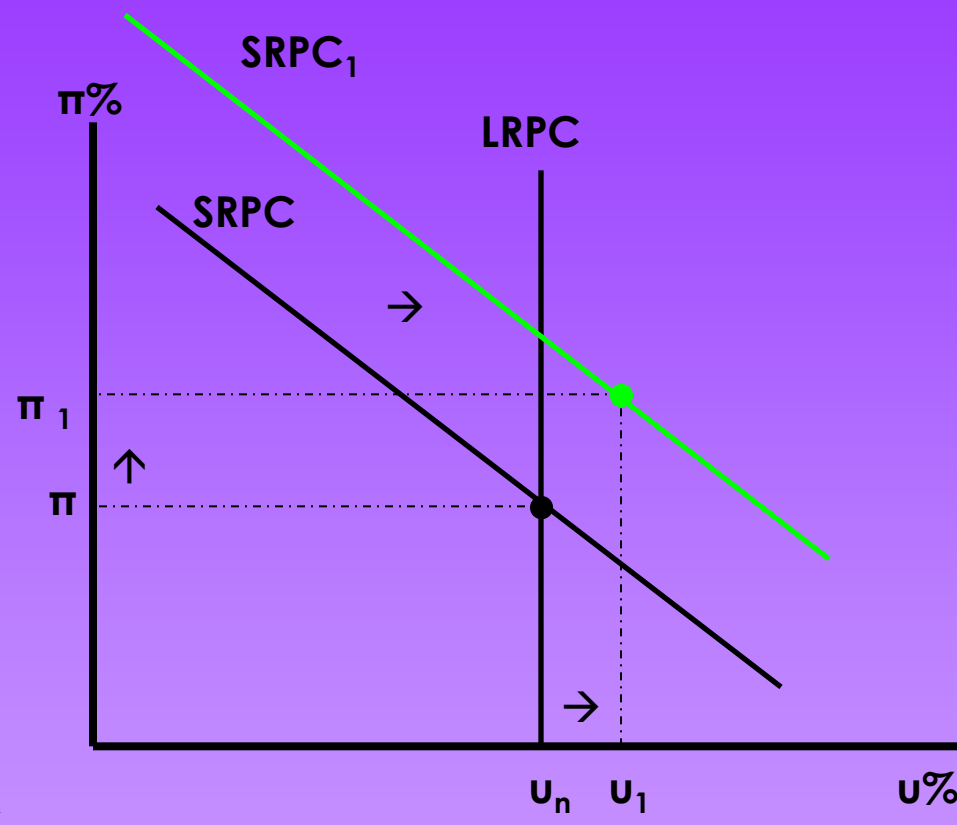


Inflationary Expectations↓, Input Prices↓, Productivity↑, Business Taxes↓, and/or Deregulation

∴ SRAS → ∴ GDP_R↑ & PL↓ ∴ u%↓ & π%↓ ∴ SRPC ← (Disinflation)

SRAS ← = SRPC →





Inflationary Expectations↑, Input Prices↑, Productivity↓, Business Taxes↑, and/or Increased Regulation

.: SRAS ← .: GDP_R↓ & PL↑ .: u%↑ & π%↑ .: SRPC → (Stagflation)

Summary

- There is a short-run trade off between u% & π%. This is referred to as a short-run Phillips Curve (SRPC)
- In the long-run, no trade-off exists between u% & π%. This is referred to as the long-run Phillips Curve (LRPC)
- The LRPC exists at the natural rate of unemployment (u_n).
  - $u_n \uparrow$.: LRPC →
  - $u_n \downarrow$.: LRPC ←
- ΔC, ΔI_G, ΔG, and/or ΔX_N = Δ AD = Δ along SRPC
  - AD → .: $GDP_R \uparrow$ & PL↑ .: u%↓ & π%↑ .: up/left along SRPC
  - AD ← .: $GDP_R \downarrow$ & PL↓ .: u%↑ & π%↓ .: down/right along SRPC
- Δ Inflationary Expectations, Δ Input Prices, Δ Productivity, Δ Business Taxes and/or Δ Regulation = Δ SRAS = Δ SRPC
  - SRAS → .: $GDP_R \uparrow$ & PL↓ .: u%↓ & π%↓ .: SRPC ←
  - SRAS ← .: $GDP_R \downarrow$ & PL ↑ .: u%↑ & π%↑.: SRPC →