23 April 2009

Traditional Keynesian

We'll cover: Romer chap 5.1, 5.2, 5.4 + 5.5

Next class Romer chap 6.1 [redacted]

Then on 7 May we'll cover the Svensson article

Simple Models

→ no households, we simply assume relationships among aggregates

→ static models (not dynamic)

→ welfare analysis not possible because there are no households

→ no possibility to examine temporary and permanent changes

Major Assumption

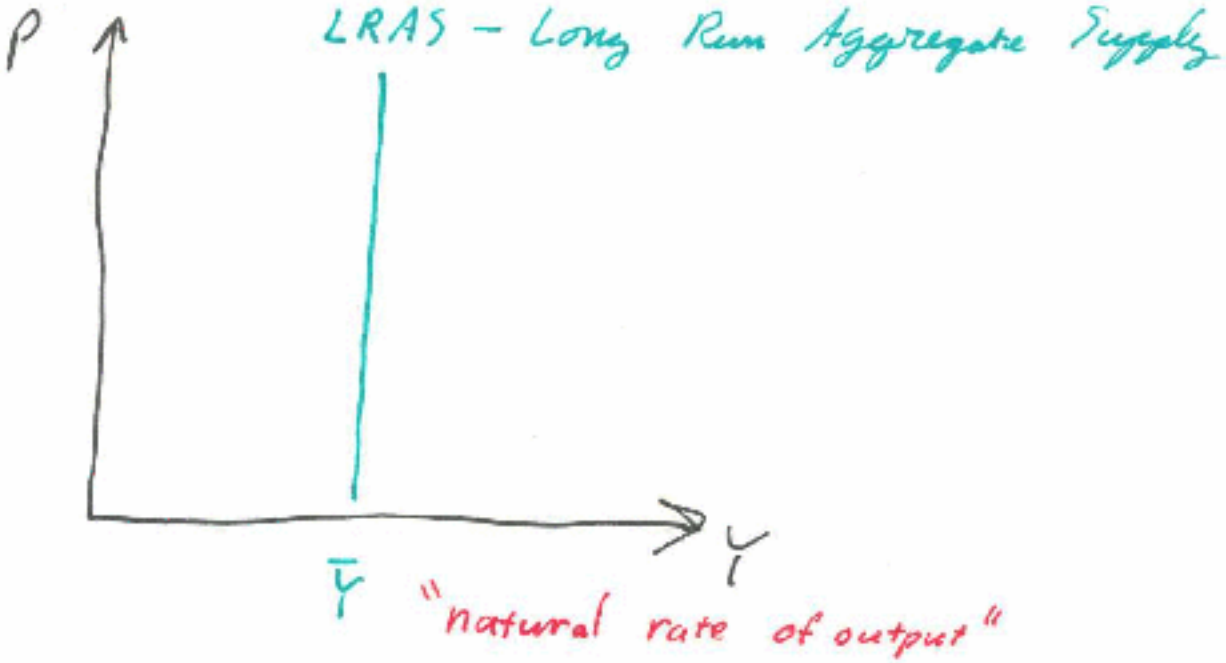
Wage/price rigidity

→ when we studied growth theory we never mentioned prices

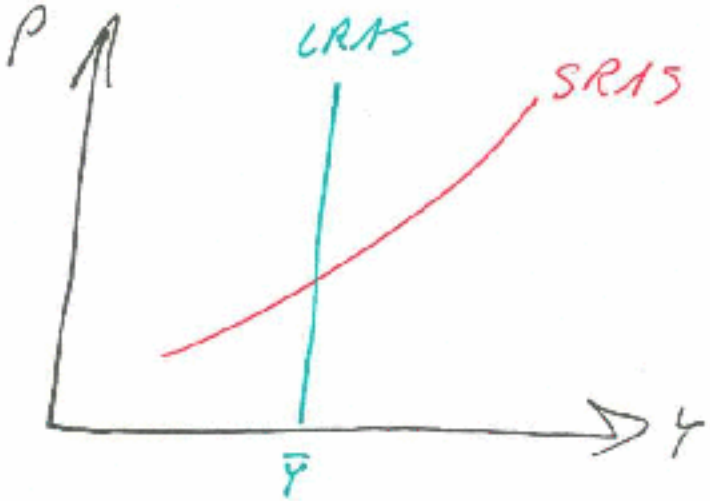
→ Solow model suggests that total output depends on saving rate, depreciation rate, ... etc.

→ total output can grow over time (in response to techno progress, labor force growth or capital accumulation) but since we're studying short run now we'll hold those constant

→ so at a given point in time Solow predicts that output constant (i.e. it's not responsive to price)



In the Short Run, firms may produce more when they observe an increase in price for the item they produce (thus increasing aggregate output)



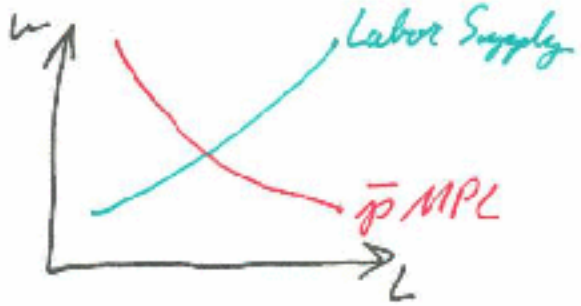
Reasons?

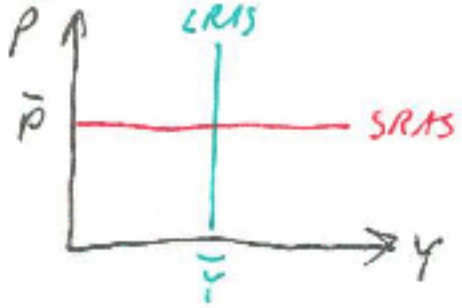
1. Sticky Wage Model

- suppose labor supply is infinitely elastic
- prices are flexible however
- increase in price ⇒ lower real wage ⇒ firms hire more workers ⇒ more output produced
- positive relationship between price level and aggregate output
- model implies countercyclical real wages HOWEVER empirical tests suggest procyclical real wages

2. Sticky Price Model

- suppose prices rigid
- but wages flexible
- implies horizontal SRAS





imperfect competition

- firms would only produce if $\bar{p} > MC$
- Romer shows that this implies procyclical real wages

→ first recall that if output is a monotonically increasing function of labor,

→ then a given output implies a given level of labor

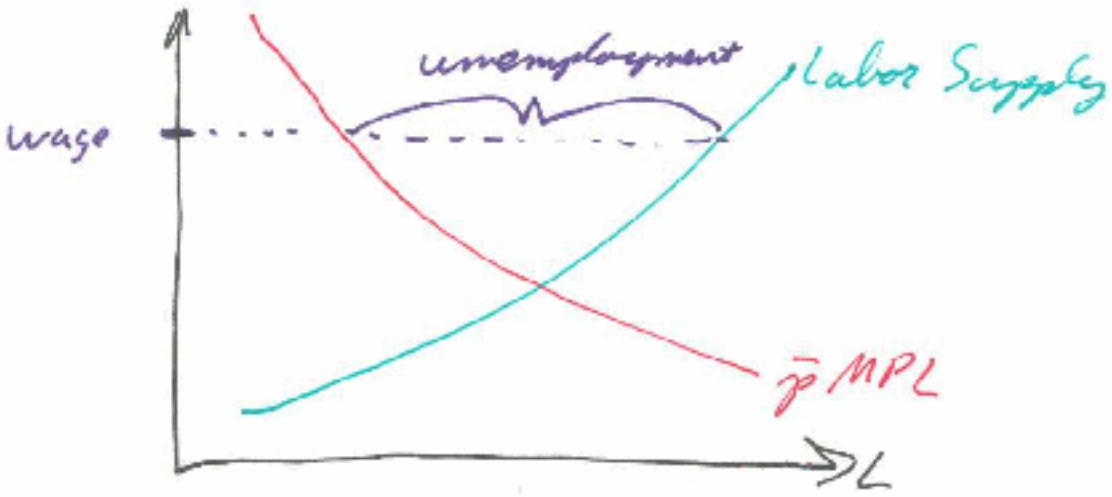
inverse function rule

$$Y = F(L) \Rightarrow F^{-1}(Y) = L$$

→ so a contraction in output causes equilibrium labor to fall which implies decrease in real wage

3. Labor Market Imperfections

- suppose that firms pay wages which exceed equilibrium wage



- examples: minimum wages
  unionization
  efficiency wage ← to get more productive workforce

- Model also implies horizontal SRAS
- Romer shows that
  - unemployment increases IF
  - real wage function is flatter than labor supply function

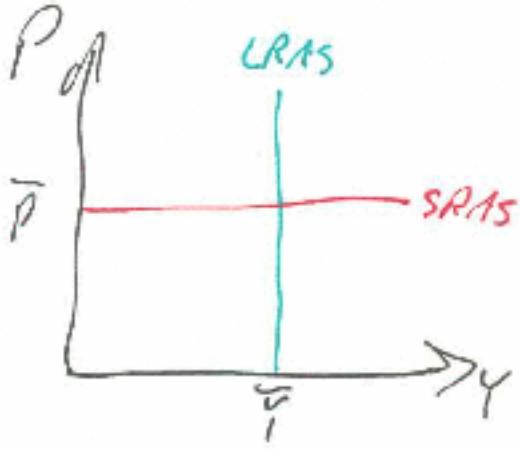
4. Imperfect Competition

- once again, assume rigid wages and flexible prices
- as in original sticky wage model SRAS upward sloping (output rises when prices rise)

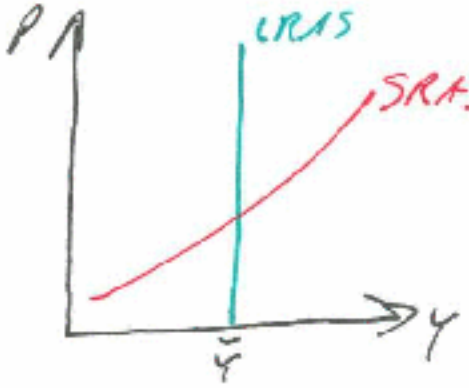
- Due to imperfect competition

$$p > MC$$

- Romer shows that can get procyclical, acyclical or countercyclical wages depending on whether the markup is less countercyclical than MPL or as countercyclical as MPL or more countercyclical than MPL



Let's start with Sticky Wage Model, so that



Keynesian models focus on Aggregate Demand

fiscal + monetary policy affect AD

Planned Aggregate Expenditure must equal Aggregate Output in equilibrium but the two are ~~equal~~ not equal when the goods market is not in equilibrium

$AE = C + I + G$ note: assume $X - M = 0$

in equilibrium $Y = AE$

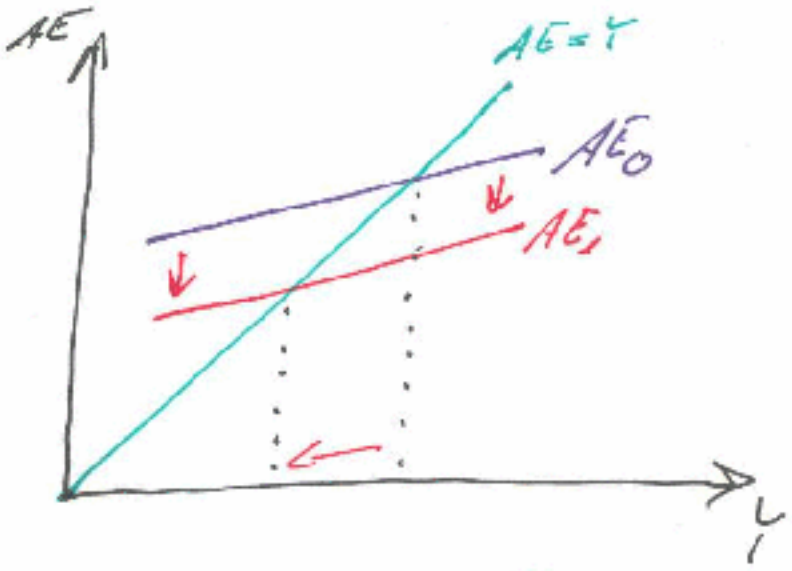
suppose: $AE = C(Y-T) + I(i - \pi^e) + G$

→ consumption a fn of disposable income

→ investment a fn of expected real int rate

$$AE = C(Y-T) + I(i-\pi^e) + G$$

$$Y = AE$$



A decrease in AE will eventually cause Y to fall, possible sources:

→ decrease in G

→ increase in T

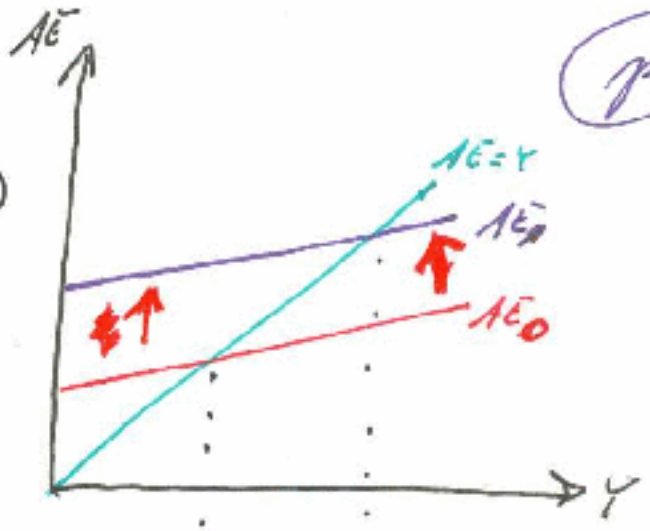
→ increase in $i - \pi^e$

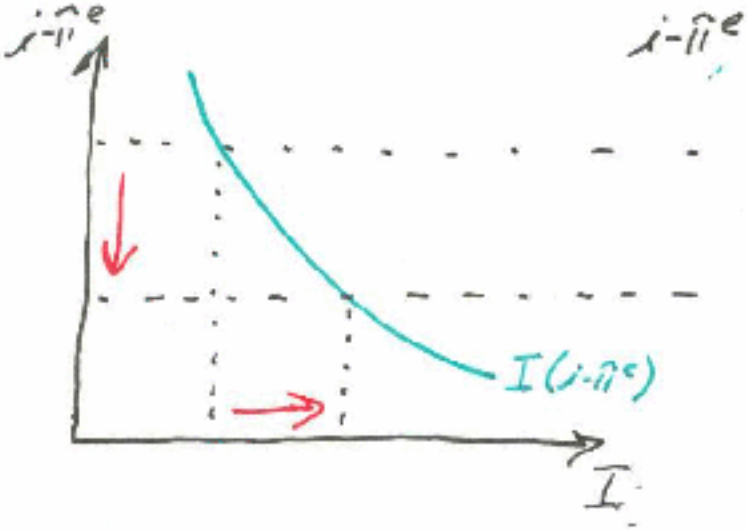
Monetary Policy + Derivation of IS curve

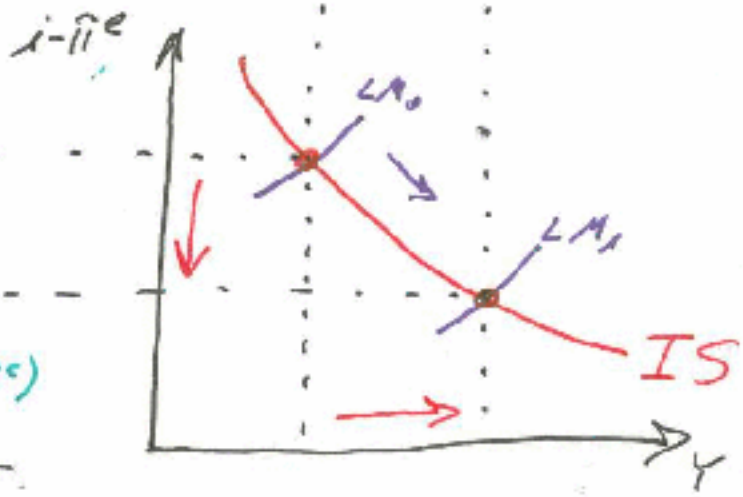
- suppose price stickiness keeps expected inflation constant
- then a decrease in nominal interest rate will cause expected real interest rate to fall
- which will stimulate planned investment
- and increase equilibrium aggregate output

The IS Curve

- summarizes the changes (mentioned on previous page)
- shows combinations of $i - \pi^e$ and Y for which Goods mkt in equilibrium







Note that this is equivalent to saying that expansionary monetary policy causes the LM curve (which we'll derive in a moment) to shift outward

Fiscal Policy & Derivation of LM Curve

- we've already seen that
  - → decrease T } expansionary
  - → increase G } fiscal policy

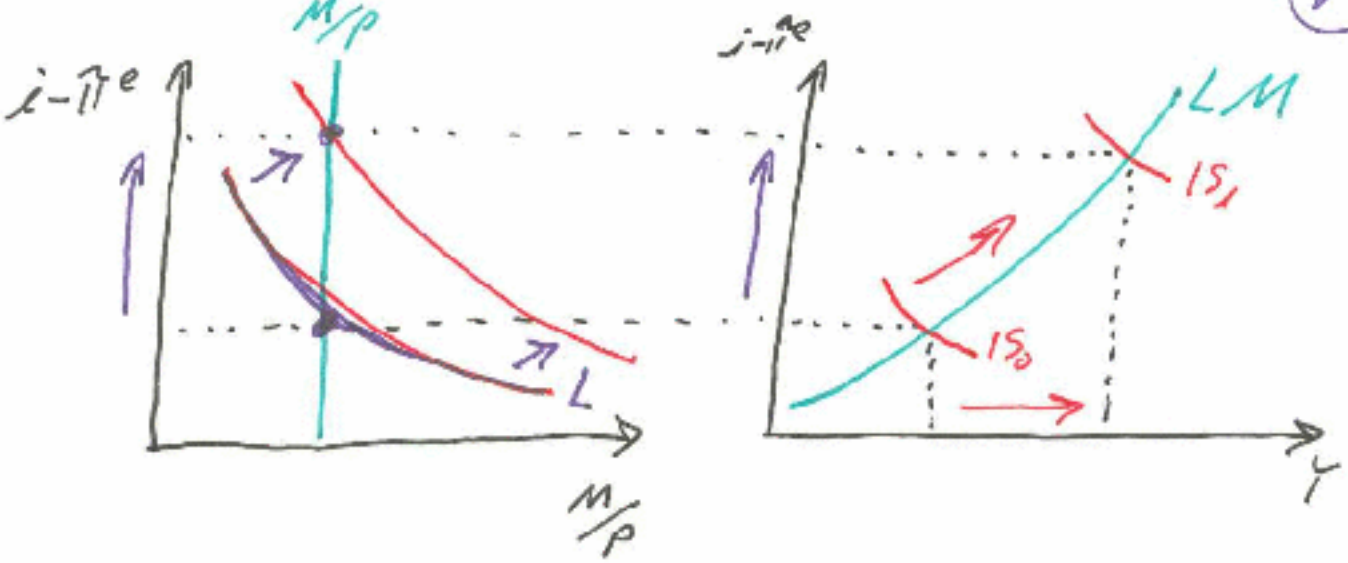
  cause an increase in equilibrium aggregate output

- but what effect does this have on liquidity demand? (i.e. on the demand for real money balances)
- when eqlbrm aggregate output increases people will want to hold more money at every expected real interest rate
- if money supply, M, held constant and if prices, P, are sticky then the expected real interest rate will rise

The LM Curve

- summarizes these changes
- shows the combination of $i - \pi^e$ and Y for which the money mkt is in equilibrium

Derivation of LM Curve



$M/p \equiv$ real money balances

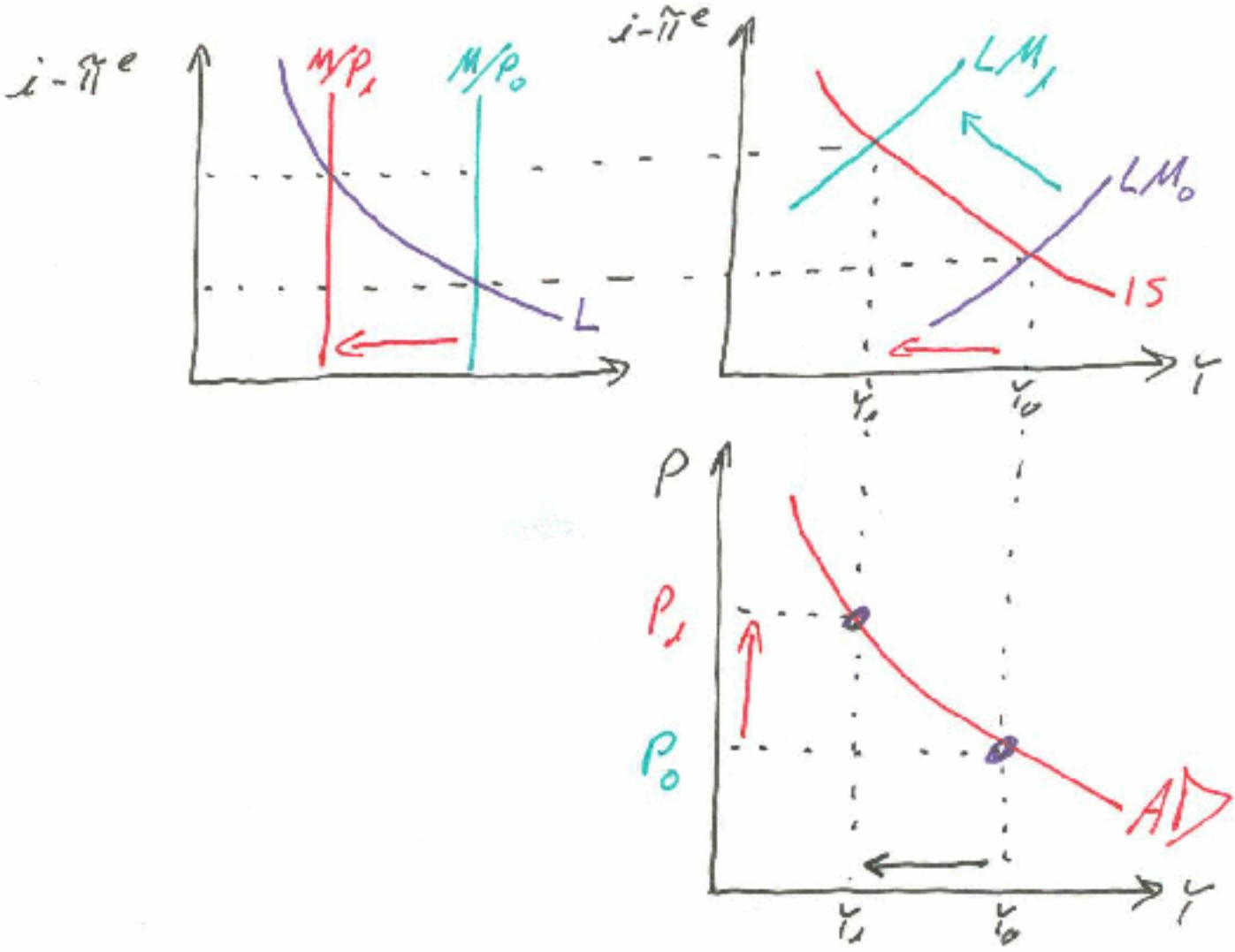
$L \equiv$ liquidity demand

- decreasing fn of $i - \pi^e$
- increasing fn of Y

Note that this is equivalent to saying that expansionary fiscal policy causes the IS curve to shift outward

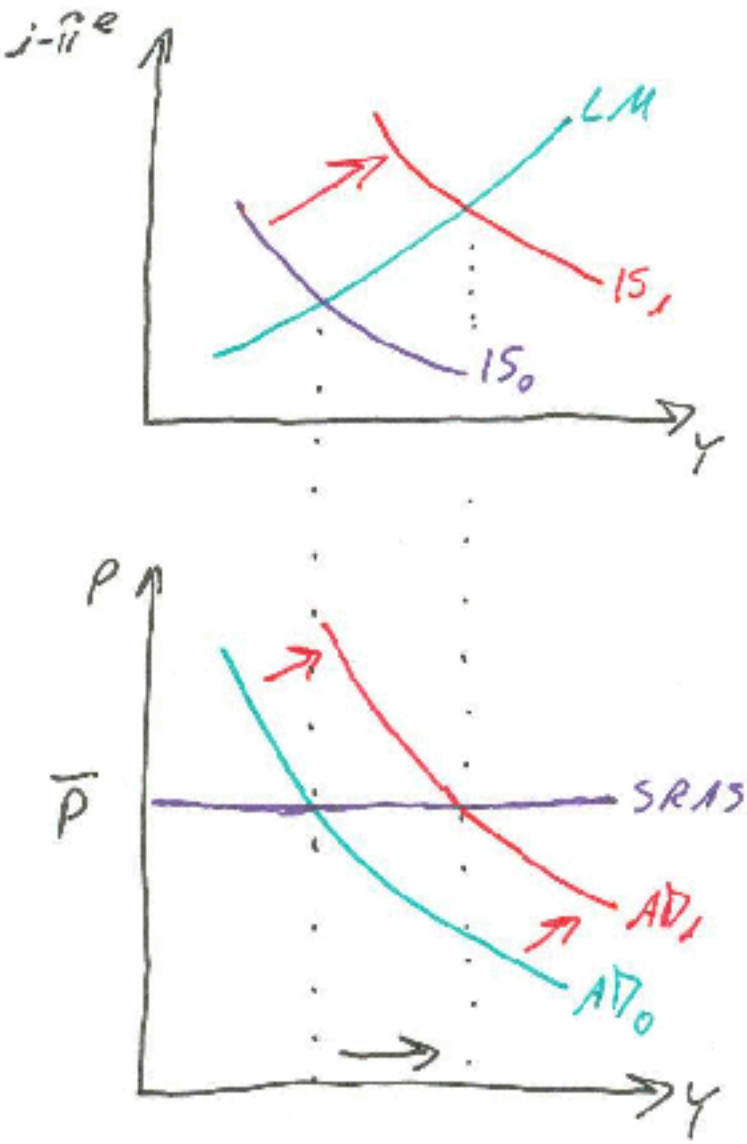
From IS-LM to AD

- consider an increase in the price level
- without a corresponding increase in the money supply
- the supply of real money balances M/P contracts

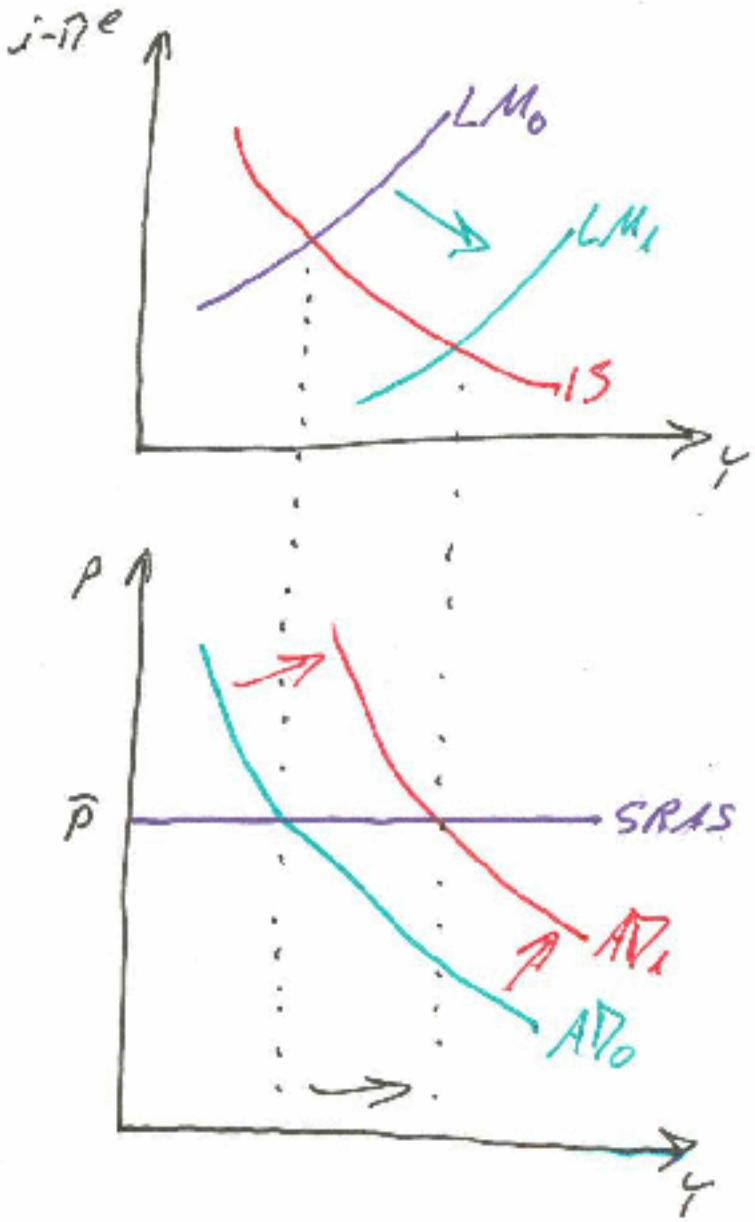


Expansionary Fiscal Policy and Expansionary Monetary Policy both shift the AD curve outward (for a given price level)

expansionary fiscal policy



expansionary monetary policy



Output - Inflation Trade-Offs

→ When we derived the SRAS we assumed that either wages or prices are sticky

→ Romer points out that if policymakers expand AD (thru expansionary fiscal or expansionary monetary policy) then – if wages are sticky –

- price level will increase in response to the expansionary policy
- wages will rise in a subsequent period causing AS to contract
- so to repeat the feat, policy makers must be willing to accept ever higher price levels (i.e. inflation) to keep output above its natural rate (i.e. $\bar{Y}$ determined by LRAS)

- notice that there's an output-inflation trade-off

  → to keep $Y > \bar{Y}$

  → prices must keep rising

~~[illegible]~~

- to restore price stability, output must fall, but that would increase the unemployment rate

  → Phillips Curve (trade-off between inflation and the unemployment rate)