Aggregate Demand and Supply

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Economic Fluctuations

- Short-run GDP fluctuations in the economy are called the business cycle.
- During periods of expansion, real GDP increases and firm profits are growing.
- Conversely, during periods of economic recession, real GDP falls and firm profits are decreasing.
- A main point to remember about the business cycle is that economic fluctuations are irregular and largely unpredictable.

Economic Fluctuations

- Additionally, most macroeconomic quantities tend to fluctuate together in the short run (e.g., real GDP, personal income, consumer spending, etc.).
- However, what does differ is the magnitude of the fluctuations.
- Finally, as real GDP output falls, the rate of unemployment increases.

Economic Fluctuations

- Recall that according the classical theory, changes in the money supply only affect nominal variables, but not real variables.
- We noted that this only describes the world in the long run, but not in the short run.
- In the short run, money is **not** neutral because real and nominal variables are heavily related in this period.

Aggregate Demand

- The aggregate demand curve shows combinations of inflation and real GDP growth that make up a certain rate of spending growth.
- Spending growth comes from household, firm, and government purchases as well as money growth ($\vec{M} + \vec{v}$).
- From the Quantity Equation (expressed in percent change terms),

$$\vec{M} + \vec{v} = \pi + \vec{Y}$$

Aggregate Demand

- Shifts in the AD curve can arise from any of the following:
  1. Changes in consumption spending
  2. Changes in investment spending
  3. Changes in government purchases
  4. Changes in net exports
  5. Changes in the money supply
- Any shock that affects (1) - (4) (e.g., a rise in consumer or business optimism) is referred to as an aggregate demand shock.

Aggregate Demand

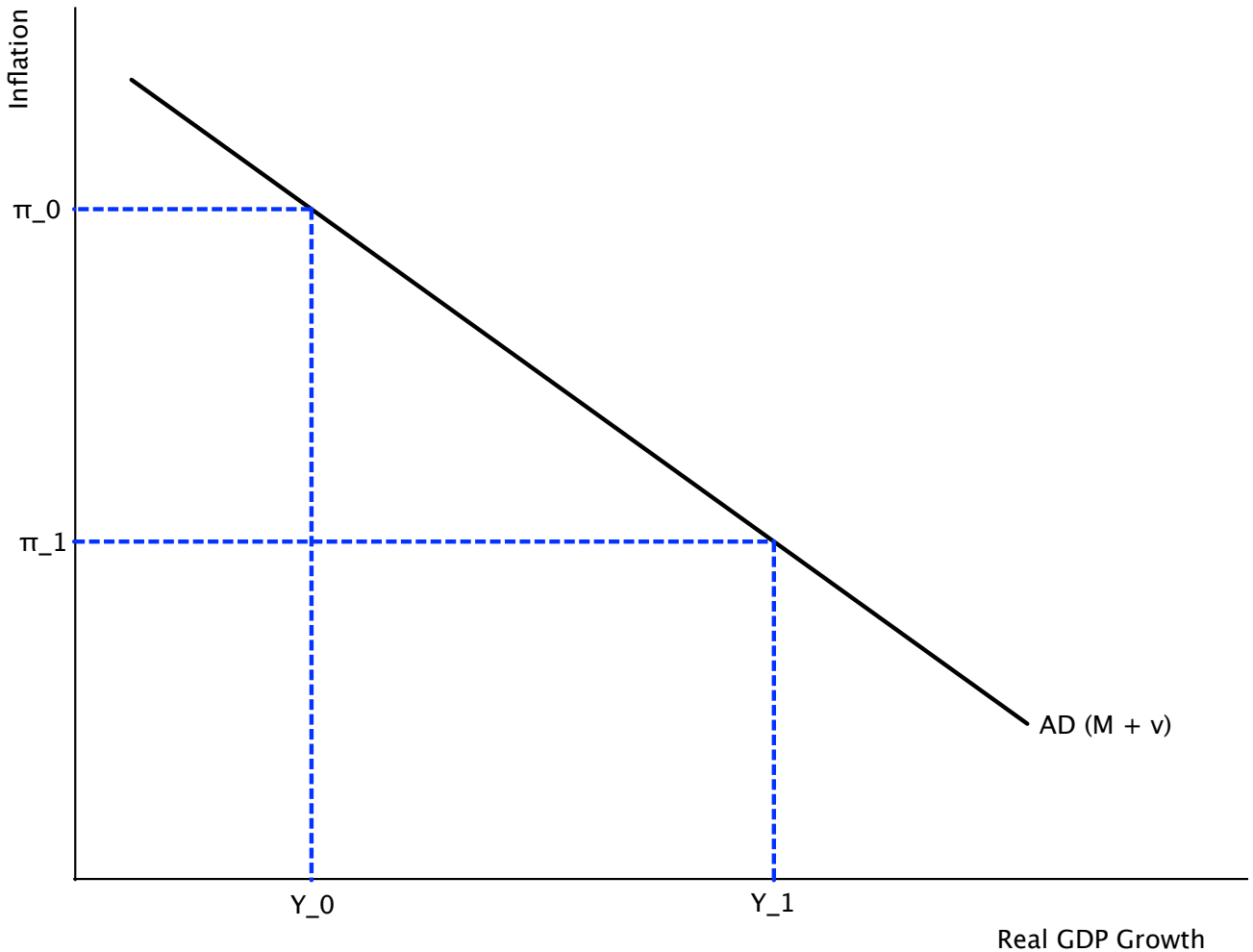

Figure: Aggregate Demand Curve

Aggregate Demand

Example

If the velocity of money is constant, what is the growth rate of the money supply in the economy if spending growth is 5%? If the Fed increased the money supply so that the money growth rate was 7%, what would be the effect on the aggregate demand curve?

Aggregate Demand

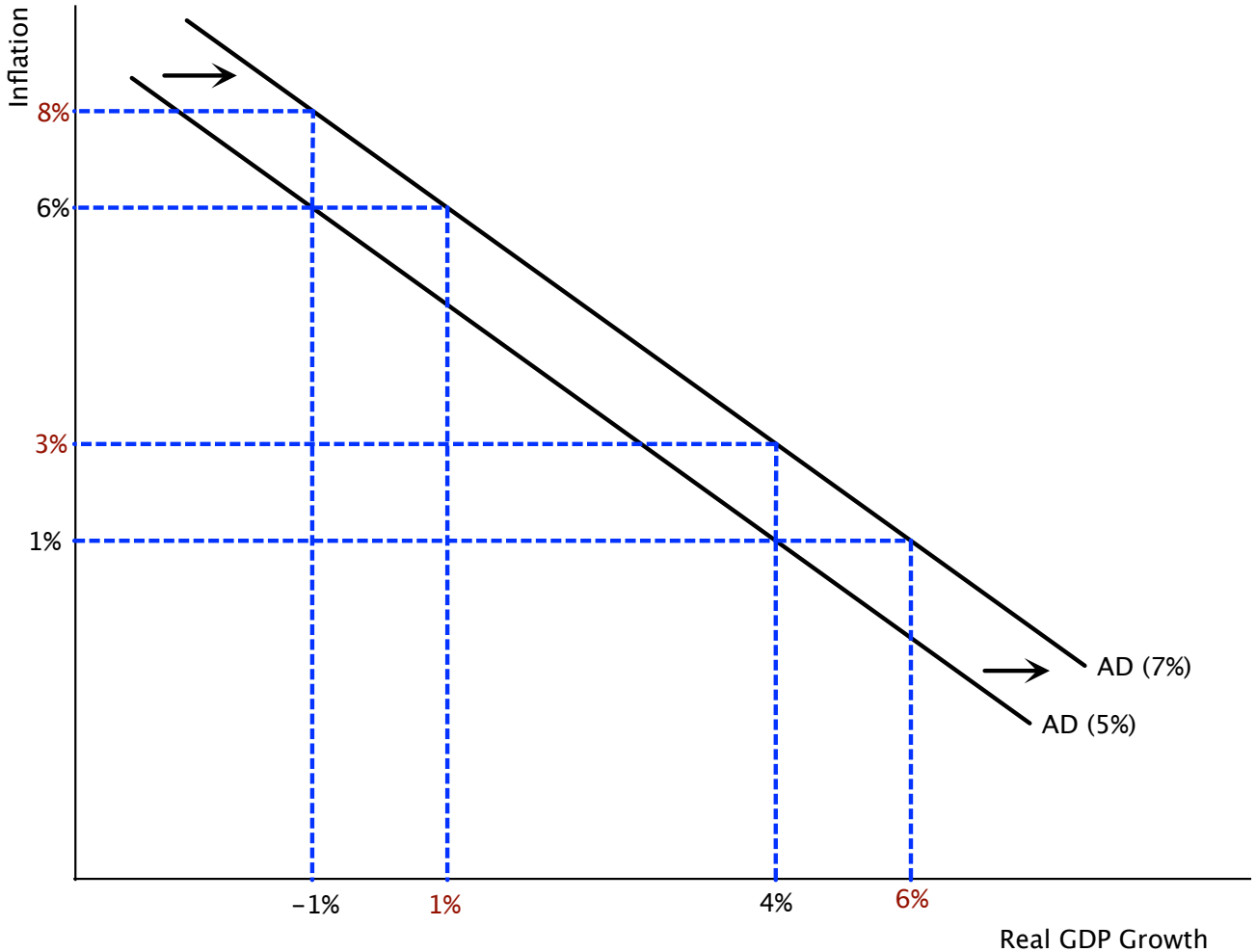

Figure: AD Shifts

Aggregate Supply

- The AS curve comes from the quantity of goods and services that firms choose to produce and sell.
- The AS curve has two representations - the long-run AS curve and the short-run AS curve.
- In the long run, an economy's production of goods and services depends on its supply of
  1. Labor
  2. Capital
  3. Natural resources
  4. Available technology

Aggregate Supply

- Because in the long run, money is neutral, the inflation rate has no effect on the growth rate of real GDP.
- Thus, the LRAS curve is vertical and the rate of real GDP growth in the long run is referred to as the natural (solow) rate of GDP growth.
- Shifts in the LRAS come about due to any changes in (1) - (4), and these shocks are called real shocks (e.g., new inventions, increases in the price of oil, etc.).

Aggregate Supply

- On the otherhand, the SRAS curve is upward-sloping.
- That is, the inflation rate in an economy does have an effect on the growth rate of real output in the short run.
- The reason this is the case is due to expectations of inflation mismatching reality. When the inflation rate is above what people expect, output growth rises faster than its natural rate, and vice-versa.

Aggregate Supply

- Two theories that explain this:
  1. Sticky wages: Nominal wages are slow to adjust to changing conditions. Thus, when prices increase firm profits increase, leading them to increase production $\Rightarrow$ Y increases. Eventually, workers renegotiate wages and nominal wages increase.
  2. Sticky prices: Prices are slow to adjust. Example: An unexpected fall in prices leads some firms to have higher-than-desired prices, which decreases sales and thus firms reduce output $\Rightarrow$ GDP falls.

Aggregate Supply

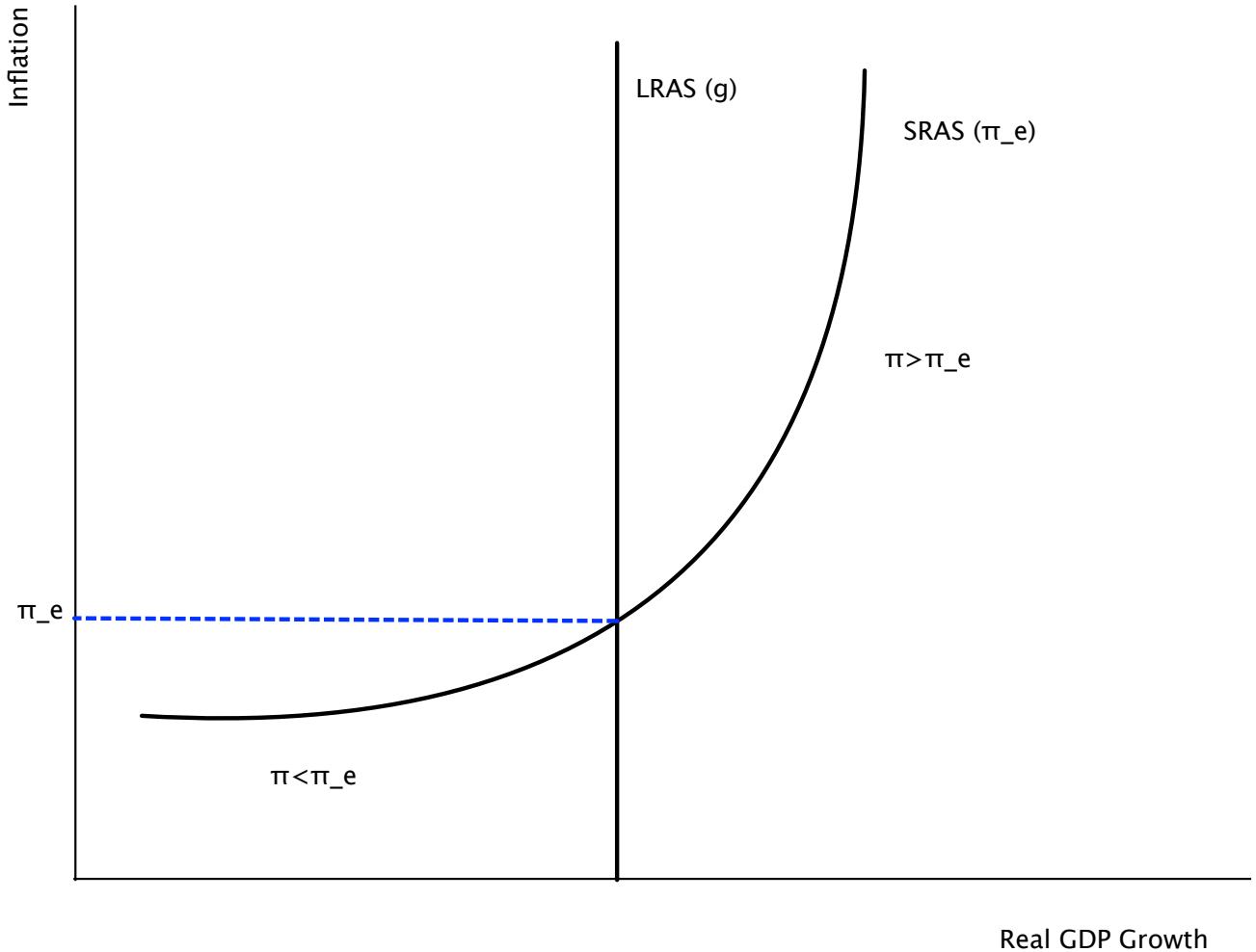

Figure: LRAS and SRAS

Aggregate Supply

- The SRAS is steeper to the right of g because an economy can only grow so fast. Because wages are more sticky in the downward direction, the SRAS curve is flatter to the left of g.
- Since the SRAS curve reflects expectations about the inflation rate in the economy, shifts are caused by changes in the expected inflation rate.

Aggregate Supply

- Specifically, when the expected inflation rate increases, the SRAS curve shifts upward (to the left), and when the expected inflation rate decreases, the SRAS curve shifts downward (to the right).
- The expected inflation rate of a given SRAS curve is given by the intersection of the SRAS and LRAS curves.

AS-AD

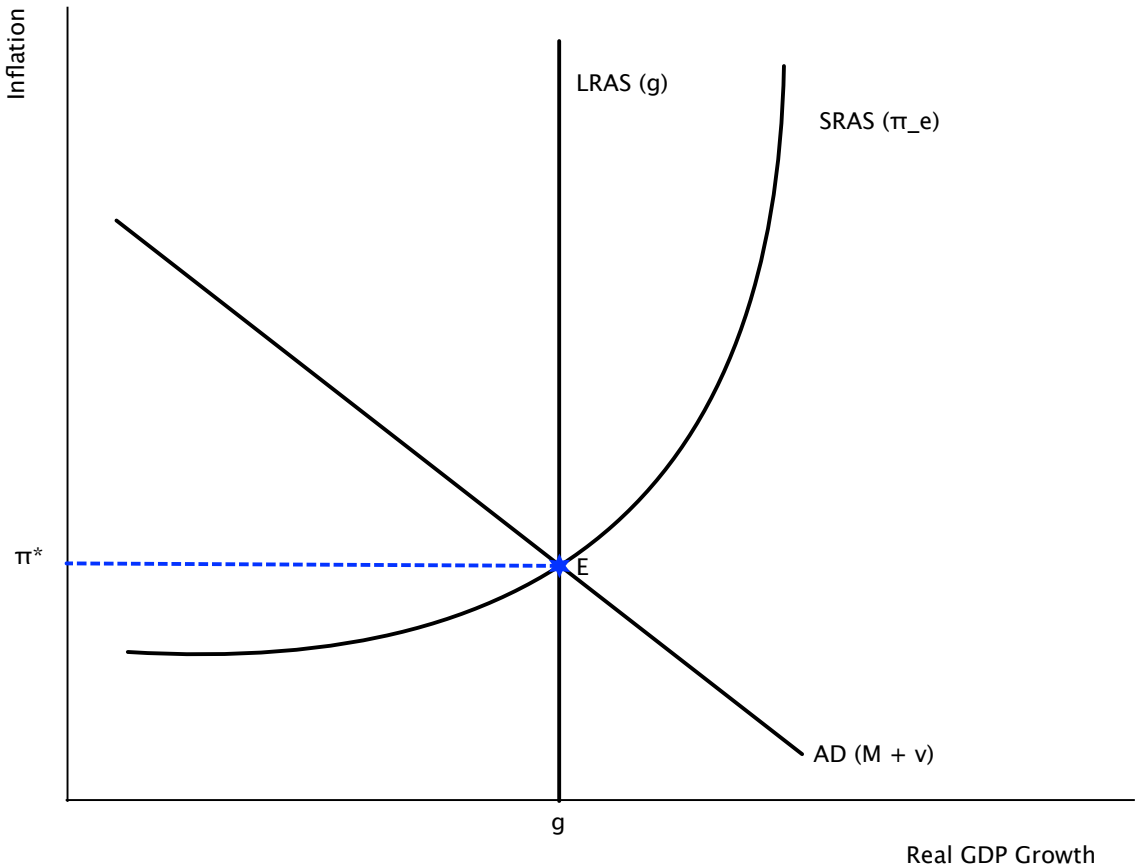

Figure: Long-Run Equilibrium

AS-AD

- The long-run equilibrium is given by where the AD curve and the LRAS curve intersect.
- When the economy reaches point E, the expected inflation rate has adjusted to the long-run inflation rate and thus the SRAS curve crosses this point as well.

AS-AD

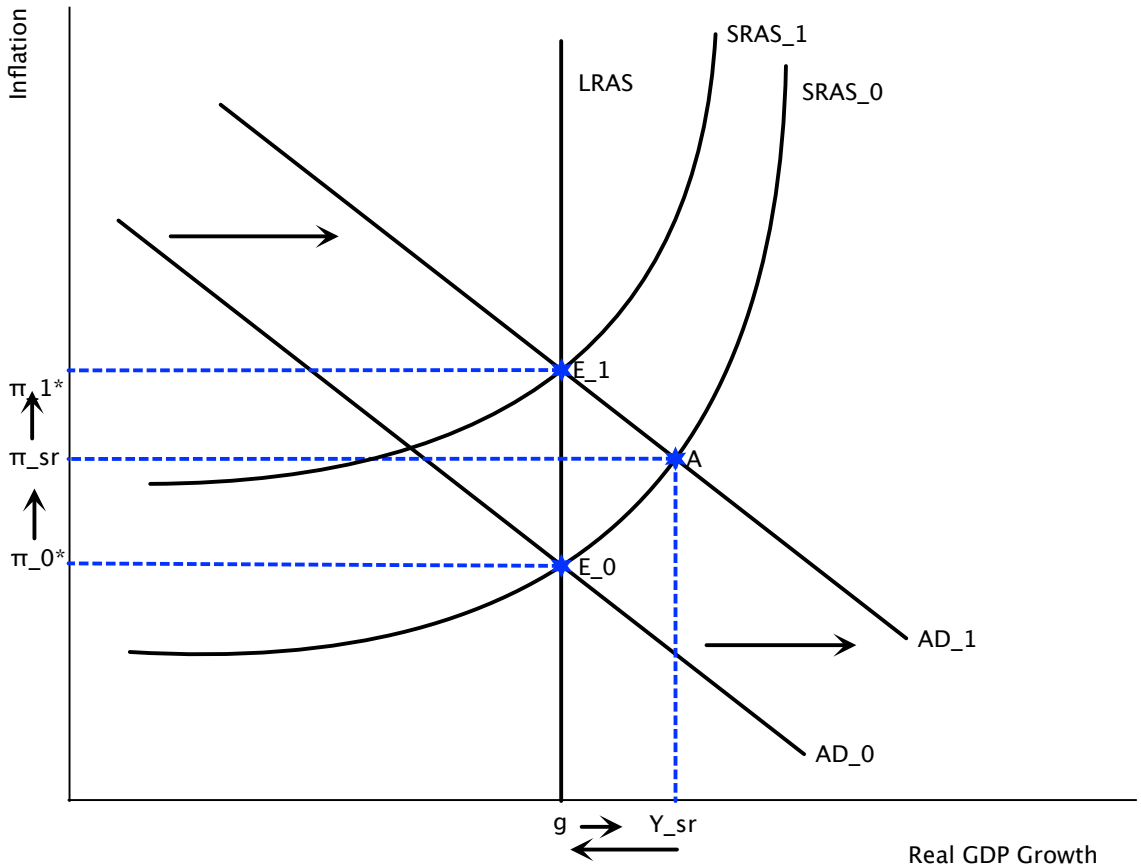

Figure: AD Shock

AS-AD

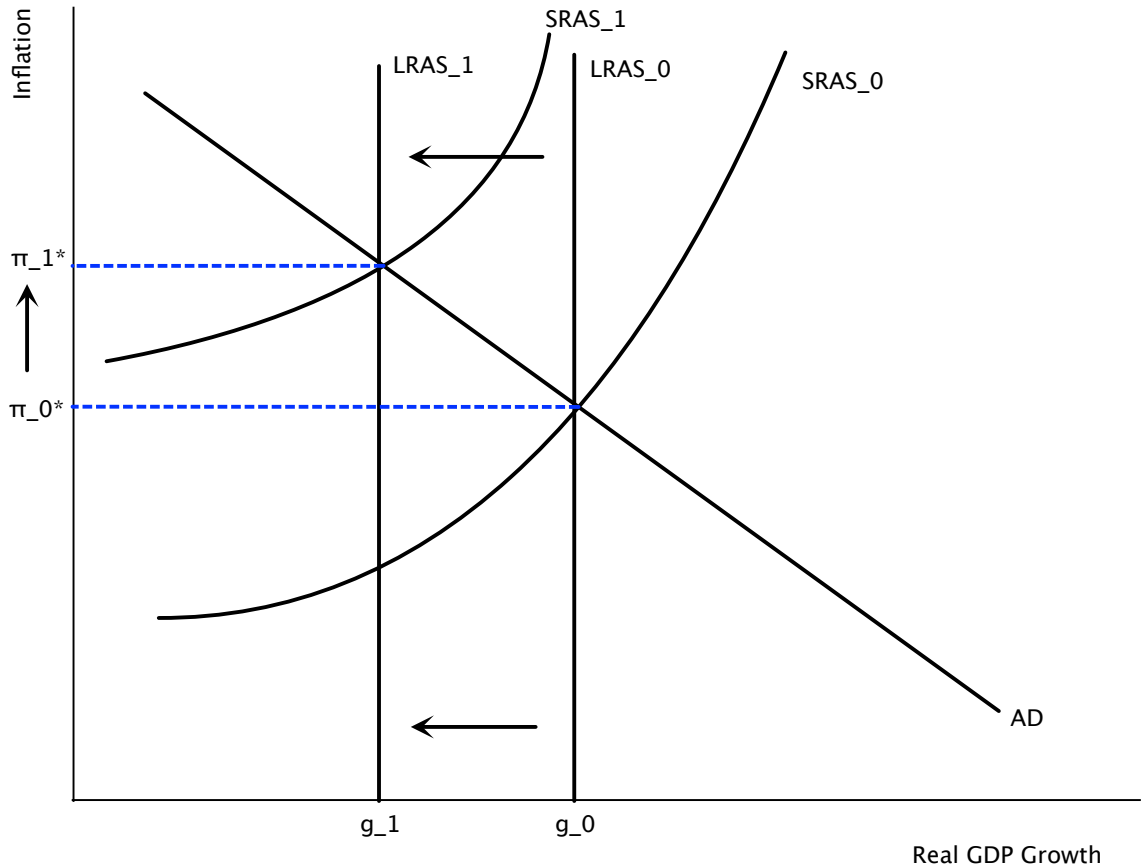

Figure: Real Shock

AS-AD

Example

Suppose an economy experiences a permanent drop in consumption growth due to declining consumer confidence. How does this change in consumption growth affect the inflation rate and the real GDP growth rate in the short run? In the long run?

AS-AD

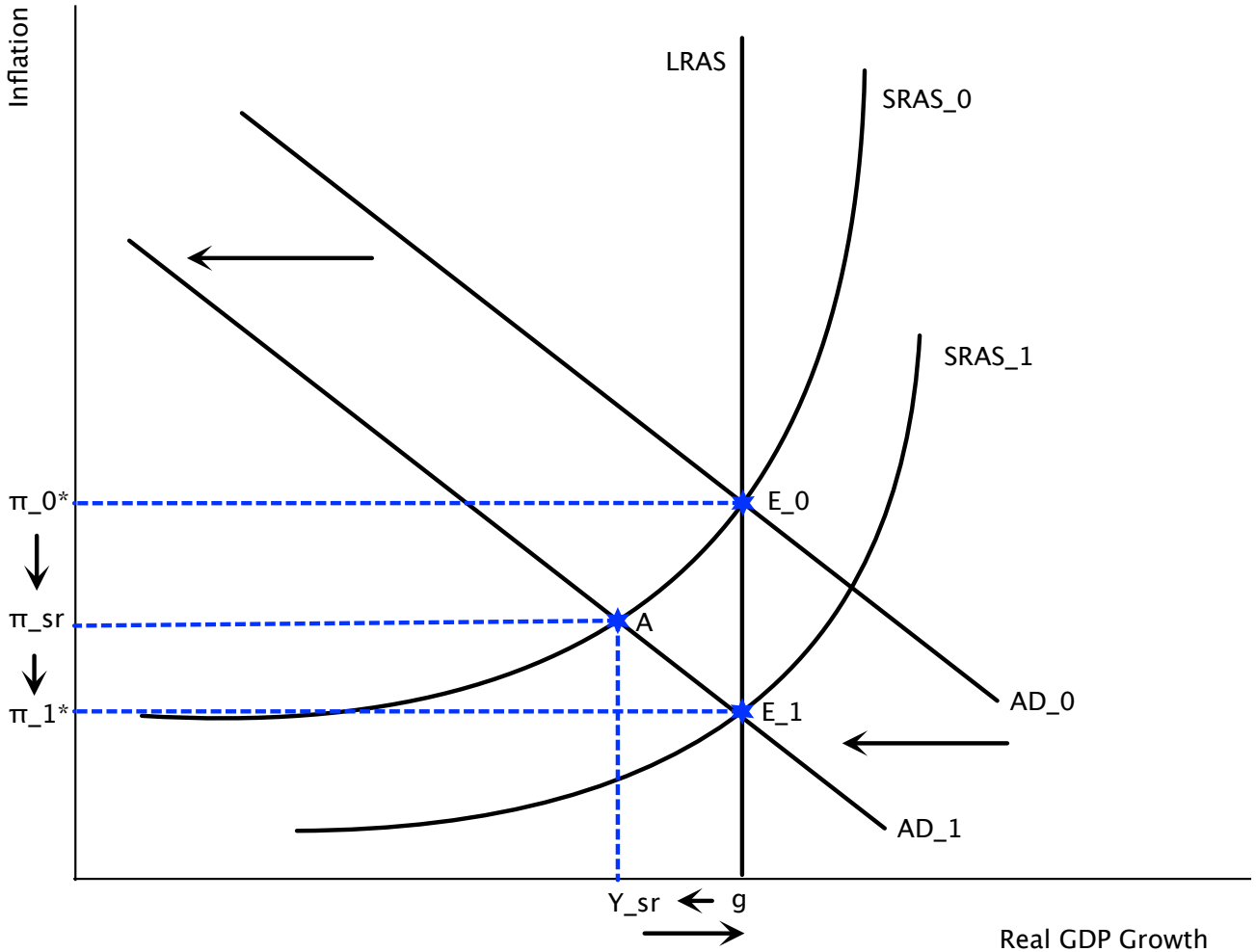

Figure: Example

Readings and Assignments

- Today: Mankiw Ch. 33
- Next time: Mankiw Ch. 34
- Problem Set 6, section 3