CHAPTER 14

Aggregate Demand and Aggregate Supply

Purpose of chapter 14

- In this chapter we return to the market for goods and services
- Real GDP fluctuates, usually growing but at uneven rates
  - occasionally falling
- The AD-AS model determines equilibrium real GDP and explains its fluctuations

3 key facts regarding economic fluctuations

- # 1 real GDP has its ups and downs that comprise the business cycle, but this cycle is not regular (like the seasons)
  - We had experienced about 15 straight years of growth in real GDP in Canada
    - That streak ended in 2008
    - It might resume in 2010
  - Recession = period of contracting real GDP and rising unemployment
  - Depression = a very severe recession

- # 2 many macroeconomic aggregates move together, although not necessarily by the same magnitude
- # 3 As real GDP falls even slightly, unemployment skyrockets
  - I already made this point
  - By mid-2009, the economy had shrunk about 3.5 % points from its peak, but by Feb 2009, the unemployment rate was almost 2 % points higher than its trough

FIGURE 14.1: A Look at Short-Run Economic Fluctuations

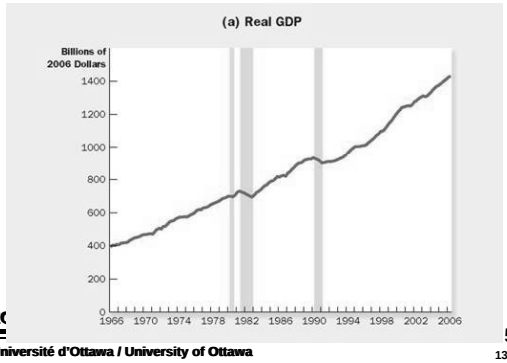


FIGURE 14.1: A Look at Short-Run Economic Fluctuations

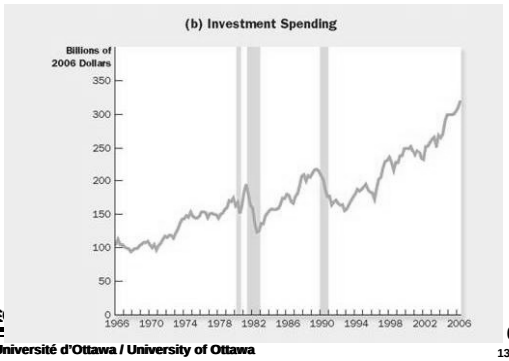
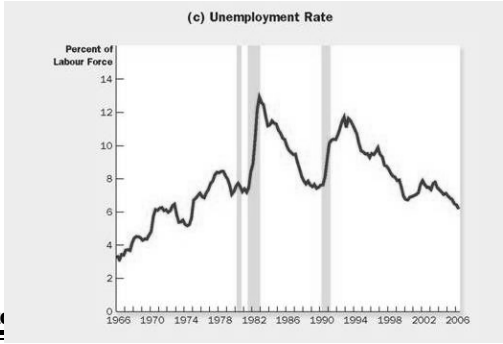


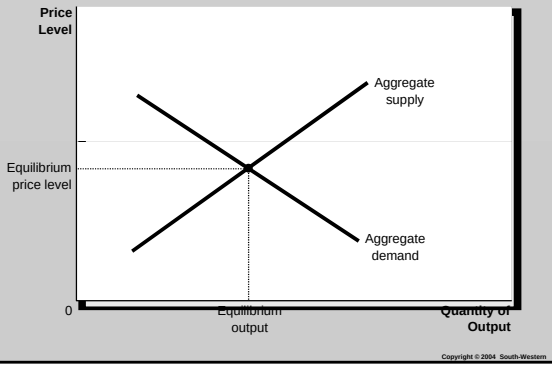
FIGURE 14.1: A Look at Short-Run Economic Fluctuations



Model of AD and AS

- Designed to explain short-run fluctuations in equilibrium real GDP
- Long-run real GDP determined by levels of inputs and productivity
  - Treated in chapter 7
  - The short-run changes around that trend in long-run real GDP is the focus of this model
  - Quite a different approach than the classical approach
    - Dichotomy of the real versus the money sector
    - Neutrality of money

Figure 14.2 Aggregate Demand and Aggregate Supply...



- Note that it does generate an equilibrium value for the composite price level P and the aggregate output level – real GDP
- Somewhat analogous to supply and demand model at the microeconomic level, but the foundations are different
- The aggregate demand curve really ought to be called the aggregate expenditure curve

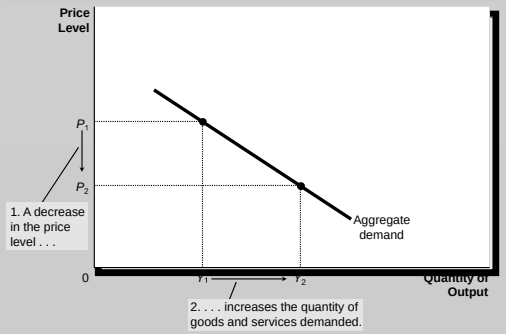
Why does the AD curve have a negative slope? (hard)

- There are 3 different reasons
- If Price ↑ ↓
  - Nothing happens to real GDP, as it is already adjusted for inflation
  - Real wealth ↓ ↑
  - Consumption spending ↓ ↑
  - Equilibrium GDP = C + I + G + NX ↓ ↑

- Where did we start and end this process?
  - If P ↑ equilibrium real GDP ↓
  - If P ↓ equilibrium real GDP ↑
  - There is the negative slope
- This shows two points on the AD curve
  - Figure 14.3
- This is called the wealth effect
  - There is a strong negative wealth effect occurring right now in the US economy, as house prices plummet, so does consumer wealth, and so does C

- Now for another reason
- If Price ⇕
  - Real exchange rate appreciates (depreciates)
  - Net export spending ⇕
  - Equilibrium GDP ⇕
  - This is the real exchange rate effect
- Interest rate effect mentioned in the text is hard

Figure 15.2 The Aggregate-Demand Curve...



Interpretation of AD curve

- AD gives the *functional* relationship between P and real GDP
  - This relationship is negative
  - All of the points are hypothetical
  - Tells NOTHING about Y (REAL GDP) that actually prevails

Shifts in the AD curve

- Any factor except price which causes an increase in expenditure (I , X, G, C ⇑) will shift AD curve to the right ⇒
  - These are increases in injections
- Any factor except price which causes a decrease in expenditure (I , X, G, C ⇓) will shift AD curve to the left ⇐
  - These are decreases in injections

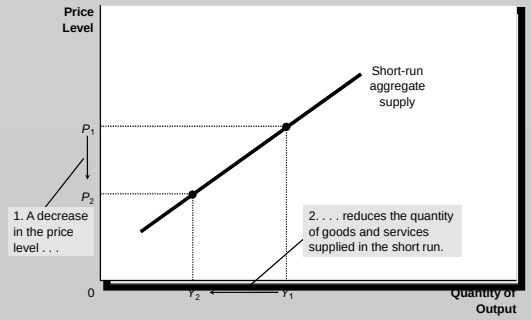
- Any factor *except* price which causes (negative) expenditure to decrease (Im, T, S ⇓) will shift AD to the right
  - These are decreases in withdrawals
- Any factor *except* price which causes (negative) expenditure to increase (Im, T, S ⇑) will shift AD to the left
  - These are increases in withdrawals

- Interpretation of shifts
  - If an injection increases or a withdrawal decreases
    - At each possible price level, there is a higher level of expenditure than before
  - If an injection decreases or a withdrawal increases
    - At each possible price level, there is a lower level of expenditure than before
- Any change in P means move along the AD curve.

Aggregate Supply

- 2 types
  - Short-run (SRAS)
  - Long-run (LRAS)
- This distinction is HARD!
- The interpretation of this curve: the set of all combinations of P and GDP that firms are willing to produce

Figure 14.6 The Short-Run Aggregate-Supply Curve



Why the SRAS curve has an upward slope (hard)

- Just focus on the 'sticky-wage' theory
- Along any short run aggregate supply curve, physical productivity and input prices are held fixed.
- As P ⇑⇓ it's more (less) profitable to produce, so GDP ⇑⇓
- There is a direct relationship between P and GDP (+ slope)

- I think that the textbook's treatment on pages 339-342 is MUCH more complicated than necessary
- Warning: Do not ever shift an AS curve due to a change in P

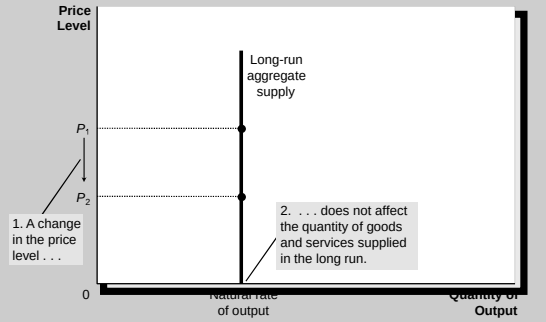
Shifts in SRAS curve

- If productivity falls, and/or if input levels fall, and/or input prices rise, shift SRAS to the left
- If productivity rises, and/or input levels rise, and/or input prices fall, shift SRAS to the right

Long run AS

- Is vertical in P-GDP space at 'the natural rate' of output where production factors are fully employed
- The vertical form implies that there is no mathematical relationship between the two variables

Figure 14.4 The Long-Run Aggregate-Supply Curve



Why is the LRAS vertical?

- The long-run equilibrium level for real GDP depends on the factor endowments of land, labor, capital, and the technology of production, which have nothing to do with the price level
  - Same thing as the neutrality of money theory, which is essentially the same thing as the classical dichotomy
- Mathematically, this means no relationship between P and the natural rate of output.

Shifts in the LRAS curve

- Natural rate of output also called potential GDP
- This is thought to be the long-run equilibrium for real GDP
- Same factors cause the LRAS to shift as the SRAS, except for changes in wages

- LRAS will expand (contract), and the curve will shift to the right (left), if there is an increase (decrease) in any of the endowments of the factors of production, or if there is an improvement (deterioration) in the technology of production
- This thankfully, is exactly what occurs in Canada almost every year.
  - The productive capacity of the economy expands
  - See figure 14.5

Equilibrium

- In equilibrium AD = SRAS, which means that the planned expenditures of consumers, investors, etc. are consistent with the production plans of firms at the equilibrium P.
  - Anywhere else and there is an imbalance, and we would expect a price adjustment.
- The intersection of the 2 curves

Short-Run Equilibrium

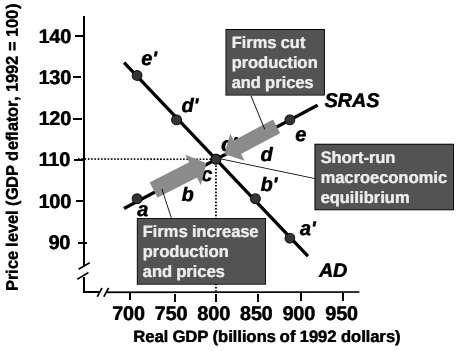
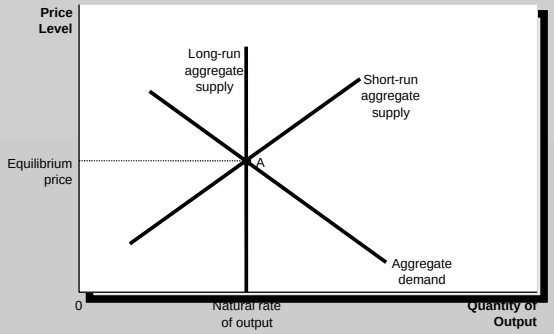


Figure 14.7 The Long-Run Equilibrium



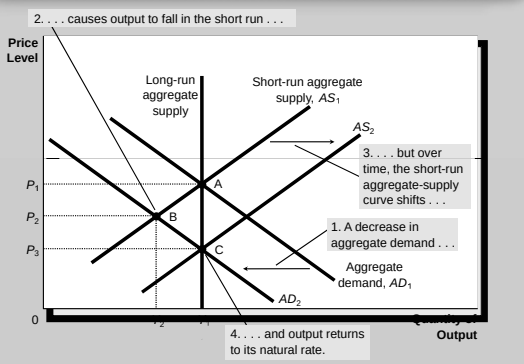
Applications of the AD-AS model: macroeconomic shocks

- Each time we will start at LR equilibrium, which means potential GDP
- AD shocks take the form of shifts in AD curve
- AS shocks take the form of shifts in SRAS curve

Case of a negative shock to AD

- Suppose a contraction in AD, due to a stock market crash or a major terrorist attack
  - Right now, a HUGE negative shock to AD caused by clogged-up, dysfunctional credit markets
- At each possible price level, spending goes down, so AD
- Equilibrium P, Q
- Economy enters a recession

Figure 14.8 A Contraction in Aggregate Demand

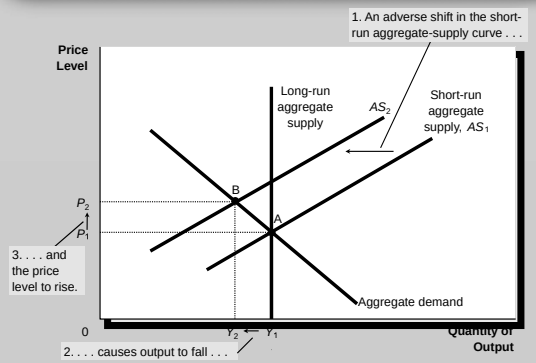


- Due to hard times, after a long adjustment period, there is downward pressure on wages
- This causes SRAS
- Equilibrium P Q
- Eventually, the recession ends, and real GDP grows back to its natural rate
- Read pages 348-351, which is the case study and is good stuff

Case of a negative shock to AS

- Suppose a contraction of SRAS, due to an energy price shock
  - 2008 in the US
  - Opposite case in 2009
- At each possible price, production costs rise, causing SRAS
- Equilibrium P, Q
- Called stagflation

Figure 14-10 An Adverse Shift in Aggregate Supply



- One way to remedy the situation is for the government to cause an increase in AD
- AD ⇒
- Equilibrium P ↑ , Q ↑
- End up with even higher prices than before, but the economy is back to its natural rate of output
- Read case study on pages 353-356

Figure 14.11 Accommodating an Adverse Shift in Aggregate Supply