Keynes and IS-LM analysis

(Chapter 33 in Mankiw and Taylor)
Short-run fluctuations

- The next four lectures will cover different aspects of macroeconomic policy, in particular, the role of fiscal and monetary policy.
- The framework for analysing the effects of these two policies is developed through a series of steps leading to the model of aggregate demand and aggregate supply.
Keynes and the short run

- 1936: *The General Theory of Employment, Interest & Money*
- Attempted to explain short-run economic fluctuations in general and the Great Depression in particular
- Keynes’ primary message was that recessions and depressions can occur because of inadequate aggregate demand for goods and services
- Keynes had long been a critic of classical (long run) economic theory because it could explain only the long-run effects of policies
  - “In the long run we are all dead”
Keynes’ message for policymakers

- As the world's economies suffered with high unemployment, Keynes advocated policies to increase aggregate demand, including government spending on public works.
- Keynes argued for the necessity of short-run interventions in the economy.
- Such intervention could lead to improvements in the economy that would be beneficial rather than waiting for the long run equilibrium to establish itself.
Keynesian economics: alive and well?

• The focus on monetary and supply-side policy as the main ways of controlling the economy had largely consigned Keynesian demand management to the economic history books.

• However, the financial crisis and subsequent recession of 2007 – 09 has reignited the debate about the role of Keynesian economics in macro policy.
  
  – e.g. see Paul Krugman: “Keynes was right”

  http://www.nytimes.com/2011/12/30/opinion/keynes-was-right.html?_r=1
The Keynesian cross

- Classical economics relies on market efficiency and markets clearing
- At the macro level means that, if in disequilibrium, wages and prices would adjust to restore equilibrium at full-employment
- So any unemployment is voluntary
- Keynes distinguished between **planned** *(ex ante)* and **actual** *(ex post)* spending, saving and investment
Differences between planned and actual behaviour

• Can explain why equilibrium real GDP might not coincide with full employment

• Wages and prices might not adjust in the short run (more on this later) and so the level of demand in the economy could be inadequate

• Explains mass unemployment, which can’t all be voluntary, surely?
The Keynesian cross: Circular flow of income

- Income equals expenditure
  \[ Y = C + I + G + NX \]

- In equilibrium, planned expenditure \( E = C + I + G + NX \) equals national income \( Y \) on the 45° line

- But \( E \) could be less than full employment income, \( Y_f \)
  - a deflationary gap. At this less of demand, there is spare capacity and unemployment will rise

- Or \( E \) could be greater than \( Y_f \): an inflationary gap

- As we shall see, government policy can eradicate these gaps
The Multiplier Effect

- £1 of government expenditure raises aggregate demand by more then £1
  - Expansionary fiscal policy increases income and thereby increases consumer spending, which increases income, and so on...
  - Investment may also increase due to the increased demand: the *investment accelerator*
A formula for the spending multiplier

- **Marginal Propensity to Consume** (MPC) is the fraction of extra income that a household consumes rather than saves.

- Multiplier = 1 + MPC + MPC² + MPC³ + ...

- This multiplier tells us the demand for goods and services that each pound of government purchases generates.
  - This is an infinite geometric series.

- Multiplier = 1/(1– MPC) = 1/MPS

- The larger the MPC (the smaller the *Marginal Propensity to Save, MPS*) the greater is the induced effect on consumption and the larger is the Multiplier.
  - Witness the current fiscal debate in the UK.
The multiplier effect

- The multiplier shows how the economy can amplify the impact of changes in spending.
- But an extra £1 is not simply spent or saved. There are other Withdrawals (W) from the circular flow:
  - Government taxation and spending on imported goods.
  - These are endogenous, since they depend on Y.
- Injections (I, G and X) are exogenous since they don’t depend on Y.
- Multiplier = \(1/(\text{MPS}+\text{MPT}+\text{MPM})\).
- Autonomous expenditure is spending which does not depend on income.
The Keynesian cross: the economy in short run equilibrium

- In equilibrium planned withdrawals would equal planned injections:
  - Planned $S + T + M = $Planned $I + G + X$

- If planned withdrawals > planned injections the economy will contract (Y will fall) until equilibrium holds again, at a lower Y

- To prevent this demand deficiency, the government could inject extra spending by running a deficit and use monetary policy

- In equilibrium, planned Expenditure $C+I+G+NX$ equals actual income, $Y$. This is equilibrium in the goods market
• The expenditure line is steeper in Panel (b), as the multiplier is higher
• i.e. the Marginal Propensity to Withdrawal is lower
• An increase in G (an increase in *autonomous expenditure*) therefore has a greater effect on Y in panel (b) than in Panel (a)
Towards IS-LM theory

- Need equilibrium in the money market too
  - For a general equilibrium (GE)

- Already seen that the intersection of money demand and supply of real money balances determine this equilibrium

- What links the goods and money markets is the interest rate (via the liquidity preference theory of interest rates)
  - John Hicks developed Keynes’ ideas into IS-LM
  - Contentious theory!
    - Not taught on some undergraduate programmes
IS and LM analysis

• Investment Saving (IS)
  – Shows equilibrium points between the interest rate and the level of income in the goods market
  – Derived from Keynesian cross diagram
  – A fall in interest rates leads to Y increasing
    • Degree depends on sensitivity of C and I to r
  – Rightward shifts in the IS curve are due to autonomous increases in expenditure
The Keynesian cross diagram and the IS curve
LM curve

- Liquidity Money (LM)
  - Shows points where the money market is in equilibrium
• LM curve derived from money supply and money demand in panel (a)
• Increases in income, Y, increase money demand and cause the interest rate to rise
• LM curve shifts when the central bank changes monetary policy
IS-LM model

- Intersection of IS and LM curves is the GE at a particular interest rate and level of income
- At this point, planned expenditure equals actual expenditure (E=Y) and money demand=money supply
- Details of this model are deferred to higher level courses in macro
- But, in the meantime, we can and should detail the effects of fiscal and monetary policy
Fiscal policy

- To boost economic activity, suppose the government increases expenditure or cuts taxes
- This increase in autonomous expenditure shifts the IS curve to the right
  - National income rises, but so too do interest rates
  - Size of effects depends on Marginal Propensity to Withdrawal
• Panel (a): The effects of looser fiscal policy

• Panel (b): The effects of looser monetary policy
Monetary policy

• If the central bank conducts OMOs and increases the money supply the LM curve shifts to the right
  – Delivers a lower interest rate and a higher national income

• Can readily see that monetary and fiscal policy need to work in tandem
  – e.g. the rise in interest rates following the fiscal increase could be offset by the central bank increasing the money supply and moving the LM curve
  – Also effects of policy depend on slopes of IS and LM curves. This is what politicians argue about and econometricians seek to quantify
From IS-LM to Aggregate Demand

• We will study the Aggregate Demand and Aggregate Supply model in the next lecture

• Aggregate Demand curve plots the relationship between national income and the price level

• If prices increase, in the IS-LM model, this causes the LM curve to shift to the left, as the supply of *real money balances* has fallen
  – Causes interest rates and national income to fall
  – So AD is downward sloping in P,Y space
Problems with IS-LM

- Limited microeconomic foundations
- Central banks don’t control the money supply (although they did try in the 1980s) but the interest rate
- But changes in the interest rate are affected by OMOs – and therefore the money supply
- In IS-LM the money supply is assumed exogenous, when in reality it depends on the inflation target and output (the “monetary policy reaction function”)
  - i.e., central banks manipulate the interest rate to target inflation – 2% target in the U.K.
  - Effects of monetary policy depend on the degree of “price stickiness” (how and whether M/P changes etc.) and inflationary expectations