Keynes and the multiplier

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Reading

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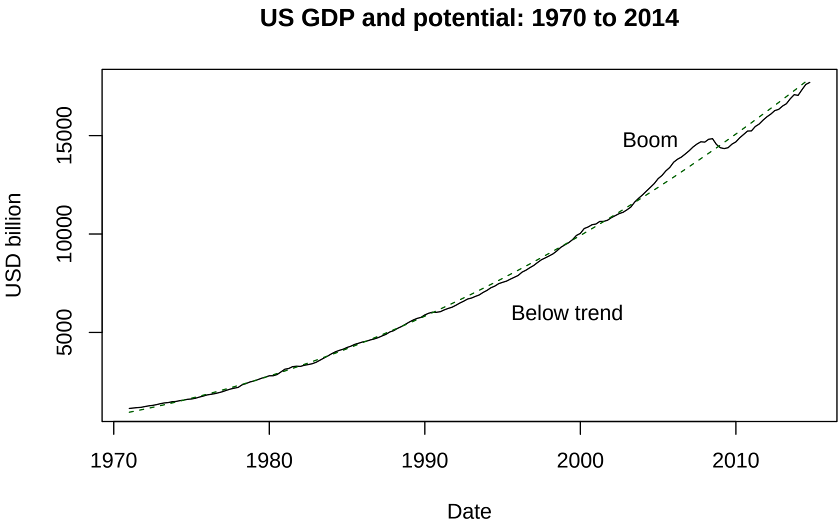
- Chapter 30: Short-run economic fluctuations
- Chapter 31: Keynesian Economics (p655 - 664 only)

Long-run and short-run

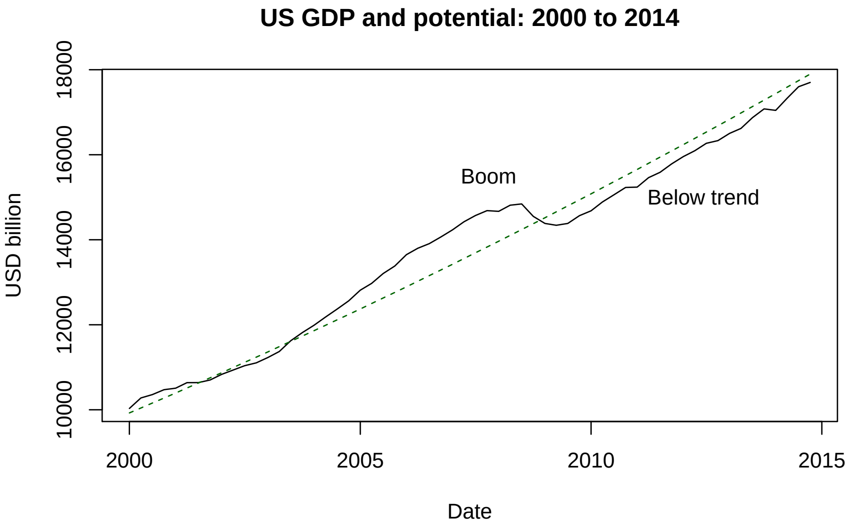
It is usual to distinguish between the long-run growth and short-run fluctuations around the trend

- **Long-run** determined by factors of production and the way that they are combined to create goods and services
  - Efficiency
  - Flexibility
  - Innovation and imagination
  - New Resources
- **Short-run** determined by fluctuations in aggregate demand
  - Boom and bust
  - Expansion, recession (2 quarters of negative growth)

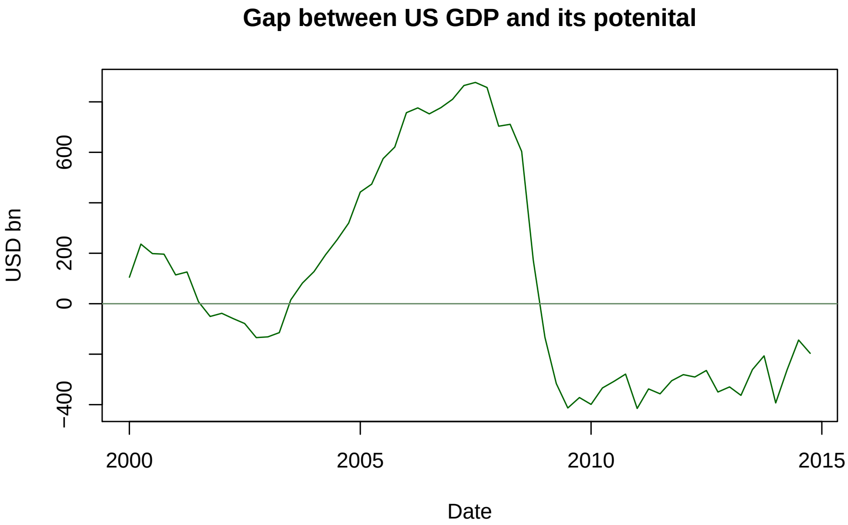
GDP growth and its potential 1



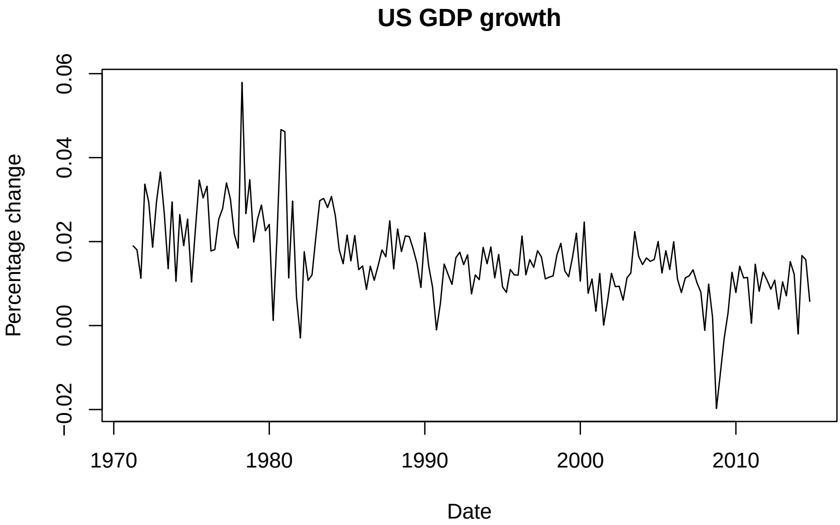
GDP growth and its potential 2



Output gap


Gap between US GDP and its potenital
USD bn
600
200
0
−400
2000
2005
2010
2015
Date

GDP growth


US GDP growth
Percentage change
0.06
0.04
0.02
0.00
−0.02
1970
1980
1990
2000
2010
Date

The business cycle

There are a number of explanations for the business cycle

- Household decisions
- Firm decisions
- Government decisions
- External decisions
- Confidence and expectations

Business cycle models

- Supply side (new classical)
- Keynesian model
- Real business cycle

Keynesian economics

> *The long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past, the ocean will be flat*

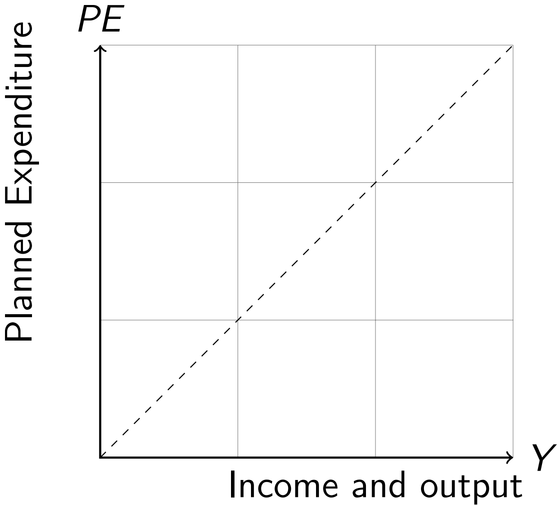
J.M. Keynes

Keynesian concepts

There are a number of key Keynesian concepts

- Planned spending, saving or investment
- Actual spending, saving or investment
- Autonomous spending or expenditure
- Inflationary, deflationary or output gap
- Equilibrium (not Keynesian)

Keynesian cross 1



- 45 degree is equilibrium
- Planned spending = income and output

Keynesian cross 2

In a closed economy with no government

- $PE = C + I$
- I is an *exogenous* variable that is determined by interest rates and business confidence
- C is a *endogenous* variable that partly determined by income (Y)
- MPC is the *Marginal propensity to consume*
- Assume that MPC is 0.8

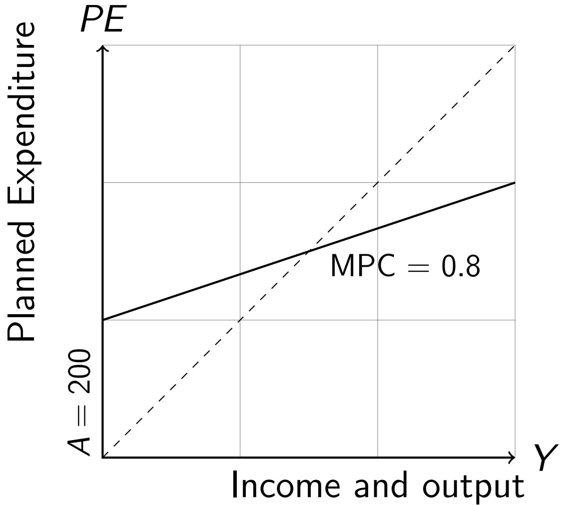
Consumption function

How is consumption determined?

$$C = A + MPC \times Y$$

Where A is *autonomous consumer spending*

Keynesian cross 3



- $PE = A + MPC \times Y$
- Assume A = 200
- A is the intercept
- MPC is the slope

Finding equilibrium

For equilibrium

$$
\begin{aligned}
Y &= PE \\
PE &= 200 + 0.8Y
\end{aligned}
$$

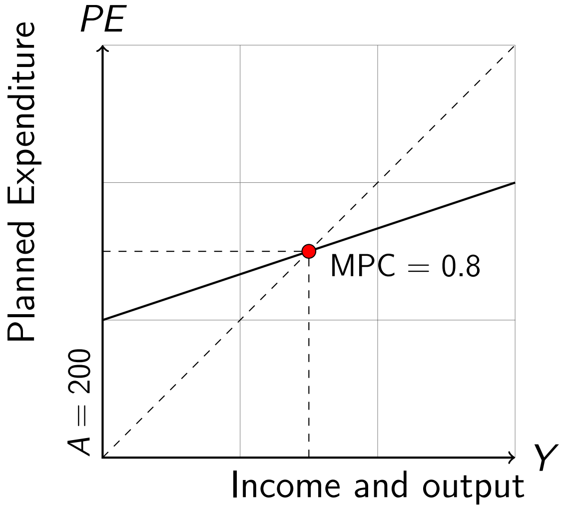
This is the point where the two lines meet

Finding equilibrium 2

Substitute Y for PE

$$\begin{aligned} Y &= 200 + 0.8Y \\ Y - 0.8Y &= 200 \\ Y(1 - 0.8) &= 200 \\ Y &= 200/1 - 0.8 \\ Y &= 1000 \end{aligned}$$

Keynesian cross 4



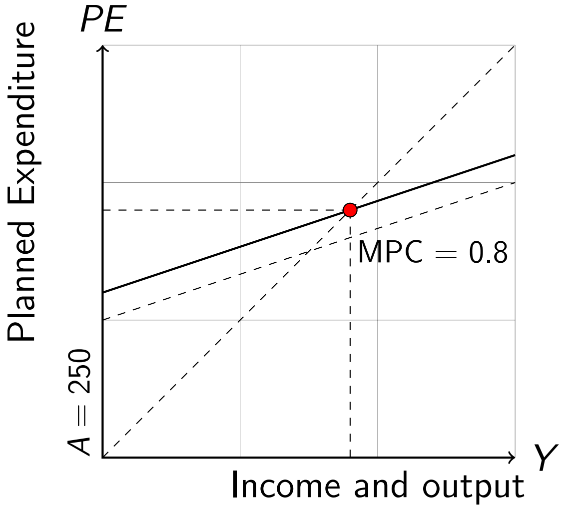
- Equilibrium where PE = Y
- This is where Y is equal to 1000

Adding business investment

If business investment is added

- It is assumed to be exogenous and therefore not affected by Y
- Let $I = \$50m$
- Now $PE = 200 + 0.8Y + 50$
- Or $PE = 250 + 0.8Y$
- This is a parallel shift to previous line

Keynesian cross 5



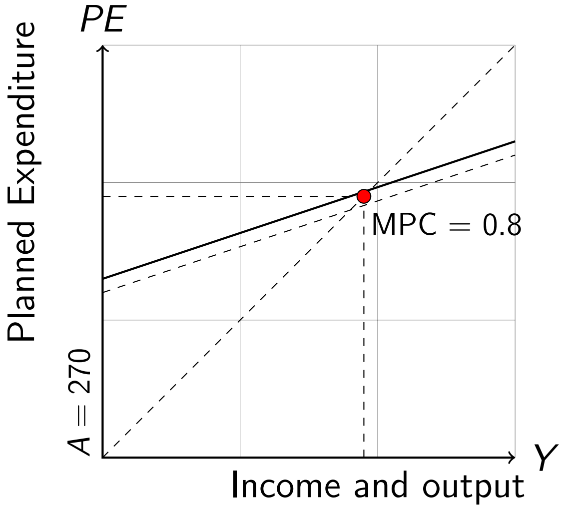
- There is a parallel shift in the PE function
- A is now $200 + 50 = 250$
- MPC and slope remains 0.8

Adding government spending

If government spending is added

- It is assumed to be exogenous and therefore not affected by Y
- Let $G = \$20m$
- Now $PE = 250 + 0.8Y + 20$
- Or $PE = 270 + 0.8Y$
- This is a parallel shift to previous line

Keynesian cross 6



- There is a parallel shift in the PE function
- A is now $250 + 20 = 270$
- MPC and slope remains 0.8

For You

- Equilibrium was £1000 when there was just consumer spending
- What is the equilibrium when business investment is added?
- What is the equilibrium when government spending is added?
- What is the relationship between an increase in autonomous spending and equilibrium output, income and expenditure?

Influence on aggregate demand

What are the main factors influencing each component

- Consumer spending
- Business investment
- Government spending
- Next exports

Try to put these into an equation.

The circular flow

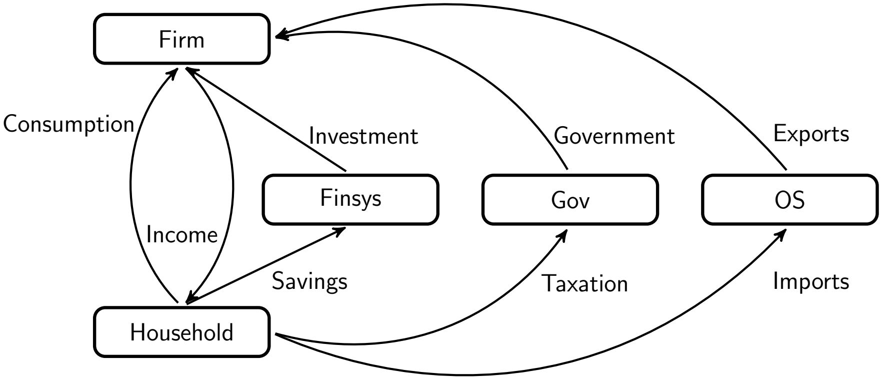


Figure: Circular flow of income

Phillips' machine

The multiplier 1

An increase in autonomous spending (Business investment or government) will *multiply* through the economy.

$$\Delta Y = A + MPC \times A + MPC^2 \times A + MPC^3 \times A \ldots$$

This is equivalent to

$$\Delta Y = \frac{A}{1 - MPC}$$

The multiplier 2

MPS is the *marginal propensity to save*

$$1 - MPC = MPS$$

Therefore,

$$\Delta Y = \frac{A}{MPS}$$

Multiplier 3

A £10m increase in autonomous spending (I or G)

$$\begin{aligned}\Delta Y &= \frac{A}{MPS} \\ &= \frac{10}{0.2} \\ &= 50\end{aligned}$$

Leads to a £50m increase in economic activity.

Adding government and overseas

If the government and overseas sectors are added, taxation and imports reduce the power of the multiplier.

$$\Delta Y = \frac{1}{MPC + MPT + MPM} = \frac{1}{1 - \text{Slope of PE}}$$

Where MPT is the marginal propenstiy of tax and MPM is the marginal propensity to import.