# Unemployment and fiscal policy

## BCPM0058: Economics

Dr. Kumar Aniket

Bartlett School of Construction & Project Management

*www.aniket.co.uk/pages/ucl.php*

Lecture 14

# Context

*Investment* is *more volatile than GDP* (Unit 13)

*Consumption* is *less volatile than GDP* (Unit 13)

- Households *smooth their consumption* by borrowing and saving
- If *proportion of credit constrained households increase*, then the *consumption would become more volatile*

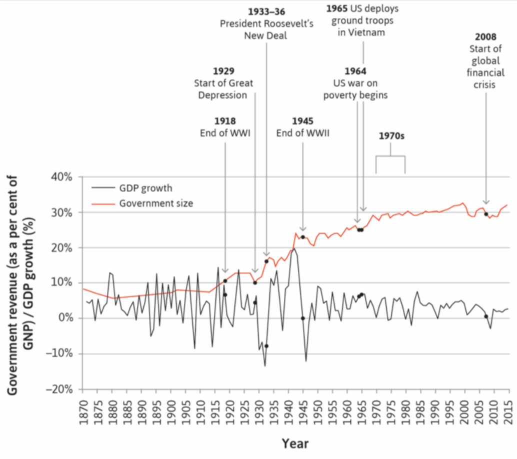
Sometimes *aggregate decisions* of households and firms can *destabilise* the economy. This gives *government* a role.

- How can the *government stabilise* the economy?
- Why might *government* policies be *ineffective*?

How can we model the *link* between *output* and *unemployment*?

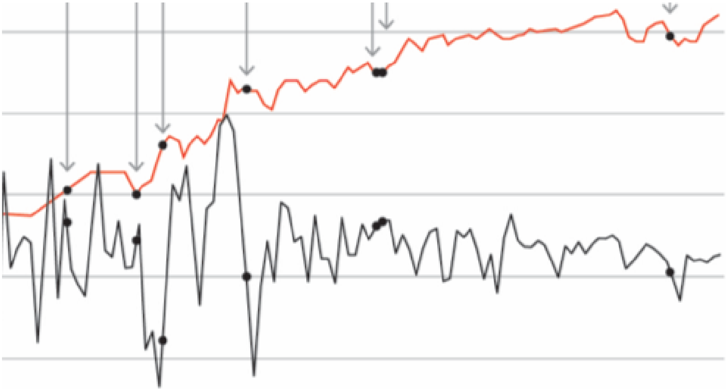
# This Lecture

Use a model of *aggregate demand* to explain how *government spending* can *stabilise* the economy



# This Lecture

*Economic growth* and *change* in *government size*

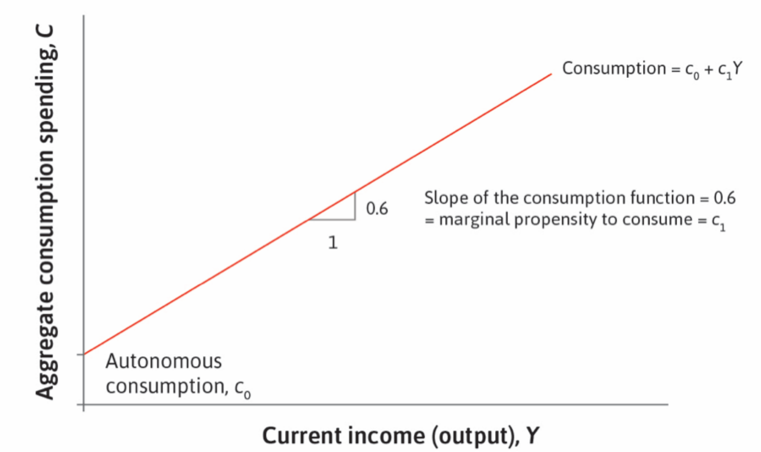


# Consumption function

| | |
|---|---|
| *Aggregate income* | *total income earned* by people in the economy (GDP) |
| *Aggregate consumption* | total consumption by the people of the economy |
| *Consumption function* | $C(Y) = C_0 + c_1 Y$ |
| | *aggregate consumption* $C$ as a function of the *aggregate income* $Y$ |
| $C_0$ *(intercept)* | *Autonomous consumption:* the fixed amount one will spend, independent of income |
| $c_1$ *(slope)* | *Consumption dependent on income:* Slope of consumption function. It is also called the *marginal propensity to consume* (MPC) |

# Consumption Function

Consumption function with *marginal propensity of consumption* of 0.6.



# Consumption function

*Expectations* about future income are reflected in *autonomous consumption*

*Marginal propensity to consume* varies across people:

*poor households* — MPC is large

*current income matters a lot* for current consumption because they are often *credit constrained*

*wealthy households* — MPC is small

*current income matters little* for current consumption

# Aggregate Demand

Important to distinguish between what *income* $(Y)$ and *aggregate demand* $(AD)$ measure.

*Income*
: *income earned* by the people in the economy

  the income in turn determines how much people consume

*Aggregate Demand*
: *total goods demanded* in the economy

  includes consumption, investment, government expenditure and net exports

$AD > Y$ *Excess demand:* people demanding more than economy's output (income)

$AD < Y$ *Deficient demand:* people demanding less than economy's output (income)

# Aggregate Demand

$$AD = C(Y) + I + G + (X - M)$$

| | |
|---|---|
| $AD$ | Aggregate Demand |
| $C(Y)$ | Consumption function of Income |
| $I$ | investment |
| $G$ | government expenditure |
| $X - M$ | net exports |

*Assume for now* $G = 0$

$X - M = 0$

# Goods market equilibrium

Economy's *aggregate demand*

$$
\begin{aligned}
AD &= C(Y) + I \\
&= C_0 + c_1 Y + I
\end{aligned}
$$

*Slope of AD* Consumption is a function of income and investment is independent of income

Slope of AD flatter than 45° because the *marginal propensity of consume* $c_1 < 1$

*Aggregate supply:* available supply of goods & services in economy

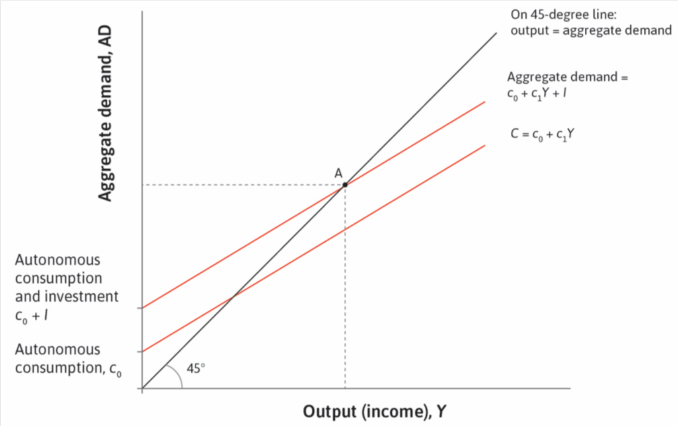
$$Y = Y$$

*Slope of Y* $Y$ is represented by a 45° line.

# Goods Market Equilibrium

*Equilibrium* there is no excess demand or supply

aggregate demand *meets* aggregate supply



# Goods Market Equilibrium

*Goods market equilibrium:* aggregate supply *equals* aggregate demand

$$\begin{aligned} AD &= C(Y) + I \\ &= Y \end{aligned}$$

$AD > Y$ *Excess demand:* people demanding more than economy's output (income)

$AD < Y$ *Deficient demand:* people consuming less than economy's output (income)

To *understand the mechanics* of the model, we *assume that prices are fixed*, i.e., prices of goods don't change in response of either excess demand and excess supply.

# Multiplier process

*Drop in investment* $\longrightarrow$ *fall in aggregate demand*

*excess supply* in the economy

inventories pile up till the *supply decreases*

$\longrightarrow$ lower output and income

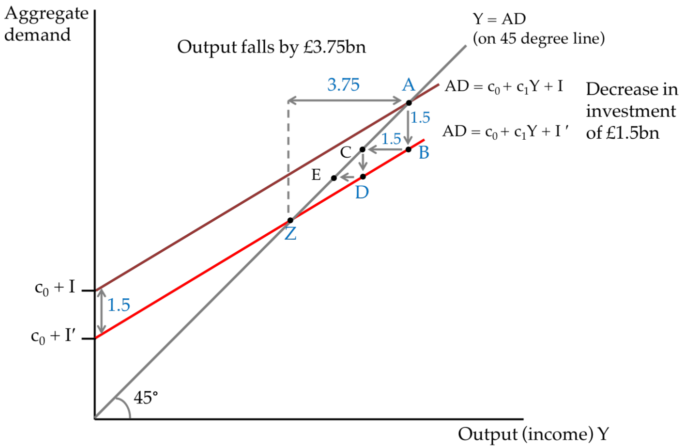
$\longrightarrow$ further *fall in aggregate demand* due to fall income earned by factors of production

*excess supply* in the economy drives down the output till the *supply equals demand*

$\longrightarrow$ new equilibrium (Z)

# Multiplier process

*Drop in investment* leads to *excess supply*. As *supply decreases* it initiates the *multiplier process* and leads to *drop in output* (Z)



# The multiplier effect

*Output change* due to *change* in *aggregate demand*, which is due to change in *investment or* $C_0$

can be *greater* or *lesser* than the initial change

*multiplier process* is due to the *circular flow of expenditure*, *income*, and *output*

$$multiplier = \frac{increase\ in\ GDP}{increase\ in\ spending}$$

*Multiplier* represents the relative magnitude of this change.

$multiplier = 1$ $\quad$ $increase\ in\ GDP = increase\ in\ spending$

$multiplier > 1$ $\quad$ $increase\ in\ GDP > increase\ in\ spending$

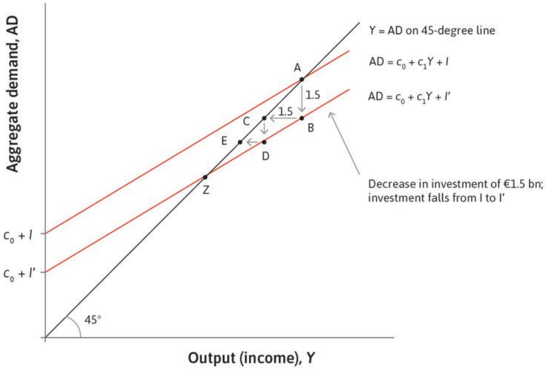
$multiplier < 1$ $\quad$ $increase\ in\ GDP < increase\ in\ spending$

# MPC & Slope of AD

*Smaller the MPC* the *flatter the AD*

the *smaller the drop in output* due to *AD shock*

*smaller the multiplier*



# Wealth and Income

*Stock* accumulated quantity existing at that point

*Flow* quantify flowing per unit of time, say a year

*Income* *flow* of earnings going to factor of productions in lieu of their services

*Consumption* output *flow* consumed

*Savings* output *flow* not-consumed

*Wealth* *stock* of assets accumulated from flow of savings

*wealth* can be drawn down in case of crisis serving as a *self-insurance* mechanism

# Precautionary Savings

*Target wealth* — the level of wealth that a household aims to hold, based on its economic goals and expectations

wealth is just accumulated past savings

*Precautionary saving* — an increase in saving to restore household wealth to its target level

this is because household wealth is a *self-insurance* mechanism can tide over households in case of crisis

Need for *precautionary savings* when an *unexpected crisis looms* in foreseeable future

# Wealth Effects

*Consumption* $C = C_0(w) + c_1 Y$

assume household wealth $w$ just impacts autonomous consumption $C_0$

*Savings* $S = Y - C = Y - C_0(w) - c_1 Y$

*Fall in expected earnings* household would find it difficult to reach target wealth level

increases *precautionary savings*

by cutting autonomous consumption $C_0$ to restore target wealth

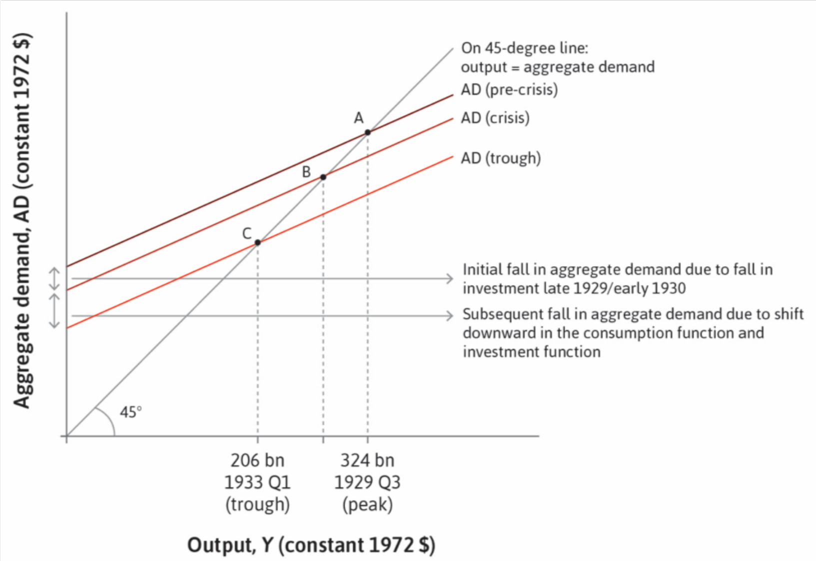
*endogenous shock* shifts down aggregate demand *AD*

*multiplier process* reduces economy's output $Y$

# Great Depression

| | |
|---|---|
| *Initial shock* | fall in investment |
| | Decrease in aggregate demand (AD shifts) |
| *multiplier process* | decrease in output |
| *Okun's law* | increase in unemployment |
| | future looked uncertain for the households due to increased probability of unemployment in future |
| | household increased precautionary savings |
| *endogenous shock* | further drop in aggregate demand (AD shift) |
| *multiplier process* | decrease in output |
| *Okun's law* | further increase in unemployment |

# Great Depression



# The Great Depression

$A$ goods market equilibrium (1929)

$B$ fall in investment

downward shift of AD

$C$ uncertainty due to stock market crash, pessimism, banking crisis and collapse of credit

fall in autonomous consumption

further downward shift of AD

# AD's Slope & Consumption Smoothing

*AD's slope* *credit constraints* and *consumption smoothing* is reflected in size of the multiplier

and the slope of the AD curve

Greater the ability to *smooth consumption*

- the less sensitive consumption is to current income because it determined by *wealth* (income over the lifetime)
- the lower the marginal propensity to consume
  - the flatter the AD curve
  - the smaller the multiplier

# AD's Intercept & Consumption Smoothing

*AD's intercept*

*consumption decisions* can shift the AD curve

e.g. a fall in house prices will be bad news for a household with a mortgage.

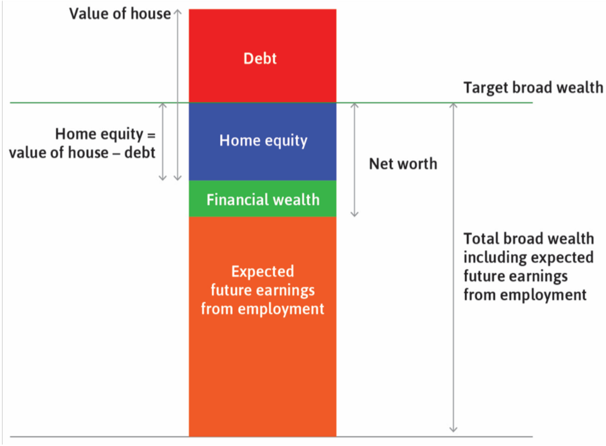
They may choose to save more (precautionary saving) and

their autonomous consumption would fall.

# Target Wealth

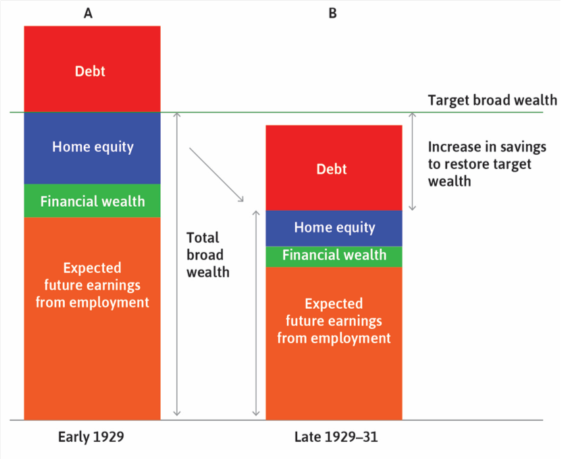
*Broad wealth* is broad assets *minus* debt

*Wealth* can be hit by various types of *exogenous* and *endogenous* *shocks*



# Precautionary saving

Increase in *precautionary savings* in response to *drop* in *home equity* & *expected earnings*



# Consumption and the housing market

*Changes in house prices* affect consumption through two channels

*Home-equity channel*
- *lower house value* reduces household wealth
- *increases precautionary savings* and reduces consumption

*Credit-constraint channel*
- *lower house value* makes it more difficult to borrow
- *greater credit constraint* for the household
- inability to *smooth consumption*
- consumption more *sensitive* to current income

# Investment

*Aggregate investment function:* investment spending in the economy as function the following variables:

*Interest rate* — *Investment increases* as

*interest rates* decrease

*Shift factors* — *Investment increases* as

*profit expectations* (net return on investment) *increases*

*business environment improves* or *risk of expropriation* by the government *decreases*

…*property rights* (Unit 5)

# INVESTMENT AND $r$

| | |
|---|---|
| $\rho$ | Firm owners' discount rate |
| $r$ | Interest rate on assets in the economy |
| $\Pi$ | Net return on investment in firm |

Firms' decision about what to do with profits

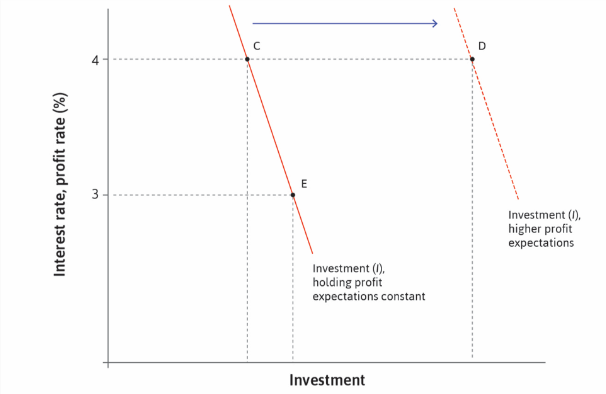
| | |
|---|---|
| $r > \rho \geqslant \Pi$ | *High interest rate:* *save* the extra income and earn high $r$ on it *or repay debts* to avoid paying high $r$ |
| $\rho > r > \Pi$ | *Medium interest rate:* *Consume* the extra dividend income |
| $\Pi > \rho \geqslant r$ | *Low interest rate:* *Invest* in the firm |

A lower *interest rate* makes *investment* more likely.

# Aggregate Investment Function

In practice, *investment* is *not very sensitive to interest rate* and *shift factors are more important*.

…*Coordination problem in investment* (Unit 13)



# AD: Government and net exports

$$AD = C_0 + c_1(1-t)Y + I + G + (X-M)$$

| | |
|---|---|
| $G$ | Government spending or *government purchasing power* |
| $T = tY$ | *Taxes* collected by government |
| $(1-t)Y$ | Disposable income or *private purchasing power* in the economy |
| $G - T$ | Government's primary *budget deficit* |
| $G = T$ | $AD = C + I + (X-M)$ |
| | $G$ and $T$ only matters if $G \neq T$ |

# AD: Government

$$AD = C_0 + c_1(1-t)Y + I + G + (X-M)$$

$G - T$ Government's primary *budget deficit*

*financed* by selling bonds (government debt)

in effect the government finances its primary budget deficit by *borrowing* from bondholders (citizens)

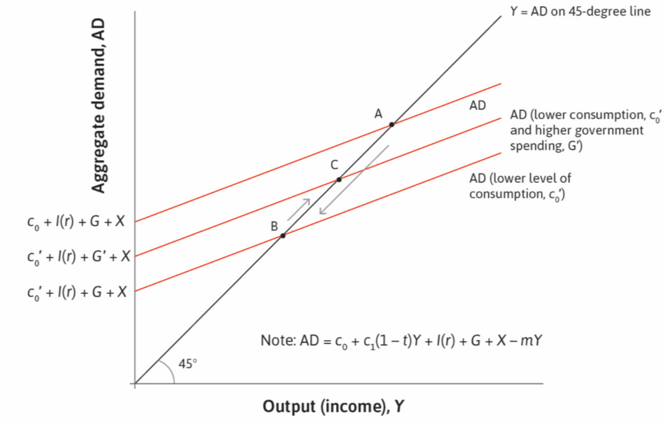
$(G-T)\uparrow$ *Fiscal stimulus:* Increase in aggregate demand, *AD shifts up*

$(G-T)\downarrow$ *Fiscal contraction:* Decrease in aggregate demand, *AD shifts down*

# Counteracting Aggregate Demand Shock

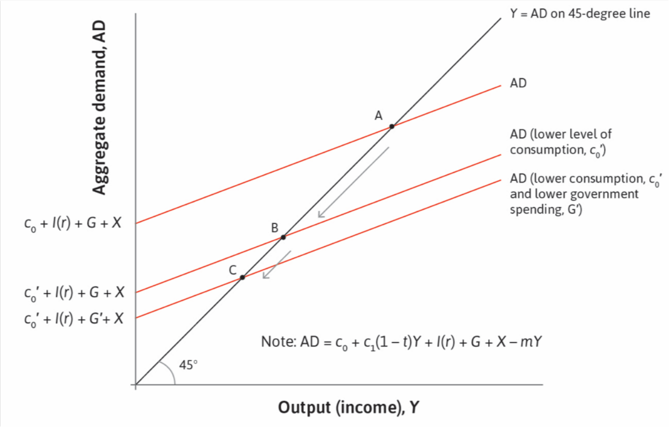
*Initial shock* government expects a fall in $C_0$ , *AD shifts down*

*Stabilisation* government $(G-T)\uparrow$ in response, *AD shifts up*



# Austerity

| | | |
|---|---|---|
| *Initial shock* | government expects a fall in $C_0$ , | *AD shifts down* |
| *Austerity* | government $(G - T) \downarrow$ in response, | *AD shifts down* |



# Macroeconomic Stabilisation

*Stabilisation* Government can counter-act aggregate demand shocks through fiscal stimulus or contraction

fiscal stimulus financed by government borrowing

*E.g,* FDR's *New Deal*

*Information* government requires precise information about the shock beforehand to counteract it

*Austerity* Financial crisis leads to drop in autonomous consumption

Fiscal contraction wrong response to financial crisis

*E.g,* UK and Greece since 2007-08

# Other Stabilisation Mechanisms

*Unemployment insurance* helps households *smooth consumption*

Corrects the *market failure* of private insurance because of *correlated risk*, *hidden actions*, *hidden attributes*

*Automatic stabilisers* automatically offset an expansion or contraction of the economy

*E.g., Unemployment benefit scheme*

*proportional tax rate*

# Feedback Mechanisms

*Mechanisms* — *Private* and *government* *mechanisms* that *dampen* and *amplify* the shocks to the economy

| | DAMPENING MECHANISMS OFFSET SHOCKS (STABILISING) | AMPLIFYING MECHANISMS REINFORCE SHOCKS (MAY BE DESTABILISING) |
|---|---|---|
| PRIVATE SECTOR DECISIONS | Consumption smoothing | Credit constraints limit consumption smoothing<br><br>Rising value of collateral (house prices) can increase wealth above the target level and raise consumption<br><br>Rising capacity utilisation in a boom encourages investment spending, adding to the boom |
| GOVERNMENT AND CENTRAL BANK DECISIONS | Automatic stabilisers (e.g. unemployment benefit)<br><br>Stabilisation policy (fiscal or monetary) | Policy mistakes, such as limiting the scope of automatic stabilisers in a recession or running deficits during low demand periods, while not running surpluses during booms |

# Summary

*Aggregate demand*

$$AD = C + I + G + (X - M)$$

*Shocks* to aggregate demand are *amplified* by the multiplier

Government can *stabilise* economic fluctuations

- Automatic stabilisers
- *Fiscal stimulus* can *offset* decline in aggregate demand from the private sector
- *Austerity* policies *amplify* the negative demand shock