Unit 14
Unemployment and Fiscal Policy

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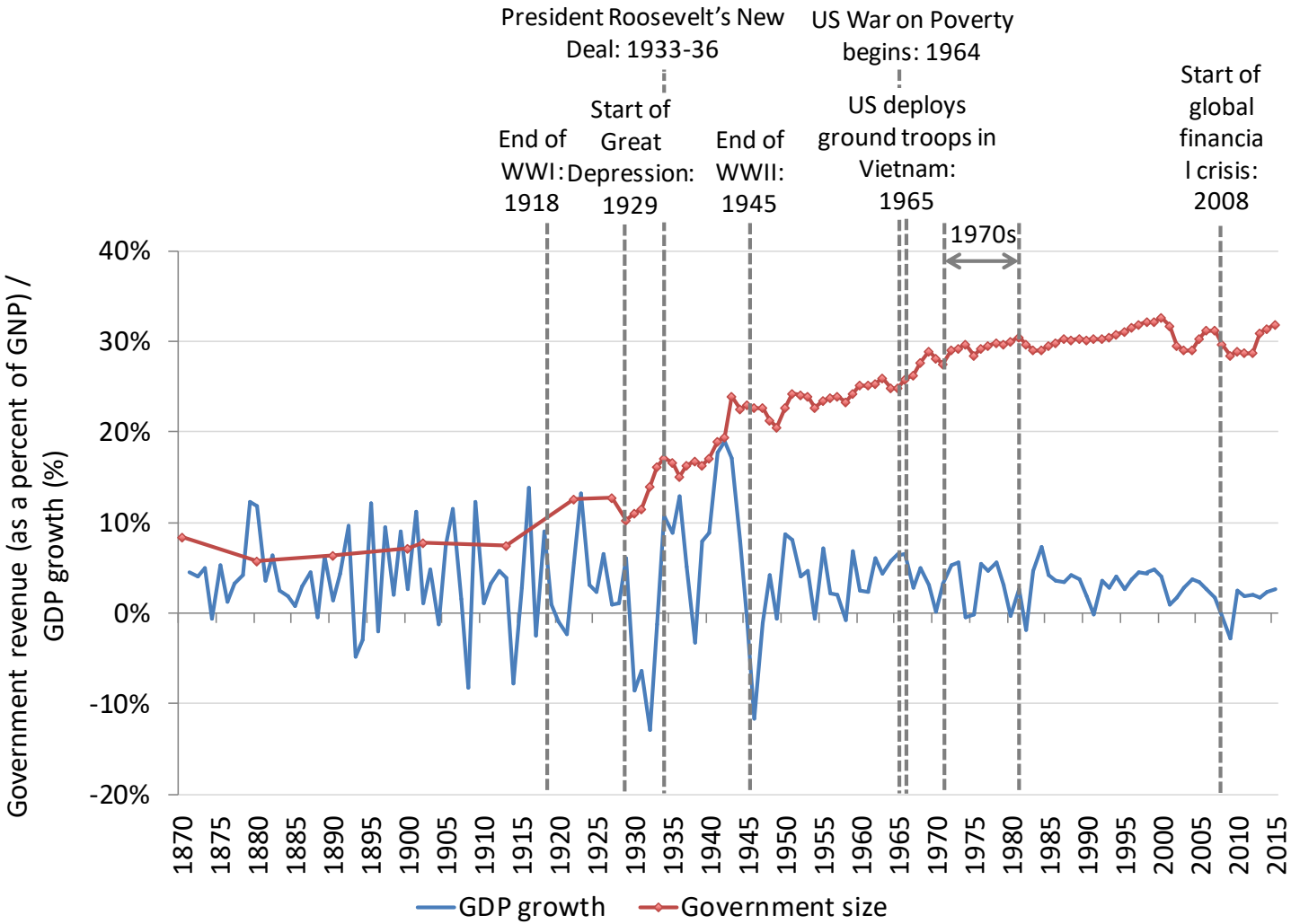
Introduction

Introduction Textbook

- The volatile nature of GDP comes from consumption and investment
- The agg. behavior of HH and firms may **destabilize** the economy
- Is a stable economy good/desirable?
  - Stabilization $\approx$ control, recall when firm can affect prices
  - What is the possible narrative to justify gov control the price?
- If you agree that stable economy is desirable, then
  - How can the government stabilize the economy?
  - Why might government policies be ineffective?
  - How can we model the link between output and unemployment?

Introduction (Cont')

Figure 14.1. Fluctuations in output and the size of government in the US (1870-2015).



Gov spending ↑ in recession ⇒ already trying to stabilize!

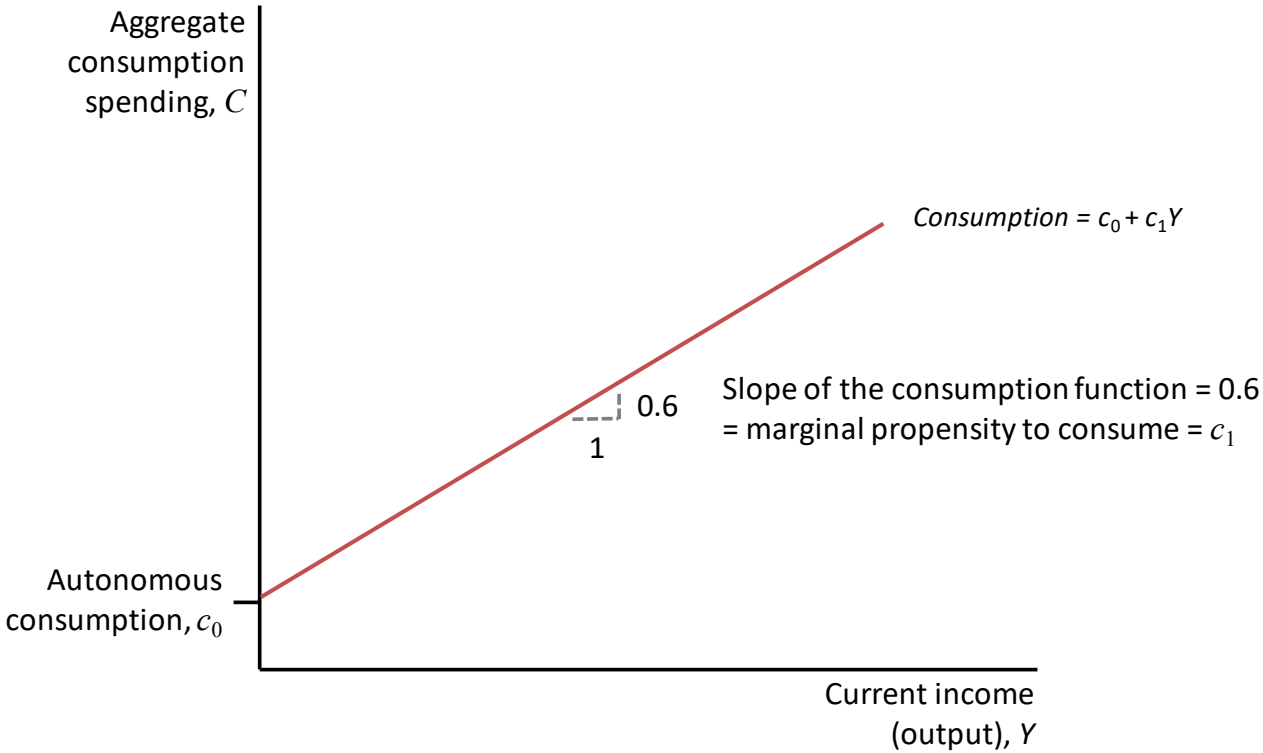
The Aggregate Demand function and the Multiplier model

Aggregate Consumption Function

Two components of agg. C:

1. Autonomous consumption: the fixed amount one will spend, independent of income
2. Consumption dependent on income

Figure 14.2. The aggregate consumption function.



Marginal Propensity to Consume (MPC)

Marginal propensity to consume varies across people:

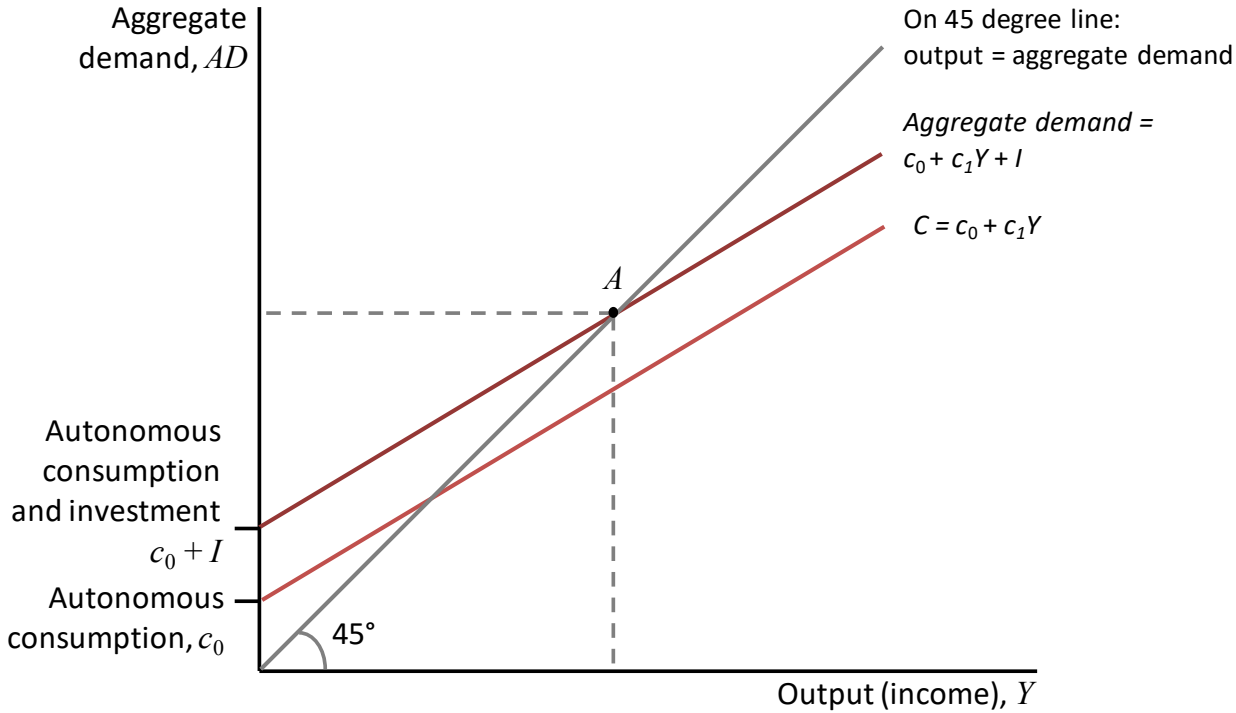
- **Usually** poor HH has high MPC yet rich HH has low MPC
- Recall $MPC = \Delta C/\Delta Y$, poor HH's C reacts much to flow income
- Should support poor HH with transfer/tax rebate?

Wealthy hand-to-mouth households -who hold little or no liquid wealth despite owning sizable quantities of illiquid assets- can help accounting for the large estimated propensities to consume out of (small) tax rebates. – *Kaplan and Violante (2014)*

Goods Market Equilibrium

- Aggregate demand (AD) $= C + I$
  - investment is assumed to be independent of output (Y)
- the slope of AD line is below 45° because $MPC < 1$

Figure 14.4. Goods market equilibrium: The multiplier diagram.

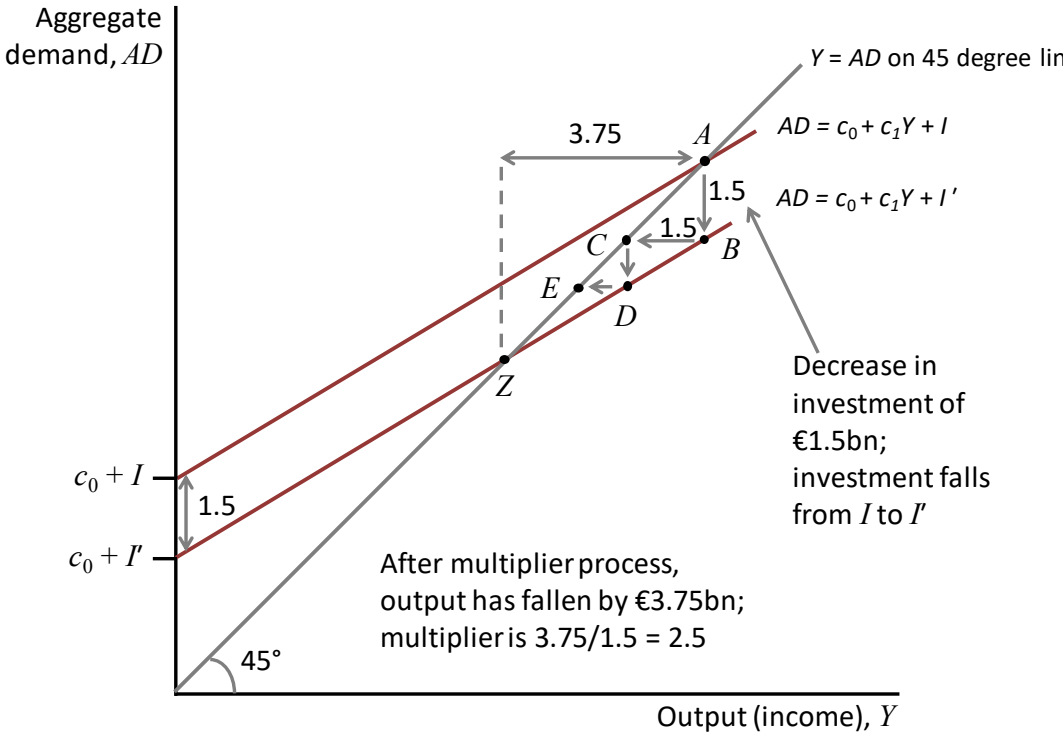


Goods Market Eq: $Y = AD$

The Multiplier Process

- Fall in investment
- $\rightarrow$ fall in aggregate demand
- $\rightarrow$ lower output and income
- $\rightarrow$ further fall in demand and income
- $\rightarrow$ new equilibrium (Z)
- Why multiplier $= \frac{1}{1-MPC}$?

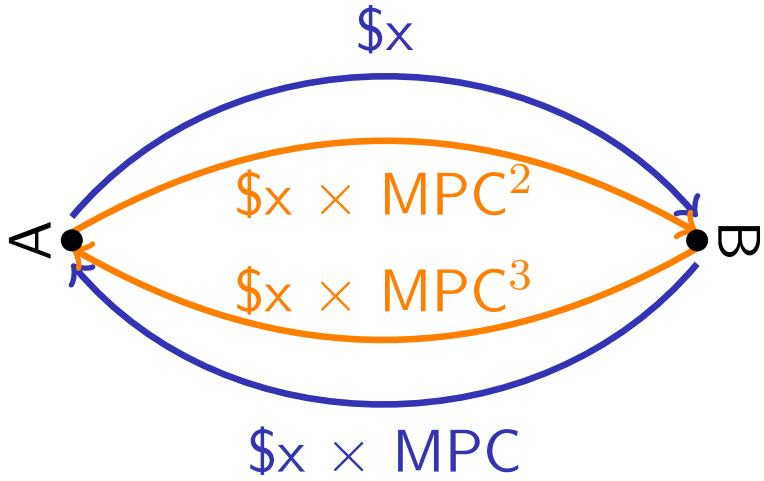
Figure 14.5. The multiplier in action: An investment-led recession.



Multiplier $= \frac{1}{1-MPC}$

The Multiplier Process

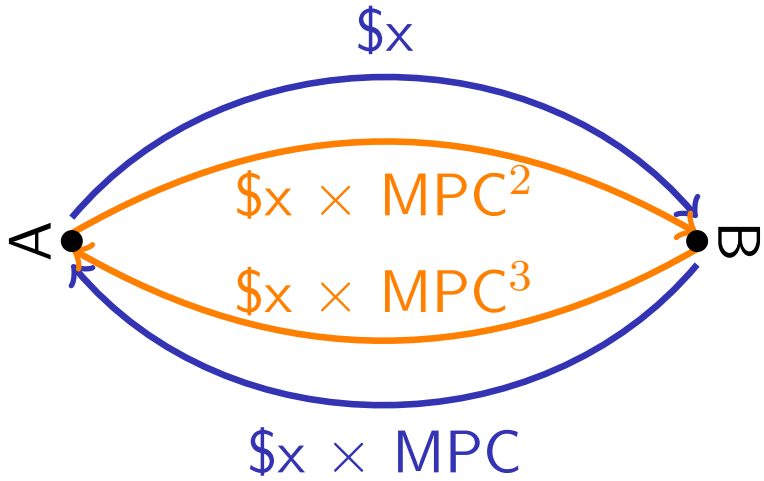
- $MPC = \frac{\Delta C}{\Delta Y}$
- Imagine an economy with only 2 person
- The initial increase in spending is $\$x$, from A to B
- B will spend $\$x \times MPC$ back to A



The Multiplier Process

- This process continues, and the total increase in GDP is

$$\begin{aligned} &\$x \cdot 1 + \$x \cdot MPC \\ &\quad + \$x \cdot MPC^2 + \cdots \\ &= \$x \cdot (1 + MPC \\ &\quad + MPC^2 + \cdots) \\ &= \$x \cdot \underbrace{\frac{1}{1 - MPC}}_{\text{multiplier}} \end{aligned}$$

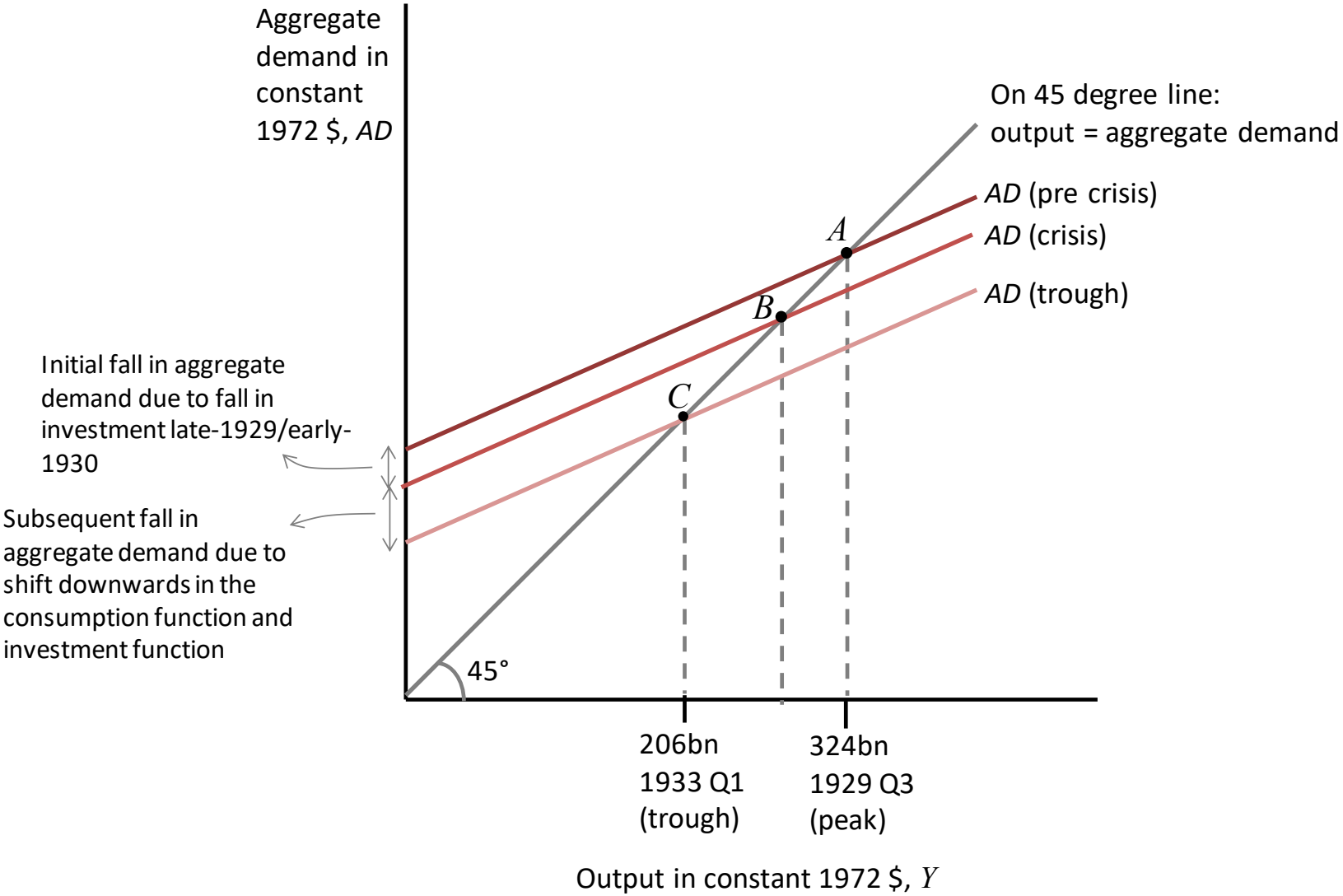


The Multiplier Effect

- ΔY can be greater than the initial change in aggregate demand.
- The multiplier represents the relative *magnitude* of this change.
  - multiplier $= 1$: the increase in GDP $=$ the initial increase in spending
  - multiplier $> (<) 1$: the total increase in GDP $> (<)$ the initial increase in spending
- Credit constraints and consumption smoothing is reflected in the slope of the AD curve and the size of the multiplier.
- Consumption decisions can also 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 hence their autonomous consumption would fall.

Example: The Great Depression

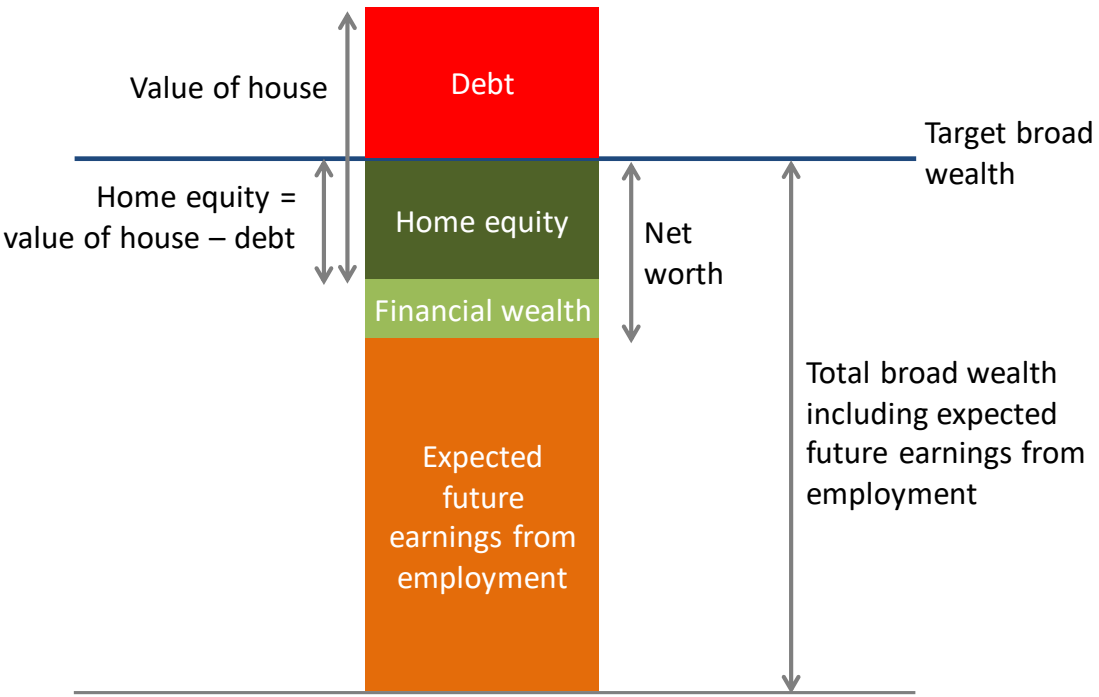
Figure 14.6. Aggregate demand in the Great Depression: Multiplier and positive feedback processes.



Household Wealth

Household Wealth

Figure 14.7. Household wealth: Key concepts.

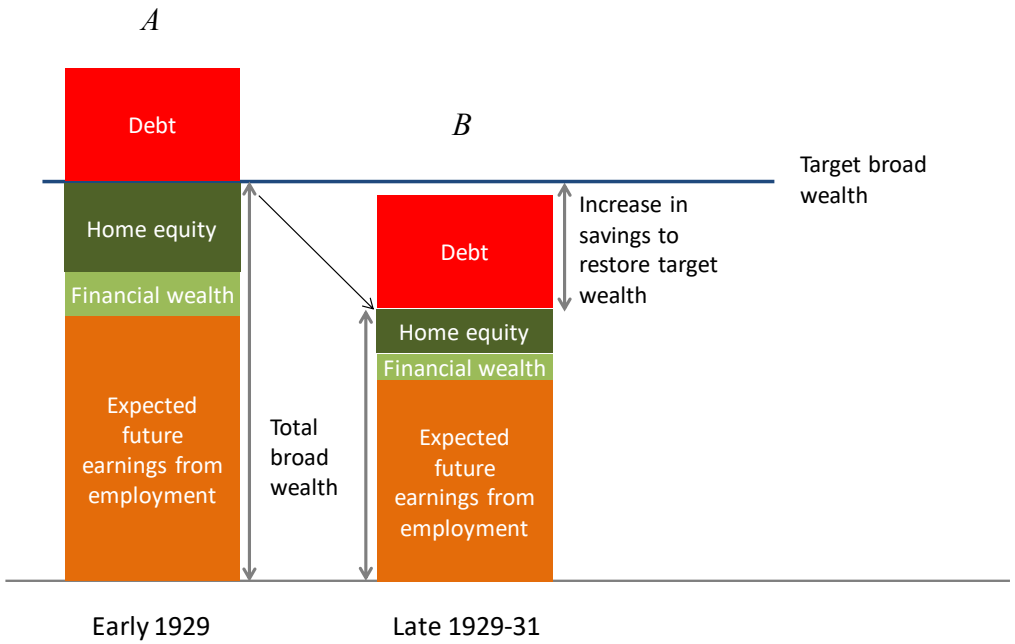


Household wealth impacts autonomous consumption

Precautionary Saving

- **Target wealth**: the level of wealth that a household aims to hold, based on its economic goals (or preferences) and expectations.
- **Precautionary saving**: An increase in saving to restore wealth to its target level.

Figure 14.8. The Great Depression: Households cut consumption to restore their target broad wealth.



Expected earning $\downarrow \Rightarrow C \downarrow$ to restore target wealth.

Housing Market

Changes in house prices affect consumption through two channels:

1. Via change in household wealth (home equity)
2. Via change in credit constraints: lower house value makes it more difficult to borrow (greater credit constraint)

Investment

Investment Spending

Firms' decision about what to do with its profits depends on

- Owner's discount rate (ρ) Consume
- Interest rate on assets (r) Save
- Net profit rate on investment (π)

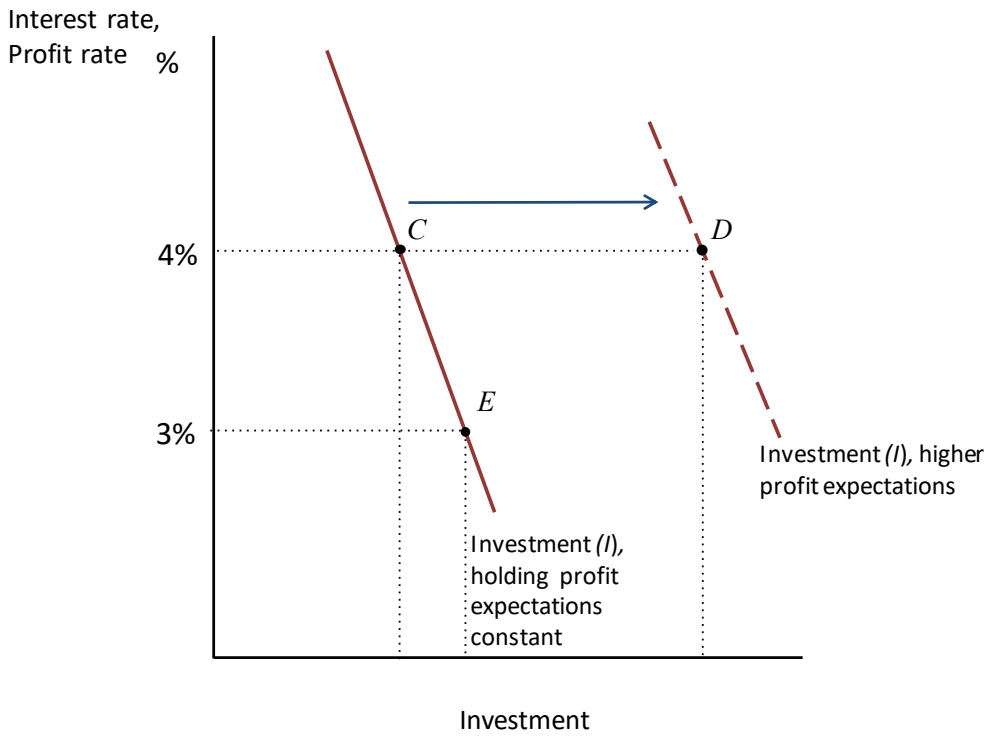
Decision rules are

- Consume the extra income (dividends) if $\rho > r \geq \pi$
- Save the extra income/repay debts if $r > \rho \geq \pi$
- Invest (at home or abroad) if $\pi > \rho \geq r$
  - If r is low, then only comparison is π and ρ
  - In principle, lower interest rate will stimulate investment

Supply side effects

- In practice, I is not sensitive to interest rate
- **Aggregate investment** shows how investment spending in the economy as a whole depends on other variables

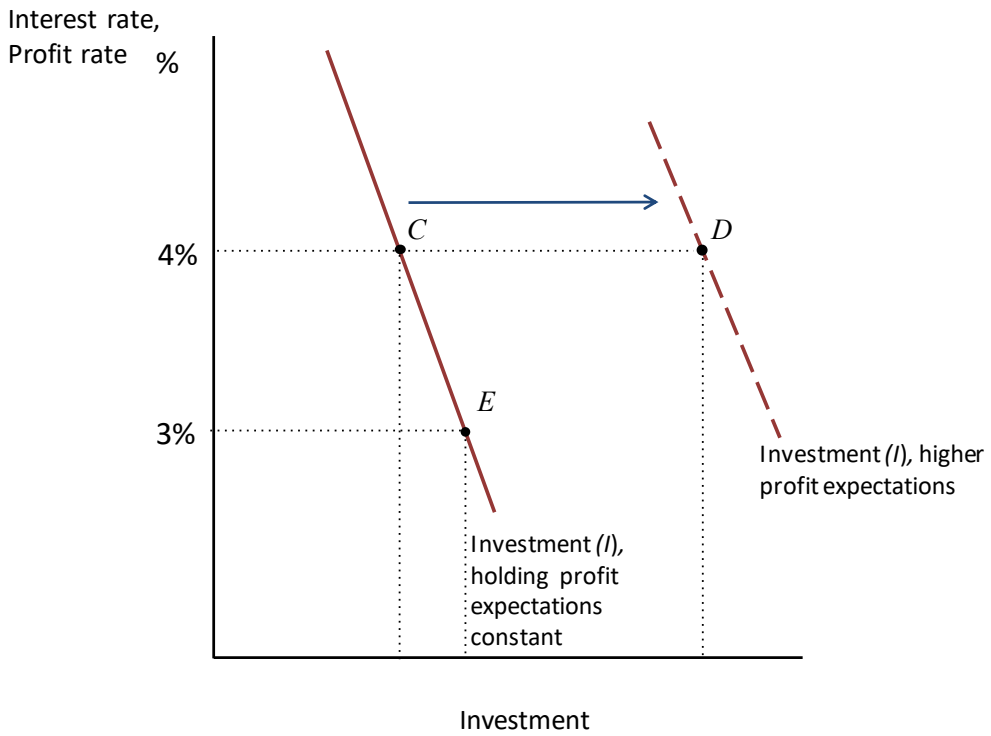
Figure 14.10c. Aggregate investment function: Effects of the interest rate and profit expectations.



Supply side effects

Figure 14.10c. Aggregate investment function: Effects of the interest rate and profit expectations.

- For developing countries, improvement in **business environment** (such as fall in the **risk of expropriation** by the government) is more important



The role of government

GDP Expenditure Approach and Government Intervention

$$AD = C + I + G + EX - IM \tag{1}$$

- C: MPC and disposable income $(1-\tau)Y$
- I: interest rate r and after-tax profit $(1-\tau)\pi$
- G: exogenous, shift AD curve in parallel
- EX: exogenous
- IM: depends on domestic income Y with marginal propensity to import m

$$AD = c_0 + MPC \times (1-\tau)Y + I + G + EX - mY$$

Stabilizing the Economy

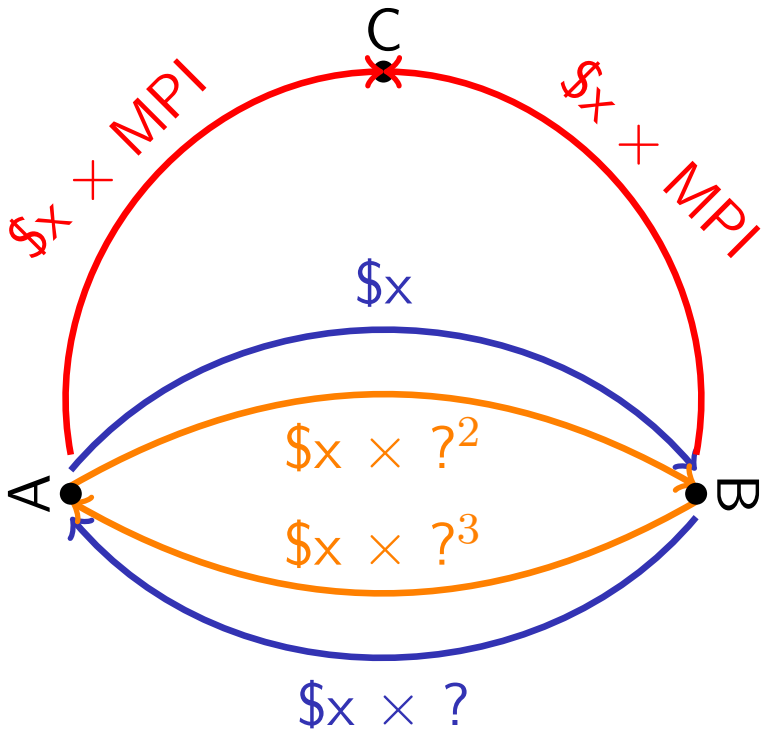
$$AD = c_0 + MPC \times (1 - \tau)Y + I + G + EX - mY$$

- Government spending is large and exogenous
- Higher tax rate lowers the multiplier
- Unemployment insurance helps households smooth consumption
  - market failure $\because$ correlated risk, hidden actions, hidden attributes
- Deliberate intervention via fiscal policy

The unemployment benefit scheme and proportional tax rate are automatic stabilizers: they automatically offset an expansion or contraction of the economy.

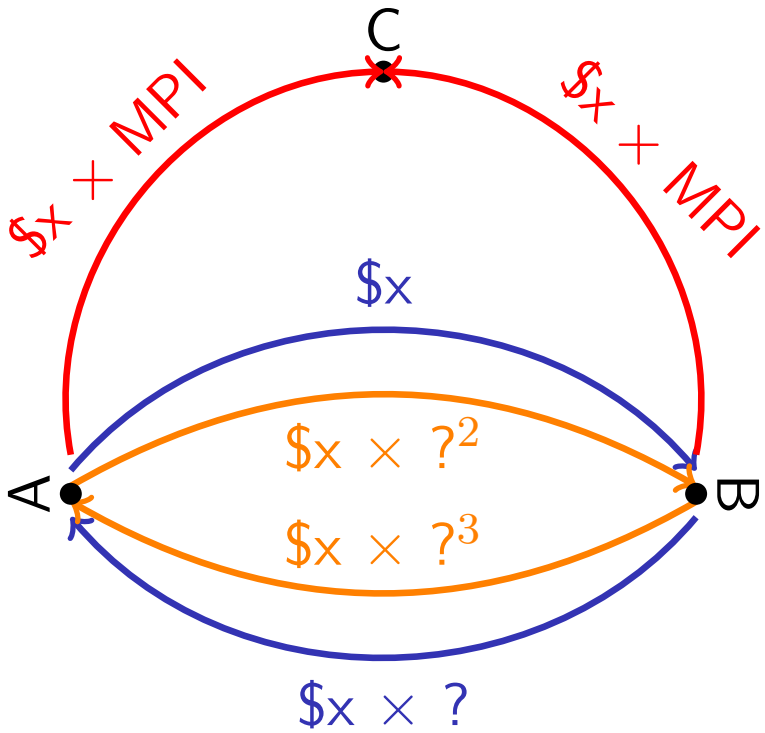
What is the multiplier with both MPC and MPI?

- MPC: propensity to consume
- MPI: propensity to consume imported goods
- ? is propensity to consume domestic goods:



What is the multiplier with both MPC and MPI?

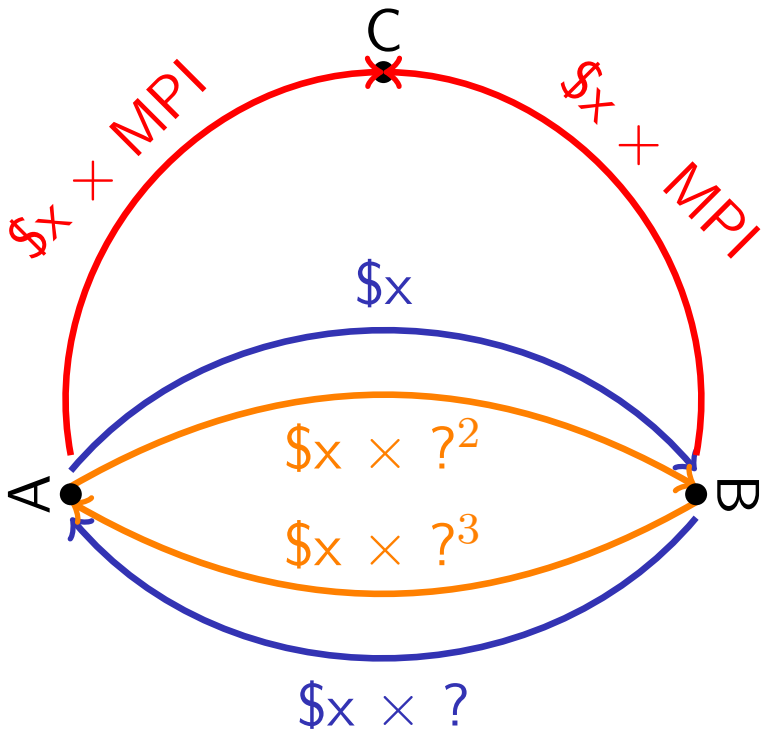
- For every $\$x$ increase in income, total consumption increase by $\$x \times MPC$, while consumption for imported goods increase by $\$x \times MPI$
- $\Rightarrow$ consumption for domestic goods increase by $\$x \times (MPC - MPI)$ amount.



What is the multiplier with both MPC and MPI?

- Following the same iterative process, the multiplier of the economy is

$$\frac{1}{1-(MPC-MPI)}.$$



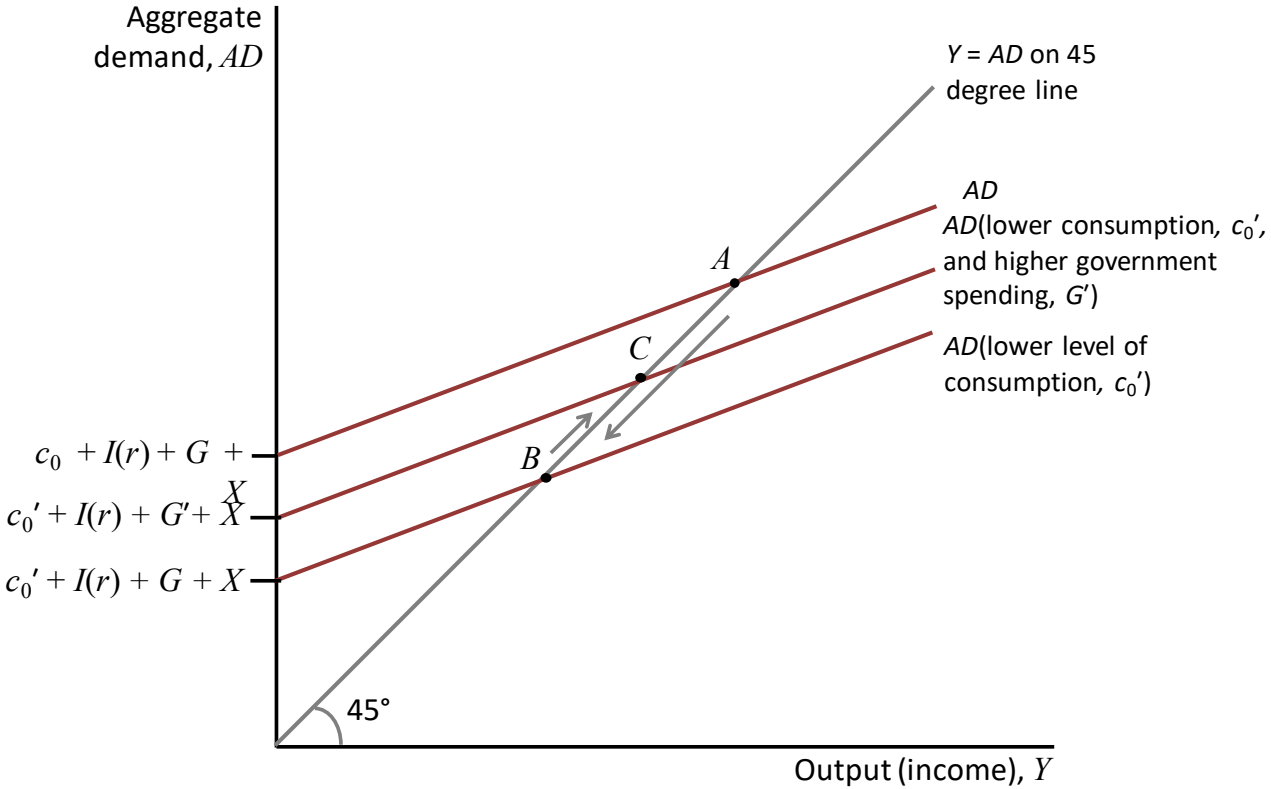
The paradox of thrift

- In a recession, faced with a household budget deficit, a family worried about their falling wealth cuts spending and saves more.
- But in the economy as a whole, spending and earning go together.
- **The paradox of thrift**: the aggregate attempt to increase savings leads to a fall in aggregate income.
- Fallacy of composition: what is true for one part of the economy (a single household) is not true of the whole economy.

Fiscal stimulus

- gov counteract the fall of AD via fiscal stimulus:
  - cut taxes to encourage the private sector to spend more
  - increase spending (G), which directly increases AD

Figure 14.11a.



Note: $AD = c_0 + c_1(1 - t)Y + I(r) + G + X - mY$

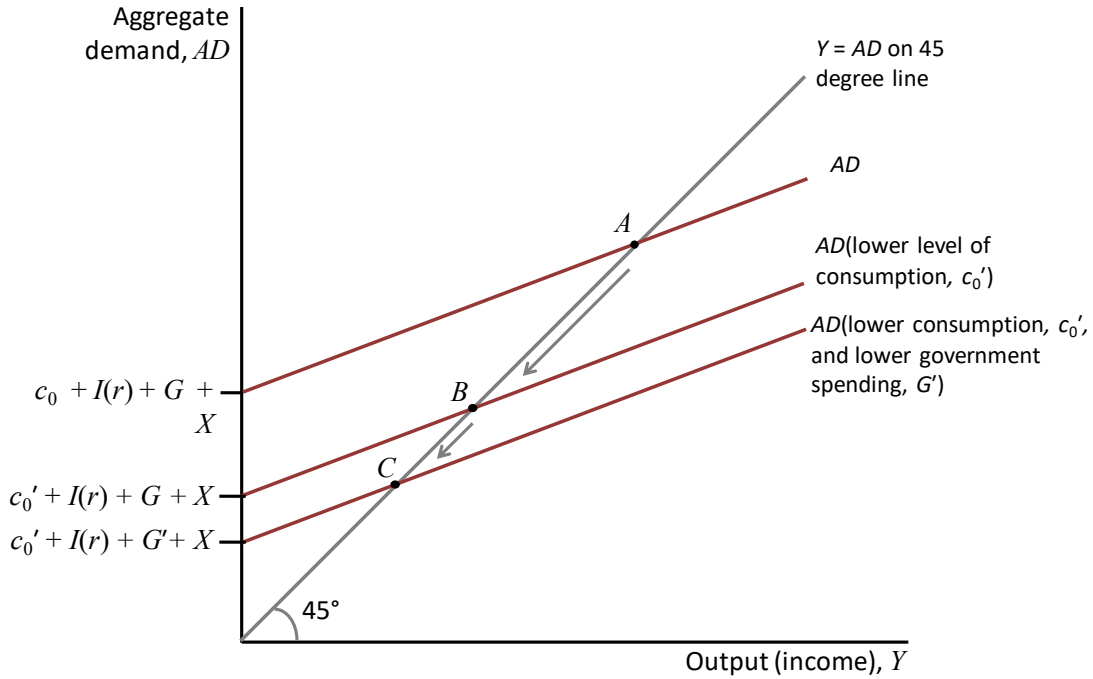
$G \uparrow \Rightarrow Y \uparrow\uparrow$ because of multiplier

Financing Fiscal Stimulus

$$\text{Budget balance} = T - G$$

- Fiscal stimulus $\Rightarrow$ negative budget balance (government **budget deficit**).
- Not reversed after the recession $\Rightarrow$ increase government debt.

Figure 14.11b. Government austerity can worsen a recession.



Note: $AD = c_0 + c_1(1 - t)Y + I(r) + G + X - mY$

Positive/Negative Feedback Mechanisms

Figure 14.12. The role of the private sector and the government in the business cycle.

	Dampening mechanisms offset shocks (stabilising)	Amplifying mechanisms reinforce shocks (may be destabilising)
Private sector decisions	• Consumption smoothing	• Credit constraints limit consumption smoothing • Rising value of collateral (house prices) can increase wealth above the target level and raise consumption • Rising capacity utilization in a boom encourages investment spending, adding to the boom
Government and central bank decisions	• Automatic stabilizers (e.g. unemployment benefit) • Stabilization policy (fiscal or monetary)	• Policy mistakes such as limiting the scope of automatic stabilizers in a recession or running deficits during low demand periods while not running surpluses during booms.

Multiplier Model is not telling Whole Story

- In our model of aggregate demand, the multiplier depended only on the MPC, MPI (IM), and the tax rate.
- In reality, it also depends on:
  - **crowd out effect**: if economy is in full capacity utilization, an $G \uparrow$ crowd out private spending
  - **expectations** of the private sector: the multiplier could be negative, recall investment coordination game!
- Gov might not be omnipotent:
  - **Sovereign debt crisis**: a situation in which government bonds come to be considered risky (default risk).
  - **Debt ceiling**: increase the default risk for US.

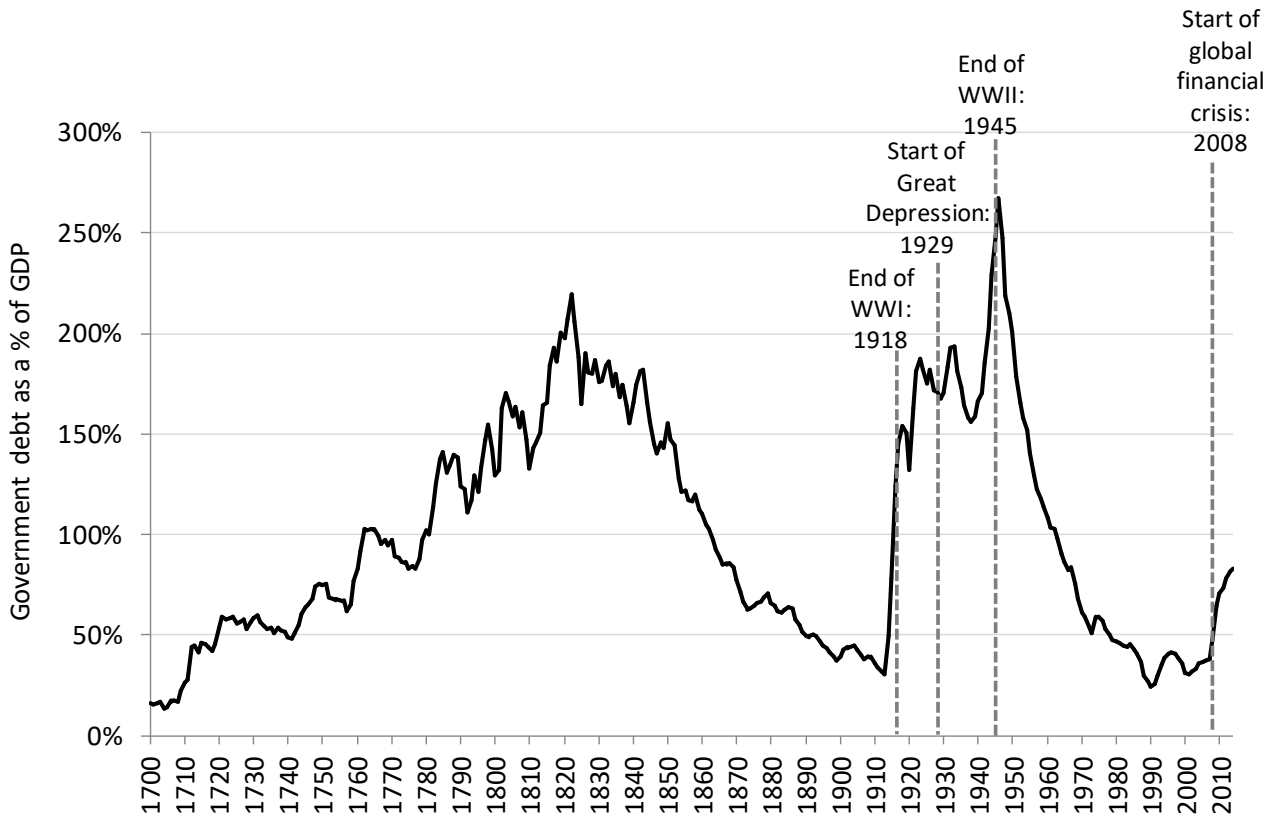
Debt-to-GDP ratio

Def: level of indebtedness of a gov is measured over the economy size

Indebtedness can fall

- if the primary budget balance is positive
- if GDP is growing faster than government debt
- if inflation is high (real value of debt falls)

Figure 14.13. UK government debt as a percentage of GDP (1700-2014).



Foreign markets and aggregate demand

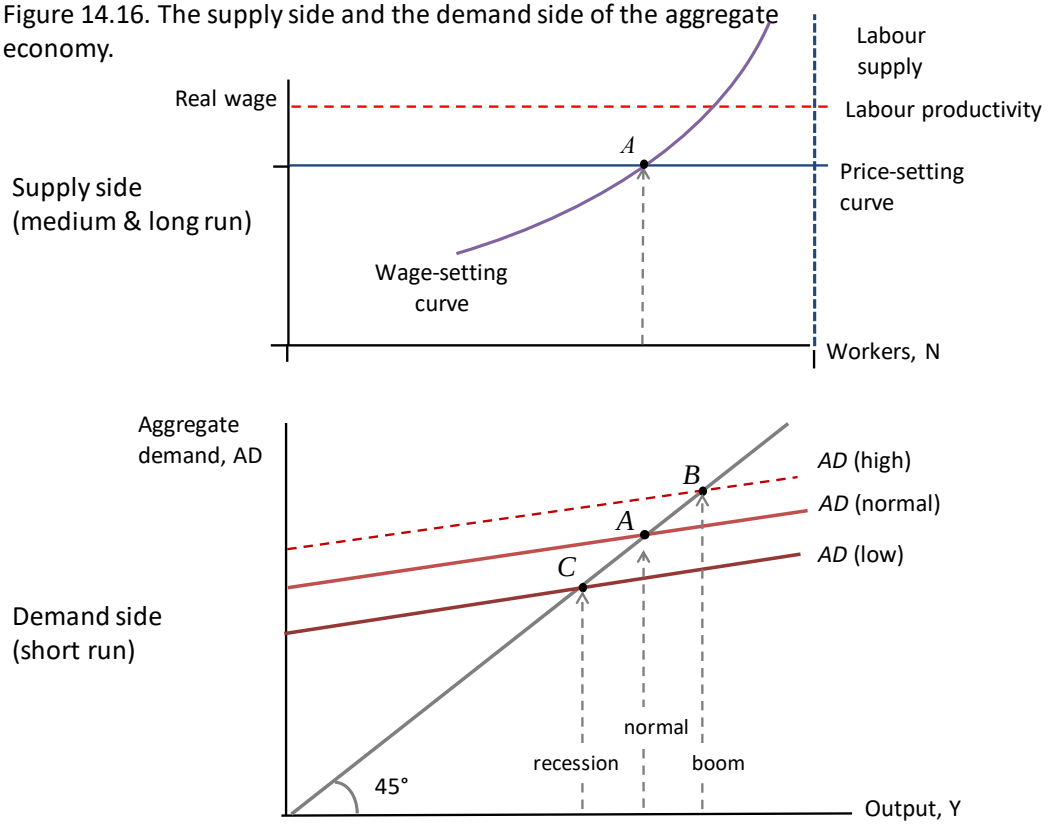
- Fluctuations in the growth rate of important markets abroad influence the domestic economy via demand for exports.
- Demand for imports dampens domestic fluctuations.
- Foreign trade limits the use of fiscal stimulus if the marginal propensity to import is large.

Aggregate Demand and Unemployment

Aggregate Demand and Unemployment

- Supply-side: labour market model
  - Medium-run model: wages and prices can change, but capital stock, technology and institutions are fixed
- Demand-side: multiplier model
  - Short-run model: all variables fixed
- Also explain cyclical unemployment

Figure 14.16. The supply side and the demand side of the aggregate economy.



Production function connects employment (N) and output (Y)

Appendix

References I

Kaplan, Greg and Giovanni L. Violante (2014) "A MODEL OF THE CONSUMPTION RESPONSE TO FISCAL STIMULUS PAYMENTS," *Econometrica*, 82 (4), 1199–1239, http://www.jstor.org/stable/24029251.