II. The Keynesian School – Episode I

Modeling Consumption and Investment Decisions

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Overview

Let's begin our deep dive
into the Keynesian School.

Overview of the Keynesian Theory

"In the long-run we are all dead"

But *government intervention can stabilise the economy.*

- This is the main tenet of the Keynesian school of thought.
- It deals with the short-run view of the economy.
- Not enough aggregate spending due to excess savings ⇒ economic downturn
- **Context: the Great Depression (1929-1933)**

Key assumptions to be made

Add "in the short run" at the end of all the following sentences:

1. Some factors of production are **fixed.** Capital or labour?
2. Contrary to the classical school, Keynes believe that not all income translate to consumption
3. Rate of return on investments are given
4. Producers are willing to provide additional output immediately at a fixed price.

More on the last two points later in this lecture.

Illustration purposes: let's start small

Let's assume that the government plays no role in the economy; no tax, nor spending. Also no international trade. This is what we call "a closed economy without government spending and tax."

Let AE denotes aggregate expenditure. Recall from the expenditure approach :

$$\text{Demand} = AE = C + I$$

We have two components that behave differently...

The Keynesian Theory of Consumption

"The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income." Keynes (2016)

How do households consume?

Let's begin with a simple question: what influences your decision to consume?

A new concept – the propensity to consume. Let Y denotes household income, and C household consumption;

$$\begin{aligned} C &= C_0 + cY \\ \text{where } c &\in (0,1) \end{aligned}$$

Concomitantly, for savings – by definition:

$$\begin{aligned} S &\equiv Y - C \\ &= Y - (C_0 + cY) \\ &= (1-c)Y - C_0 \\ \therefore S &= S_0 + sY \end{aligned}$$

The marginal propensity to consume

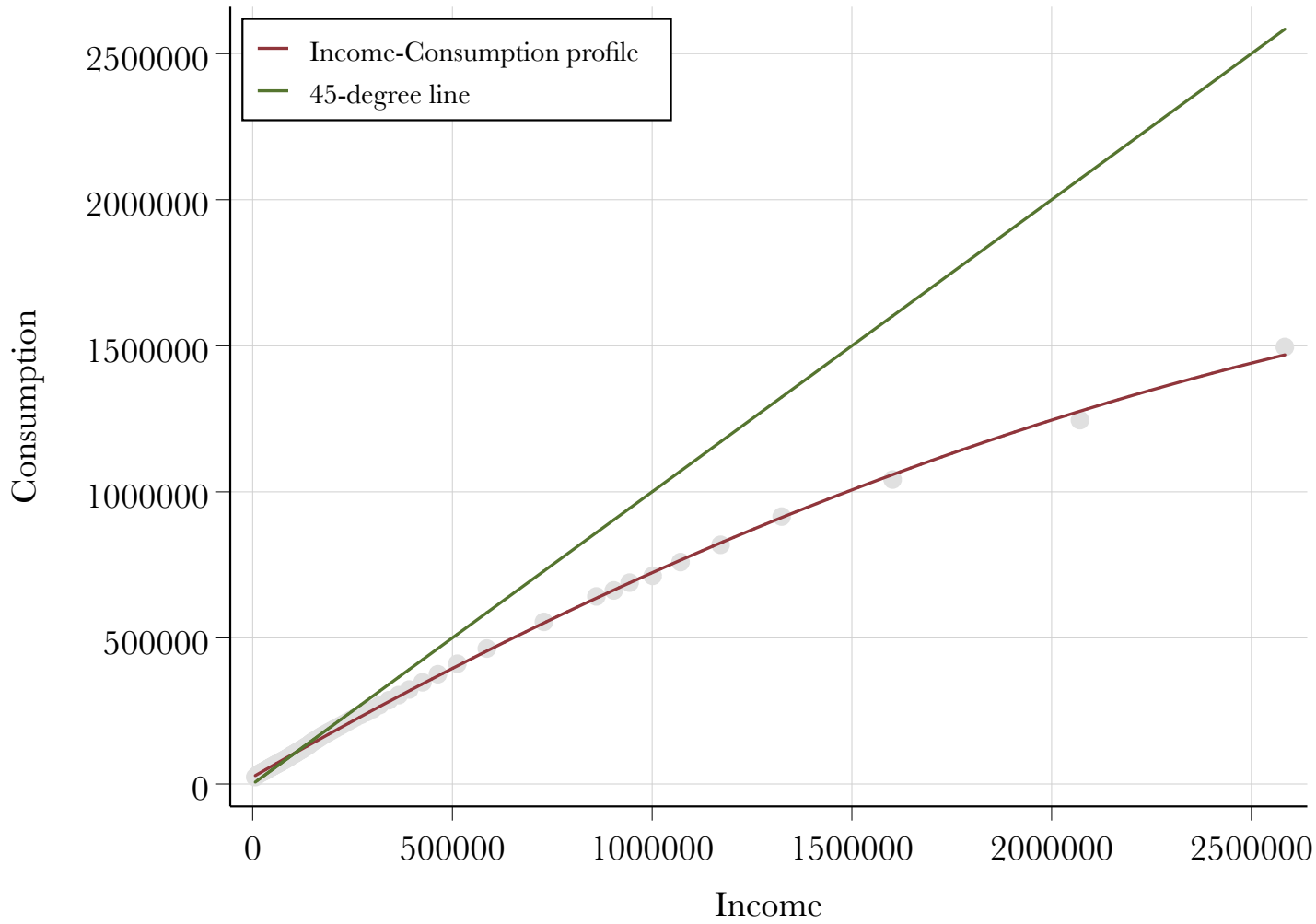
Keynes believed that c is determined by two factors

1. **objective factors**: changes in wage, net income, time preference, or future expectations
2. **subjective factors**: precaution, pride, shortsightedness, etc.

He even believed that c decreases as Y increases.

Graphical representation: draw with me.

Income-consumption profile looks like in Thailand in 2015



Source: Lecturer's calculation based on NSO's 2015 SES. Values are in current Thai baht. The green line corresponds to the theoretical value if consumption equals income.

The Keynesian Theory of Firms

How do firms decide?

Firms invest today through their expectation of future post-tax profits. Three important factors:

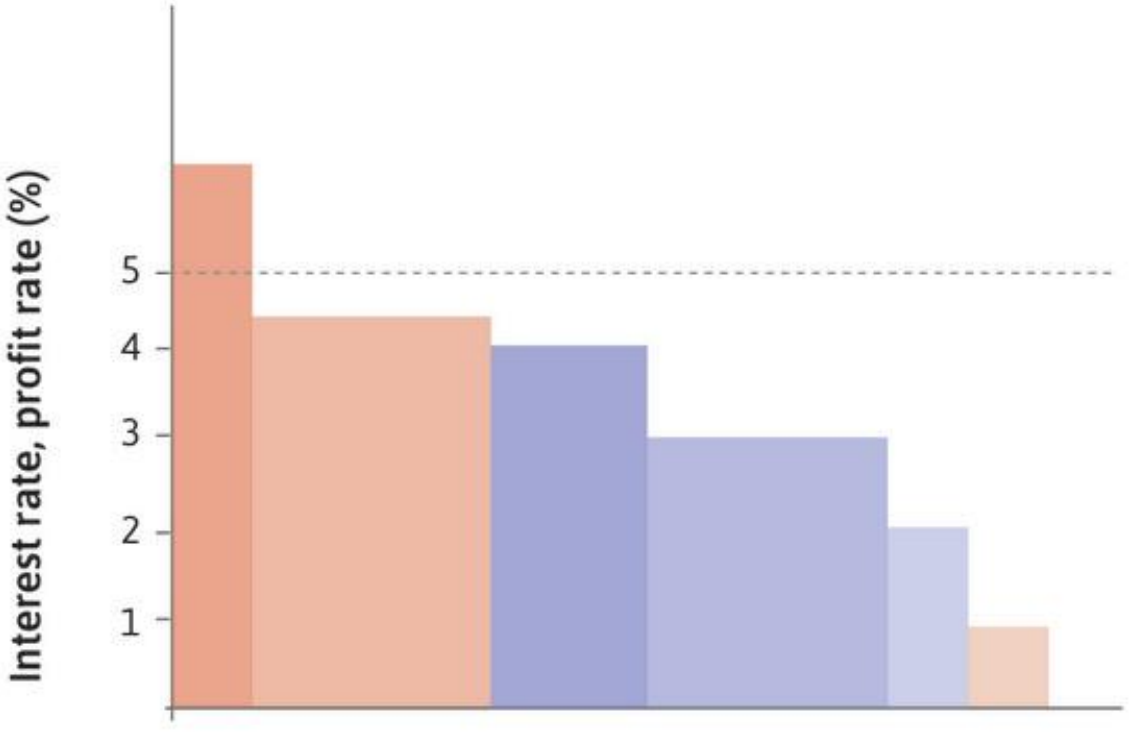
- Owner's discount rate: δ
- Interest rate on financial assets: r (will discuss further in chapter 5)
- Returns on investment: Π

Because there are three options:

1. Decide whether the owner will keep profits ($\delta > r$ and $\Pi \Rightarrow$ yes)
2. Decide whether the owner will invest in financial assets ($r > \delta$ and $\Pi \Rightarrow$ yes)
3. Decide whether the owner will invest ($\Pi > \delta$ and $r \Rightarrow$ yes)

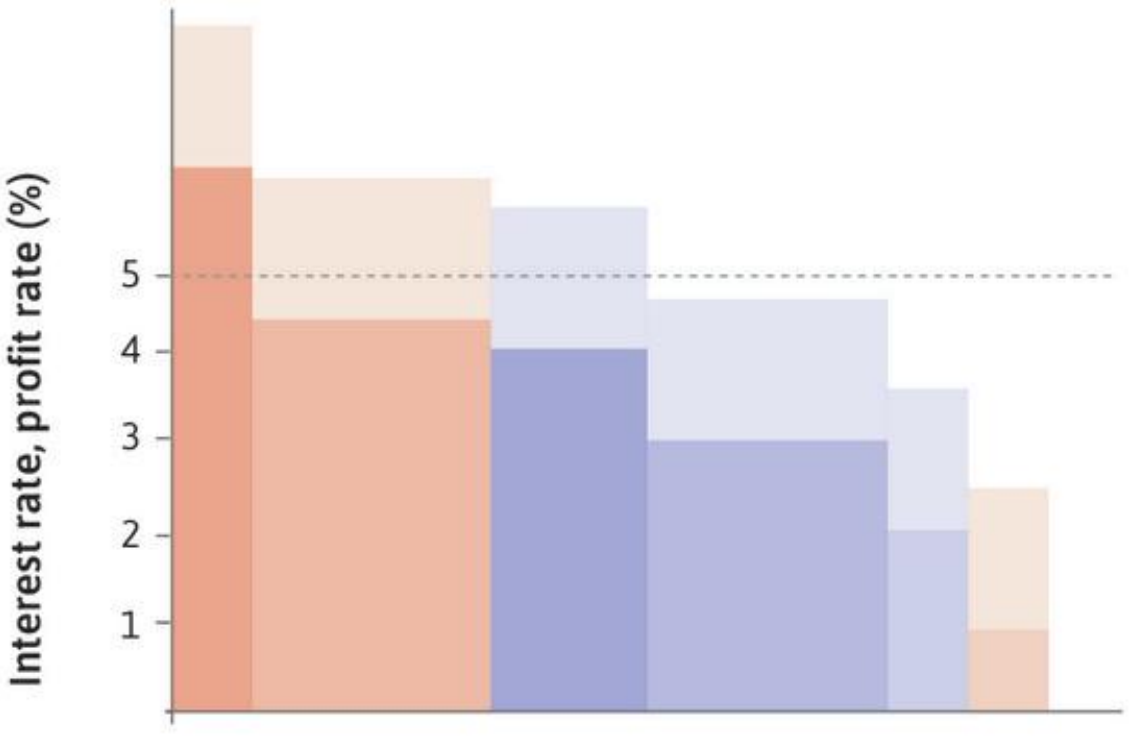
We can take I as exogenously given for now.

Easy example I: how firms decide to invest



Source: Reprinted from Unit 14 in The CORE Team, The Economy.

Easy example I: increase in supply-side conditions



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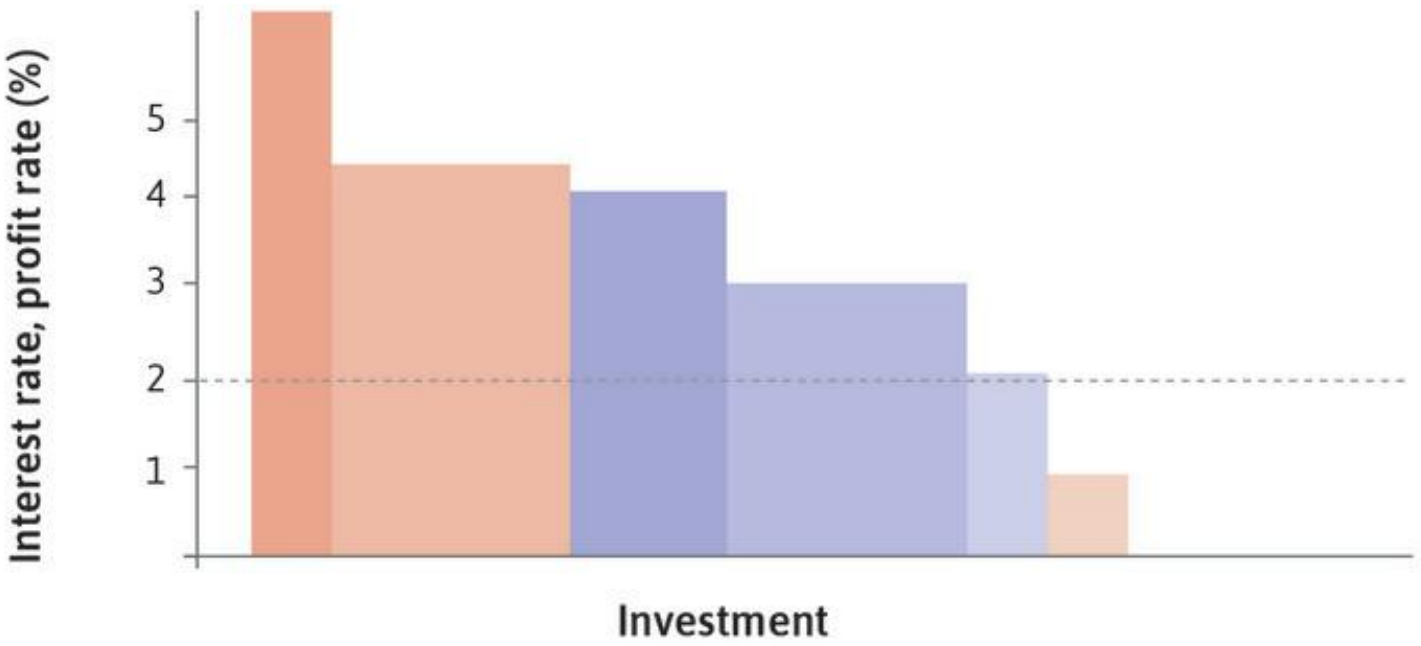
Easy example II: increase in forecasted demand



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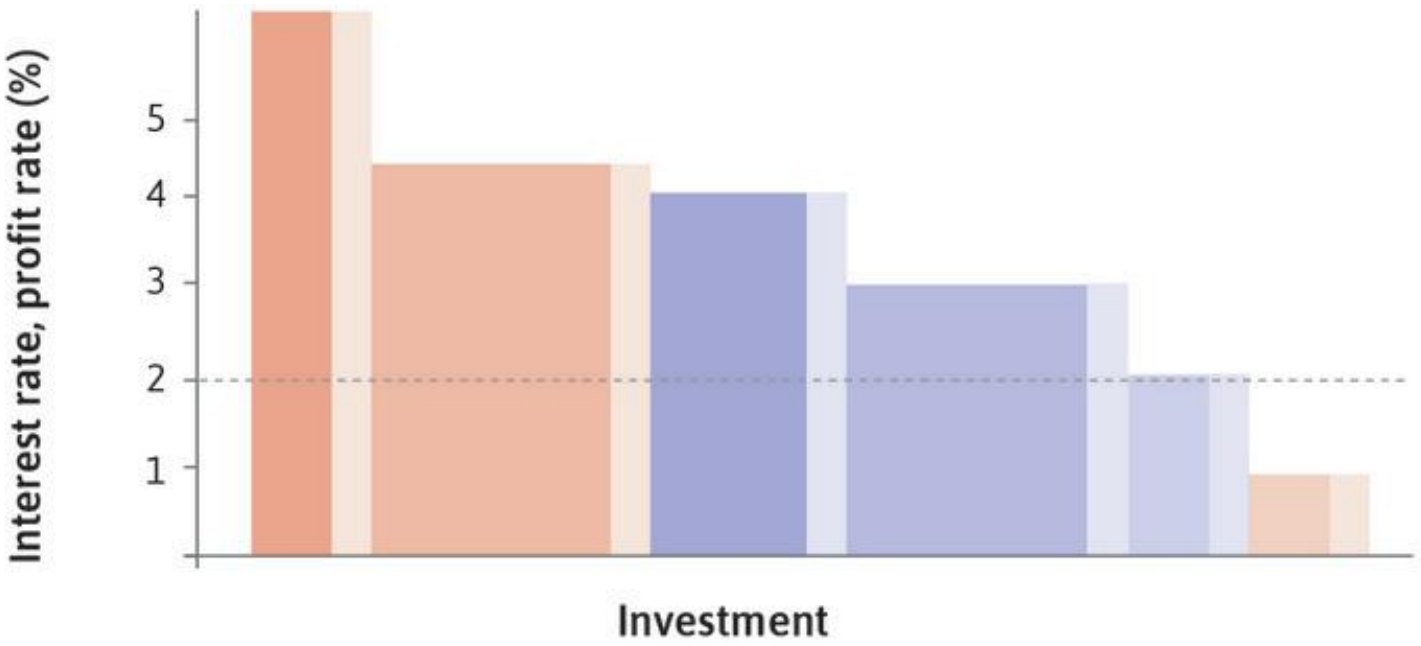
Easy example II: increase in forecasted demand



Source: Reprinted from Unit 14 in The CORE Team, The Economy.

What if firms have no time to respond?

- Firms usually keeps inventories.
- If income is higher than planned aggregate expenditure, then firms will deplete its inventories.
- In national accounting, this is captured in consumption approach in the GDP calculation already.
- Changes in inventories are reflected in the capital account of the national accounts (not covered in this course).

Characterising the Keynesian Equilibrium

The Keynesian equilibrium

If income (Y) equals demand ($AE = C + I$), then the economy is in an equilibrium.

Where these two elements equate is called the Keynesian Cross, developed explicitly by Paul Samuelson to show Keynes' ideas.

Notes that

- Demand is a function of income
- It is possible to find a level of demand that correspond to each level of income
- The derived demand here is usually called the *planned* aggregate expenditure

Graphical representation: The Keynesian Cross – draw with me

The Multiplier

Let's say investment suddenly increases... what happens?

Remember the 4th assumption: producers are willing to supply at a fixed price. Let's say a firm wants to suddenly invest $10 million euros worth of construction ⇒ increase in wages and other forms of factor income.

But the process does not stop there! This leads to an increase in household disposable income, then what?

Graphical representation: changes in investment – draw with me

Mathematical representation: the multiplier

The multiplier characterises the fact that "at the equilibrium, a change in spending leads to a disproportional change in output"

We know that at the equilibrium, $Y = C + I$. We can develop this further.

$$\begin{aligned} Y &= C + I \\ &= C_0 + cY + I \\ (1-c)Y &= C_0 + I \\ Y &= \frac{1}{1-c}(C_0 + I) \end{aligned}$$

We know that $0 < c < 1$. Therefore, $1/(1-c) > 1$.

A one unit increase in I would lead to a $1/(1-c)$ increase in Y.

What happens when household, on average, becomes more likely to consume for each marginal increase in income?

Saving-Investment (Leakage-Injection) identity

By definition, income equals the sum of consumption and savings.

$$Y \equiv C + S$$

At the equilibrium, we know that

$$Y = AE (\equiv C + I)$$

Hence, at the equilibrium, we know that...

$$\begin{aligned} Y \equiv C + S &= AE \equiv C + I \\ \Rightarrow C + S &= C + I \\ \therefore S &= I \end{aligned}$$

Another way to define the equilibrium in this simple closed economy model with no government spending or tax.

References

Keynes, J. (2016). *General theory of employment , interest and money*. Atlantic Publishers & Distributors (P) Limited. Retrieved from https://books.google.co.th/books?id=xpw-96rynOcC