EE311 Microeconomics Theory

Chapter 2 Consumer Behaviour

Market Demand & network Externalities

Index Number

Intertemporal Consumption

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Market Demand with Network Externalities

So far, we have assumed that each person's demand for a good is independent of everyone else's demand. This assumption enables us to find the market demand curve for a good by adding up the demand curves of all the individual consumers in the market.

However, for some goods, a consumer's demand depends on how many other people purchase the good. This is the case that there are **network externalities.**

Positive externalities: one consumer's demand for a good increases with the number of other consumers who buy the good

Market Demand with Network Externalities (cont.)

These can take the form of **virtual networks** because there is no physical connection among consumers, such as the computer software, operating system, fads that affect lifestyles (that's why marketing agencies often try to highlight the popularity of a product as part of its image)

Market Demand with Network Externalities (cont.)

Bandwagon effect:

A **Positive** network externality that refers to the **increase** in each consumer's demand for a good as more consumers buy the good.

Snob effect:

A **negative** network externality that refers to the **decrease** in each consumer's demand as more consumers buy the good.

Market Demand and Positive Network Externalities

Market Demand and Negative Network Externalities

Consumer Price Indices

- **A measure of the change in the cost of living and is used extensively for economic analysis in both the private and public sectors.**
- **Construction of the CPI**

Year	Px	Py	Income	X	Y	Remarks
1	3	8	480	80	30	
2a	6	9	720	60	40	As well off as year 1
2b	6	9	750	80	30	Fixed basket

CPI should measure the percentage increase in expenditure that would be necessary for the consumer to remain as well off in year 2 as he was in year 1. But collecting the complete set of data would be quite time-consuming.

Consumer Price Indices (2)

Graphical illustration

Consumer Price Indices (3)

- **In practice, therefore, the calculation is made on the principle of the change in expenditures necessary to buy a fixed basket as prices change.**

Year	Px	Py	Income	X	Y	% change
1	3	8	480	80	30	
2a	6	9	720	60	40	
2b	6	9	750	80	30	

The index based on the fixed basket overcompensates the consumer for the higher prices. Economists refer to the overstatement of the increase in the cost of living as the 'substitution bias'

Intertemporal Consumption

- time preference and time value of money
- cases: regular income, productive opportunities, inheritance
- supply of saving
- consumption and pricing of durable goods and non-renewable resources

Time preferences and Time Value of Money

- Comparing money today to money in the future
- Interest rate
  - The sooner the better !
  - Interest rate tells us how much more money is worth today than in the future
  - The percentage more that must be repaid to borrow money for a fixed period of time.
  - Putting $1 in your savings account, the bank agrees to pay you an interest of 4% for one year. So one year from now, you receive 1 + i

Time preferences and Time Value of Money

- Discount rate
  - We call an individual's personal interest rate as that person's discount rate: a rate reflecting the relative value an individual places on future consumption compared to current consumption
  - A person's willingness to borrow or lend depends on whether his or her discount rate is greater or less than the market interest rate.
  - If your discount rate is nearly zero, you view current and future consumption as equally desirable, you would gladly loan mount in exchange for a positive interest rate.
  - If your discount rate is high, current consumption is much more valuable to you than future consumption, you would be willing to borrow at lower interest rate.

Time preferences and Time Value of Money

- Compounding
  - If you place \$100 in a bank account that pay 4%, at the end of the year, you can take out the interest payment of \$4 and leave you \$100 in the bank to earn more interest in the future. In this way, you can convert your \$100 stock into a flow of \$4 a year forever
  - In contrast, if you leave both your \$100 and \$4 interest payment in the bank, the bank must pay you interest on \$104 end of the second year.
    - End of year 1, your account contains $100\ (1+0.04) = 104$
    - End of year 2, you have $104(1 + 0.04) = 100\ (1+0.04)\ (1+0.04) = 108.16$
    - End of year 3, you have $108.16\ (1 + 0.04) = 112.49$
    - End of year t, you have $\mathbf{100}\ (\mathbf{1} + \mathbf{0.04})^{t}$
  - This accumulation of interest on interest is called *compounding*

Time preferences and Time Value of Money

- **Frequency of compounding**
  - If the bank annual interest is 4% but it pays interest twice a year, the bank pays you half a year's interest = 2% after six months
  - If the bank were to compound your money more frequently, you would earn even more interest. Some banks offer continuous compounding, paying interest at every instant.

  - Compound loan makes you pay more

Time preferences and Time Value of Money

- **Present and Future Value**

$$FV = PV(1+i)^t$$

$$PV = \frac{FV}{(1+i)^t}$$

Time preferences and Time Value of Money

- Stream of Payments

Saving for Retirement

- Suppose you plan to work full time from age 22 until you retire at 70, and that you can earn 7% on your retirement savings account. Let's consider two approaches to saving:
  - Early bird: you save 3,000 Baht a year for the first 15 years of your working life and then let your saving accumulate interest until your retirement.
  - Late bloomer: After not saving for the first 15 years, you save 3,000 Baht a year for the next 33 years until retirement.
- Which scenario leads to a bigger retirement nest egg?

Present Value with Inflation