

CH1 The Principles and Practices of Economics

張茗傑

National Taiwan University

July 9, 2022

Review

Basis of economic study

- Economics study all human behavior, or human **choices**.
- There are three major principles, which are **optimization**, **equilibrium**, and **empiricism**.
- Optimization is trying to choose the **best feasible** option, given the **information available** at the time of the choice. (We **do not require** economic agents to know everything)
- Equilibrium is a special situation in which **nobody would benefit** personally by changing his or her own behavior. There are **equilibrium price**, **equilibrium wage**, and some **bad equilibrium like the free rider problem**, etc.
- Empiricism is to test whether our models, ideas **match up with** actual human behavior **with data**.

Another way to think: allocation of scarce resources

- Scarcity exists because people have **unlimited wants** in a world of **limited resources**. (資源有限，慾望無窮)
- **Allocation** of these scarce resources becomes important under this situation. (who gets what?)

Opportunity cost

- When you choose one thing, you **must give up** something else, and **the best alternative choice** among those you give up is the opportunity cost.
- For example, when you spend time surfing Facebook, you give up **the wage you can earn** if you work.
- We're all facing **trade-offs, budget constraints** and optimizing through our life.

Exercises

Exercise1: calculation of opportunity cost

週末下午，你想約朋友去看場電影，電影票價 200 元，來回電影院加看電影的時間是三小時。如果不去看電影，這三小時你可以約朋友打球，或到圖書館看書準備考試，請問在上述情況下，去看電影的機會成本為何？(題目出自吳聰敏老師課本)

Answer:

看電影的機會成本有兩部分：電影票價以及 3 小時的時間成本。時間成本的計算要看打球或看書那一項價值較高。總機會成本即為電影票價 200 元加上打球或看書三小時兩者中價值較高者之價值。

Exercise2: Problem1-7

Background: In 2014, California was in its third year of a major drought. With water supplies dwindling, **Governor Brown issued a plea for a voluntary 20 percent reduction in water use. This target was not reached.** In early 2015 Governor Brown issued an executive order requiring local water agencies to reduce water use by 25 percent, **but no enforcement mechanism was specified.** No taxes or fines were in the executive order. State officials hoped that they could achieve compliance without resorting to fines.

Exercise2: Problem1-7 (continued)

a. From an individual homeowner's perspective, what are the **costs and benefits** of using water during a drought? Why do you think that the voluntary reduction order in 2014 **didn't work**?

Answer:

Costs: water bills, which are not zero but the prices were pretty low. There may be some social stigma attached to watering a lawn during a drought, but this cost varies for each person and depends on their sense of civic responsibility.

Benefits: Green lawns, pleasant showers, and odorless toilets.

The fact that the 2014 plea did not work is because the cost of violating a call for civic responsibility is not very high for most people.

Exercise2: Problem1-7 (continued)

b. Using concepts from this chapter, explain how you might get individual homeowners to reduce water use during a drought.

Answer:

Charging a higher price for water than in 2014 would likely result in a reduction in water usage. When the price goes up, people would optimize through the new situation and discover that some of their usage of water is actually not that necessary, then in turn gets into a new equilibrium.

Exercise2: Problem1-7 (continued)

c. Eventually, many communities began levying fines on water use. However, while many middle income families dramatically cut water use, wealthy households cut back their water use relatively little. How can you explain this phenomenon from an economic perspective?

Answer:

Fines are equivalent to a higher price for water. In this case, lower income individuals were more price elastic; they responded more sharply to a price change.

We'll talk about the price elasticity more detail in the next few chapters.

Exercise3: Problem1-9

Background: It is the night before your trip to Spain and you must decide how many hours to spend on expanding your vocabulary. The total benefits column shows **how many more Spanish words you expect to learn**. The total cost column shows **how many Spanish words you will mispronounce** because of the increased fast learning.

- The **marginal** columns show the effect of each additional hour spent studying.
- We have a **common unit(number of words)** to conduct the cost-benefit analysis.

Exercise3: Problem1-9 (continued)

a. If you study in an optimal way, how many more Spanish words will you learn?

Hours Spent Learning	Total Benefit	Marginal Benefit	Total Cost	Marginal Cost
0	0	-	0	-
1	8	8	0	0
2	13	5	2	2
3	16	3	6	4
4	16	0	12	6

Answer:

Total benefit minus total cost is **maximized at $13 - 2 = 11$** when you study for two hours.

Exercise3: Problem1-9 (continued)

b. Explain how you can find the optimal number of hours by using the **marginal benefits and marginal costs** columns.

Answer:

The marginal benefit - marginal cost is 8 for the first hour.

The marginal benefit - marginal cost is 3 for the second hour.

But for the third hour, marginal benefit - marginal cost is -1, which is **negative and not worth**.

By this, we can found the optimal hour spent on study is 2 again. And we'll return to this "**marginal analysis**" in the next chapter.