Homework Exercises 1: Introduction to Microeconomics

Question 1

You were planning to spend Saturday working at your part-time job, but a friend asks you to go skiing. What is the opportunity cost of going skiing? Now suppose you had instead planned to spend the day studying at the library rather than working. What is the cost of going skiing in this case?

Question 2

Is social media really free? In 2019, U.S. adults were estimated to spend about 1 hour per day on social media platforms such as Facebook, TikTok, Instagram, Snapchat, Twitter, LinkedIn, and others[1]. Assuming a typical U.S. adult earns $13 per hour, what is the opportunity cost per year of the time spent on social media for an average adult?

Question 3

The Oklahoma City (OKC) Thunder won the NBA championship in 2024, marking Oklahoma's first major sports title. However, this achievement might not have happened if the opportunity cost had been miscalculated back in 2008.

In 2008, Clay Bennett, the owner of the NBA team then known as the Seattle Supersonics (now the Oklahoma City Thunder), estimated that keeping the team in Seattle would result in a loss of about $63 million over the next two seasons. Alternatively, moving the team to Oklahoma City was expected to generate a profit of $19 million over the same period[2]. What was the opportunity cost to Bennett if he kept the team in Seattle instead of moving to Oklahoma City? Briefly explain.

Question 4

Your company has already spent $500,000 producing a movie, but it is not yet finished. At a recent meeting, your marketing analyst reports that, due to a new competing movie, the expected revenue from your movie has been reduced to $400,000. It will cost an additional $200,000 to finish the movie. Should you proceed with completing the movie? Additionally, what is the maximum amount you should be willing to pay to finish it?

Question 5

Due to budgetary concerns, NASA announced in 2024 that it would cancel its VIPER project to search for ice on the Moon. NASA has already spent $433 million building the VIPER rover but the project is not finished. Completing the project will cost an additional $84 million. NASA can also choose to cancel the project and sell the rover for parts, or sell it to a private company that is interested in taking over. Some people think NASA should continue because so much time and money have already been spent[3].

a. Should NASA continue the VIPER project just because $433 million has already been spent? Explain your answer.
b. What is the opportunity cost if NASA decides to finish VIPER instead of selling it for parts or to a private company?

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[1] Source: eMarketer.com, "Social Media Effectiveness Roundup," January 2018.

[2] Source: New details emerge from Sonics Owner's combative deposition, *Seattle Times*, June 7, 2008.

[3] Source: Moon rover for sale, *The Economist*, 25th September, 2024. Inside the scramble to save NASA's half billion-dollar, water-hunting moon rover, *CNN*. Retrieved from: VIPER moon rover: Inside the scramble to save NASA's canceled lunar vehicle | CNN

Question 6

Suppose we divide all the goods produced by an economy into two types: consumption goods and capital goods.

a. Draw a typical production possibilities frontier (PPF) to illustrate the trade-off to an economy between producing consumption goods and producing capital goods. Use the concept of opportunity cost; explain why it most likely has a bowed-out shape.
b. Show a point that is impossible for the economy to achieve. Show a point that is feasible but inefficient.
c. Suppose a technological change occurs that allows firms to produce more capital goods with a given amount of resources but has no effect on its ability to produce consumption goods. Show the effect on the PPF.
d. Suppose that Liechtenstein and Luxembourg currently have identical PPFs but that Liechtenstein devotes only 5 percent of its resources to producing capital goods over each of the next 10 years, while Luxembourg devotes 30 percent. Use a production possibilities frontier to explain which country is likely to experience more rapid economic growth in the future. Your graph should include PPFs for Liechtenstein and Luxembourg both for today and in 10 years.