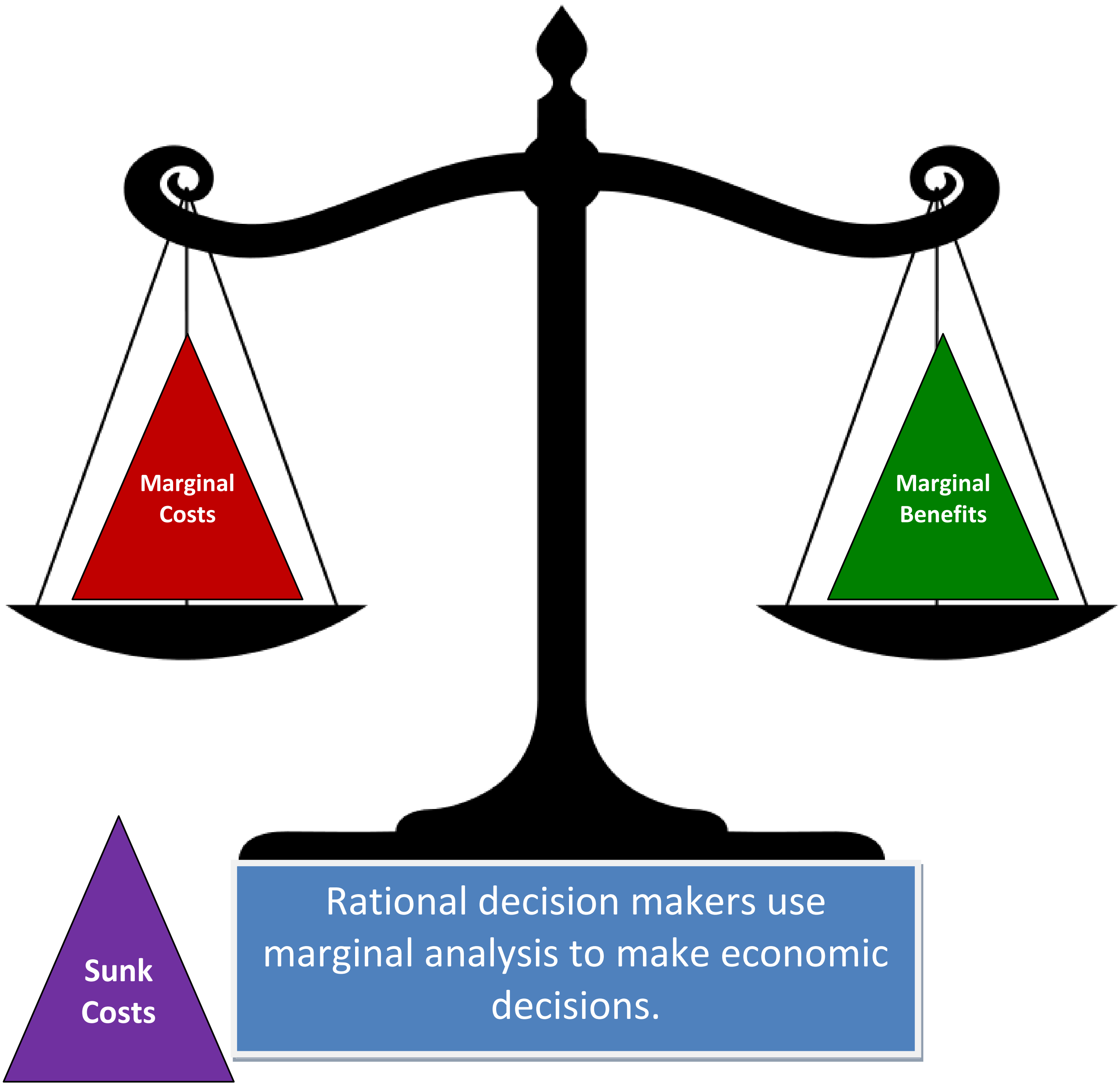
Lesson Graphic Organizer



Big Ideas Card

Big Ideas of Lesson 2, Unit 1
• Scarcity is the fundamental economic problem of having seemingly unlimited human wants and needs in a world of limited resources. • Rational decision makers use a cost-benefit analysis to make economic decisions known as marginal analysis. Rational decision makers respond when the marginal benefits outweigh the marginal costs. Marginal analysis is not the only tool economists use when making decisions. • Individuals may make economic decisions based on emotions, perceptions, and experiences. Economists view these decisions as irrational. • Sunk costs include time, money and resources already incurred. When using a marginal analysis model, sunk costs should not be part of the economic decision making process.

Word Cards

Word Cards from previous lessons needed for this lesson:

- **wants** – Word Card #1 from Lesson 1
- **scarcity** – Word Card #4 from Lesson 1
- **choice** – Word Card #5 from Lesson 1
- **opportunity cost** – Word Card #6 from Lesson 1
- **resources** – Word Card #7 from Lesson 1

8
marginal analysis

making an economic decision by comparing the extra benefits gained by an action to the extra costs of taking such action

Example: Marginal analysis helps businesses balance the costs and benefits of additional actions.

(SS100102)

9
marginal benefit

the additional satisfaction gained by the production or consumption of one more unit of a good or service

Example: The marginal benefit to my health of exercising decreases after 30 minutes.

(SS100102)

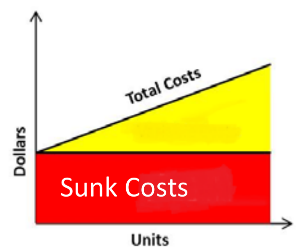
10
marginal cost

the change in the total cost that occurs when the quantity produced or consumed is increased by one more unit of a good or service

Example: The company considered the marginal costs in deciding to produce more cell phones.

(SS100102)

11
sunk cost



a cost that was already incurred and cannot be recovered

Example: The company did not consider its sunk costs such as investment in research and design when it determined to produce more cell phones.

(SS100102)

Thinking at the Margins Activity

Directions:

1. Choose a partner or two and **pick three** of the scenarios below.
2. Make a decision about what you would do in each of the selected scenarios. **Use the Marginal Analysis PowerPoint to help guide** your understanding of terms and types of costs.
3. Fill in the Thinking at the Margins Chart on the back of this page.
4. Explain your choices to the class.
5. Answer questions below the chart (on separate sheet).

1) **Favorite Band or Economics Test**. The good news is that you have been given free concert tickets to see your favorite band, which is performing tonight at the Palace. The bad news is you also have a big economics test on tomorrow. If you go to the concert, you will be gone the entire evening and have no time to study and will be very tired the next day. But the band may never come back to Michigan. Which alternative do you choose?

2) **New Outfit or Gas**. You're driving on your way to the mall. You have your last $50.00 burning a hole in your wallet. You have the option of using all this money for gas for your car, which is almost on empty, or buy a new "outfit" (shirt, jeans, dress, etc.), on sale today only at your favorite store, to wear on your "hot" date tonight with someone you really like. You have enough gas to make it to the mall, but not back if you spend all $50 on clothes. Which alternative do you choose?

3) **Clean House or Mad Parents**. You have two hours before your parents get back from their vacation. They had asked you to clean the house before they returned and you haven't quite gotten to it yet. In fact, the house is a complete mess because you had a few friends (like 20) over last night. You parents are already "disappointed" because your last report card wasn't that good. However, to complicate your decision, a friend of yours just called with free Red Wings tickets for tonight's game. Which alternative do you choose?

4) **College Textbook or Winter Coat**. You are starting your second semester of your first year in college. Your mother gave you $150.00 (just enough money) to buy your textbooks for your college classes. However, you really would LOVE to buy a new winter coat to keep warm while walking to classes. Your grades weren't that great last semester and you really want to do well this term. It is absolutely freezing out today and you have evening class, for which you have not yet bought a textbook. Which alternative do you choose?

5) **Save for Used Car or Fun Now**. You and your best friend both have part time jobs at Subway. You use your money for songs, shoes, and going out on the weekends. Your friend, however, never goes out on the weekend and is saving her money to buy a used car. You are now re-thinking what to do with your paycheck, since you always have to get a ride from friends or your embarrassing dad, who asks dumb questions, like what did you do in school today. Which alternative do you choose?

Thinking at the Margins Chart

Topic of Analysis	Scenario ______	Scenario _______	Scenario _______
Your Choice			
Marginal Benefits			
Marginal Costs			
Sunk Costs (if any)			
Opportunity Cost (lost)			

Discussion questions:

1. **Was there a common theme in your choices?**
2. **Was their disagreement within your group? How so? How did you resolve the differences?**
3. **Besides the two listed, were there other alternatives your group thought of? Did you choose this compromise? If so why?**

Teacher Directions for First Time Use - Federal Reserve Bank of St. Louis Online Courses

1) Teachers should go to http://www.stlouisfed.org/ for entire website access.

2) Next, select "education resources" tab from top menu.

3) Teachers may select course level or choose the "Go directly to the Online Course Login" tab. (Please note that all courses can be accessed without login or password as a consumer user.)

4) Teachers will be asked for their login and password. If this is your first time with these materials, please select the "Instructor Management Panel" and then "First time user."

You will see a screen that looks like the following:

Welcome

Welcome to the Federal Reserve Bank of St. Louis Online Learning Module Instructor Management Panel presented by the Bank's Economic Education department. This tool allows you to:

- assign your students their student code and password
- register your students for online courses
- monitor student progress in each of the online courses
- view the results of students' pre- and post-test results

New features in the online courses are:

- *Discussion board.* Students and teachers may discuss key economic concepts in this virtual classroom. Discussion board questions are included on specific pages within the courses. Teachers may also add their own questions to the discussion board. You may review student responses to the discussion board questions by selecting the "Discussion Board" link in the left navigation. In some instances, teacher guidance is provided for suggested responses to the questions.
- *Online polling.* Similar to classroom response systems, teachers may virtually send questions to their students to check comprehension, gain attention and generate discussion. Summaries of the student responses can be shown in real time to both instructors and students.
- *Assessment reporting.* You may use the student data section to determine what parts of the course students have completed. You may also view the pre-and post-test scores.

Please login with the instructor's login ID and password you have previously received via e-mail. If you have lost or cannot remember your instructor ID and password, there is a "Forgot Instructor Code or Password?" option and you will be e-mailed your password within a few minutes to the e-mail address you provided when you registered.

If you're new to the system, sign up as a new user. You'll be asked for some basic information, and then you'll receive your instructor's login ID and password by e-mail.

Thank you for participating in our Online Learning Module program.

If you have any questions or concerns, please contact economiceducation@stls.frb.org.

Marginal Analysis: What it means to think at the margins…or not

Economists look at how costs and benefits change with small changes in actions. We call this marginal analysis. Marginal analysis is perhaps the key concept in understanding the basic principles of economics. Simply put, **marginal analysis** is an acknowledgement that people (should) make a decision based on the incremental gains and losses that result from that decision, and that **sunk costs** (money, time or other things of worth already expended and unredeemable) should not matter.

Marginal analysis balances the additional benefits from an action against the additional cost. We make decisions every day in this way. For instance, a business owner uses marginal analysis, weighing benefits and costs, when deciding whether or not to expand production. A student does the same when deciding if another hour of studying is a good idea. A parent likewise deliberates over giving her child an allowance or not. Economists call this type of decision making process "thinking at the margins." This means that if the additional benefit exceeds the additional cost, one should complete the action. One should keep taking the action as long as the benefit exceeds the cost. To ensure that all excess benefits (those that exceed costs) are accrued or added up over time, the action should be repeated until, for the last action, the benefits just equal the costs.

Stop and Jot: What is marginal analysis?

Yet, we shouldn't be surprised that not all decisions are made using marginal analysis. Our emotions, experiences, and perceptions of the world often impact our decision making process. This is not to say that such non-marginal analysis thinking is wrong. In fact, it is part of what makes us human. For example, not thinking at the margins is readily demonstrated in our political system, where perceptions and ideology play a large role in decision-making. Elected officials sometimes fail to ignore sunk costs. For example, when the National Aeronautics and Space Administration (NASA) launched into orbit the Hubble Space Telescope, astronomers expected vast new gains and insights in their scientific explorations. Unfortunately, someone goofed. While being tested after being in orbit, scientists and engineers at NASA discovered some flaws in the mirrors used in the telescope that significantly diminished the ability of the telescope to gather signals from deep space. The scientists were devastated, but immediately set upon ways to rectify the problem. Of course, the solution was costly. Many elected officials were outraged, some calling the Hubble Space Telescope a $2 billion boondoggle and debacle. There was a strong movement to deny any more funds to the project, since NASA had not gotten it right initially. These elected officials, representing constituents concerned about federal government spending, considered the sunk cost (money already spent on the telescope) in their decision-making process. While this may reflect how our political system works, it does not demonstrate a marginal analytical approach to the decision.

However, using marginal analysis would result in a much different decision-making process. The $2 billion or so dollars already spent on the Hubble Telescope should not matter, if we are thinking at the margins. What is relevant is whether the benefits of fixing the telescope outweighed the costs of leaving it as it was. In its flawed state, the Hubble Telescope could still perform many useful and interesting scientific functions. Corrected, it could perform more. The only relevant question at that point was whether or not the additional scientific discoveries that would come from fixing the problems would be worth the cost of the repairs. From a marginal analysis perspective, the initial expenditure to build and launch the Hubble Space Telescope should not matter anymore.

Stop and Jot: Why was the decision about further funding for the telescope not an "economic" decision?

Like our elected officials, we seem to violate marginal analysis all the time, counting sunk or emotional costs in our decision-making. People often go to shows, concerts, or sporting events that they claim they do not want to attend because they have already bought the tickets. That is the key, since the tickets have already been purchased, the marginal cost of attending is probably very small, just some time and exertion. The potential gains from the event–the enjoyment from the activity–must have been high when the tickets were first purchased. We know this because when buying the tickets, the cost was high (it included the dollars spent). The expected benefits, at the time of purchase must have been high as well, and exceeded the costs. Now, let's say a month later after buying the tickets, the expected benefits of attending the event are diminished. Perhaps you are tired that day or there is something else you would rather do. The benefit of not attending is seen as greater than the cost. For example, staying home and catching up on sleep is a decidedly better use of your time. Hence, when thinking at the margins, the initial high benefit of attending the event becomes an overall net cost and should not factor into a decision made at the margin. Using marginal analysis, we should now choose to not go to the event since the costs of going (being more exhausted) are greater than the benefit (getting sleep and feeling better). Yet, many of us would go anyway because the fact that the tickets were already bought (a suck cost) weighs heavily on us. OK, we say to ourselves, I bought the tickets so I should probably go.

Economists recognize that our emotions, experiences, and perceptions have a significant impact on our decision-making process. Marginal analysis, or thinking at the margins, is one of many tools that economists use to gauge or analyze how human beings make decisions that impact the economy.

Adapted from: Roseman, Robert E. "Marginal Analysis." School of Economic Sciences. 22 August 2009. 8 July 2014 <http://faculty.ses.wsu.edu/rosenman/dist301/Margin.htm>.

Questions

1. Scarcity forces individuals, firms, and governments to make choices. How do rational decision makers make decisions? Are human beings always rational in their decision making? What other factors play a role?

2. Give an example from your own life how you made a decision using marginal analysis (even though you didn't know the name of it). Did you "irrationally" factor in *sunk costs*?

3. How do individuals violate the concept of thinking at the margin? From a non-economic perspective are these violations necessarily a bad thing? Give an example of a violation and determine whether it's appropriate or not.

Answer Guide for Questions

1. Scarcity forces individuals, firms, and governments to make choices. How do rational decision makers make decisions? Are human beings always rational in their decision making? What other factors play a role?

   Rational decision makers use marginal analysis to make decisions. This balances the additional benefits from an action against the additional cost.

   Human beings are not always rational. Emotions, experiences, and perceptions often play a role in decision making.

2. Give an example from your own life how you made a decision using this marginal analysis (even though you didn't know the name of it). Did you "irrationally" factor in *sunk costs*?

   Answers will vary.

3. How do individuals violate the concept of thinking at the margin? From a non-economic perspective are these violations necessarily a bad thing? Give an example of a violation and explain whether it's appropriate or not.

   Individuals violate the concept of thinking at the margins when they allow other factors such as emotions, experience and perceptions to play a role in decision making.

   Answers will vary. Generally speaking, these violations are not necessarily bad. After all, emotions make us human.

   Students should have a practical example much like the Hubble Telescope example. Answers of whether it is appropriate or not will vary, but students should explain their thinking.