

## Lesson 2: Exploring Scarcity through Marginal Analysis

### Big Ideas of the Lesson

- 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.

### Lesson Abstract:

This lesson introduces students to a decision making process that guides individuals, groups, and societies. Students learn that every time a choice is made, there is something gained and something given up. Through an interactive PowerPoint and small group work, students utilize marginal cost, marginal benefit, and sunk cost theory to answer economic problems. The lesson concludes with a reading focusing on the difference between making an economic decision (at the margins) and other factors that influence decision-making (emotional, social, political, etc.).

**Content Expectations:** E1.1.1; E4.1.1; E4.1.2; E4.1.5

**Common Core State Standards for Literacy in History/Social Studies:** RH.9-10.2 and 4; WHST.9-10.4

**Key Concepts:** marginal analysis, opportunity cost, scarcity, sunk costs

**Teacher Note:** Prior to beginning this lesson, visit the Federal Reserve Bank of St. Louis website in preparation for **Steps 10-13**. Students will be using the Internet to take a brief online course at <http://www.stlouisfed.org/>. Depending on the availability of computers in your building, you may want to decide which option from those described in **Step 12** that best fits with your teaching situation. Detailed instructions for teachers to access and set up the course can be found in the document “First Time Use - Federal Reserve Bank of St. Louis Online Courses” located in the *Supplemental Materials (Lesson 2, Unit 2)*.

### Lesson Sequence

1. Begin the lesson by reminding students that economics is all about decision-making. Explain to students that in this lesson, they are going to explore the type of analysis that economists use when making an economic decisions – marginal analysis. Begin by showing students **Slides 1-3** of the *PowerPoint (Lesson 2, Unit 1)*. Ask students to turn-and-talk with a neighbor and identify what is wrong with the poster on **Slide 2**. Allow students about two minutes to discuss and then call on students to share responses and ask how they arrived at their responses. Show students **Slide 3** and discuss why the poster is wrong and the differences between scarcity and a shortage.
2. Show **Slide 4** of the *PowerPoint* and allow students a minute to answer the problem posed on the slide. Have students stop and jot their responses. Ask a few students to share how they arrived at their decision. It is important that the decision-making process remain the focus of the conversation (what steps did students take to arrive at their decisions?) **Teacher Note:** Students will likely want to debate the

value of each choice. Direct the conversation to how they made their decision rather than the particular choice.

3. Move to **Slide 5** and have students turn and talk for a minute to generate ideas about what other information would be helpful in making the decision about which tablet to purchase. Elicit several responses from students and then display **Slide 6**. Have students examine the different characteristics of each tablet. You may want to call on a tech savvy student to explain one or two of the characteristics. Alternatively, you may want to explain one characteristic as an example. For instance, the front camera characteristic differs on each product. After explaining that more megapixels means a sharper image, ask students how important this characteristic was to making their decision.

**Teacher Note:** This is a good opportunity to discuss how the more time spent researching information about a purchase should also be factored into the cost (lost time or money). This is why sometimes we purchase a product without knowing everything about it – we just aren't willing to devote the time to investigate. That in itself is an economic decision!

Continue the discussion with students by displaying **Slides 7-8**. Use the slides to discuss how price influences the decision-making process.

4. Display **Slides 9-11** to help students think about marginal analysis and their experiences in thinking at the margins. Use Word Cards 8-10 to help students understand new vocabulary terms such as marginal analysis, marginal benefit, and marginal costs. Be sure to discuss the questions on **Slide 10** with the whole class. Move to **Slide 12** and have students turn and talk in response to the questions on the slide. Ask a few pairs to share their responses with the whole class.
5. Next, display **Slide 13** to discuss the concept of sunk costs. After discussing the slide with the class, have students share examples when they have considered sunk costs in their decision-making. For example, suppose a student studied for a midterm that was scheduled for the 4<sup>th</sup> Friday of the semester and upon showing up to class the teacher announces that the midterm was cancelled. Tell the students that the sunk cost was the time spent studying for the midterm. Use Word Card 11 to help students understand the term "sunk costs."
6. Distribute the two-page handout "**Thinking at the Margins Activity**" located in the *Supplemental Materials (Lesson 2, Unit 1)*. Divide students into groups of two or three students each. Have students read the directions at the top of the handout. As students work on the activity in groups, move around the room and assist them as needed. Once students are done with the activity, be sure they discuss and record their answers to the questions beneath the chart. Then, walk through each scenario with the whole class having each group share their responses. Allow each group to share at least one of the scenarios. Point out creative ways that groups recognized marginal costs and marginal benefits. Conclude this activity by eliciting several responses to questions 1-3 beneath the chart.

**Teacher Note:** It is likely that students will ask about sunk costs. There may not be a sunk cost, which is fine, but redirect them to identify the emotional influences that influenced their decisions.

7. This is a good point to gauge student understanding through a formative assessment as students may get marginal cost and opportunity cost confused. Have students engage in a stop and jot or turn and talk describing the difference between marginal cost and opportunity cost. Elicit student responses and reiterate the difference as needed. Guide students to recognize that opportunity cost is described as the sacrifice of the highest value of a good that one has to forego to obtain another. It looks at the entire cost of a choice. Marginal cost is the cost incurred in producing an additional unit of a good or service. (For an additional explanation, show the video "Marginal and Total Opportunity Cost from PPF" at <http://www.youtube.com/watch?v=iZYkQDloJnE>.)

8. This step has students review key concepts using the educational resources provided through the Federal Reserve Bank of St. Louis. This online course will only take about 12 minutes, but serves as a good review of lesson content and an introduction to the Federal Reserve of St. Louis online courses. This also could serve as a tool for absent students. Prior to enacting this portion of the lesson, decide among the following options, each which requires a different set up procedure.
- **Option 1: Keeping Track of Individual Student Progress**  
If you would like to keep track of individual student progress, register your students through the Instructor Management Panel - see specific directions in the document **“First Time Use - Federal Reserve Bank of St. Louis Online Courses”** found in the *Supplemental Materials (Lesson 2, Unit 1)*. (The online course allows teachers to print individual login and password instructions for each student.) Direct students to login, enter their passwords, and begin work. The advantage of this step is that once logged in, there will be other opportunities to document and measure student growth using this website throughout the course.
  - **Option 2: Individual Student Review without tracking progress**  
Allow student practice as online consumers (there is no need for a login or password). Direct students to <https://bts.stlouisfed.org/opportunity-cost/?p=yes> for Opportunity Cost Online Course for Consumers.
  - **Option 3: Whole Class Review**  
Follow the same preparation as Option 2, but the teacher presents it using a whiteboard to walk students through the review experience.
9. Set up your online course for your class by going to the website: <http://www.stlouisfed.org/>. Then select “education resources” tab from top menu or by clicking the apple on the page. 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.” Follow the instructions on the page. A separate sheet of directions with a screen shot can be found on the **“Teacher Directions for First Time Use - Federal Reserve Bank of St. Louis Online Courses,”** located in the *Supplemental Materials (Lesson 2, Unit 1)*. For a direct link for students, go to: <https://bts.stlouisfed.org/opportunity-cost/index.php?sid=318&p=1>.

**Teacher Note:** For easy distribution to students, this program will allow you to print individual passwords and logins for each student.

If a student missed class, or if you or a student is looking for additional understanding of Lesson 1 and Lesson 2 of this unit, go to the titled “Opportunity Cost - The Economic Lowdown Podcast Series” at [http://www.stlouisfed.org/education\\_resources/economic-lowdown-podcast-series/opportunity-cost/](http://www.stlouisfed.org/education_resources/economic-lowdown-podcast-series/opportunity-cost/). This podcast covers scarcity, choice, opportunity cost, and there is no free lunch. The time of this podcast is 5:43.

10. At the conclusion of this lesson or for homework, students should read **“Marginal Analysis: What it means to think at the margins... or not”** located in the *Supplemental Materials (Lesson 2, Unit 1)*. The text in this handout is chunked and broken into parts by reflective questions interspersed throughout to scaffold student learning. It is recommended that teachers have students pause during reading to reflect and process what they have read. When students finish the reading, they should answer the questions at the end of the handout. An answer guide has been included in the *Supplemental Materials (Unit 1, Lesson 2)*.

**Teacher Note:** The next lesson requires students to have a spiral bound notebook to use as their “Decision-Making Notebook” throughout the course. Students will use this notebook to write reflectively and for “writing to learn” exercises embedded in the lessons.

## Resource Section

### Content Expectations

- E1.1.1:** Scarcity, Choice, Opportunity Costs, and Comparative Advantage – Using examples, explain how scarcity, choice, opportunity costs affect decisions that households, businesses, and governments make in the market place and explain how comparative advantage creates gains from trade.
- E4.1.1:** Scarcity and Opportunity Costs – Apply concepts of scarcity and opportunity costs to personal financial decision making.
- E4.1.2:** Marginal Benefit and Cost – Use examples and case studies to explain and evaluate the impact of marginal benefit and marginal cost of an activity on choices and decisions.
- E4.1.5:** Personal Decisions – Use a decision-making model (e.g., stating a problem, listing alternatives, establishing criteria, weighing options, making the decision, and evaluating the result) to evaluate the different aspects of personal finance including careers, savings and investing tools, and different forms of income generation.

### Common Core State Standards for Literacy in History/Social Studies:

- RH.9-10.2:** Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- RH.9-10.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.
- WHST.9-10.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

### Instructional Resources

#### Equipment/Manipulative

Computer with PowerPoint capability  
LCD or projector display

#### Student Resource

*Econ Ed – Opportunity Cost*. Federal Reserve Bank of St. Louis. 8 July 2014  
<<https://bts.stlouisfed.org/opportunity-cost/?p=yes>>.

Gustafson, Kathryn, Brian Pierce and Scott Warrow. *PowerPoint (Lesson 2, Unit 1)*. Teacher-made materials. Oakland Schools, 2014.

- - -. *Supplemental Materials (Lesson 2, Unit 1)*. Teacher-made materials. Oakland Schools, 2014.

#### Teacher Resource

*Econlowdown*. Federal Reserve Bank of St. Louis Online Learning Program. 8 July 2014  
<<https://bts.stlouisfed.org/opportunity-cost/index.php?sid=318&p=1>>.

Federal Reserve Bank of St. Louis. Education Resources. 8 July 2014<<http://www.stlouisfed.org/>>.

*Marginal and Total Opportunity Cost from PPF*. YouTube. 5 August 2012. 8 July 2014  
<<http://www.youtube.com/watch?v=iZYkQDloJnE>>.

News Hounds. 8 July 2014 <<http://newshounds.keenspot.com/images/NH1/Fan%20Art/scarcity.jpg>>.

"Opportunity Cost - The Economic Lowdown Podcast Series." Federal Reserve Bank of St. Louis. 8 July 2014 <[http://www.stlouisfed.org/education\\_resources/economic-lowdown-podcast-series/opportunity-cost/](http://www.stlouisfed.org/education_resources/economic-lowdown-podcast-series/opportunity-cost/)>.

Rosenman, Robert E. "Marginal Analysis." School of Economic Sciences. Washington State University. 22 August 2009. 3 April 2014 <<http://faculty.ses.wsu.edu/rosenman/dist301/Margin.htm>>.

*Tablet Comparison*. 9 to 5 Mac. Apple Intelligence. 8 July 2014 <<http://9to5mac.com/2011/02/09/tablet-comparison/>>.