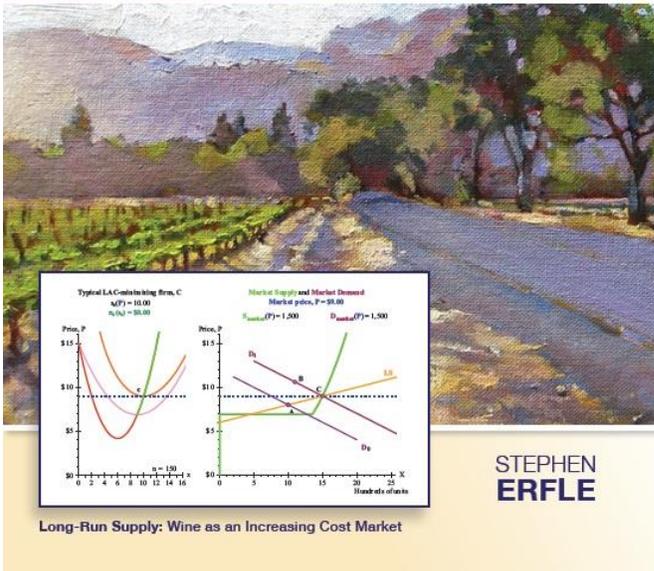


*Student Guide to Intermediate Microeconomics:  
An Interactive Approach*

INTERMEDIATE  
**MICROECONOMICS**  
An Interactive Approach



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## Preface

This student guide was written by three students, not by me. One, John Mayers, is a senior at Dickinson College and the other two are first year students at the Erivan K. Haub School of Business at Saint Joseph's University. All three had taken an introductory microeconomics course at Dickinson College, but none had taken an intermediate microeconomics class prior to undertaking this project. Over the course of the summer of 2015 I talked this three person "class" through *Intermediate Microeconomics: An Interactive Approach* in multiple hour sessions, three chapters at a time. Each took primary responsibility for one of the chapters and each read and commented on each other's chapter guides. This led to another round of editing for each chapter guide. Finally, I read each chapter guide and provided comments. This led to further revision and editing. This guide is the final product.

The impetus for providing a student perspective on this material comes from conversations I had with another student, regarding another book. Benjamin Greene, Dickinson College, Class of 2014, worked with me during 2012 on a managerial economics text that I was revising with coauthors Paul Keat and Philip Young. Ben argued that traditional textbooks, ours included, do not connect well with current undergraduate students because they have been trained in high school to, and were rewarded for, finding boldfaced words and definitions rather than more critically reading texts in search of deeper understanding. He argued that topics need to be structured into smaller bite-sized pieces if at all possible, in order to allow this deeper meaning to emerge. He was instrumental in helping us create a managerial text that is more approachable to students.

This guide represents one strategy I have taken to make the material in *Intermediate Microeconomics: An Interactive Approach* more "current student friendly." Another strategy, of course, are the interactive Excel files that are at the core of this text.

I recognize that current students live in a different learning environment from earlier generations of students. The guide is meant to help you focus your reading of this text by offering the view of three students who worked through the material themselves. It provides suggestions regarding where they got stuck, and how they got "unstuck" in the learning process.

Good luck, and enjoy the journey.

Stephen Erfle,

Dickinson College

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## Introduction to the Student Guide

Welcome to the *Student Guide to Intermediate Microeconomics: an Interactive Approach*. This guide was specifically written for your text and is meant to present a more student-based approach to preparing and understanding the materials discussed throughout this book. **This guide was written by students, for students.**

It is best not to think of this guide as a study guide for exams or a replacement for the actual readings, but rather an aid to more fully grasp the concepts in the text. In this Student Guide you will find outlines of chapters, important vocabulary, simpler presentation of ideas, and more. Definitions and answers may not always be directly provided to you, but direction to how to find the answers will be.

Each chapter's guide will be broken up into three parts. First will be the introduction to the chapter, which will provide a brief explanation of what you should expect to read about in the chapter. Then there will be a list of key vocabulary, defined in less "academic" terms than provided in the glossary. Finally there will be a semi-detailed chapter outline, which will provide key concepts and points that you should look for when doing your reading.

We wish to thank another Dickinson College student, George (Gavin) Allen, who provided detailed comments on much of the first half of this guide during the fall of 2015.

In short, we hope that this guide provides a more comprehensive, student-based approach to the topic.



*Jacob Milligan, John Mayers, and David Erfle*

## Chapter 3

### INTRODUCTION

Chapter 3 marks the start of Part 2: Consumer Theory. The chapter is the first to introduce new material at an intermediate level. After reading this chapter you should understand the properties of preferences and how they can be geometrically represented through indifference curves and indifference maps. By using preferences of goods and their indifference maps, you will be able to recognize perfect substitutes or perfect complements. In addition, you should be able to interpret what happens when one or both goods reach a satiation point. You will practice matching economic stories to their indifference maps as well. By the end of the chapter you should be able to describe the requirements for well-behaved preferences and some of the reasons for using them. Finally, you should understand what a barter model is and how it is used to help economists understand the relationship between preferences and economic behavior. This model allows you to examine why people trade with one another by being able to visualize a notion learned in introductory economics: Pareto efficiency.

### VOCABULARY

- Preferences – A consumer’s likes and dislikes without considering price or budget.
- Bundle of goods – A set of goods that are used to analyze an individual’s preferences. (In the text, bundles are typically shown using **boldface** letters.)
- Marginal Rate of Substitution (MRS) – Represents the rate at which someone is willing to exchange good y for good x. (the negative of slope,  $-\Delta y/\Delta x$ , so MRS will typically be a positive number).
- Allocation of resources – A listing of what each person has.
- Economic goods – Amount of a certain good or service that is below the satiation point, and still is preferred by the individual. (More is better.)
- Economic bads – Amount of a certain good or service that is above the satiation point, and is not preferred by the individual. (More is worse.)
- Economic neutrals – When an individual feels indifferent between an initial bundle and a new bundle with more or less of x, holding all other goods constant. (More is the same.)
- Indifference curve – Different pairings of goods that provide the same satisfaction for the consumer. In symbols, if the consumer is indifferent between bundles **A** and **B**,  $A \sim B$ .
- Satiation point – The point where a good goes from being “good” to being “bad.”
- Bliss point – The point where the x and y satiation points intersect.
- Perfect substitutes – Two goods that can be traded for each other at a constant rate and maintain the same level of satisfaction.
- Perfect complements – Two goods that tend to be consumed at a fixed proportion to each other.
- Well-defined preferences – Preferences that are both transitive and complete.
- Well-behaved preferences – Preferences that are complete, transitive, monotonic, and convex.

- Barter – The exchange of goods and services without the use of money.
- Edgeworth Box – A diagram that includes information from both individuals by superimposing one individual's information on top of the other's. Combines both individual's indifference curves into one diagram.
- Pareto optimal – NO reallocations of resources in which least one is made better off and no one involved is made worse off.
- Pareto superior – A reallocation in which no one involved in the reallocation of resources is made worse off and at least one is made better off.
- Contract curve – Set of all Pareto optimal allocations of resources.
- Economic region of consumption – Quadrant III relative to the bliss point, where both X and Y are economic “goods” and not “bad.”
- Completeness – Being able to always answer the question: which do you prefer? Answers must be:  $A \succ B$ ; or  $B \succ A$ ; or  $A \sim B$ .
- Transitivity – If you prefer bundle A to B and you prefer B to C, then you prefer A to C. In symbols:  $A \succ B$  and  $B \succ C$  then  $A \succ C$ .
- Monotonicity – The preference that more of a good is at least as good as less of that good.
- Strict Monotonicity – The preference that more of a good is better than less of that good.
- Convexity – If there are two bundles that you are indifferent between, then any bundle on the line segment connecting the initial two bundles is at least as good as these bundles.
- Strict Convexity – If there are two bundles that you are indifferent between, then any bundle on the line segment connecting the initial two bundles is better than these bundles.

## OUTLINE

### Section 3.1 – *What does a consumer want?*

- **Preferences**
  - A preference is a like, dislike, or indifferent opinion on a good or service.
  - Preference notation: “ $\succ$ ”, “ $\sim$ ”, or “ $\succsim$ .”
  - What are the four basic properties to preferences?
- **Well-defined Preferences**
  - Preferences are well defined if they are both complete and transitive.
  - What does it mean for a preference to be complete or transitive? How can one express these using symbols?
- **Monotonicity**
  - What does this property mean and what is the difference between weak and strict monotonicity?

## Section 3.2 – *Representing what a consumer wants on a graph*

- **Indifference Curves**

- Indifference curves are made up of sets of bundles or goods that are indifferent to one another.
- What is the Marginal Rate of Substitution?
  - *Hint:* Use Figure 3.2 to help your understanding.
- The indifference curve acts as a boundary between two distinct sets of points
  - *Upper Contour Set* – above and to the right of the indifference curve (given monotonic preferences); these bundles are at least as good as the initial bundle.
  - *Lower Contour Set* – below and to the left of the indifference curve (given monotonic preferences); the initial bundle is at least as good as this set of bundles.
- The slope of a tangent line at a point on the smooth indifference curve represents the MRS.
  - Figure 3.3 demonstrates this concept.

- **Convexity**

- A set is convex if you have two points that are indifferent, and all points on the line segment between those points are “at least as good as” the initial points.
- A set is strictly convex if the points between the two initial points are “better than” the initial points.
  - *Hint:* Use Figure 3.4 to understand and examine convexity and how it can be graphically represented.

## Section 3.3 – *Using indifference curves to tell economic stories*

- **Perfect Substitutes**

- What are perfect substitutes?
- Figure 3.5 (and questions) examines how perfect substitutes can be expressed graphically.

- *Note:* Goods an individual is willing to trade at a constant rate have indifference curves that are actually indifference “lines.”
- **Perfect Complements**
  - What are perfect complements?
  - Figure 3.6 (both panels A and B) explains how perfect complements can be expressed graphically.
    - The indifference curves are L-shaped.
  - Test your understanding by answering the questions that go along with Figure 3.7.
- **Satiation and Bliss Points**
  - What is a satiation point and how can it be graphically represented?
    - *Hint:* Use Figure 3.8 (all panels) to help your understanding.
  - A bliss point is where the x and y satiations intersect.
    - Use Figure 3.10 and the questions that go along with it to understand and examine bliss points and how they can be expressed graphically.
  - What is an economic neutral?
  - What quadrant, with respect to a bliss point, is the “economic region of consumption?”
  - Use Figure 3.13, the questions that go along with it, and the dynamic Excel file to understand and examine the bliss points, indifference curves, and bliss points. .

### Section 3.4 – *Well-behaved preferences*

- **Well-Behaved Preferences**
  - What four traits define well-behaved preferences?
  - Read over “The rationale behind monotonicity” and “The rationale behind convexity,” to gain a full understanding of what properties construct a well-behaved set of preferences.
  - *Really* well-behaved preferences:
    - By changing monotonicity and convexity to strict monotonicity and strict convexity, line segments are excluded. This guarantees indifference curves in the indifference map are, indeed, downward sloping curves.

- Use Figure 3.14 (all panels) and read the explanation in the text that goes along with it to better understand how well-behaved preferences can be graphically represented.

### Section 3.5 – Applying the preference model: A simple model of barter

- **Barter**

- Exchanging goods and services without the use of money. Think of a childhood tradeoff.
- A post-Halloween candy exchange between Annie and Bob is used through the rest of the section to help illustrate what barter is and how it can be graphically represented.
  - Use Figures 3.15 through Figure 3.20 to follow the barter model.

- **Pareto Superior & Pareto Optimal**

- Pareto superior occurs when no one is worse off and at least one is made better off than the initial allocation.
- Pareto optimal occurs when NO reallocations of resources exist in which least one is made better off and no one involved is made worse off.
  - *Hint:* An allocation is Pareto optimal if there are no Pareto superior reallocations.
- Figure 3.16 and Figure 3.17 examines these terms through the Annie/Bob example.

- **Edgeworth Box**

- What is an Edgeworth box and what are its benefits?
- Use Figure 3.18 (all panels) to understand through the Annie/Bob example.
- Edgeworth box makes it simpler to recognize any Pareto superior or Pareto optimal allocations.
- Figure 3.19 (both panels A and B) examines the Pareto superior “footballs” that are created by using an Edgeworth box.
- A contract curve is set of all Pareto optimal allocations of resources.
  - Use Figure 3.20 (both panels A and B) to understand and examine contract curves and how they are graphically represented.