

**MICROECONOMIC
PREDICATES
TO
LAW AND ECONOMICS**

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To my father, who instilled in me an appreciation of abstract thought, and to the memory of my mother, who taught me that abstract thought alone never accomplished anything.

Preface

This book stems from materials I prepared for students in my Law and Economics Course at Florida State University. Because I do not require that students have any economics background as a prerequisite for this course, I spend the first several weeks of the course introducing the economics concepts that I use in evaluating various legal doctrines. Unfortunately, I did not find any Law and Economics texts that provided what I considered to be a sufficient overview of economics.

Some Law and Economics texts seem purposely to avoid analytic rigor in discussing underlying economic principles. Sensitive to law students aversion to equations and graphs, I began teaching the course using one of these texts. I found, however, that students frequently responded to the lack of analytic rigor by failing to differentiate fuzzy from precise thinking, for example by reasoning from examples that did not generalize to more universal propositions. Other texts were more rigorous in their treatment of economics, but left many fundamental concepts unexplained until they were needed for a particular legal analysis. When I used one of these texts, I found that the complexity of the legal issue whose analysis prompted introduction of the novel economic concepts confused the students. This reinforced my intuition that students best learn how to apply economics to law if they have already been introduced to the economic concepts in an orderly and coherent manner.

Thus, perhaps by trial and error, I was led to assign a separate Microeconomics text in addition to the primary Law and Economics text I used. I found that Microeconomics texts generally included most of the information that I needed to present to the students. Unfortunately, these texts included much more than the students needed to know, and picking and choosing my way through the text often disrupted the very coherence of presentation that prompted me to assign a supplementary text in the first place. In addition, the emphases of these texts tended to downplay many issues I consider important, including the significance and reality of the assumptions underlying economic models, and the value choices underlying the economic measure of goodness—efficiency. Finally, many students complained about the expense of a text that they used only for the first few weeks of the course.

In the summer of 1995, I wrote and distributed to my students in Law and Economics a set of notes on “Microeconomic Predicates to Law and Economics” as a supplement to the primary Law and Economic text that I used. The students enjoyed the straightforward approach of the notes, and their understanding of how economics applied to legal reasoning seemed to improve. This book is an expanded version of those notes, and is intended primarily as a supplement to existing Law and Economics texts. The chapters on efficiency, intertemporal choice and Coase’s theorem, however, might also provide short but rigorous backgrounds to economic concepts used in traditional first year courses, an introductory course on philosophical approaches to law, and a course on corporate finance.

In this book, I present the microeconomic fundamentals necessary to evaluate legal doctrines in a rigorous manner without introducing what many law students consider to be complex mathematics such as calculus or even sophisticated analytic geometry. Where mathematical tools are helpful, such as in explaining the notions of budget constraints and marginality, I develop the necessary mathematical concepts in the book. I do rely heavily on graphical analyses to develop economic concepts. Nonetheless, I have found that students with

economics backgrounds or strong analytic abilities can work their way through the book without too much difficulty. Students with neither an economics nor analytic background can also work their way through the book if they make the effort and are given some support by review of the material in the classroom and assignments of homework exercises that reinforce the materials in the text.

The book emphasizes those aspects of microeconomic theory that I have found most important to the evaluation of economic models of the impact of legal rules. Most of the illustrations of economic concepts draw on examples which should be familiar and of interest to law students. I have found that this helps maintain law students' interest in the abstract economics until we finally apply the concepts in the book in a more concrete setting. Overall, I hope that, like the notes from which this primer on microeconomics stems, this book will ease students' transition into thinking economically about issues of law.

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Introduction

Law and Economics focuses on using economic theory to help apply, understand and evaluate law. Economics enters into law in at least three ways. First, legal outcomes in particular cases depend on the facts of those cases. Economics can help one make factual determinations. For a simple example of how economics can facilitate such fact-finding one need look no further than a tort case in which a worker has been disabled. If the worker prevails on her claim, she is entitled to receive compensation for the harm caused by the tortious act. But what is the value to her of the wages that she loses because of the disability? Economics indicates how to reduce a future income stream to a single present value.

Second, some laws regulate conduct in explicit economic terms. In order to understand these laws, one must understand the economic concepts on which they rely. For example, antitrust law prohibits monopolization. Economics gives a definition of monopoly and explains why monopolies generally are not good for society. These economic concepts, in turn, give meaning to the law and help courts and regulators fashion legal doctrines to implement the law effectively.

Third, economics provides some measure of what is “good.” Thus, lawyers can use economics to critique legal doctrines. In addition, borrowing the economic notion of “goodness” allows a litigator to generate persuasive arguments about whether legal rules should be changed or the bounds of their application limited. An example, which we will consider in detail later in the course, is whether to allow a tort action against a manufacturer for producing a product that causes harm even if the product is nonetheless valuable and the manufacturer has taken sufficient care in its production to minimize such harm. In other words, should society prefer strict liability to negligence for harm caused by products? Although economics will rarely provide “the right answer” to such questions about the strictures of legal rules, it will help illuminate the impact of adopting one rule versus the other, and will give some guidance about which is likely to make society better off as a whole.

The branch of economics which most directly bears on legal issues is microeconomics. Microeconomics is the study of how a decision-making unit, such as an individual, a firm, a governmental body, or even a judge, reacts to changes in economic circumstances, such as prices, costs, income and even legal rules.¹ As such, we should not be surprised that microeconomics has much to say about law. Microeconomics addresses how decision-makers will behave in response to circumstances and, after all, law is the means by which the government constrains and influences behavior.

Microeconomics posits a theory of human behavior, which it calls economic rationality, and makes simplifying assumptions about the attributes of the market or of the transaction of interest. It uses this theory and its simplified description of the relevant economic world to create analytically rigorous models that predict the outcome that would occur in this simplified world. By comparing the economic model to the real world, microeconomics can often predict

¹ The other major branch of economics, macroeconomics, deals instead with the relationships and movements of aggregate economic measures such as gross national product, unemployment rates, inflation rates and money supplies.

approximate real world outcomes. Perhaps of greater significance for actors on the legal stage, microeconomic models can give insights into the reasons that these results occur, allowing lawmakers to tailor legal rules so that these rules are more likely to induce the behavior that society seeks. This is the positive or descriptive aspect of microeconomics.

In addition to providing descriptions and explanations of economic outcomes, microeconomics also has a normative aspect. It defines a measure of economic “goodness,” which it calls efficiency. By predicting how resources will be allocated under various legal rules and comparing these predictions to its measures of efficiency, microeconomics provides a means to evaluate whether particular legal outcomes are preferable to others.

Unlike in the straight study of economics, using the concept of efficiency in legal analysis is controversial. Many economists see their role as describing economic outcomes or evaluating which of several outcomes is preferable, **accepting as given individuals’ own assessment of what they like and the economic definition of efficiency.** Many economists would not include questioning the definition of efficiency within the scope of their tasks. Lawyers, however, concern themselves with such grand notions as justice and fairness. Frequently laws are intended to influence an individual’s fundamental values and personal ethics. Thus, the study of microeconomics for lawyers stresses different aspects of the subject. In addition to creating economic models to predict and evaluate outcomes, we will spend a great deal of time questioning the assumptions underlying those models. We will ask whether those assumptions are unrealistic in a way that influences the models’ predicted outcomes. Finally, we will ask whether the assumptions, even if realistic, bias the analysis towards outcomes that society would consider improper or unjust.

At this juncture, an example of an economic model that bears on a legal question will help illuminate the possible interplay between economics and law, as well as set limits on that interplay. Consider the question of whether the government should raise the minimum wage. Standard economic models analyze such a raise as an increase in the cost of labor to producers. They predict that an increase in the minimum wage will result in fewer low wage jobs. The decrease in such jobs may be so great that it is unclear whether low wage earners as a class will benefit: some will benefit as a result of the increased wage, but others will be hurt because they will be out of work due to the decrease in jobs.

Thus far, the model has been merely descriptive. The normative aspect of economics, however, counsels that increasing the minimum wage will be inefficient. There will be some workers out of a job who would be willing to work for less than the new minimum wage, and some employers who do not offer jobs at the new wage who would be willing to do so at a lower wage. These workers and employers would both be better off if the government let them bargain for a wage below the increased minimum. Raising the wage will increase the number of individuals who would be prohibited from reaching such a bargain.

Nonetheless, society might prefer the increased minimum wage despite its inefficiency for several reasons. First, the descriptive economic model might be inaccurate: there is some data suggesting that workers facing decreases in pay do not behave as economically rational actors.² Because feelings of self worth are often tied to the wage one receives, employees might derive

² See Lester Thurow, *GENERATING INEQUALITIES* 77 (1975).

a value from a high wage independent of the buying power of the money itself. In such a case, a worker might choose to refuse to work at a lower wage than she believes she deserves, even if she cannot garner her just wage anywhere in the job market. Ultimately, this choice might affect how an employer values the work of his employees. In other words, raising the minimum wage might affect the value that workers place on their work that in turn will affect their willingness to work for a lower wage and an employer's willingness to offer them a higher wage.

Second, even if the model is descriptively accurate, society may choose not to act efficiently. Cultural norms might lead citizens to prefer a minimum wage that pays "an honest wage for an honest day's work." In other words, people might value notions of fairness above efficiency so that as a society they would gladly pay the price of a just, if inefficient, minimum wage.

This example illustrates the potential power of economic models and their potential limitations. Armed with our understanding of economic models, and keeping in mind caveats about use of such models, it is time to begin our foray into the world of microeconomics.

Suggested Additional Reading

Jon Elster, *SOLOMONIC JUDGEMENTS: STUDIES IN THE LIMITATIONS OF RATIONALITY* 1-35 (1989).

Milton Friedman, *The Methodology of Positive Economics*, in Milton Friedman, *ESSAYS IN POSITIVE ECONOMICS* 3-43 (1953).

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A.K. Klevorick, *Law and Economics: An Economist's View*, 65 AM. ECON. REV. 237, 237-43 (1975).

Werner Z. Hirsch, *LAW AND ECONOMICS: AN INTRODUCTORY ANALYSIS* 2-11 (2d ed. 1988).

Frank H. Knight, *THE ECONOMIC ORGANIZATION* 3-31 (1951).

Cento G. Veljanovski, *The New Law-and-Economics: A Research Review*, reprinted in *READINGS IN THE ECONOMICS OF LAW AND REGULATION* 12-25 (A. I. Ogus & C.G. Veljanovski, eds. 1984).

Consumer Choice and Demand

The primary decision-makers in economic markets are consumers and producers. We begin our study of economics by modeling how consumers make economic decisions. We do so for several reasons. First, laws often restrict consumer choices or raise prices to consumers. We would like to know how consumers will react to such restrictions or price increases. For example, we might like to know what consumers will do if states increase their cigarette taxes. Will smokers smoke less or will they instead give up some other product on which they spend money in order to pay the higher price? To what extent might smokers attempt to avoid the tax by buying bootleg cigarettes? The study of consumer choices will provide insights into answering such questions. In particular, it will demonstrate how consumer choices lead to demand functions for a product, which are crucial to understanding how the market for the product functions.

Second, the theory of consumer choices will also illuminate how individuals might interact outside of a market transaction. This is very significant for legal analysis because law often applies to such individual dealing. In economics, the model we will use for such non-market transactions is one of two consumers bartering two goods, but the insights generalize to other contexts. For example, such a bartering model will have much to say about any contract between individuals, such as one might negotiate when buying a used car from a prior owner.

A. Consumer Preferences and a Theory of Constrained Choice

1. The rational consumer and utility

To begin, economists posit a simplified model of how consumers make choices. The economist assumes that the consumer faces choices about what “market-basket” of goods to buy. A market-basket is merely a set of specific quantities of available goods. Economists assume that consumers compare market-baskets and choose between them according to the following assumptions:

- (i) For any two market-baskets, A and B, either the consumer prefers A to B, prefers B to A, or is indifferent between A and B. Consumers act consistently over the time frame in which our analysis occurs. In other words, if the consumer prefers A to B now, she will also prefer A to B later.
- (ii) If a consumer prefers market-basket A to B, and market-basket B to C, then she will prefer A to C.
- (iii) Goods are good things, so all else being equal, a consumer wants more of them. Thus if market-basket A differs from market-basket B only because A has less of some good than B, the consumer will prefer B to A.
- (iv) A consumer derives diminishing marginal utility from goods. The more a consumer has of a good, the less she values each unit of that good relative to other goods.

- (v) The consumer acts to obtain the market-basket that she prefers most out of all those that she can possibly obtain.

These assumptions seem logical, and economists therefore refer to a consumer who follows them as a “rational” consumer. But, in legal analysis there are situations in which these assumptions do not hold true. We must always remember to question whether we believe that these assumptions are accurate before accepting the teaching of any economic model.

To ease the comprehension of these assumptions, we can assign numbers to market-baskets, ordering them by the consumer’s preference. If we call these numbers “utility” then all of our assumptions come down to assertions that consumers place more utility on the first few units of a good than on later units, and rational consumers maximize utility. We must be careful, however, not to oversimplify; therefore we must remember that utility is merely a means of ordering preferences for a particular individual. There is no absolute meaning to the numbers we assign as utility. For example, we could take any such assignment for an individual and multiply the numbers by ten, and the new numbers would work just as well as the original numbers. Most significantly, this means that utility is only a means of comparing choices for one individual; it cannot be used to compare the preferences of one consumer with those of another.

2. *Consumer indifference curves*

Economists like to have graphs to represent their theories, and the theory of consumer choice is no exception. We cannot graph all the goods available to a consumer on a two-dimensional page but luckily we can graph an economic universe consisting of only two goods without losing any of the ideas underlying the theory of consumer choice. So, without loss of generality, let’s consider the choices facing a consumer (call him Al) who can purchase either food or clothing.

We start by graphing lines that connect market-baskets between which Al is indifferent. These curves are called Al’s indifference curves and are graphed in Figure 1. Because of our assumptions, these curves will be convex to the origin, and non-intersecting, and Al will prefer points on curves farther from the origin to those on curves closer to the origin. Note from the curves in Figure 1 that Al is indifferent between 6 outfits of clothing and 1 meal of food, 4 outfits and 2 meals, 3 outfits and 3 meals, and 2 outfits and 5 meals. We have only graphed representative indifference curves. From the assumption that a consumer can order any two market-baskets, it follows that every market-basket is on some indifference curve; there is no market-basket that Al does not either prefer more, less or the same as other market-baskets. In other words, although we have shown only three indifference curves, in fact indifference curves that are not shown fill up the entire area of the graph.

Consider now the point on a curve where the slope of the curve is -2 . (Recall that the slope of a straight line is $\Delta y/\Delta x$. The slope of a curve at a point is the slope of the tangent to the curve at that point). This point is represented by X on the graph. At this point, Al would be indifferent between trading two units of clothing for one of food. We can see this graphically by noting that for small changes in quantities of food and clothing, if Al gives up twice as many units of clothing as he adds units of food, he remains on the same indifference curve. We say

that his “marginal rate of substitution” of clothing for food at this point is 2.

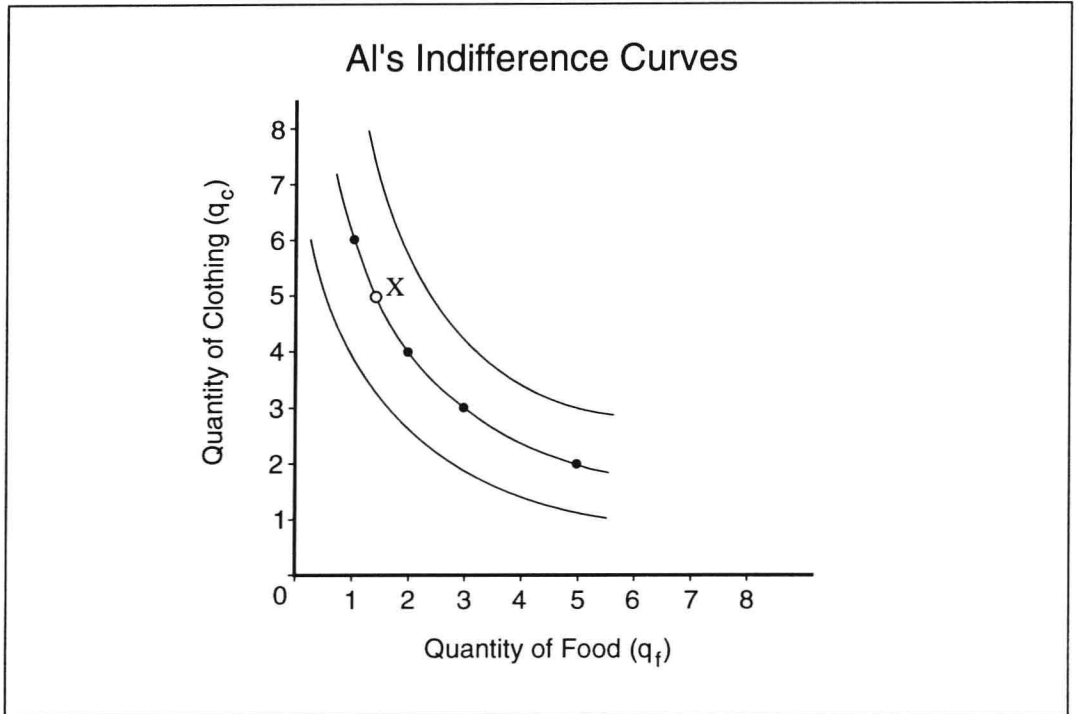


Figure 1

3. *Constrained consumer choice and budget lines*

Once we know Al's preferences, we want to know which market-basket he will purchase. To study this, however, we have to put a constraint on what Al can buy. (Otherwise, given our definition of utility, he would purchase an infinite quantity of food and clothing.) Not surprisingly, the constraint on how much Al can purchase is his income or wealth (which we consider synonymous for purposes of the theory of consumer choice). Suppose that Al's income (I) is \$80, the price of food (p_f) is \$20 per meal, and the price of clothing (p_c) is \$10 per outfit. How much food and clothing will Al buy?

We can answer this question by using our graph of Al's indifference curves. To do so, however, we must first introduce a concept known as the budget line. The budget line represents all the market-baskets that the consumer, Al, can purchase. To buy q_f units of food, Al will have to spend $q_f \cdot p_f$. Similarly, to buy q_c units of clothing, he will have to spend $q_c \cdot p_c$. Because Al can buy only food and clothing, his income must equal the sum of the amount he spends on food and the amount he spends on clothing. Thus, for any income level, the market-baskets that Al can afford are given by the following equation:

$$I = q_f \cdot p_f + q_c \cdot p_c$$

Hence, this is the equation for Al's budget line for income I . The budget line is aptly named,

as the equation above describes a straight line. One can see this by solving for the variable along the vertical axis, giving $q_c = -(p_f/p_c) \cdot q_f + I/p_c$.³ It has a negative slope of p_f/p_c , the ratio of the prices of the two goods. It has a vertical intercept of I/p_c , which represents the number of units of clothing that Al could buy if he spent no money on food. Similarly, it has a horizontal intercept of I/p_f , which represents the number of units of food Al could buy if he spent no money on clothing.

For a given set of prices, we could graph a series of budget lines each representing the market-baskets that the consumer could afford at a particular income level. A graph of Al's budget lines for incomes of \$40, \$60 and \$80, given a price of food of \$20 per meal and a price of clothing of \$10 per outfit, is shown in Figure 2.

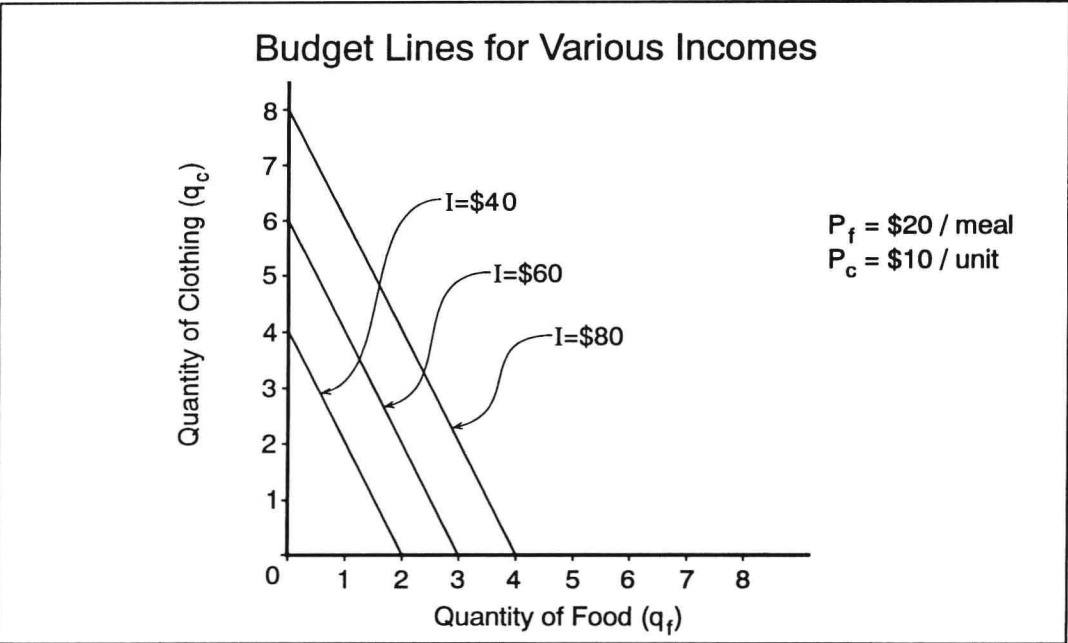


Figure 2

4. The consumer's optimal choice—maximization of utility

To determine how much food and clothing Al would buy, given an income of \$80, we graph the budget line for this income on the same graph as Al's indifference curves. This is shown in Figure 3. Because the budget line represents the bound of the market-baskets that Al can afford, we follow this budget line until we reach the highest indifference curve with which it

³ Some of you might recall that the equation for a straight line is $Y = mX + b$, where Y is the variable along the vertical axis, X the variable along the horizontal axis, m the slope of the line and b the intercept of the Y axis. If you do not recall this, you can easily verify it by noting that every increase of one unit of X , results in an increase in mX units of Y . Hence the slope of this curve at every point ($\Delta Y/\Delta X$) is $mX/X = m$. Since the slope does not change as one moves along the curve, the curve is a straight line. The Y intercept is the value of the curve at $X=0$, which is b . If you are not familiar with this equation, you might want to take some time graphing the curves corresponding to various values of m and b , until you are feel comfortable that the curves are straight lines as described above.