

WHAT IS UTILITY? MAXIMIZATION OF INDIVIDUAL UTILITIES

COURSE: Special issues on Constitutional Law

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I. Introduction

As with so many things in economics, this story begins with Adam Smith. Smith considered, and rejected, the idea that **demand** must be related to "utility." This may seem self-evident: the more useful a thing is, the more satisfaction it gives, the more people would be willing to pay for it.

However, Smith saw a difficulty with this argument. The problem Smith posed has come down to us as the "Paradox of Diamonds and Water." As Smith observed, water is very useful -- indeed it is necessary for life, but water is very cheap. By contrast, diamonds have little utility. They are only useful for adornment. It is possible to do without diamonds entirely, **and** most people do. Yet diamonds are very costly. This is Smith's "paradox:" if demand depends on the usefulness of the product, then we would expect the more useful product, water, to command the higher price -- yet diamonds are more costly. Not only do we know that water is cheaper as a matter of fact, but most people would agree that they would not pay as much for diamonds as for water.

Because of this "paradox," Smith came to the conclusion that willingness to pay is not related to utility. To make sense of this strange result, **he** distinguished between "value in use" and "value in exchange." Value in exchange, he said, is unrelated to usefulness and must be based on other principles. What other principles? It was here that Smith relied on the labor theory of value. For a century, most economists felt that Smith had settled all this -- that value in exchange was based on different principles than value in use and specifically on labor value. In the nineteenth century, though, a new generation of economists found an answer to Smith's Paradox of Diamonds and Water, and returned to the idea that demand is based on utility. The labor theory of Value had come to play a key role in Marxism, and had [its](#) history of its own. We will have to leave this history for the

chapter on Marxist economics, and for now go on to show how the New Economists of 1880 answered Smith's paradox.

The explanation of the Paradox of Diamonds and Water will need a little special terminology. We will use the concept of marginal utility, and marginal utility will play an important part in some of the sections to follow.

It is best to begin with an example. In the example, we will assume that a person can buy water or diamonds or both. We assume that the satisfactions she gets from diamonds and from water can be measured in money terms. Following a long tradition in economics we will speak of the amount of satisfaction as the "utility" of diamond and water. We assume:

- i) that her total satisfaction is the sum of the utility of water and the utility of diamonds,
- ii) that the utility of diamonds increases as she consumes more diamonds,
- iii) that the utility of water increases as she consumes **more** water,
- and iv) that she tries to spend her income in such a way as to get the most satisfaction that she can -- that is, that she "maximizes" utility.

II. Utility

How does Lisa divide his 30\$ between films and cokes? The answer depends on her likes and dislikes - or his preferences. Economists use the concept of utility to describe preferences. The benefit of satisfaction that a person gets from the consumption of a good or service is called **utility**. But what exactly is utility and in what units can we measure it? Utility is an abstract concept **and** its units are arbitrary.

III. Total Utility:

Total utility is the total benefit or satisfaction **that a** person gets from the consumption of goods **and** services. Total utility **depends on the** person's level of consumption - more consumption generally gives more total utility. In Lisa's case, as the amount of cokes she drinks rises, her total utility increases.

IV. Marginal Utility

Marginal utility is the change in total utility resulting from a one-unit increase in the quantity of a good consumed.

As the consumption of a good increases, marginal utilities decrease. We call this the principle of diminishing marginal utility. Marginal utility is positive but diminishes as the consumption of a good increases. (for example....)

V. Utility Maximization

Individual income and **prices limited the utility** an individual can obtain from consumption. **The** key assumption of marginal utility theory is that, individual consumes the quantities of goods and services that maximizes total utility. The assumption of **utility maximization is** a way of expressing **the** fundamental economic problem. People's wants exceed **the** resources available to satisfy these wants, so they must make hard choices. In making choices, **they** try to get **the** maximum attainable benefit- they try to maximize total utility.

--- References

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I. Purpose

- 1) Explain the connection between individual demand and market demand
- 2) Define total utility and marginal utility
- 3) Explain the marginal utility theory of consumer choice
- 4) Use the marginal utility theory of consumer choice
- 5) Use the marginal utility theory to predict the effects of changing income
- 6) Define and calculate consumer surplus
- 7) Explain the paradox of value

II. Individual Consumption Choices

(1) Preferences and Utility

Utility is the concept to describe preferences. The benefit or satisfaction that a person gets from the consumption of a good or service is called utility. Utility is an abstract concept and its units are arbitrary.

(2) Total Utility

Total utility is the total benefit of satisfaction that a person gets from the consumption of the goods and services. Total utility depends on the person's level of consumption-more consumption generally gives more total utility.

(3) Marginal Utility

Marginal utility is the change in total utility resulting from a one-unit increase in the quantity of a good consumed. Marginal utility appears **midway** between the quantities of consumption. The increase in marginal utility is called as the consumption of a good increases the principle of diminishing marginal utility. Marginal utility is positive but diminishes as the consumption of a good increases.

(4) Review

- Consumers are constrained in what they can afford by their incomes and by the prices of the things they buy.
- Consumers' preferences can be described by using the concept of utility and marginal utility theory is based on two assumptions: the greater the quantity of a good consumed, the higher is the total utility from consuming that good: and as the quantity of a good consumed increases, the marginal utility from consuming that good decreases.

III . Maximizing Utility

(1) Concept

Individual income and prices limit the utility an individual can obtain from consumption. The key assumption of marginal utility theory is that, taking into consideration the income available for spending and the prices people face, individuals consume the quantities of goods and services that maximize total utility. The assumption of utility maximization is a way of expressing the fundamental economic problem. People's wants exceed the resources available to satisfy these wants, so they must make hard choices. In making choices, they try to get the maximum attainable benefit-they try to maximize total utility, A consumer equilibrium is a situation in which a consumer has allocated his or her income in the way that maximizes total utility.

(2) Review

- Individuals make consumption choices that maximize total utility.
- They do so by spending all their available income and by making the marginal utility per pound spent on each equal.
- When marginal utility per pound spent are equal for all goods, **an** individual cannot reallocate spending to get more total utility.

IV. Criticisms of Marginal Utility Theory

(1) Utility Can't be Observed or Measured.

Some people criticize marginal utility theory because utility cannot be observed. But utility does not need to be observed to be used. Marginal utility theory predicts that the ratio of marginal utility to price is equal for all goods. Any arbitrary units can be used

to represent utility.

(2) People aren't that Smart

Another criticism of marginal utility theory is that consumers can't be as smart as the theory implies. In fact, the theory makes no predictions about **the** thought processes of consumers. It only makes predictions about their actions and assumes that people spend their actions and assumes that people spend their income in what seems to them to be the best possible way.

Basic Assumptions in Economics

Self-Interested

- People are self-interested but not selfish
 - Volunteer worker
 - Economics assumes nothing about the scope of things that individuals ought to be concerned about, nor does it proscribe this scope

Are Individuals Rational?

- Individuals are only rational in the sense that they do the best they can, but they can and do frequently make errors
- Individuals are very irrational and fallible beings whose individual errors are corrected only in the course of a social process

It is Important To Understand That Errors Are Made

- If one has consciousness on the limitations of the individual mind 'this induces an attitude of humility toward the impersonal and anonymous social processes by which individuals help to create things greater than they know.'
- If one has no understanding that man makes pervasive errors then one may have 'an exaggerated belief in the powers of individual reason and of a consequent contempt for anything which has not been Consciously designed by it or is not fully intelligible to it .

Scarcity

- In the sense that mankind has to choose scarcity is a fundamental law
 - o Time and thus human attention is the ultimate scarce resource
- The old assumption of scarcity is based **upon** limited resources that decrease when shared
 - o Technology is reshaping how we think about scarcity

How Technology is Reshaping Scarcity

- Knowledge and information can be shared without decreasing its availability
- In a network economy value comes from plentitude- (e.g. fax, e-mail)
 - o Every additional fax, e-mail increases the value of all others For a business the question to ask is- can Your business thrive if the product is ubiquitous and copies plentiful?

Substitutes For Everything?

- "Intelligent choice- choice that obtains the most of what is wanted from what is available, economizing choice- **requires** comparing the additional costs of using alternative means against the additional benefits of doing so."
- Fire safety requires two exits from each
- "Health care is a right of everyone."?

The Law of Unintended Consequences

- Because economic systems are complex outcomes **are** frequently emergent, unpredictable and thus **our** decisions cause Unintended consequences
- In our example about fire safety how could a second exit Increase fire fatalities even if the exits are well designed?
- What would free universal **health** care do for health and safety consciousness?