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| **EP1110 - Microeconomics** |

**Unit 5: Consumer Demand**  
**Learning Objectives:**

At the end of this unit you should be able to:

1. Explain the law of diminishing marginal utility.
2. Derive a consumers purchasing rule, which ensures that satisfaction is maximized.
3. Provide a theoretical rationale for downward sloping curves.
4. Understand why consumers generally value a product more than the price they pay.
5. Understand why some sellers charge different prices to different consumers for the same product.

**Learning Materials:**

* Chapter 5 - Principles of Microeconomics

**Overview of this Unit**

At the start of this course, we talked about the study of economics as being a study in choices. As we have learned, people are forced to make choices because they have limited resources available to fulfill their needs. You only have so much money to buy the things you want and you likely want more than you can afford so you are forced to choose.

In this unit we build on this concept by considering how we can maximize our benefit from the choices we make. In this unit we will discuss the benefit that comes from the products we buy - in economics we call it Utility. We will also introduce you to the concept of marginal or additional utility that you get from successive purchases of a given product or service.

As a market with thousands of millions of buyers and sellers everyone has different preferences. This combination of personal preferences makes for an interesting discussion!

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| **Unit 5 - Topic 1:  The Law of Diminishing Marginal Utility** |
| If you love cheesecake then this section of the unit will make you hungry!  Consider a piece of cheesecake (or a serving of your favorite dessert).  How much pleasure do you get out of eating that first piece?  Economists call this measure of pleasure "Utility”.  More pleasure equals more utility – quantified in units called, appropriately enough, ‘utils’.  The difference in the amount of utility that you get from you first to second piece of cheesecake, and each piece thereafter is known as ***Marginal Utility.***  Assume that you get a pleasure of 120 utils from that first piece of cheesecake – then someone hands you another piece to eat.  Will you get as much pleasure from the second piece as you did the first?  It is not likely because you are getting your fill of it.   In fact, successive pieces of cheesecake will give you less and less pleasure – your marginal utility will decrease the more pieces you eat.  Eventually you will find the idea of eating yet another piece of cheesecake revolting and the last piece that you eat will likely make you sick!  -  The utility of that piece will be negative!  Economists call this the ***Law of Diminishing Marginal Utility.***  We can calculate marginal utility (MU) by dividing the change in number of units by the change in total utility.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **MU** | =   total utility | **or** | **MU** ÷ **D** |  | | **D** | =   number of units |   So how does this relate to economics?  Remember as rational people with scarce resources we want maximum pleasure at the lowest possible cost in the shortest possible timeframe. The study of marginal utility allows us to find the point at which our utility is maximized. When you add in a consideration of cost, we can easily determine what and how much to buy in order to maximize our pleasure.  Marginal utility also explains why we will never spend all of our money on a single item. Too much of any one thing will make us indifferent to it. As consumers we need the ability to exercise choice in order to maximize our utility.  It should also be pointed out that products with low-income elasticity, such as water, food have the highest initial marginal utilities and thus will be highest in terms of priority. (Just think how important a first glass of water is to you on a hot day but how awful it would be if you were forced to drink a bathtub full!)  Products with high-income elasticity such as airline travel; movies will have lower initial marginal utilities and must be of a lower priority. This is because these items have many substitutes and are usually quite expensive in-and-of themselves. |

**Unit 5 - Topic 2:  The Optimal Purchasing Rule**

***Getting the best bang for the buck!***

As consumers we make rational choices, within the time-span that we have, to make these choices. When making these choices we want to get the most satisfaction, measured in utils, for the money we spend for an item or a set of items. So what then is the best way to make choices among the items  we buy? Well, economists have developed a simple process for doing this which incorporates the concepts of maximum utility per dollar spent. This is known as the ***Optimal Purchasing Rule.***

***The Optimal Purchasing Rule - The Coffee and Muffins example.***

To demonstrate how the optimal purchasing rule works, let’s go to Tim Horton’s!  Say your grandmother gave you $6 for your birthday and she said you had to spend it all there – in one visit.  To keep it simple, we will only evaluate the two things you like – Coffee and Muffins.     Assume for now that Coffee is $2 / cup and Muffins are $2 each.  We need to determine how many of each you should buy in order to maximize your utility (pleasure)!   The optimal purchasing rule allows you to do this systematically if you know the utility per cup of coffee and utility per muffin.

So what should you do?

**Initial Purchase**

Remember your guiding rule is you must maximize your utility.  First ask: "Which initial purchase provides the greatest utility – Coffee (10 utils) or Muffin (12 utils)?"  You would pick to buy a Muffin because it has greater utility.  You have $4 remaining.

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| **Cups of coffee**  **($2 / cup)** | **Marginal Utility**  **For coffee** | **Total Utility for coffee** | **Muffins** | **Marginal Utility**  **Per Muffin** | **Total Utility for Muffins**  **($2 / muffin)** |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 10 | 10 | 1 | 12 | 12 |
| 2 | 8 | 18 | 2 | 7 | 19 |
| 3 | 5 | 23 | 3 | 3 | 22 |
| 4 | 2 | 25 | 4 | 1 | 23 |
| 5 | 1 | 26 | 5 | 0 | 23 |

So what should you do next?

**Second Purchase**

Again, your guiding rule is that you must maximize your utility. Which second purchase provides the greatest utility – the first Coffee (10 utils) or the second Muffin (8 utils)? You would pick to buy a Coffee because, this time, it has greater utility. You have $2 remaining.

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| --- | --- | --- | --- | --- | --- |
| **Cups of coffee**  **($2 / cup)** | **Marginal Utility**  **For coffee** | **Total Utility for coffee** | **Muffins** | **Marginal Utility**  **Per Muffin** | **Total Utility for Muffins**  **($2 / muffin)** |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 10 | 10 | 1 | 12 | 12 |
| 2 | 8 | 18 | 2 | 7 | 19 |
| 3 | 5 | 23 | 3 | 3 | 22 |
| 4 | 2 | 25 | 4 | 1 | 23 |
| 5 | 1 | 26 | 5 | 0 | 23 |

**Third Purchase**

We move to the third purchase. Which third purchase item provides the greatest utility – the second Coffee (8 utils) or the second Muffin (7 utils)? You would pick to buy a Coffee because, this time, it has greater utility. You now have all of you money spent.

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| --- | --- | --- | --- | --- | --- |
| **Cups of coffee**  **($2 / cup)** | **Marginal Utility**  **For coffee** | **Total Utility for coffee** | **Muffins** | **Marginal Utility**  **Per Muffin** | **Total Utility for Muffins**  **($2 / muffin)** |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 10 | 10 | 1 | 12 | 12 |
| 2 | 8 | 18 | 2 | 7 | 19 |
| 3 | 5 | 23 | 3 | 3 | 22 |
| 4 | 2 | 25 | 4 | 1 | 23 |
| 5 | 1 | 26 | 5 | 0 | 23 |

**In Summary**

You received a total utility of 20 for your $6 – the optimum utility.  That consisted of 2 coffees and a single muffin.

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| **Purchases** | **Utility** | **Money spent** |
| 2 Coffee | 18 | $4 |
| 1 Muffin | 12 | $2 |
| **Total** | **20** | **$6** |

***The Optimal Purchasing Rule - The Burgers and Fries example.***

**Calculating Utility/Dollar**

The example above involving Coffee and Muffins demonstrated the optimal purchasing rule with two products of the same price.  What if the products being compared had differing prices?  In that case it is important to calculate the Marginal utility per dollar for all the purchases first.  That way you can compare differing priced products using a standard measure.

***Burgers and Fries***

To demonstrate how the optimal purchasing rule works for products with different prices, let’s go to McDonald's! Again, say your grandmother gave you $6 for your birthday and she said you had to spend it all there – in one visit. Again to keep it simple, we will only evaluate the two things you like – burgers and fries. Burgers are $3 each and fries $2 each. We need to determine how many of each you should buy in order to maximize your utility (pleasure)! This time before applying the optimum purchasing rule we need to calculate utility per dollar for each purchase.

Again remember your guiding rule is you must maximize your utility. Which initial purchase provides the greatest utility?

– Burger (2.5 utils/dollar) or Fries (6 utils/dollar)? You would pick to buy a Fries because it has greater utility per dollar. Because fries are $2 each, you have $4 remaining. Try the rest on your own!

**Initial Purchase**

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| **Burgers**  **($4 / each)** | | | **Marginal Utility**  **PerBurger** | **Total Utility for coffee** | **Utility / dollar** | **Fries** | **Marginal Utility**  **Per Fries** | **Total Utility for fries**  **($2 / Fries)** | **Utility / dollar** | |
| 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1 | | | 10 | 10 | 2.5 | 1 | 12 | 12 | 6 | |
| 2 | | | 8 | 18 | 4.5 | 2 | 7 | 19 | 9.5 | |
| 3 | | | 5 | 23 | 5.3 | 3 | 3 | 22 | 11 | |
| 4 | | | 2 | 25 | 5.2 | 4 | 1 | 23 | 11.5 | |
| 5 | | | 1 | 26 | 6.2 | 5 | 0 | 23 | 11.5 | |
| **Unit 5 - Topic 3:  Consumer Surplus** | | | | | | |
| Did you ever feel that you got a fantastic deal?  The Consumer surplus is a measure of the perceived worth of a product relative to what the consumer actually paid for it.  We measure the value of the consumer surplus with the Marginal Consumer Surplus (MCS).  The MCS is the difference between the price paid for a unit of a product and the dollar marginal utility obtained by that unit.  If you learned that you could buy a computer for $100 and you would have been willing to pay $1000 for it, the amount of consumer surplus would be $900.  When considering thousands of consumers you can imagine that different people would be willing to pay varying amounts.  The collective difference between what consumers are willing to pay and what consumers actually pay is the total consumer surplus.  Consumers are obviously happy when they obtain a surplus, however producers try to limit it as much as possible because this represents foregone revenues for them.  From a seller's point of view, auctions are a very good way to minimize consumer surplus because consumers will bid and pay a price that they feel the product is worth to them.     |  | | --- | | **Unit 5 - Topic 4:  Price Discrimination** | | Price Discrimination is the selling of an identical product at a different price to different customers for reasons other than differences in the cost of production.   In a free market how can Price Discrimination happen?  In order to practice price discrimination, it is necessary that sellers:   * Identify groups of customers with different demands * Separate them from the others * Ensure that those obtaining the lower prices cannot resell the product   Price discrimination is often practiced on the basis of:   * Age: Seniors and student discounts * Time:  Aliant/Bell charges a lower long distance rate in the evenings * Volume of Purchases:  Big customers often get charged lower fees for many services than is the case for small customers | | | | | | | |
| **Unit 5 - Summary** | | | | | | | | |
| This unit demonstrated that economics is a study in human psychology.   The law of diminishing marginal utility was introduced and it explained why consumers buy differing things in differing quantities based on their personal preferences.  The consumers’ optimum purchasing rule was introduced and it ensures that satisfaction is maximized. | | | | | | | | |

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