

Chapter 5

Getting to Know Homo Economicus, the Utility Maximizing Consumer

What is really going on with the demand curve? Explaining what you demand and the quantities you demand.

So let's start with utility

Getting the most happiness for you money

You need to choose wisely but there is *constrained optimization* (trying to optimize happiness given limited resources).

So what do we do in this situation? Let's take a look....

Choosing by Rank

Comparing price is easy but what about comparing benefits?

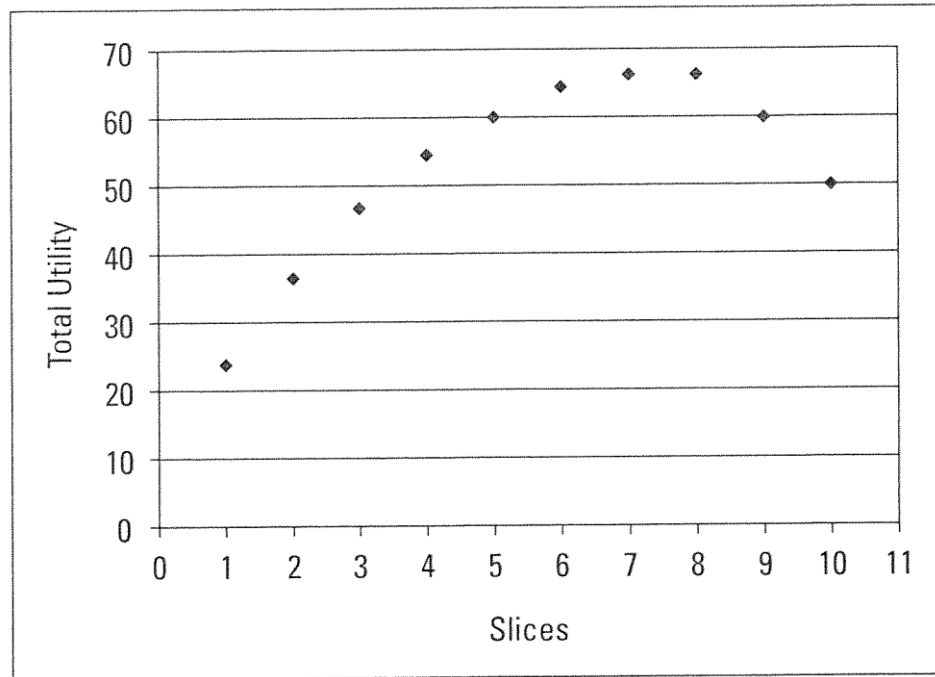
1. Cardinal utility - assigning specific number of utils to different things
2. Ordinal utility - here you simply rank each thing

Getting Less from More: Diminishing Marginal Utility

We all get tired and bored of goods and services

Marginal utility is the incremental changes in total utility

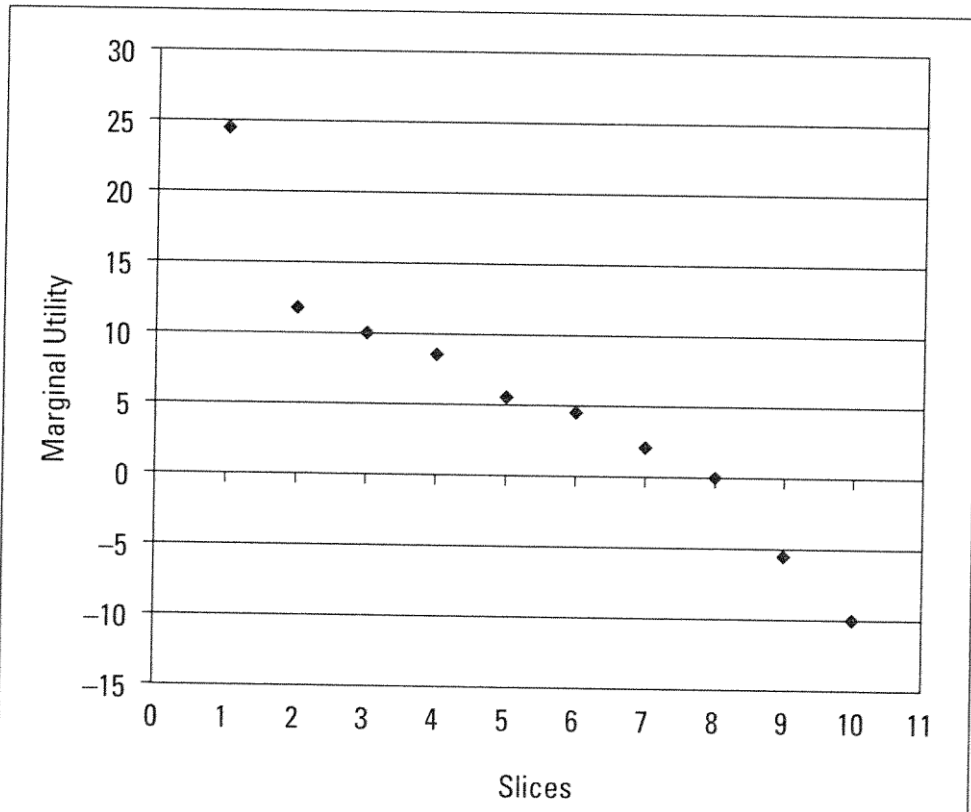
Figure 5-1:
My total utility as I eat more and more slices of pizza.



Diminishing marginal utility - each slice brings a little less happiness

Marginal utility can even go negative

Figure 5-2:
The marginal utility I derive from each slice of pizza.



Marginal utility can be diminishing but still be positive. You still like that 7th piece of pizza.

Choosing among many options when facing a limited budget

People want to maximize their total utility in buying a certain combination of goods and to do that, their marginal utilities per dollar have to be equal for the final units of each good.

Trying to buy as much (marginal) utility as you can

How to be happy on a limited budget (college life!)

Table 5-1 **Determining the Price of Utility for Pizza**

| <i>Slice</i> | <i>Total Utility</i> | <i>Marginal Utility</i> | <i>MU per Dollar at \$1 per Slice</i> | <i>MU per Dollar at \$2 per Slice</i> |
|--------------|----------------------|-------------------------|---------------------------------------|---------------------------------------|
| 1 | 24 | 24 | 24 | 12 |
| 2 | 36 | 12 | 12 | 6 |
| 3 | 46 | 10 | 10 | 5 |
| 4 | 54 | 8 | 8 | 4 |
| 5 | 60 | 6 | 6 | 3 |
| 6 | 64 | 4 | 4 | 2 |
| 7 | 66 | 2 | 2 | 1 |
| 8 | 66 | 0 | 0 | 0 |
| 9 | 60 | -6 | -6 | -3 |
| 10 | 50 | -10 | -10 | -5 |

Table 5-2 **Determining the Price of Utility for Beer**

| <i>Pint</i> | <i>Total Utility</i> | <i>Marginal Utility</i> | <i>MU per Dollar at \$2 per Pint</i> |
|-------------|----------------------|-------------------------|--------------------------------------|
| 1 | 22 | 22 | 11 |
| 2 | 40 | 18 | 9 |
| 3 | 56 | 16 | 8 |
| 4 | 70 | 14 | 7 |
| 5 | 80 | 10 | 5 |
| 6 | 86 | 6 | 3 |
| 7 | 88 | 2 | 1 |
| 8 | 88 | 0 | 0 |
| 9 | 82 | -6 | -3 |
| 10 | 70 | -12 | -6 |

Purchasing the best combination of two goods to maximize total utility

You can buy all of one or all of the other but the mix usually is best

The goal is to buy as much utility as possible given all the possible combinations (most utils)

| <i>Dollar</i> | <i>Good Chosen</i> | <i>MU per Dollar</i> |
|--------------------|--------------------|----------------------|
| 1 | Pizza | 24 |
| 2 | Pizza | 12 |
| 3 | Beer | 11 |
| 4 | Beer | 11 |
| 5 | Pizza | 10 |
| 6 | Beer | 9 |
| 7 | Beer | 9 |
| 8 | Pizza | 8 |
| 9 | Beer | 8 |
| 10 | Beer | 8 |
| Total utils | | 110 |

Look for the best combinations!

Aiming for equal marginal utility

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

MU is the good. P is the dollars for each unit

If your marginal utilities per dollar aren't equal, keep rearranging your purchases until they are equal!

Even with 3 goods the equation should hold true

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \frac{MU_z}{P_z}$$

Seeing how prices affect quantities demanded

As the prices of different goods vary with respect to each other, so will the quantity demanded of each good in order to obtain as much utility as possible given the new price.

Increase price reduces the marginal utility

| <i>Dollar</i> | <i>Good Chosen</i> | <i>MU per Dollar</i> |
|--------------------|--------------------|----------------------|
| 1 | Pizza | 12 |
| 2 | Pizza | 12 |
| 3 | Beer | 11 |
| 4 | Beer | 11 |
| 5 | Beer | 9 |
| 6 | Beer | 9 |
| 7 | Beer | 8 |
| 8 | Beer | 8 |
| 9 | Beer | 7 |
| 10 | Beer | 7 |
| Total utils | | 94 |

Comparing 5-4 with 5-3 shows I am less happy

When a good's price changes, that change affects the entire budgeting decision not just for that good, but for **every good!**

Complementary goods - consuming things that go together like hot dogs and hot dog buns

Substitute goods - goods that serve similar functions so that if the price of one goes up, people switch to the other one.