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Econ 301—Bethany College

**Lecture 08: Budget Constraints**

1. Constraints
	1. It is not enough to merely say that people seek to maximize their utility. If that’s so, then people would be completely happy all the time! There surely must be some other factor that holds them back.
	2. What holds people back are their constraints, unusually constraints involving a budget. A person may want as many games and movies as there exist, but they only have so much money to spend on those things.
	3. We call this barrier the *budget constraint*—all combinations of goods a person could purchase. It could be a weekly budget, a yearly budget, or even an hourly budget. What’s important is that it restricts behavior for whatever time frame we are examining. Suppose my budget for games and movies is $300.
	4. It is at this time we have to establish prices so we can determine exactly where my budget constraint falls. Suppose movies cost $20 each and games cost $50 each. Several mixtures come to mind:
		1. 6 games, 0 movies
		2. 4 games, 5 movies
		3. 2 games, 10 movies
		4. 0 games, 15 movies
	5. We can summarize all these combinations (and the ones between them) with a budget constraint.
	6. Mathematically, a budget constraint looks like this:

$$I=P\_{X}Q\_{X}+P\_{Y}Q\_{Y}$$

Where I is the income, or total budget.

* 1. Another way to write the budget constraint is to isolate QY (which is along our y-axis).

$$Q\_{Y}=\frac{I}{P\_{Y}}-\frac{P\_{X}}{P\_{Y}}Q\_{X}$$

* 1. Our slope is the negative of the ratios of the prices of two goods while keeping our budget constant. The y-intercept is the maximum amount of good Y we can buy.
1. Optimal bundle
	1. Note that while U3 is the highest utility drawn on the map (though not the highest that exists), it is too expensive. At the same time, points **A**, **B** and **C** are within my budget. However, point **C** is below my budget constraint—I could spend more and be happier. Point **A** is right on my constraint, but its bundle of goods generates a utility of U1—I could be happier even though I am spending all of my money. It is point **B** that is what I should choose—I get the most for my money.
	2. This tangent point is the optimum bundle of goods.

Games

Movies

U1

U2

U3

**A**

**B**

**C**

* 1. In other words, the MRS equals the ratio of prices, or:

$$\frac{-∆Q\_{Y}}{∆Q\_{X}}=MRS=\frac{P\_{X}}{P\_{Y}}$$

* + 1. Where MRS equals the negative of our slope.
1. Corner solution
	1. Sometimes our optimal bundle is not when this occurs, or when:

$MRS\ne \frac{P\_{X}}{P\_{Y}}$

Yogurt

Ice Cream

U1

* 1. This usually manifests as purchasing only a single good. It commonly occurs because (a) you can’t buy a negative amount of something or (b) because you are looking at perfect substitutes. But these are not the only possibilities.
	2. College trust fund

College

Other

U1

U2

U3

Size of Fund