

# Using Discrete Choice Tables to Teach Choice in Introductory Economics Classrooms



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Consumer choice is a topic that is covered in only a handful of principles of microeconomic textbooks. This leads to many instructors to not cover this material despite the fact that students have already confronted consumer choice in everyday life. It therefore provides one of the easiest ways to teach students about the marginal tradeoffs that are at the heart of microeconomic analysis. Additionally, indifference curves and budget constraints are topics that have ready analogs on both in introductory and intermediate microeconomics courses. One way to remedy the problem is to introduce students to consumer choice using discrete choice tables in introductory microeconomics.

## Budget Constraints

### Define what is Affordable

- Make sure to separately introduce the notions of what the individual likes and what the individual can afford
- Students are introduced to a table for a consumer that consume two goods, x and y. The consumer may only consume up to 20 units of good x and 20 units of good y.
- Each cell lists the cost to the consumer of consuming the respective combination of good x and y, which we often call (x, y) bundles.
- The two tables below show two scenarios: Both have an income \$16 and price of y of \$1.
- Green cells are bundles consumer can afford and the darker green cells cost exactly \$16.
- Panel 1.A has price of x of \$0.50.

### T1. The Cost of Various Choices: Affordable Bundles given Prices and Income

Panel A Income = \$16 Price of x = \$0.50 Price of y = \$1.00

x \ y	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
7	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
17	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

### T2. Three Indifference Curves: Six bundles have U = 40, Eight have U = 60, and Six have U = 80, given U = x-y. This U function is used in T4-T6.

x \ y	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
7	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
17	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

### Panel B The budget line moves as the price changes from Panel 1.A to 1.B: Bundles on the original budget line (red) are no longer affordable due to a price increase

x \ y	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
7	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
17	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

## Utility of Various Bundles:

### An Optimal Choice Rule

### The Effects of a Price Change

- The first and second column are combined to show the optimal choice given the budget constraint.
- The consumer chooses the highest utility possible, among affordable bundles. At this point, a 2 part rule holds: spend all income and have  $MU_x/P_x = MU_y/P_y$ .
- In this case, the consumer will consume 16 units of good x and 8 units of good y.

### T4. Spend all income and have equal $MU_x/P_x$ across goods

Panel A Given  $P_x = \$0.50$ ,  $P_y = \$1$  and  $I = \$16$ .  $MU_x(16, 8) = 8$   $MU_y(16, 8) = 16$

x \ y	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	3	4	5	6	7	8	9	10	11	12											