Consumer choice is a topic that is covered in only a handful of principles of microeconomics textbooks. This leads to many instructors not to 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 the marginal tradeoffs that are at the heart of microeconomic analysis. Additionally, indifference curves and budget constraints are topics that have real analogs on the producer side 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 10 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 $c(x,y)$ bundles.
  - The two tables below show two scenarios: Both have an income $I$ and price of good $y$.
  - Green cells are bundles consumer can afford and the darker green cells cost exactly $I$.
  
  ![Budget Constraints Diagram](image)

**Utility of Various Bundles: Indifference Curves in a Contextual Setting**

- Each column shows the utility value of the bundle utility function ($U(x,y) = x^2 + y^2$).
- Highlighted cells exhibit the same utility as other bundles of the same respective color.

![Utility of Various Bundles Diagram](image)

**An Optimal Choice Rule**

- 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 $MU_P = MU_Y$.
- In this case, the consumer will consume 36 units of good $x$ and 8 units of good $y$.

**The Effects of a Price Change**

- When the price of 4 quadruples (from 50-200 to $200$), the consumer consumes less of good $x$ and receives a lower amount of utility.
- Despite these changes, the same 2 part rule holds: spend all income and have $MU_P = MU_Y$.

**Decomposing The Total Effect**

- T4 combines TA and TB to show the effect of the price increase with the continuous indifference curves and budget constraint added as an overlay.

**Graphing the Substitution and Income Effects**

- One part of confusion for the students when learning Consumer Theory is correctly identifying the substitution and income effects and utilizing the two effects to classify normal, inferior, and Giffen goods and substitutes, independent and complementary goods.
- Many times manually, when instructors have little or no experience drawing graphs in the continuous case, it is hard to parse the spending and income effects.

- Graphical Examples showing various effects of price increase or decrease found in Section 3.1 and Figure 3.3 of Microeconomics, 4th edition by Hall and Rabushka.

**Exercising P, from 1$ to 2$, with $P_x = 1$ and $I = 20$ for various Utility Functions**

- Panel A: Income and Substitution Effects of a Price Increase on Consumer Choice
- Panel B: Income and Substitution Effects of a Price Increase on Consumer Choice
- Panel C: Income and Substitution Effects of a Price Increase on Consumer Choice
- Panel D: Income and Substitution Effects of a Price Increase on Consumer Choice

**Panel A**

- Based on Panel 5.B, shows the income and substitution effect of a price increase on consumer choice.
- The consumer moves from (6,3) to (12,6) due to the price increase.
- The consumer is made better off in terms of utility.
- The price of good $x$ quadruples to 2$ in Panel 1.B. The consumer has fewer options to purchase (the budget constraint has pivoted left on the y axis).
- Also, a green cell is colored if it is affordable and gray if it is not.
- With a price of 4$ the consumer could afford the same bundle as before the price change but now it is no longer affordable.
- The consumer is now faced with the grey, affordable bundles and gray budget constraint.

**Panel B**

- The consumer moves from (6,3) to (12,6) due to the price increase.
- The consumer is made better off in terms of utility.
- The price of good $x$ quadruples to 2$ in Panel 1.B. The consumer has fewer options to purchase (the budget constraint has pivoted left on the y axis).
- Also, a green cell is colored if it is affordable and gray if it is not.
- With a price of 4$ the consumer could afford the same bundle as before the price change but now it is no longer affordable.
- The consumer is now faced with the grey, affordable bundles and gray budget constraint.