In this lesson we will:
- Learn how a rational consumer chooses between bundles of goods
- Explain how individual demand curves are derived from consumers’ utility
- Derive price and income elasticities and explain their importance

How consumers make choices?
- Consumers have a limited budget and thus can only have a limited amount of goods
- Consumers choose purposefully. **How do you choose between goods with same cost?**
- Consumers receive a certain utility, or enjoyment, from the consumption of goods
- Consumers’ utility is subject to diminishing returns. **Examples: Water, etc.**

**Individual Demand:**
- At any given price, a consumer will purchase all the units of the good for which his marginal benefit (maximum willingness to pay) exceeds the marginal cost
- Because of diminishing marginal utility consumers are willing to pay less for each additional unit, and thus have downward sloping demand curves. **As with water in desert.**

This graph shows an individual’s demand for milkshake. With each additional milkshake the marginal benefit for the individual decreases. For example, she is willing to pay $2.5 for the first milkshake, but only $2.0 for the second. Consequently, her individual demand curve is downward sloping.

When choosing between two different goods (goods X & Y), consumers will choose the bundle where the marginal utility over price for each good is the same. You can say the consumer is getting the same bang for buck out of each good.

\[
\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y} \quad \text{What happens if} \quad \frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}
\]

A consumer will try to maximize the total amount of utility that she derive from the consumption of both goods given the relative price between the two goods.

**Relative Price:** The price of one good over the price of another good \((P_X/P_Y)\) which is the reciprocal of the rate in which a consumer can exchange one good for another.
- Consumption of goods may involve a non-monetary cost as time. **As in bus v. plane.**
There are two effects that make demand downward sloping:

- **Substitution Effect**: As price rises consumers tend to switch to substitutes. (Examples: when the price of chicken rises people tend to buy more meat, other?).
- **Income Effect**: As the price of one good increases it reduces consumers’ purchasing power (their ability to buy goods), which leads them to buy less of most goods.

Which of this item, a car or cereal, has a larger income effect and why?

**Determinants of Demand:**

- The market demand is the horizontal summation of the individual demand curves
- Some abundant goods have a high total value but a low marginal value (e.g., water, etc.). Scarce goods may have a low total value but a high marginal value (examples?).
- Consumers’ preferences are complex. How do we develop preferences?
- Individual differ in their time preference and risk aversion (averse, neutral or loving).

If you were risk loving would you buy a lottery ticket or buy a generic brand? Are you more like to take a loan if you have a strong time preference?

- Advertisement may be manipulative & wasteful. What are the advantages of ads?

Consumers may show a strong response to a change in the price of one good, such as soda, and show little response to a change in the price of another good as gasoline.

- Price elasticity of demand is the percent change in the quantity demanded over the percent change in the price.
- Goods that have substitutes and are not essential are price elastic ($\varepsilon > 1$) while goods that have no near substitutes and are essential are inelastic. Why? Give examples.
- Inelastic goods have a steep and elastic goods have a flat demand curve.

$$\varepsilon^D_p = \frac{\%\Delta Q}{\%\Delta P} \quad \%\Delta Q = \frac{(Q_{new} - Q_{old})}{Q_{av}} \quad \%\Delta Price = \frac{(P_{new} - P_{old})}{P_{av}}$$

**Figure 5-1:** Price Elasticity

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity/Time</th>
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<tbody>
<tr>
<td>$\varepsilon &gt; 1$</td>
<td>$\varepsilon = 1$</td>
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**Elasticity and changes in the market:**

- Demand is more elastic at low quantities than in high quantities. Can you think why? The point of unitary elasticity is the revenue maximizing point.
- If demand is very inelastic a change in supply will barely affect quantity. Can you think of an example of an inelastic good? What will happen if demand is elastic?
- If supply is very inelastic a change in demand will barely affect quantity. Can you think of an example of an inelastic good? What will happen if supply is elastic?

**Income elasticity**: The percent change in quantity over the percent change in income.

- Most goods are normal, which means that their income elasticity is between 0 and 1
- Some goods are superior with an income elasticity that is greater than 1. Examples?
- Some goods are inferior (over some price range), which means that we buy less of them as our income increases. Can you think of some inferior goods?

$$\varepsilon^D_p = \frac{\%\Delta Q}{\%\Delta P} \quad \%\Delta Q = \frac{(Q_{new} - Q_{old})}{Q_{av}} \quad \%\Delta Income = \frac{(I_{new} - I_{old})}{I_{av}}$$