



The Demand for Goods Part III

Mass demand has been created almost entirely through the development of advertising.
-Calvin Coolidge

Determinants of Elasticity



- E_d is influenced by all of the determinants of demand.
- Influences particularly worth noting are:
 1. income effect
 2. substitution effect (normal and inferior goods)
 3. cross-price elasticity (substitutes and complements)
 4. necessities vs. luxuries
 5. time
 6. income elasticity
 7. price elasticity

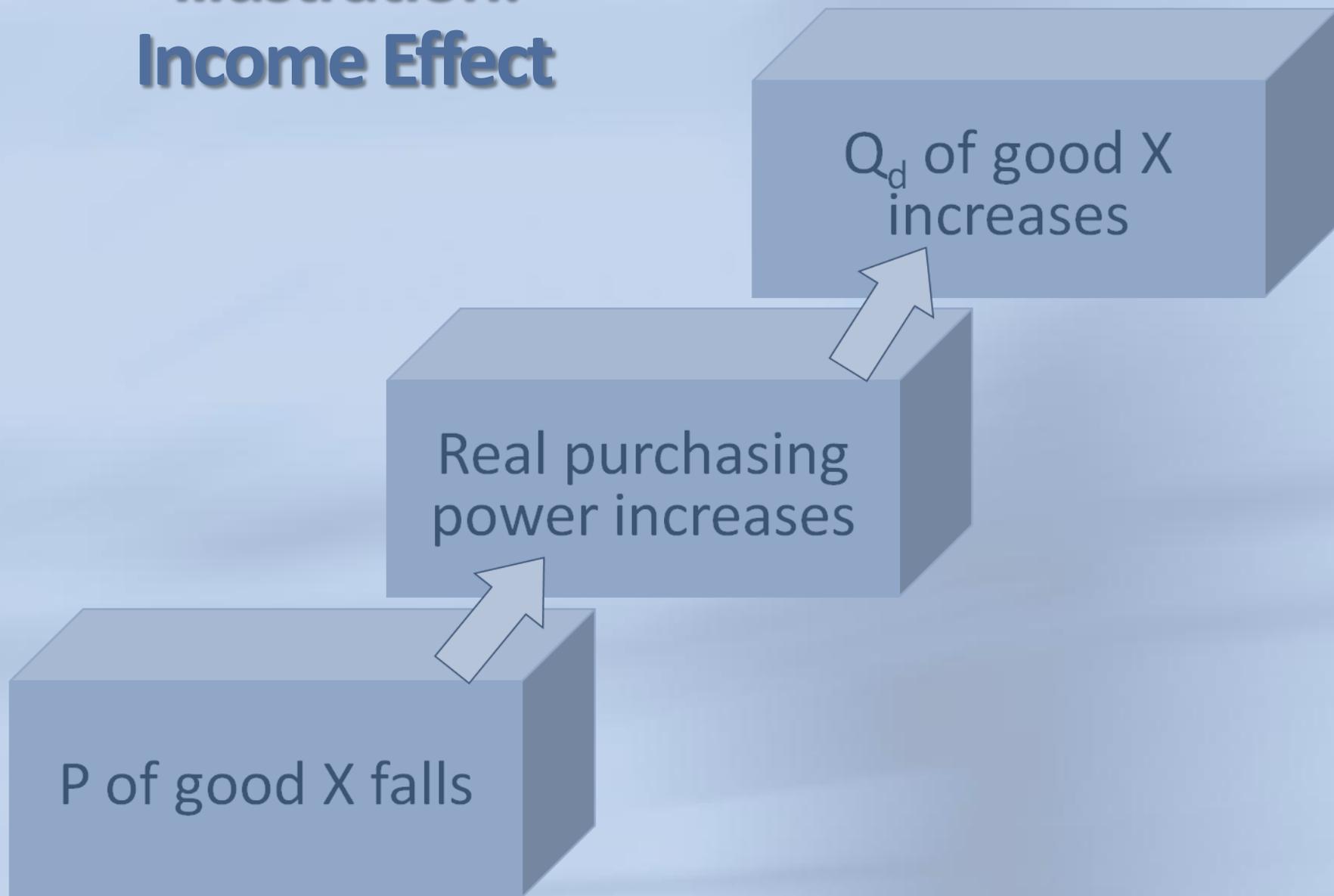
#1 Income Effect



- the change in quantity demanded of a good or service caused by a change in real income (purchasing power)
- As your real income increases, your buying power increases and you buy more, *ceteris paribus*.
- The income effect happens when a person changes his/her consumption of goods and services as a result of a change in real income.



Illustration: Income Effect



#2 Substitution Effect



- the change in quantity demanded of a good or service caused by the change in its price relative to substitutes
- The substitution effect occurs when consumers react to an increase in a good's price by buying less of that good and more of other goods.
- If the price of Pepsi falls and the price of Coke remains unchanged, you will buy more Pepsi because it is less expensive than Coke.
- Substitutes can be **normal goods** or **inferior goods**.

Normal vs. Inferior Goods



- A **normal good** is a good for which demand rises when income rises. (Normal goods can be necessities or luxuries.)
- *A normal good has an income elasticity of demand greater than zero.*
- An **inferior good** is a good that consumers will buy less of as their incomes increase.
- *An inferior good has an income elasticity of demand less than zero.*

Table: Income Change Effects



Normal Good	
↑ An <i>increase</i> in income...	↑ <i>increases</i> demand.
↓ A <i>decrease</i> in income...	↓ <i>decreases</i> demand.
Inferior Good	
↑ An <i>increase</i> in income...	↓ <i>decreases</i> demand.
↓ A <i>decrease</i> in income...	↑ <i>increases</i> demand.



Availability of Substitutes

- The greater the availability of substitutes, the higher the price elasticity of demand.
- The more substitutes a product has, the more sensitive consumers are to a price change, and the more elastic the demand curve.
- The price elasticity of demand is directly related to the availability of good substitutes for a product.



Chart: Elasticity and Closeness of Substitutes

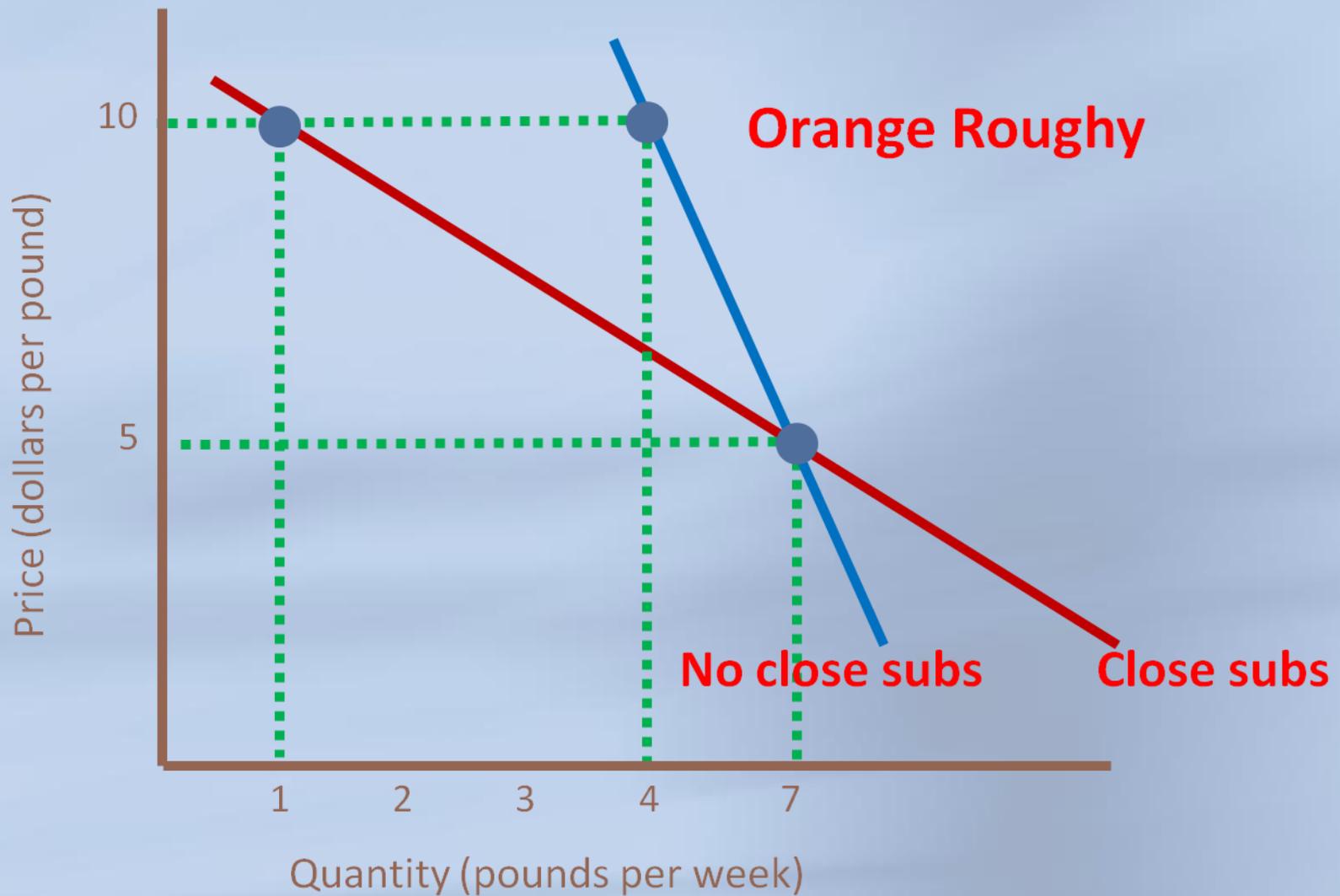
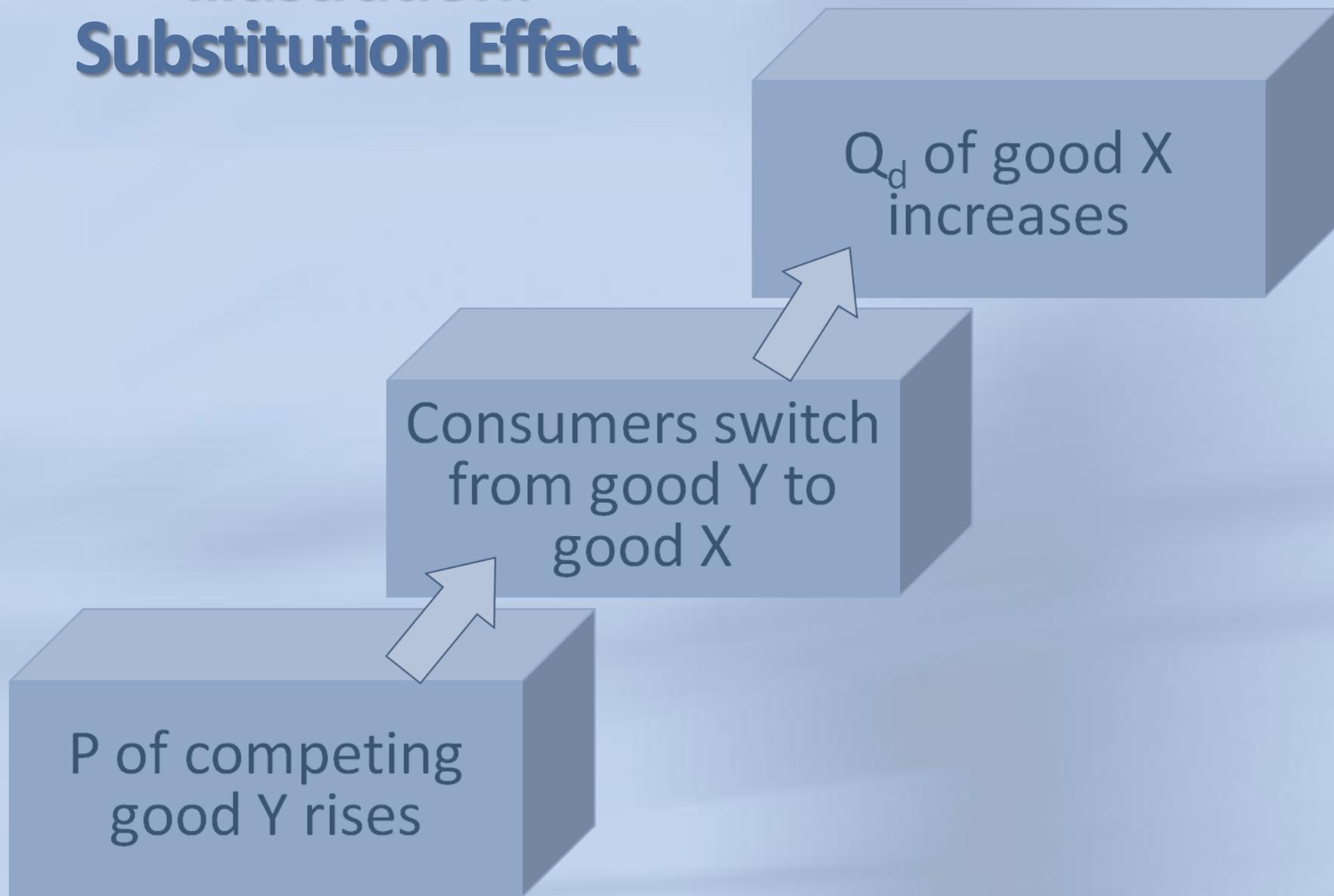




Illustration: Substitution Effect





#3 Cross-Price Elasticity

- A change in the price of one good affects the demand for another.
- The decision to buy a good depends on the prices of substitutes and complements of that good.
 - **Substitute goods** are goods that substitute for each other.
 - When the price of good X rises, the demand for good Y increases, *ceteris paribus*.
 - **Complementary goods** are goods frequently consumed in combination – peanut butter and jelly, coffee and creamer.
 - When the price of good X rises, the demand for good X and complementary good Y falls.

Table: Cross-Price Elasticities



Commodity	Cross-Price Elasticity
Beef in response to price change in pork	0.11
Beef in response to price change in chicken	0.02
US cars in response to price changes in European & Asian automobiles	0.28
European automobiles in response to price changes in US & Asian automobiles	0.61
Beer in response to changes in wine	0.23
Hard liquor in response to price changes in beer	- 0.11



Complementary vs. Substitute

- When the cross-price elasticity of demand has a *negative* sign the two goods are **complementary** goods.
- When the cross-price elasticity of demand has a *positive* sign the two goods are **substitute** goods.

Table: Effects of Δ in P



Substitutes

↑ An increase in $P_{B\dots}$

↑ increases demand for good A.

↓ A decrease in $P_{B\dots}$

↓ decreases demand for good A.

Complements

↑ An increase in $P_{B\dots}$

↓ decreases demand for good A.

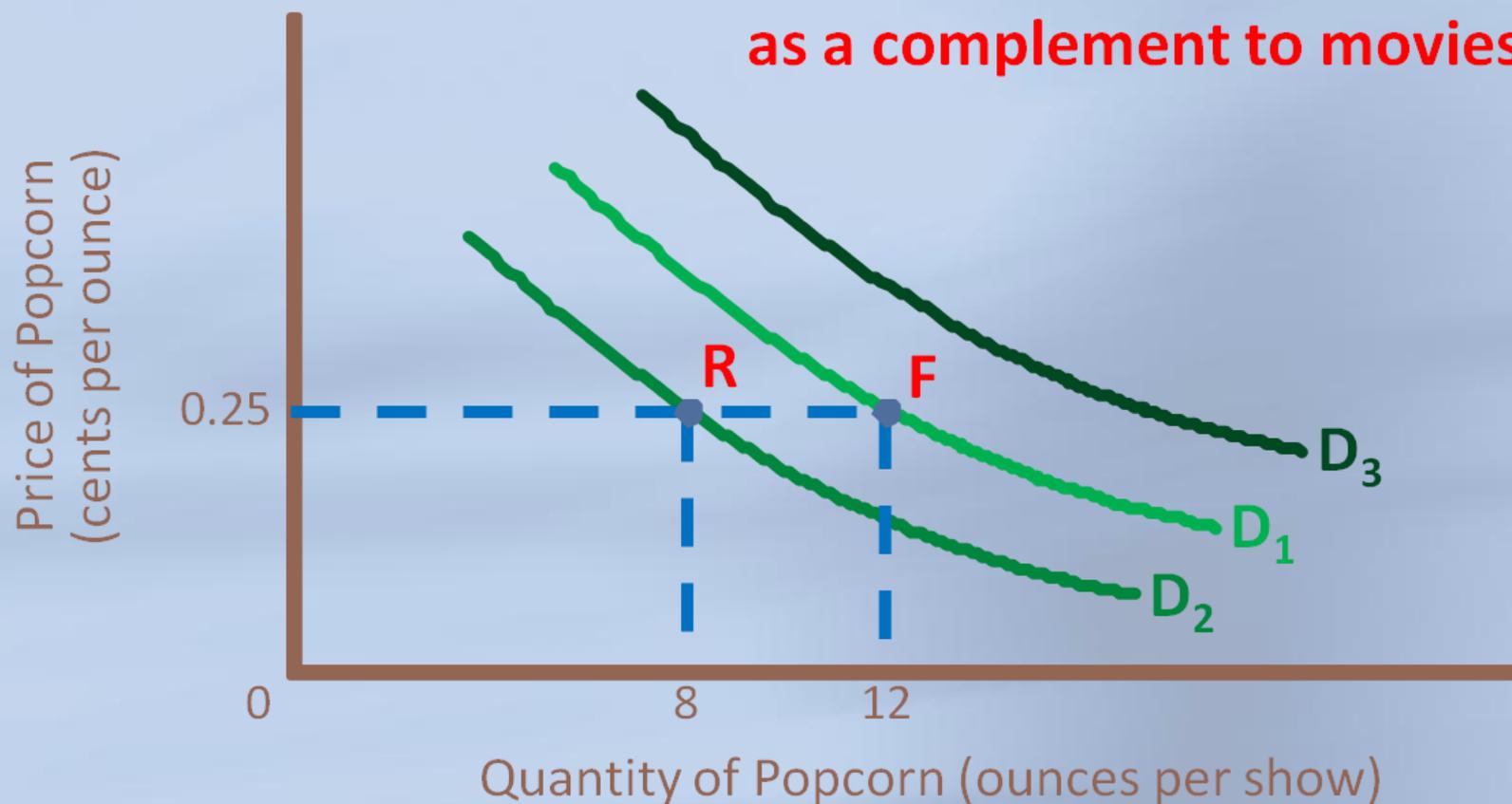
↓ A decrease in $P_{B\dots}$

↑ increases demand for good A.



Chart: Substitutes and Complements

In this chart, popcorn is shown as a complement to movies.



Calculating Cross-Price Elasticity



Cross-price elasticity is the percentage change in the quantity demanded of X divided by the percentage change in the price of Y .

$$\text{Cross-price } E_d = \frac{\% \Delta \text{ in } Q_d \text{ of good } X}{\% \Delta \text{ in } P \text{ of good } Y}$$

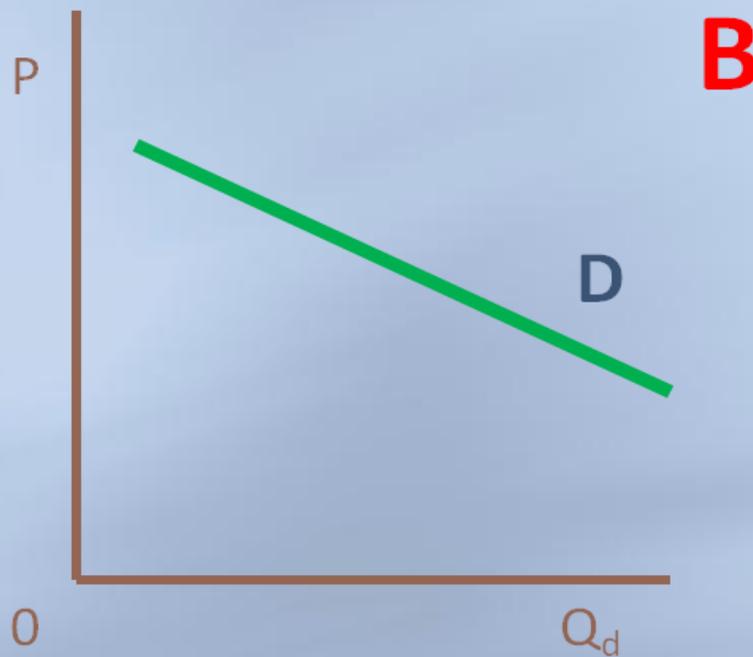
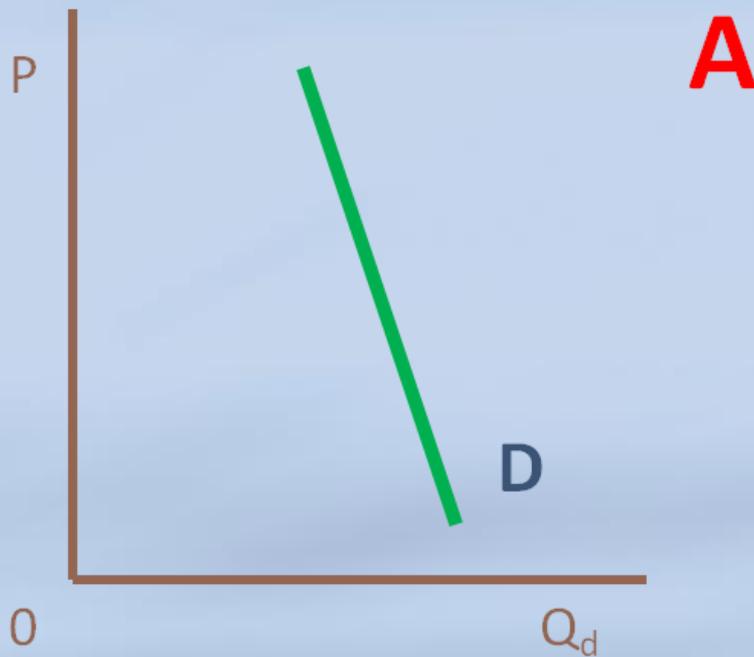


#4 Necessities vs. Luxuries

- **Necessities** are goods that are critical to our everyday life.
- *Demand for necessities is relatively inelastic.*
- **Luxuries** are goods we would like to have but are not likely to buy unless our income jumps or the price declines sharply.
- *Demand for luxury goods is relatively elastic.*



Chart: Medicine and Candy



Question: Which of the above demand curves is for a vital medicine and which is for candy?

Answer: Medicine and Candy



A is the demand curve for medicine because medicine is a necessity with few substitutes and the price can change with little effect on the quantity demanded.

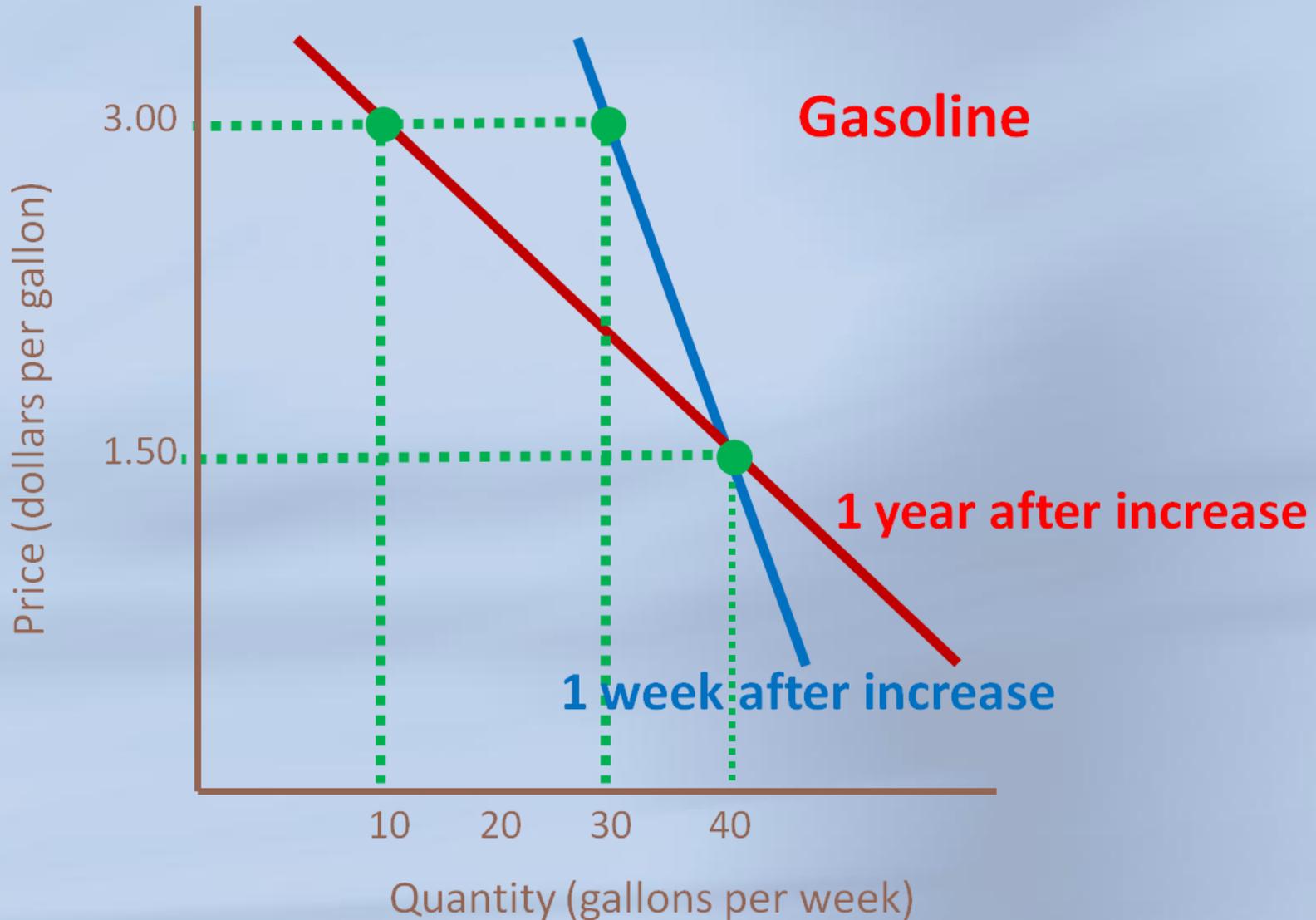
B is the demand curve for candy because candy has many substitutes and a price change can bring about a big change in the quantity demanded.

#5 Time



- The long run price elasticity of demand is higher than the short run elasticity.
- *Consumers are better able to change their buying habits over the long run than in the short run.*
- The longer consumers have to adjust, the more sensitive they are to a price change and the more elastic the demand curve.
- In general, elasticity is higher the longer a price change persists.

Chart: Elasticity and Elapsed Time





#6 Income Elasticity

- the ratio of the percentage change in the quantity demanded of a good to a given percentage change in income
- The higher the price in relation to a consumer's income, the higher the elasticity of demand.
- The elasticity of demand declines as price moves down the demand curve.

Income Elasticity



- The larger the purchase is to one's budget, the more sensitive consumers are to a price change and the more elastic the demand curve.
- An increase in consumer income will cause a rightward shift in demand. Consumers will purchase more at any price than they did prior to the increase in income.



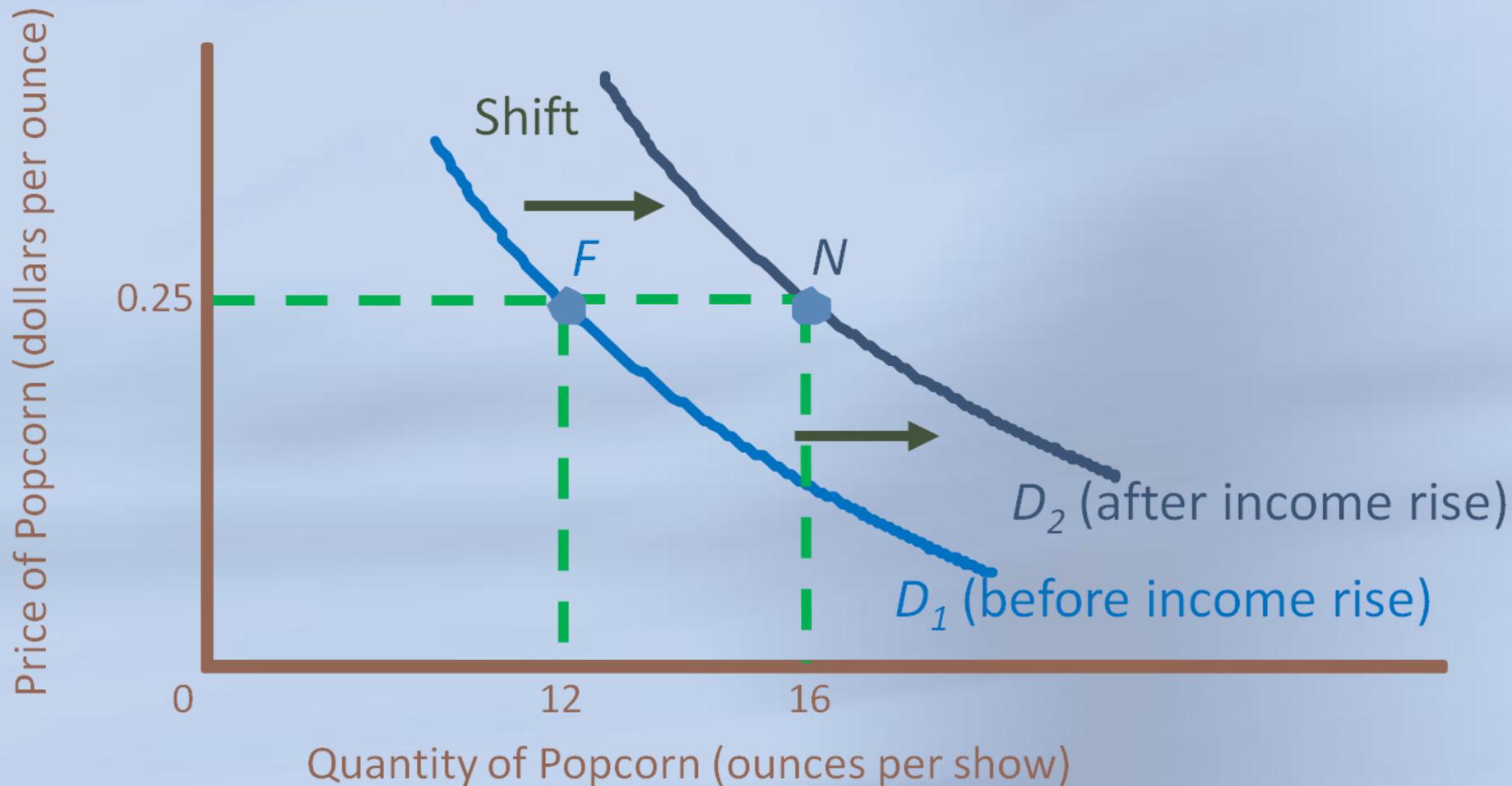
Calculating Income Elasticity

Income elasticity of demand is the percentage change in the quantity demanded divided by the percentage change in income.

$$\text{Income } E_d = \frac{\% \Delta \text{ in } Q_d}{\% \Delta \text{ in } I}$$



Chart: Income Elasticity





#7 Price Elasticity and Total Revenue

- There is a relationship between elasticity and total firm revenue. The elasticity of demand determines how a change in prices will affect a firm's total revenue or income.
 - A firm's total revenue is the total amount of money the firm receives from selling its goods or services.
 - **Total revenue** – The price of a product multiplied by the quantity sold in a given time period: $P \times Q_s$.
- If a good has an elastic demand, raising prices might actually decrease the firm's total revenue.

$$\text{Total revenue} = \text{Price} \times \text{Quantity sold}$$

Price Elasticity and Total Revenue



- A price hike increases total revenue only if demand is *inelastic* ($E_d < 1$).
- A price hike reduces total revenue if demand is *elastic* ($E_d > 1$).
- A price hike does not change total revenue if demand is *unit elastic* ($E_d = 1$).

[You can download a free E_d calculator at <http://myexceltemplates.com/>]



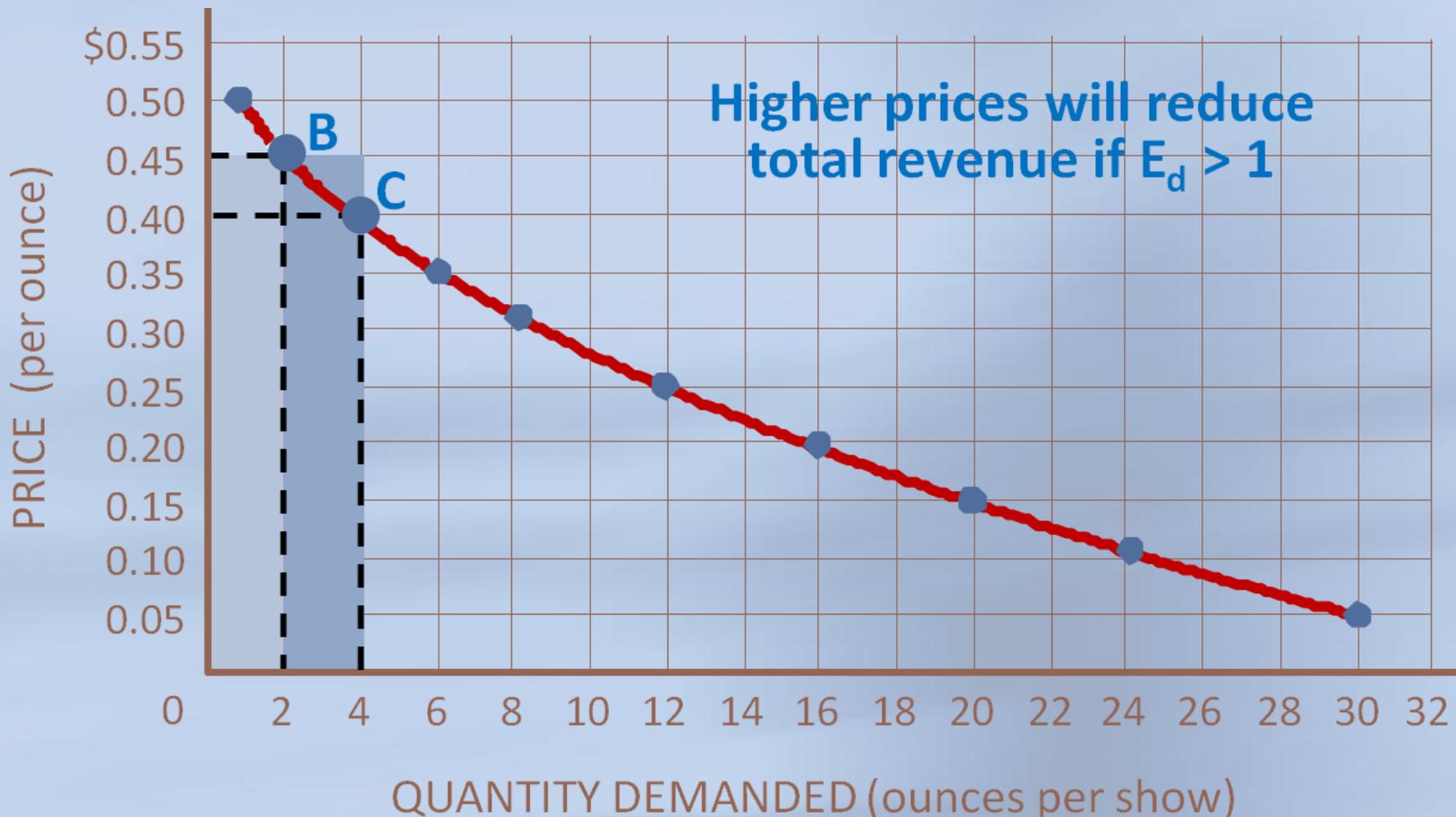
Table: Price Elasticity and Total Revenue

Price	Quantity Demanded	Total Revenue
\$0.50	1	\$0.50
0.45	2	0.90
0.40	4	1.60
0.35	6	2.10
0.30	8	2.40

Price	Quantity Demanded	Total Revenue
\$0.25	12	\$3.00
0.20	16	3.20
0.15	20	3.00
0.10	25	2.50
0.05	30	1.50



Chart: Price Elasticity and Total Revenue



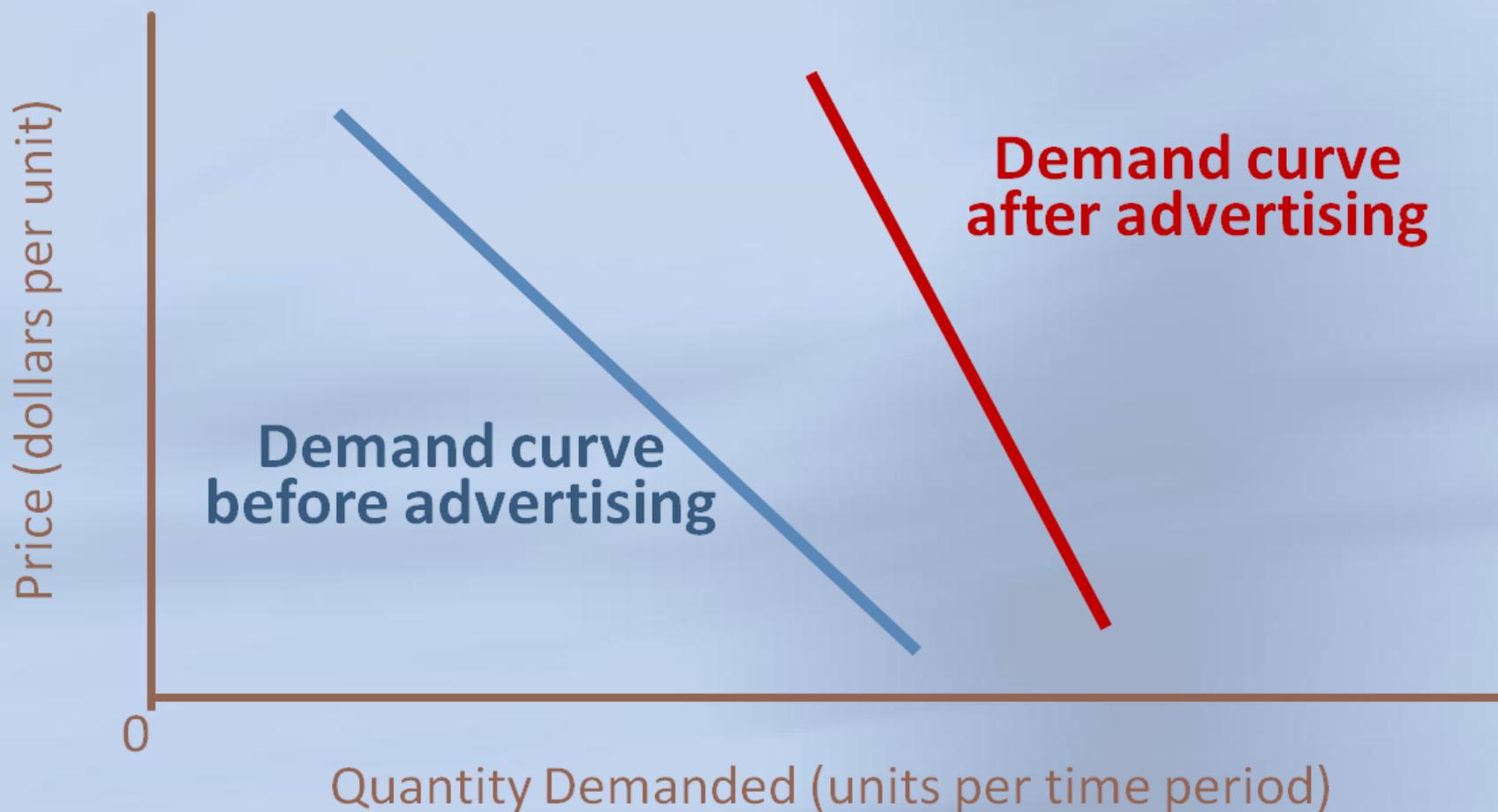


A Final Thought: Are wants created?

- A successful advertising campaign shifts the demand curve to the right. So, yes, successful advertising campaigns create wants.
- Some advertising is intended to provide information about new or existing products.
- A great deal more advertising is designed to exploit consumers' emotions and lack of knowledge.
- But ... ultimately consumers determine demand and we can't blame advertising for consumers' choices.



Chart: The Impact of Advertising on the Demand Curve





THE END