Discussion 2 - Econ 101

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Demand

Introduction

To analyze demand, we need to understand two key concepts:

- **Price:** The cost of buying one unit.
- **Quantity Demanded:** The number of units

Law of Demand:

- Lower prices $\Rightarrow$ Higher quantity demanded.
- Higher prices $\Rightarrow$ Lower quantity demanded.

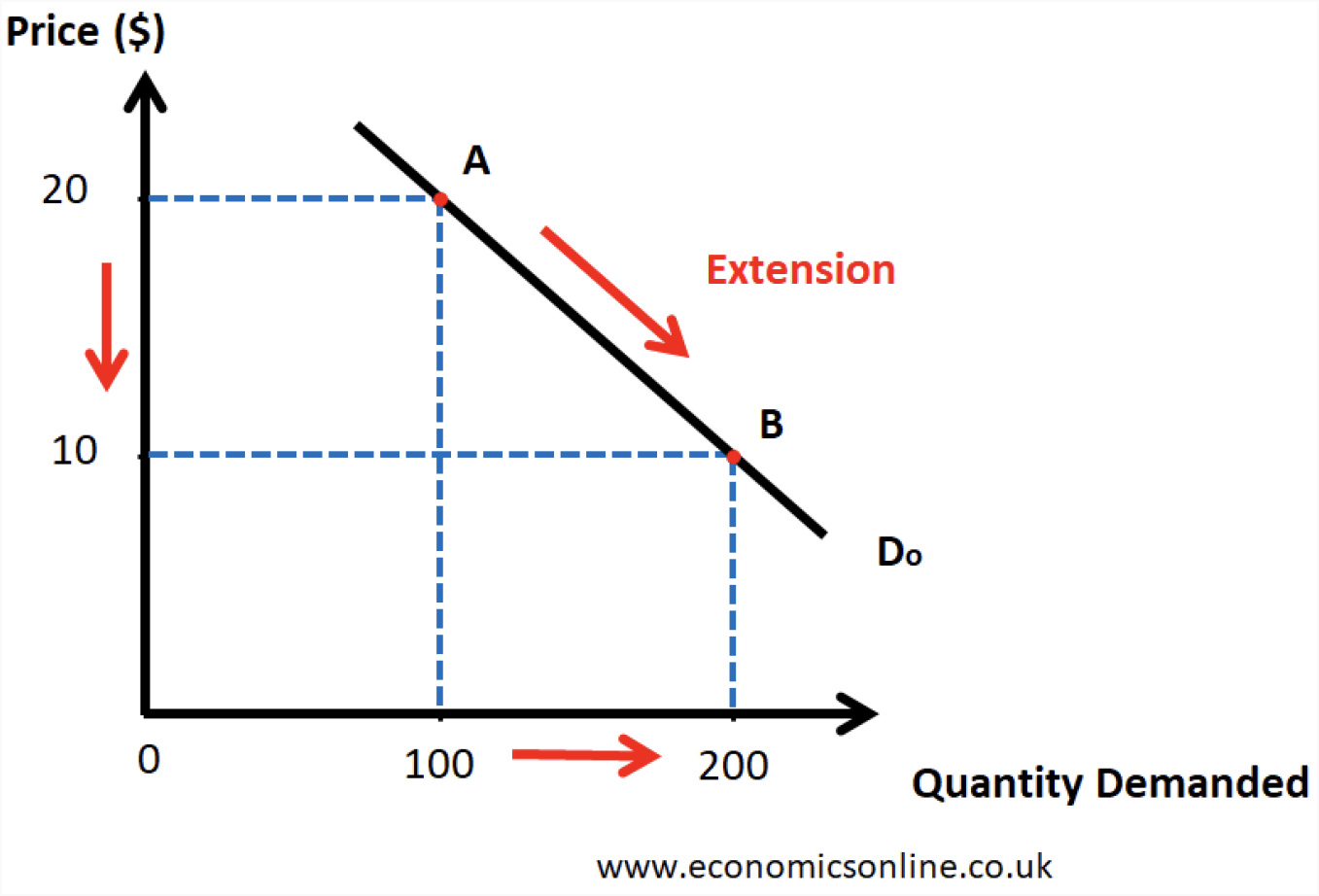
Introduction

Important:

$$\textbf{Quantity Demanded} \neq \textbf{Demand}$$

Quantity Demanded: Units bought
Demand: Relationship between units bought and prices

Law of Demand - Graphically



Law of Demand - Math

Suppose the demand is a line of the format

$$y = ax + b$$

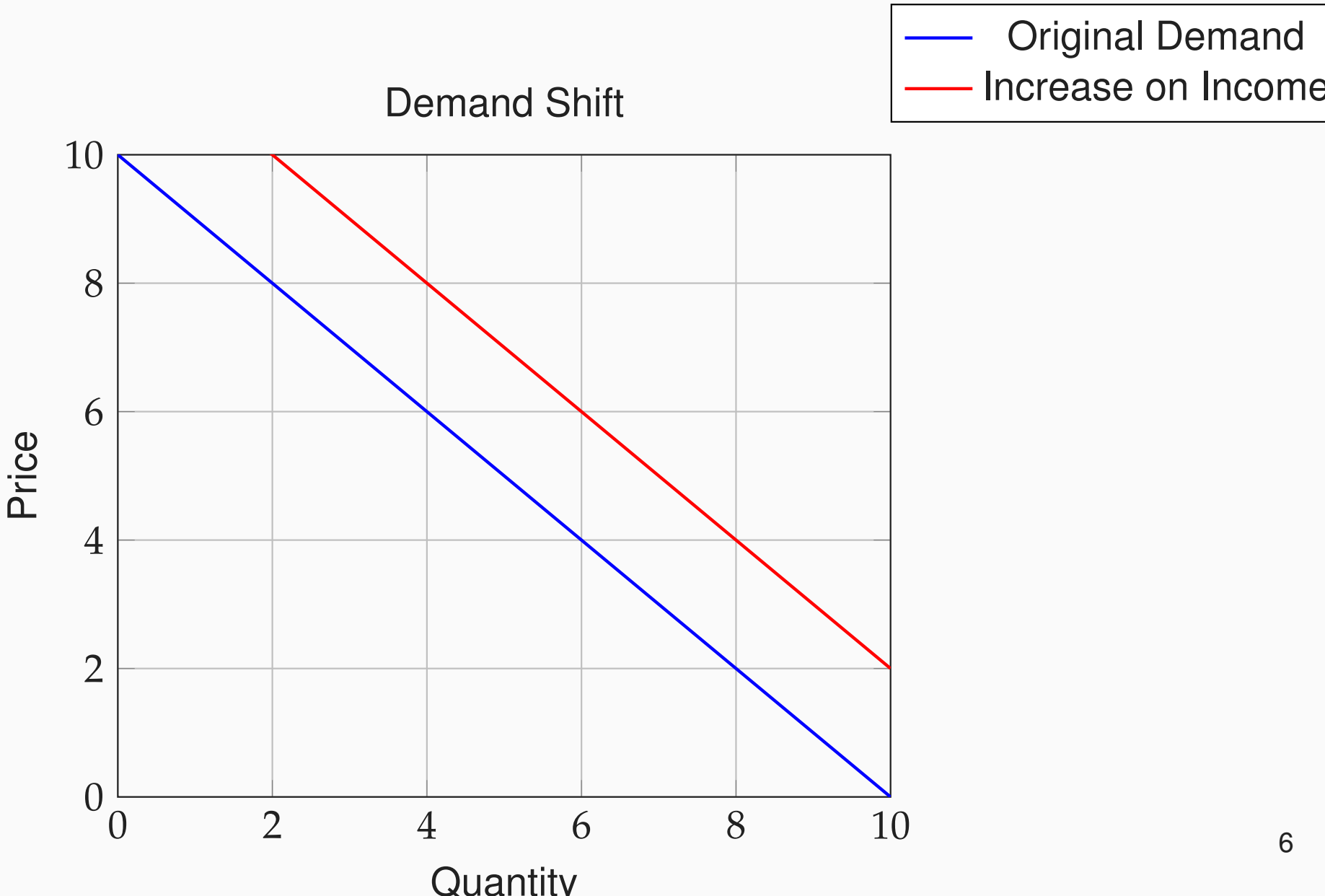
The Law of Demand imply that $a < 0$

- **Demand Function:** $Q_d = 100 - P$
- **Inverse Demand Function:** $P = 100 - Q_d$

Shifts of the demand curve

Income: You are analyzing the demand for ice cream, and your income increases. What will happen to the demand curve?

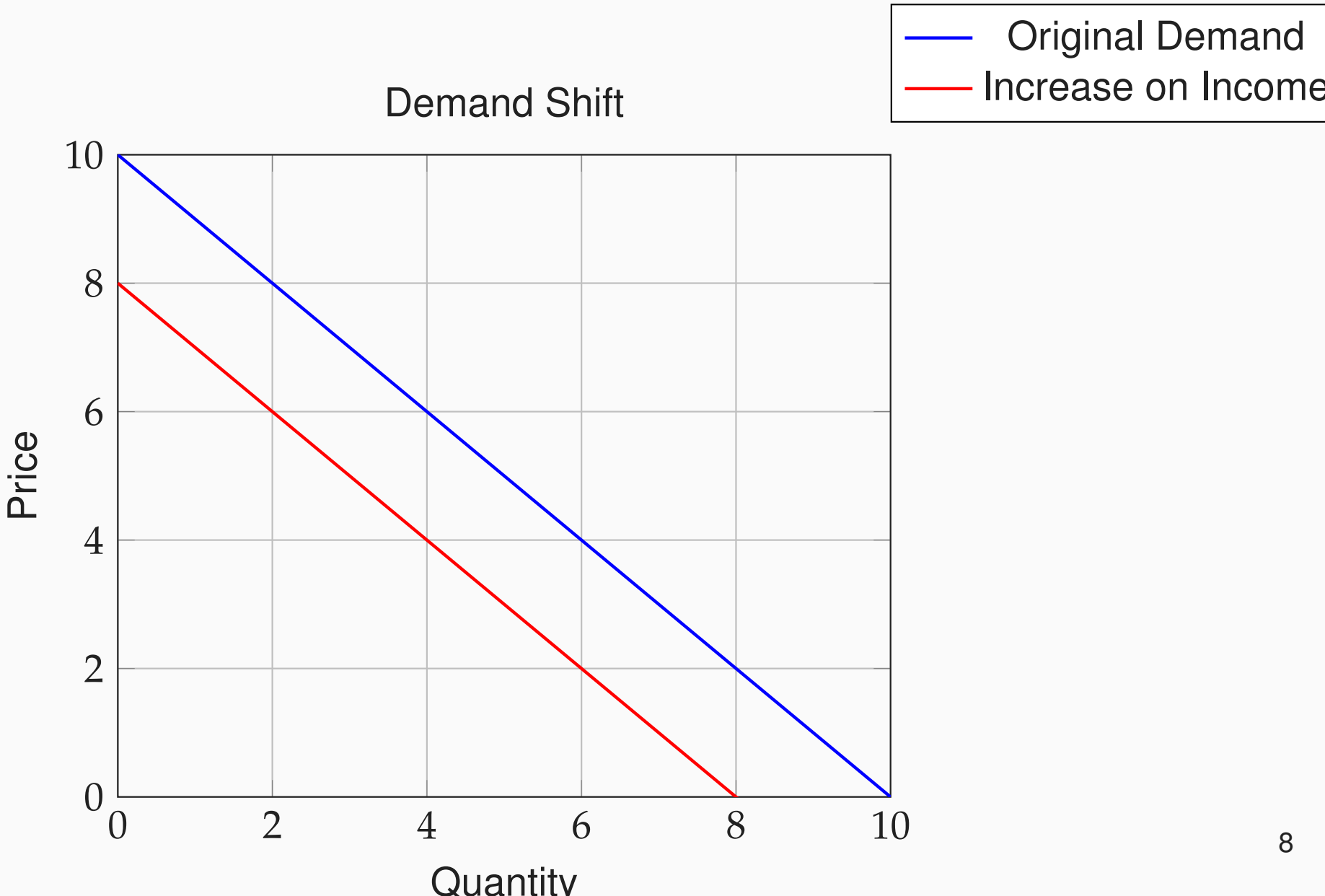
SHIFTS OF THE DEMAND CURVE



Shifts of the demand curve

Income: You are analyzing the demand for low quality meat and your income increases. What will happen to the demand curve?

SHIFTS OF THE DEMAND CURVE



Shifts of the demand curve

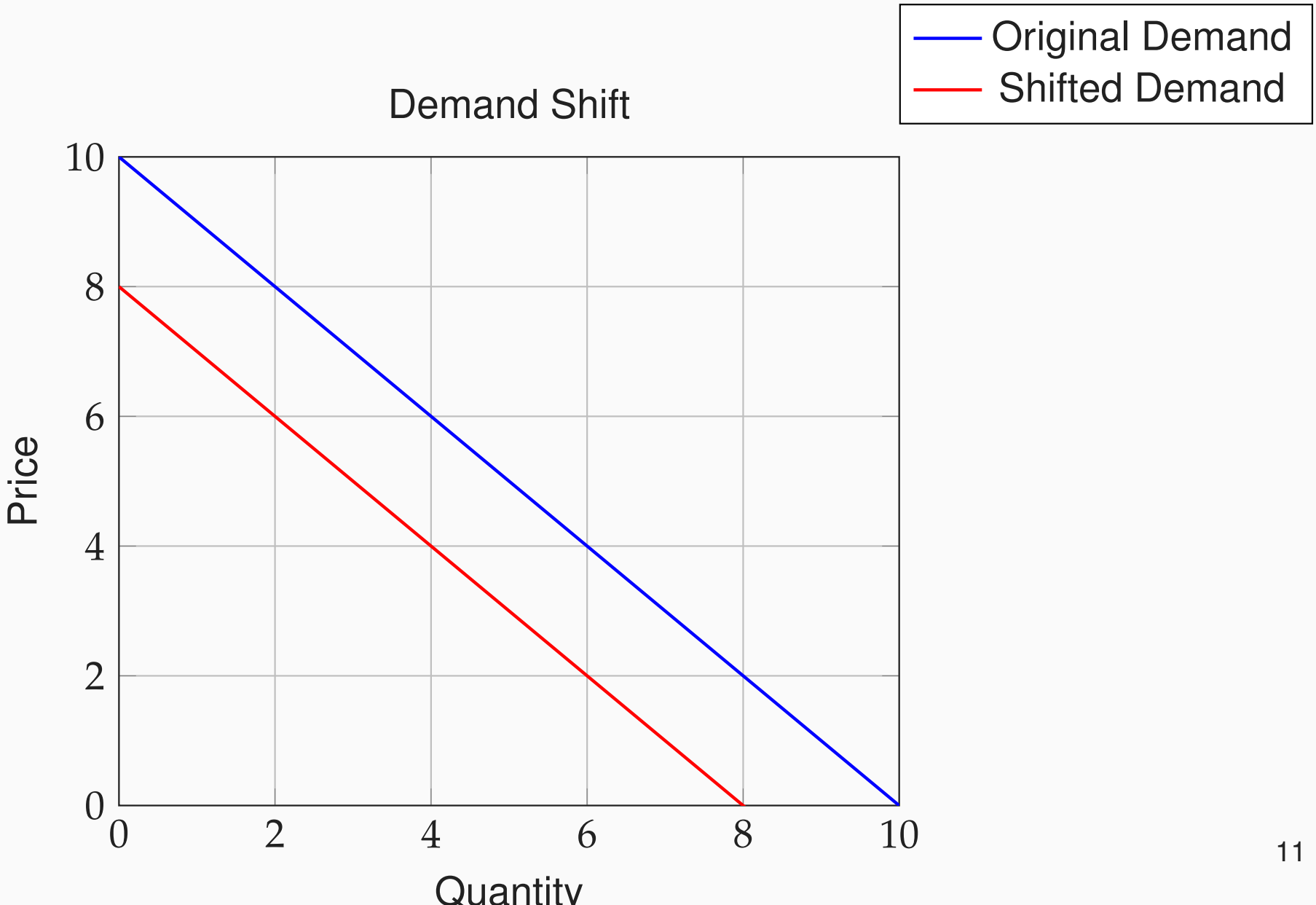
Income:

- **Normal Good:** As your income increases, you consume more.
- **Inferior Good:** As your income increases, you consume less.

Shifts of the demand curve

Other goods: You are analyzing the demand for mozzarella cheese, and the price of cheddar cheese decreases. What will happen to the demand curve?

SHIFTS OF THE DEMAND CURVE



Shifts of the demand curve

Other goods: You are analyzing the demand for bread, and the prices for butter decreases. What will happen to the demand curve?

SHIFTS OF THE DEMAND CURVE

Shifts of the demand curve

Other goods:

- **Substitutes Goods:** An increase in the price of one good leads to an increase in the quantity demanded for the other.
- **Complementary Goods:** An increase in the price of one good leads to a decrease in the quantity demanded for the other.

Other shifts

- **Preferences:** Fashion trends dictate what we wear.
- **Expectations** At the beginning of the pandemic, there was a shortage of toilet paper.
- **Congestion:** Crowded restaurants.
- **Networks:** Social platforms like Twitter (X).
- **Type:** Children prefer sweet chocolate, while older adults tend to prefer dark chocolate.

SHIFTS OF THE DEMAND CURVE

Important: If you are analyzing the demand for butter and its price changes, the demand curve does not shift.

However, if income, the prices of other goods, or other factors unrelated to the price of butter change, the demand curve will shift.

Marginal Utility

Decreasing Marginal Utility

Let's look at the Diamond X Water Paradox. Suppose that you value water and diamonds as follows.

Good	1st unit	2nd unit	3rd unit	...	100th unit
Water	$100	$80	$60	...	$2
Diamond	$70	$50	$30	...	$10

Marginal Utility

I use the notation of ΔU_x to illustrate how the utility (the value an agent attributes to a good) changes when the individual has one additional unit of good x. When comparing two goods, X and Y

$$\frac{\Delta U_x}{p_x} = \frac{\Delta U_y}{p_y}$$

Marginal Utility

Suppose you are analyzing your demand for pizza and ice cream and

$$\frac{\Delta U_{\text{pizza}}}{p_{\text{pizza}}} > \frac{\Delta U_{\text{ice cream}}}{p_{\text{ice cream}}}$$

This implies that you are willing to give up 1 unit of ice cream at price $p_{\text{ice cream}}$ to obtain 1 unit of pizza at price p_{pizza}.

When they are equal, you have the optimal combination of pizza and ice crea.

Supply

Introduction

To analyze supply, we need to understand two key concepts:

- **Price:** The value you receive selling one good
- **Quantity Supplied:** The quantity sold

Law of Supply:

- Lower Prices $\Rightarrow$ Lower quantity supplied
- Higher Prices $\Rightarrow$ Higher quantity supplied

Introduction

Important:

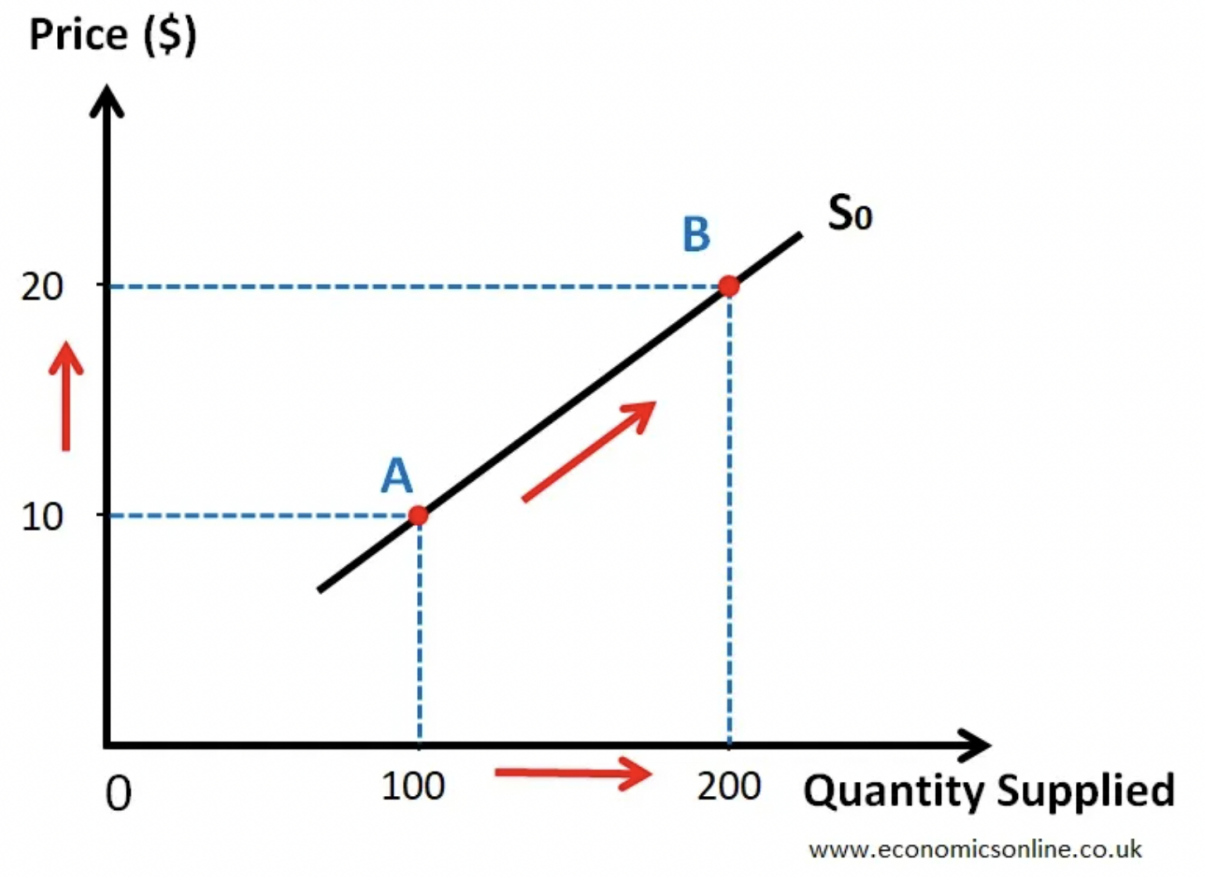
$$\textbf{Quantity Supplied} \neq \textbf{Supply}$$

Quantity supplied: Units sold
Supply: Relationship between units sold and prices

Law of Supply - Idea

- When analyzing demand, we consider firm behavior.
- In this context, prices represent benefit and the goods represent the cost.
- To produce one good you need to use labor, capital, time. All of these are costs
- If prices decrease, the benefit of selling is lower, which discourages production and hence, less quantity supplied
- If prices increase, the benefit of selling is higher, which encourages product and hence higher quantity supplied

Law of Supply - Graphically



Law of Supply - Math

Suppose the supply curve is a line of the format

$$y = ax + b$$

The Law of Supply imply that $a > 0$

- **Supply Function:** $Q_s = 100 + P$
- **Inverse Supply Function:** $P = 100 - Q_s$