Introduction to Microeconomics

9 September 2024

ECO 1001

Prof. Maira Reimão

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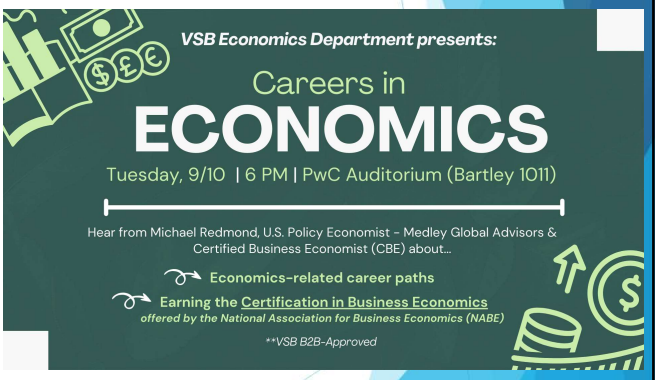
Admin Items

- Homework 1 due Wednesday, Sept 11
  - at the start of class
  - In paper or uploaded to Blackboard
- Office hours tomorrow, 11am – 12:30pm
  - On zoom; link on the Blackboard class "homepage"
- Tomorrow, this event offered by the National Association for Business Economics (NABE) →



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The Law of Demand

- You may have heard of the "Law of Supply and Demand", but let's start with the "Law of Demand":

The Law of Demand: The higher the price of a good, the less of that good people will demand (*ceteris paribus*).

- In other words, price (P) and Quantity Demanded (Q^d) are *inversely related*

$$P \uparrow \Longrightarrow Q^d \downarrow$$

  - Quantity demanded: the total number of units of a good or service consumers are willing to purchase at a given price

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Where does the Law of Demand Come From?

There are two effects working together and driving the Law of Demand

- Substitution effect: when the price of a good increases (*ceteris paribus*), it is relatively more expensive than its substitutes; so, the incentive to switch to a substitute becomes stronger.
  - The *opportunity cost* of buying that item increases.
  - E.g., as butter becomes more expensive, we are more likely to buy cream cheese or margarine instead - and buy less butter as a result

- Income effect: when the price of a good increases *(ceteris paribus)*, people cannot afford to buy all the things they previously bought with the unchanged income. As a result, quantities demanded of at least some goods must decrease.
  - Caveat: this is true for *normal* goods, but not for *inferior* goods

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Demand

- ***Demand***: the **amount** of a good or service that consumers are **willing and able** to purchase **at various prices.**
  - Demand means you want to buy, can buy, *and* plan to buy *ceteris paribus* – assuming all other influences on your purchases stay the same
  - Represented by a demand schedule - a set of P and Q^d pairs.
- Example – demand for cookies
  - Notice that *quantity demanded* (i.e., that people want to and can buy) decreases with price

P ($)	Quantity Demanded (millions of boxes/month)
0	6
2	5
4	4
6	3
8	2
10	1
12	0

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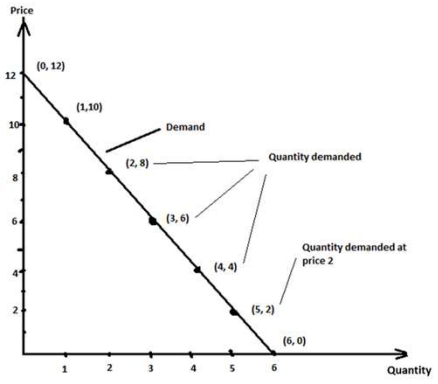
Demand Curve



- Independent Variable: P
- Dependent Variable: Q^d
- Quantity always goes on the *x* axis, and price on the *y* axis. Always!
  - Even when we are not talking about competitive markets.

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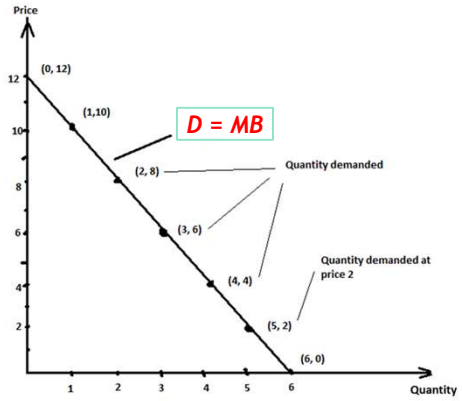
Demand Equation



Slope-intercept form:

$$P = mQ^d + b = -2Q^d + 12$$

Demand function: Q^d as a function of P.

Solve for Q^d,

$$Q^d = -\frac{1}{2}P + 6$$

Inverse Demand function: P as a function of Q^d.

$$P = -2Q^d + 12$$

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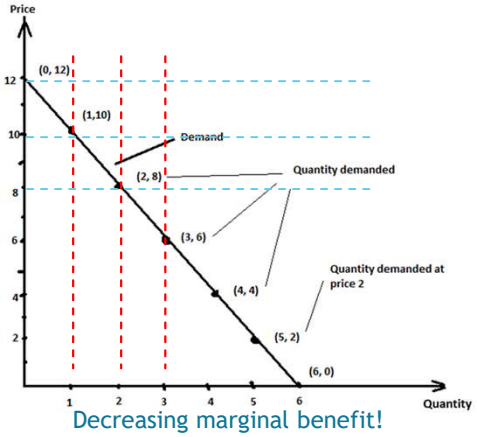
Demand and Marginal Benefit



Decreasing marginal benefit!

Demand curve:

$$Q^d = -\frac{1}{2}P + 6$$

Shows the *maximum quantity* a consumer is willing and able to purchase at various prices.

Inverse Demand:

$$P = -2Q^d + 12$$

Shows the *maximum price* (marginal benefit) a consumer is willing and able to pay for that additional unit of good

= Marginal Benefit

Remember that we've put every cookie in order from the one that someone values the most to the last cookie that people value.

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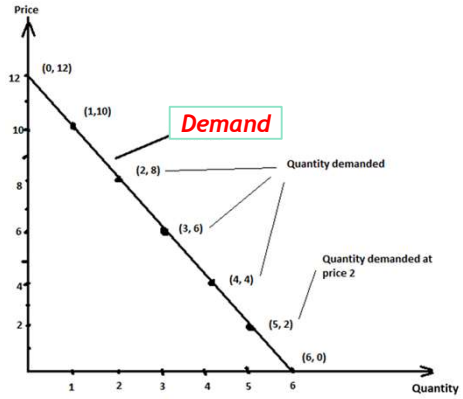
Demand vs Quantity Demanded



- Demand (***D***) is the whole curve - the entire relationship between price and quantity demanded of a good.
  - Represented by the demand schedule or function
- Quantity demanded (Q^d) is a *point* on the demand curve
  - The quantity demanded at a particular price
  - Quantity demanded is the amount that you plan to buy at a given price – might not be the same as the quantity actually bought (e.g., shortage)

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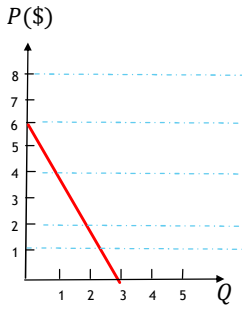
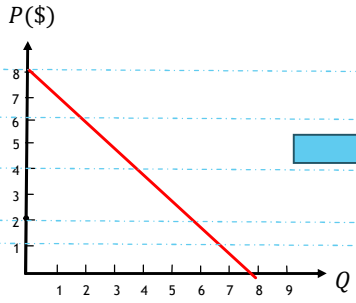
Where does this Demand Curve Come From?

- From individual demand
- Each person has some demand curve for cookies, and we can add them up across people.

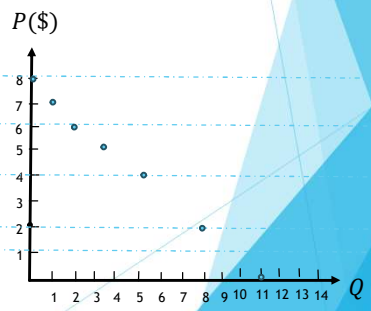
Demand Curve of Person A



Demand Curve of Person B



Demand Curve of Both Persons A and B



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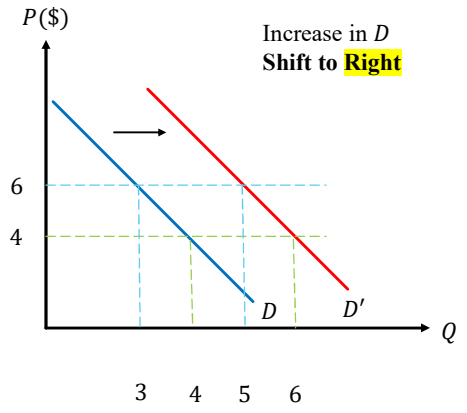
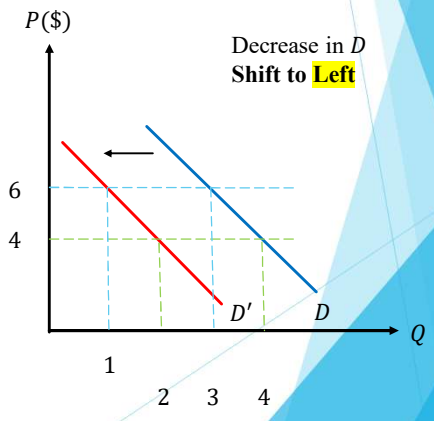
Changes in Demand

- Relates to changes in the *entire* demand curve (shifts right or left)





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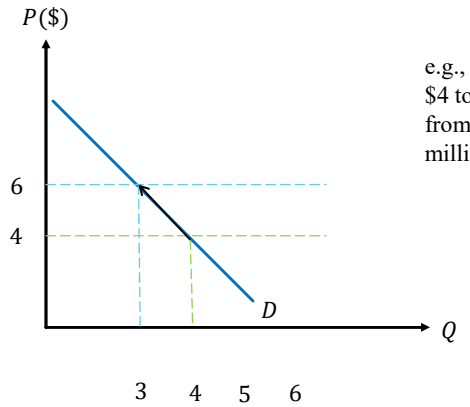
Changes in Quantity Demanded

- Relates to movements *along* the demand curve



e.g., Price increased from $4 to $6, so Qd changed from 4 million boxes to 3 million boxes.

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What can Cause a Change in Demand?

That is, "What could shift the demand curve?"

Changes in…

1. *Tastes and preferences*
2. *Number of buyers*
3. *Income*
4. *Prices of related goods*
5. *Expectations*

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Changes in the Number of Buyers and Tastes

- Changes in tastes or preferences
  - E.g., Celebrity effect, new research showing that eating chocolate is good for your health, a new diet fad, research linking cigarettes to cancer

- If the number of buyers increases, demand increases
- If the number of buyers decreases, demand decreases
- E.g., opening up a country, increasing population

$$\uparrow \#\ of\ buyers \Longrightarrow \uparrow D$$
$$\downarrow \#\ of\ buyers \Longrightarrow \downarrow D$$

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Changes in Income

- Normal Goods – e.g., books, shoes, sushi, fancy steakhouse
  - Demand increases (shifts right) when income increases
  - Demand decreases (shifts left) when income decreases
- Inferior Goods – e.g., instant ramen, frozen dinner, car repairs
  - Demand increases (shifts left) when income *decreases*
  - Demand decreases (shifts left) when income *increases*
  - Any other ideas of inferior goods?

$$income \uparrow \Longrightarrow \uparrow D^{normal}$$
$$income \downarrow \Longrightarrow \downarrow D^{normal}$$

$$income \uparrow \Longrightarrow \downarrow D^{inferior}$$
$$income \downarrow \Longrightarrow \uparrow D^{inferior}$$

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Changes in Prices of "Related Goods"

Is the related good a substitute or a complement?

Substitutes in consumption are goods that may be consumed in place of each other.

- E.g., coffee and tea may be substitutes; milk and half-and-half may be substitutes
- If the price of a *substitute* to good A increases, demand for good A increases
- If the price of a *substitute* to good A decreases, demand for good A decreases

$$p^{substitute} \uparrow \Longrightarrow \uparrow D$$
$$p^{subsitute} \downarrow \Longrightarrow \downarrow D$$

Complements in consumption are goods that are generally consumed together.

- E.g., Hamburgers and hamburger buns; peanut butter and bread
- If the price of a *complement* to good A increases, demand for good A decreases
- If the price of a *complement* to good A decreases, demand for good A increases

$$p^{complement} \uparrow \Longrightarrow \downarrow D$$
$$p^{complement} \downarrow \Longrightarrow \uparrow D$$

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Changes in Expectations

Price expectations

- E.g., anticipation of Black Friday, anticipation that flight fares will go up
- If most people expect prices to rise, *current demand* goes up
- If most people expect prices to fall, *current demand* goes down
- Note that this is a self-fulfilling prophecy!

$$price\ expected \uparrow \Longrightarrow \uparrow D$$
$$price\ expected \downarrow \Longrightarrow \downarrow D$$

Income expectations

- E.g., Christmas bonus, expected layoffs
- If income is expected to increase, *current demand* for normal goods increases
  - *Current demand* for inferior goods decreases
- If income is expected to decrease, *current demand* for normal goods decrease
  - *Current demand* for inferior goods increases

$$income\ expected \uparrow \Longrightarrow \uparrow D^{normal}$$
$$income\ expected \downarrow \Longrightarrow \downarrow D^{normal}$$
$$income\ expected \uparrow \Longrightarrow \downarrow D^{inferior}$$
$$income\ expected \downarrow \Longrightarrow \uparrow D^{inferior}$$

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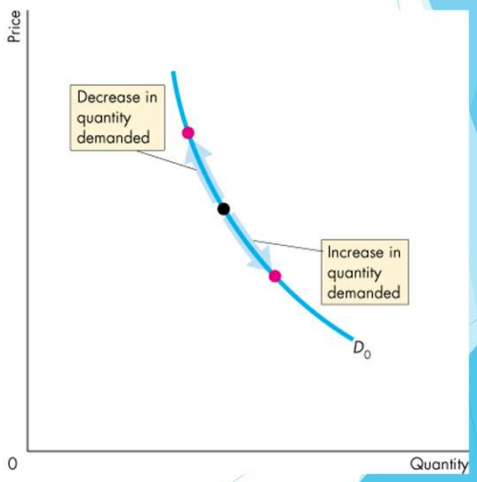
Again, Demand vs. Quantity Demanded

- A change in quantity demanded →
- When the **price of a good** changes and *other things remain the same*, the **quantity demanded** changes and there is a movement along the demand curve.
- This is the Law of Demand

Moving along a demand curve



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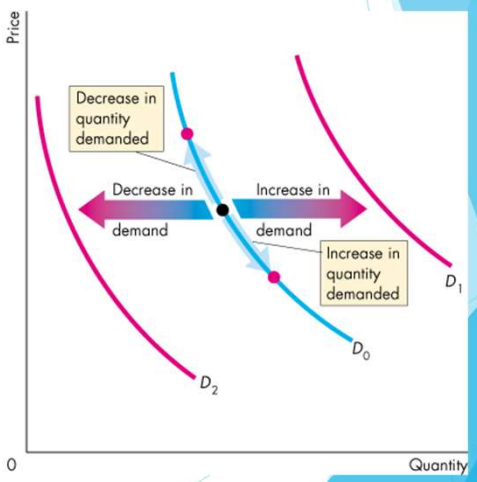
Again, Demand vs. Quantity Demanded

- A change in demand →
- When the **price of a good** remains the same and *any of the other 5 things change*, the **quantity demanded** changes and there is a shift in the demand curve.

A shift in demand



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Shifts in Demand for Gas?

MARKETS | COMMODITIES | GAS MARKETS

Gas Prices Fall Below $4 a Gallon for First Time in Months

Average price at pump has declined from high of $5.02 in June

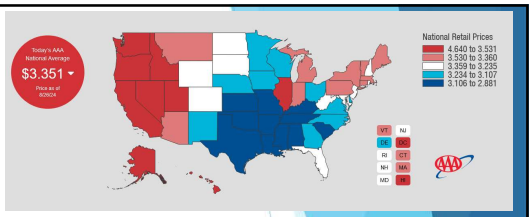
Gas prices on Wednesday dipped to below $4 a gallon for the first time since March.
PHOTO: MORRY GASH/ASSOCIATED PRESS

By Joseph De Avila Follow and Lauryn Azu Follow
Updated Aug. 11, 2022 9:36 am ET

The average price of a gallon of unleaded gasoline in the U.S. has fallen below $4, a 21% drop from June's peak, as demand for oil softens around the globe.

The national average dipped to $3.99 a gallon Wednesday afternoon and continued to trend lower on Thursday, according to OPIS, an energy-data and analytics provider. It is the first time since March that the average price of gasoline has been below $4 a gallon, giving drivers some reprieve as the rate of inflation remains near a four-decade high.

Gas prices in the U.S. set a record of $5.02 in June, according to data from OPIS. The fuel-price surge has been a big factor in overall inflation, according to economists. And as consumers feel the pinch, they tend to reduce consumption.



Gas prices are down. We could be headed for lows not seen since 2021

AUGUST 23, 2024 · 5:00 AM ET

By Scott Neuman

"The late-season wild card is always hurricanes"

A year ago, excessive heat forced Texas refineries to curtail operations, and Hurricane Idalia temporarily shut down oil production in the Gulf of Mexico, which contributed to higher prices. Despite record-breaking heat waves across the country this summer, Texas and Louisiana, where the majority of U.S. refineries are located, haven't been hit as hard.

Global events, EVs and an aging U.S. population affect prices

But other factors are also influencing the current downward trend in gas prices.

Iran, which produces 3 million to 4 million barrels a day, continues to aid its Hamas, Hezbollah and Houthi allies arrayed against Israel amid the ongoing Gaza conflict, but so far that hasn't affected Tehran's oil production. "If Iran gets more heavily involved, that could be a problem. ... But if things stay relatively contained there, it shouldn't have much impact on gas prices," the AAA's Gross says.

Meanwhile, China's demand for oil remains relatively low due to its flagging economy. OPEC+ is expected to curtail cuts in production starting in October. And the U.S. is pumping record amounts of petroleum.

"We've never produced more oil than we're producing now," Gross says. That record production comes as U.S. demand has tapered — from 9.8 million barrels of gasoline per day in recent years to barely 9 million per day now, Gross says.

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