

Surplus Slides

Econ 331

Summer 2025



- 1 Define consumer, producer, and total surplus.
- 2 Identify surplus algebraically, graphically, and from verbal descriptions.

Where We Are/Going

- ◇ We want to make a supply/demand diagram and analyze equilibrium with and without government interventions.
- ◇ To better understand the impacts of interventions on welfare, we need to assess welfare in some way to be able to compare welfare before and after market interventions.
- ◇ We need to do this both graphically and analytically.

Types of Surplus

- ◇ **Consumer Surplus (CS)-This Section.**
- ◇ Producer Surplus (PS).
- ◇ Total Surplus (TS).

Intuitive Example

- ◇ Suppose it's Monday, and Bill has an 8am class.
- ◇ He walks into Starbucks, and their pricing board is broken, and the app is down.
- ◇ The barista tells Bill he needs to look up the price of Bill's drink.
- ◇ Bill thinks to himself, and decides he will buy his coffee if the price is no higher than \$10.
- ◇ After all, it's Monday and Bill is tired.
- ◇ The barista says the price is \$6, so Bill orders his coffee and heads to class.

Intuitive Example—Vocabulary

- ◇ Suppose it's Monday, and Bill has an 8am class.
- ◇ He walks into Starbucks, and their pricing board is broken, and the app is down.
- ◇ The barista tells Bill he needs to look up the price of Bill's drink.
- ◇ Bill thinks to himself, and decides he will buy his coffee if the price is no higher than \$10.
 - ▶ This \$10 is Bill's **Willingness to Pay**, or WTP.
- ◇ After all, it's Monday and Bill is tired.
- ◇ The barista says the price is \$5, so Bill orders his coffee and heads to class.
 - ▶ Bill bought the coffee because the price was less than his WTP.
 - ▶ The difference between the price and Bill's WTP is his **Consumer Surplus**, or CS.
 - ▶ Here, Bill's CS is \$5.

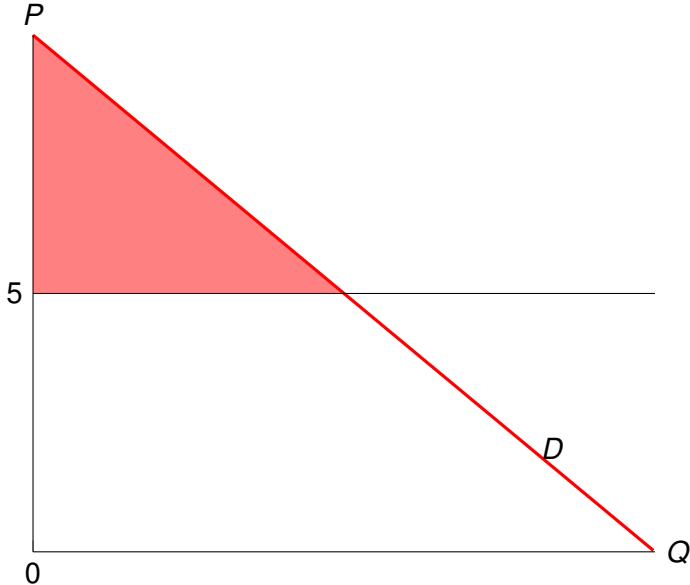
Consumer Surplus

- ◇ Consumer Surplus is the difference between the price a consumer is willing to pay and the price a consumer has to pay.
- ◇ Consumer Surplus should always be weakly positive ($CS \geq 0$).
 - ▶ If Bill's coffee cost \$20, and his $WTP = \$10$, then Bill should not buy the coffee and so his $CS = 0$.

Consumer Surplus

- ◇ Where on a supply demand graph would we find Consumer Surplus?
- ◇ We know the demand curve for a consumer indicates a consumer's WTP.
- ◇ We can add a horizontal line for the price.
- ◇ So the CS must be the portion of the demand curve below the demand curve (WTP) and above the price!

Consumer Surplus-Graphed



Types of Surplus

- ◇ Consumer Surplus (CS).
- ◇ **Producer Surplus (PS)-This Section.**
- ◇ Total Surplus (TS).

Intuitive Example

- ◇ Let's think about Bill buying coffee from the perspective of Starbucks.
- ◇ Suppose it costs \$2 for Starbucks to produce, or make, Bill's coffee order.
- ◇ The price that prevails in the market is \$5, so Starbucks is happy to sell Bill his coffee.

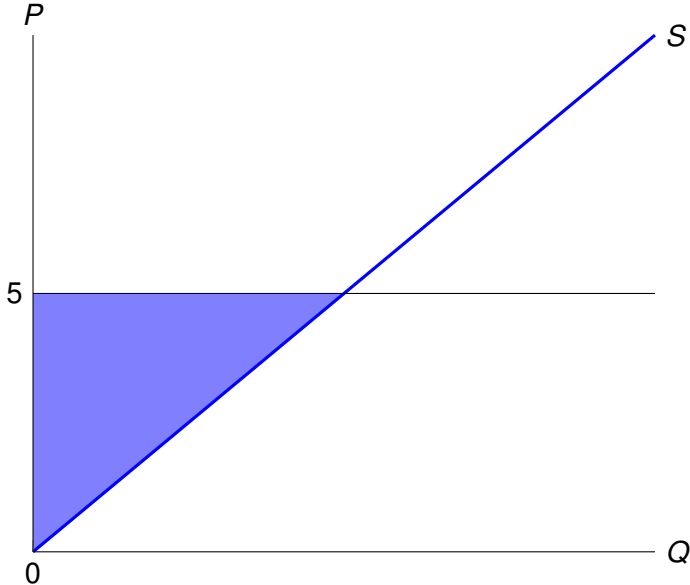
Intuitive Example-Vocabulary

- ◇ Let's think about Bill buying coffee from the perspective of Starbucks.
- ◇ Suppose it costs \$2 for Starbucks to produce, or make, Bill's coffee order.
 - ▶ Starbucks marginal cost to make the coffee, is the lowest price they're willing to sell Bill's coffee for.
 - ▶ This is their **Willingness to Accept**, or WTA.
- ◇ The price that prevails in the market is \$6, so Starbucks is happy to sell Bill his coffee.
 - ▶ Starbucks sold the coffee because the price was higher than their WTA.
 - ▶ The difference between the price and the WTA is **Producer Surplus**, or PS.
 - ▶ The PS to Starbucks is \$3.

Production Surplus

- ◇ Where would Producer Surplus lie on a graph?
- ◇ It would be the area below the price and above a firm's WTA.
- ◇ This WTA is based on MC, which we know is a firm's supply curve.
- ◇ So, PS is the area above the supply curve below the price.

Production Surplus-Graphed



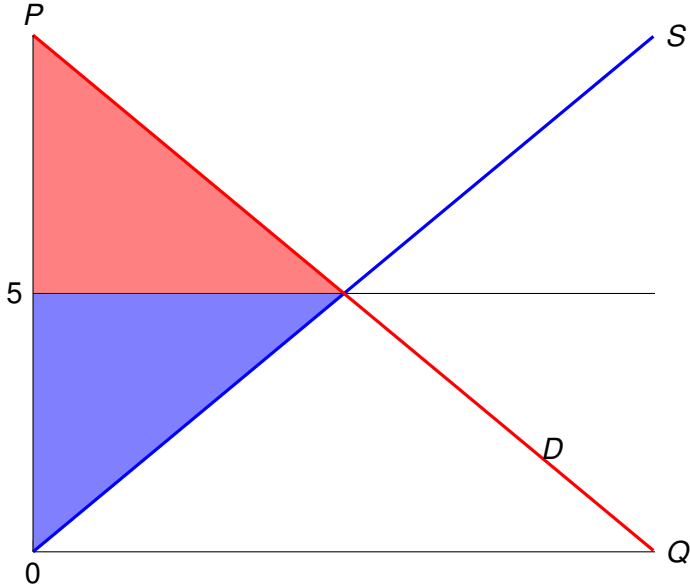
Types of Surplus

- ◇ Consumer Surplus (CS).
- ◇ Producer Surplus (PS).
- ◇ **Total Surplus (TS)-This Section.**

Intuitive Example

- ◇ In the Starbucks example:
 - ▶ Bill got a Consumer Surplus of \$5.
 - ▶ Starbucks got a Producer Surplus of \$3.
- ◇ The total welfare gained by society of this trade is $3 + 5 = \$8$.
- ◇ We call this **Total Surplus**, or TS.
- ◇ Graphically, this is simply PS+CS.

Total Surplus-Graphed



Total Surplus-Graphed

