Welfare Analysis

Goals

- Develop some measure of how well off people are before and after policy changes – welfare analysis
- Show the welfare effects of a price ceilings and floors
- Use the same tools to show the effects of a tax.

Big Takeaways Part 1

When you have a *well-functioning* market and you add a price floor. . .

- There is a loss to society
- Buyers lose
- Sellers that can sell win for sure.
- Sellers overall may gain or lose depending on a few things.

Big Takeaways Part 2

When you have a *well-functioning* market and you add a tax. . .

- There is a loss to society within this market
- Price may go up or down depending on, 'who writes the check'
- Tax revenue is collected but . . .
  - Some comes from the buyers and some from the sellers
  - The shares depend on price sensitivity and not 'who writes the check'

Economists Concerns

Different from others. We tend to get focused on two things:

- Efficiency: Did the right people make the right amount of the right stuff the right way and did it go to the right people. (There are about 5 kinds of efficiency there)
- Welfare: How well-off everyone is.

Welfare

- Not free money.
- How well-off we are.
  - Are you better off with 10% more income but with the price of rent being 25% higher?
  - Are you better off with 10% less cheese but 15% more bread?

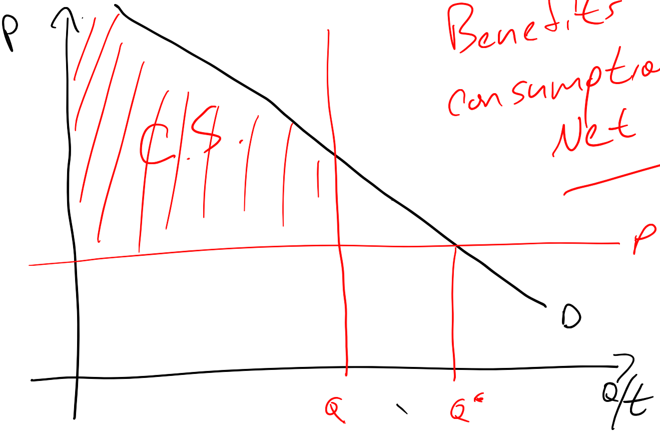
Three Major Measures

- EC 311 Topics
  - Compensating Variation
  - Equivelent Variation
- This class
  - The surplus measures
  - Consumer suplus
  - Producer surplus, profits plus fixed cost
  - Deadweight loss, losses to society

Consumer Surplus

- "Gross Surplus"
  - the benefit you get from consuming goods.
  - The area under the demand function up to quantity you consumed.
- "Consumer Surplus"
  - The benefit you get from consumer goods, net of what you paid for them.
  - The area under the demand function, above price, up to quantity consumed.

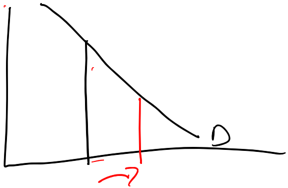
Graphically

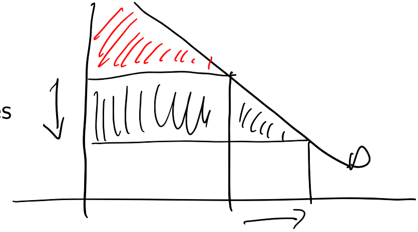


Benefits of consumption, Net of Price.

Things to spot

- When your consumption increases:
  - gross surplus increases
- When price goes down:
  - you consume more
  - Consumer surplus increases

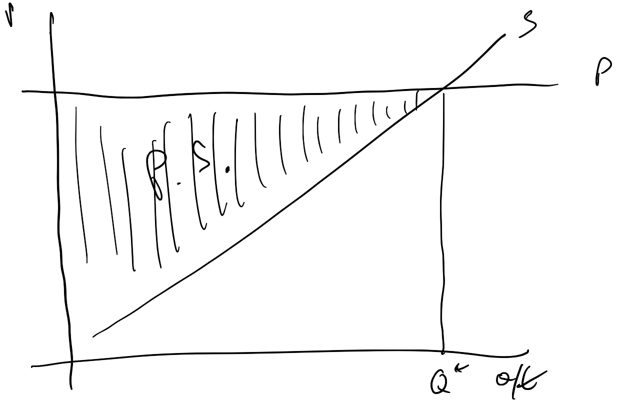




Producer Surplus

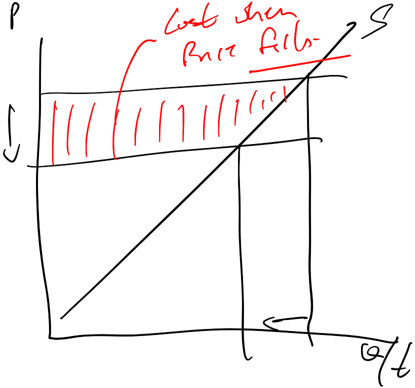
- The benefit firms get from selling goods, net of what variable costs.
  - The area above the supply function, below price, up to quantity sold.

Graphically

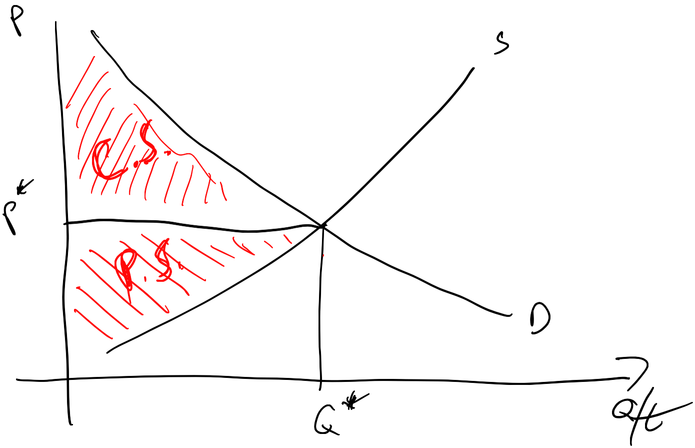


Things to spot

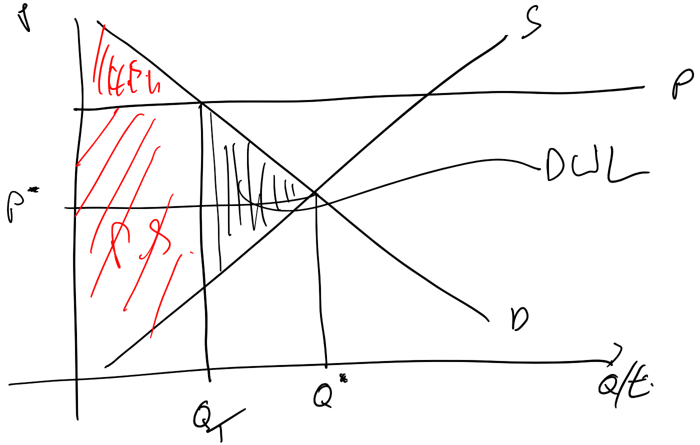
- When price goes down:
  - You sell less
  - Producer surplus decreases



Put Both CS and PS on the same graph



Now Try a Price above Equilibrium

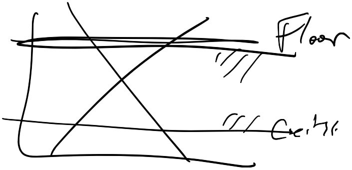


Things to Spot

- Fewer transactions, remember you need buyers and sellers for transactions
- There is less total surplus, consumer + producer.
  - The part lost is called deadweight loss.
  - Only the equilibrium price makes that triangle go away.

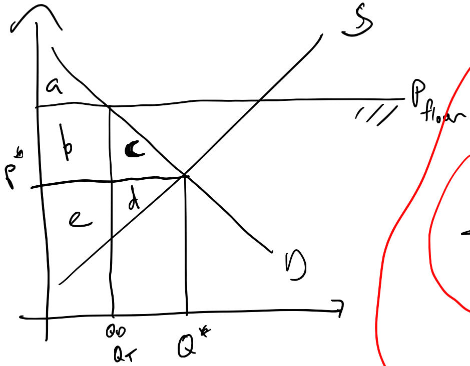
In a well-functioning perfectly competitive market, equilibrium prices maximize social welfare.

Lets Look at Welfare Changes



- Impose a price floor.
- Look at CS before and after
- Look at PS before and after
- Look at transfers from one to the other
- Look at losses to society.

Graphically



No-Floor

C.S.: $a + b + c$

P.S.: $e + d$

Floor

C.S.: a

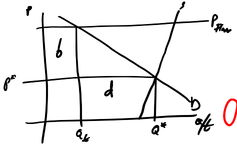
P.S.: $b + e$

DWL: $c + d$

Consumer Lose

Producer — If $b > d$ they are better off.

Things to Spot



- Consumers lose for sure
- There is a loss to society
- Some consumer surplus is transferred to sellers
- Producers:
  - Get some surplus from consumers
  - Lose some surplus because of lost sales
  - Those that sell, are better off
  - In net, it depends on the size of their loss from lost sales and the transfer from consumers.

There will be a price ceiling in the homework.

Interpretation of DWL

- The cost of implementing the non-price allocation mechanisms (Price ceiling examples).
    - Key money requires legal advice.
    - Line waiting time.
    - ...
- The loss of welfare from buying or selling close substitutes
    - Car trip instead of flying
    - Sharing a house instead of your own apartment.

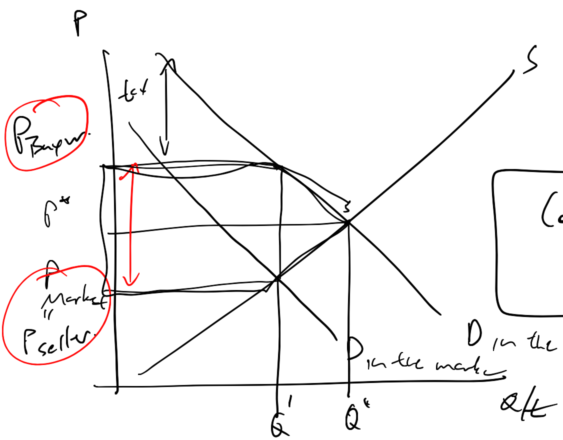
Tax

- You can use welfare analysis to look at taxes too.
- Simple excise tax on a market. We are not looking at income tax but it can be similar.
- The social cost of the tax is greater than the revenue.
- The institution of ‘who writes the check’ determines the price on the shelf but not relative shares of the tax – *the burden of the tax*
- Who pays, *the burden*, depends on relative price sensitivity of buyers and sellers.

The two institutions

- "Buyer Writes The Check"
  - You buy the item
  - Pay the tax after you pay the seller (Like sales tax).
  - Looks like a decrease in demand
- "Seller Writes The Check"
  - You buy the item
  - Tax is included in the price.
  - Looks like a decrease in supply

Buyer Writes Check



Buyer Price ↑

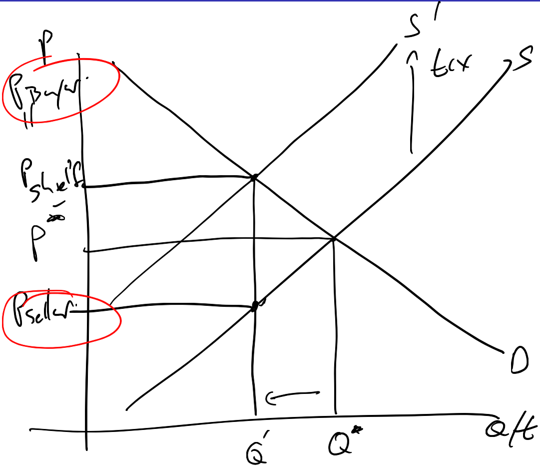
Seller Price ↓

Looks like shelf price falls.

Things to Spot

- The buyers pays a higher price
- The seller gets a lower price
- The shelf price changes with the institution but not who gets and pays what.
- The gap is the per-unit tax
- The deadweight loss has a special name "excess burden"
- The gap has a special name "Tax Wedge"

Seller Writes Check



Things to Spot

- The buyers pays a higher price
- The seller gets a lower price
- The gap is the per-unit tax

Yes, it is all the same!

Close Look at the Tax Burden

- Stick with the seller writes the check version but can show this either way.
- Compare the changes in consumer and producer surplus with and without a tax.

Seller is relatively sensitive to price changes

Seller is relatively insensitive to price changes

Things to Spot

- "who pays" is not about institution but about sensitivity to prices.
- The party least willing to change behavior when price changes, has the larger burden
- There is more deadweight loss, loss to society, when transactions change a lot.

On Excess Burden

- Lots of excess burden on luxuries
- Little excess burden in necessities

Ethics?

Next Up

Ch 6: Elasticity