Lecture 5(i)

Announcements

- Midterm Covers through Lec5(ii)
- Practice midterm at Canvas (look at it before recitation sections this week)

- Question and Answer Sessions
- Wed Oct 3: 4-5:30: Anderson 310
- Wed Oct 3, 7:30-9: Anderson 210
- Thur Oct 4 3:30-5 : Anderson 210

- My Office Hours This Week
  - Wed 1:30-3:25 (usual)
  - Thur: 1:30-2:30 (extra)

- Large Lectures (Wiley 175) cancelled this Friday.
- **Still have discussion sections!**

- Next Mon (Oct 8), go to evening midterm, 7-8pm **instead** of lecture. Room locations posted at Canvas

- Bring #2 pencils and University ID
- Don't Bring: Calculators and Scratch Paper.

Lecture

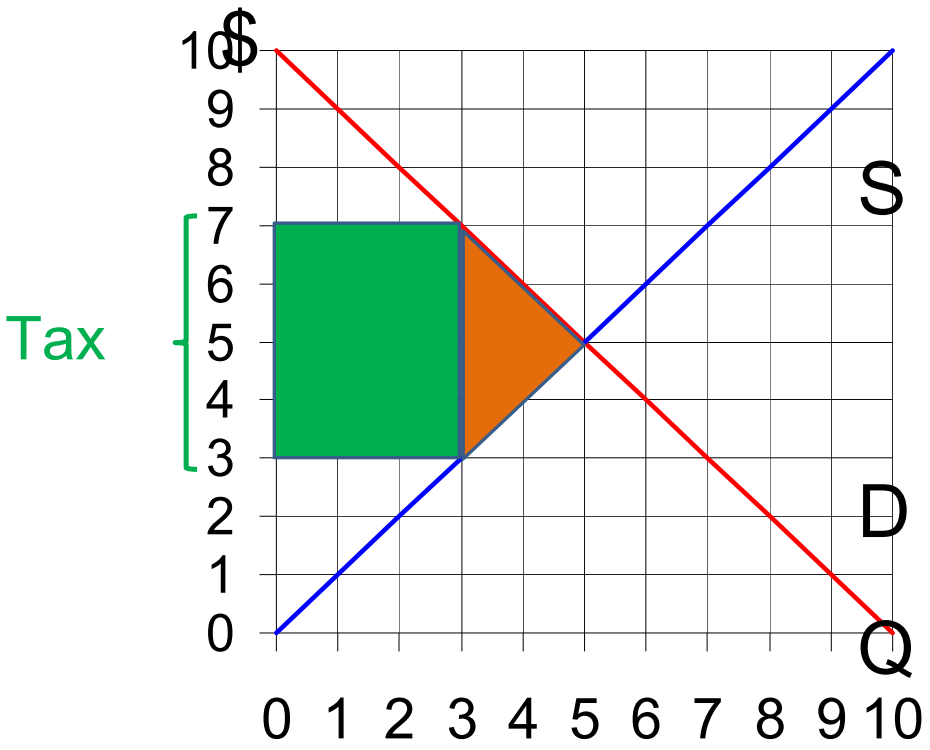
1. More on tax rates:
   "Broad Base" Tax Principle
2. Price Controls

Review important table from last class

Tax	Q	Revenue	Dead-wgt Loss	Dead-wgt loss per $ Tax Rev
1	4.5	4.50	.25	.056
2	4.0	8.00	1.00	.125
4	3.0	12.00	4.00	.333
5	2.5	12.50	6.25	.50
6	2.0	12.00	9.00	.75

But a lot easier to understand with pictures, so let's do that

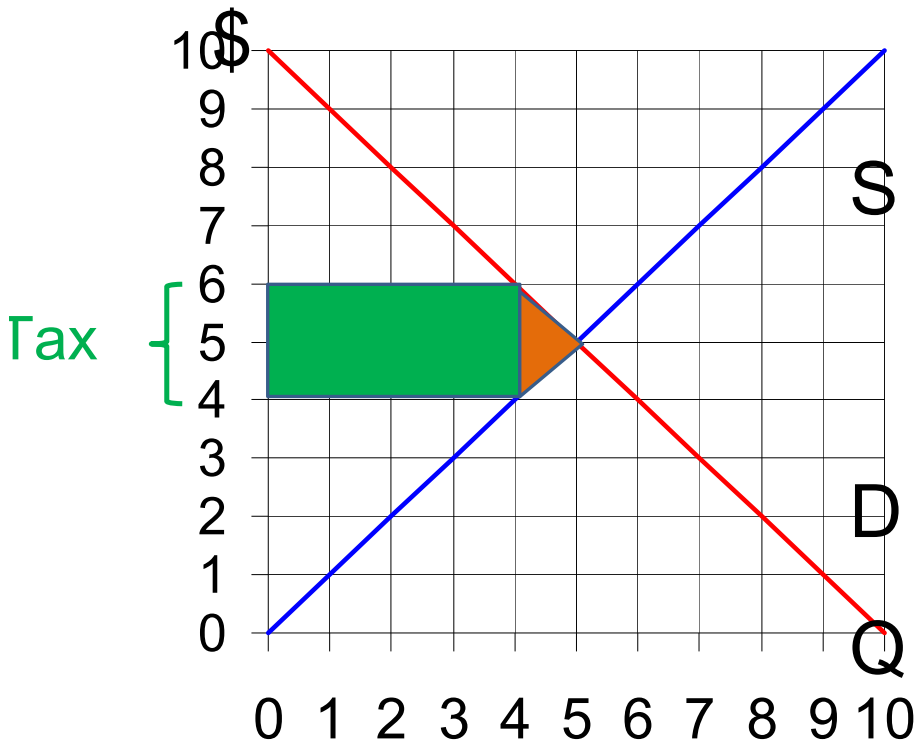
$4 Tax



Tax revenue = 12
Dead weight loss = 4

Tax revenue= 3 × DWL

$2 Tax

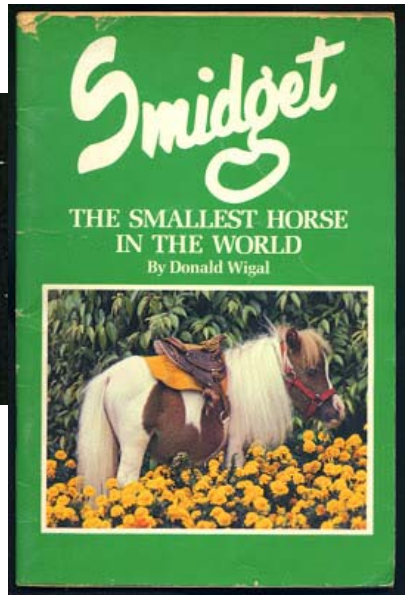


Tax revenue = 8
Dead weight loss = 1

Tax revenue = 8 × DWL!

We know all about widgets, but...

- Suppose in Econland there also smidgets!
- Suppose same demand and supply.



Initially:

Product	Tax	Tax Revenue	Dead-wgt Loss
Widget	4	12	4
Smidget	0	0	0
Total		**12**	**4**

How about if we **broaden the base**!

Product	Tax	Tax Revenue	Dead-wgt Loss
Widget	2	8	1
Smidget	2	8	1
Total		**16**	**2**

By using a broader tax base

- More tax revenue
- Less deadweight loss

And if you want, you can lower the tax rate to $1.4 on each good and the total tax collected on each good would be $6, or $12 on both, same as the original. This would be a:

Revenue Equivalent Tax Change

Words of wisdom from

Jean-Baptiste Colbert
1619-1683
(Minister of Finance
to Louis XIV

"The art of taxation consists in so plucking the goose as to procure the **largest quantity of feathers** with the least possible amount of **hissing**."

Corporate Income Tax and the New Law

Before: different rates, lots of loopholes

- highest 35 percent
- average 18 percent
- many paid 0

After:

- one rate 21 percent
- still have some loopholes, so average collected will be well below 18 percent.

Kind of like lowering widget tax from $4 to $2, but leaving smidget tax at $0.

2. Price Controls

Price Ceiling $P^{ceiling}$

- Regulation: $P \leq P^{ceiling}$
- Examples? Rent Control

Price Floor P^{floor}

- Regulation: $P \geq P^{floor}$
- Examples?

  Minimum wage.

Key point:
With price controls market quantity is minimum of supply and demand.

Binding price ceiling

→ **Excess Demand**

Binding price floor

→ **Excess Supply**

Look at the Market for Uber Rides

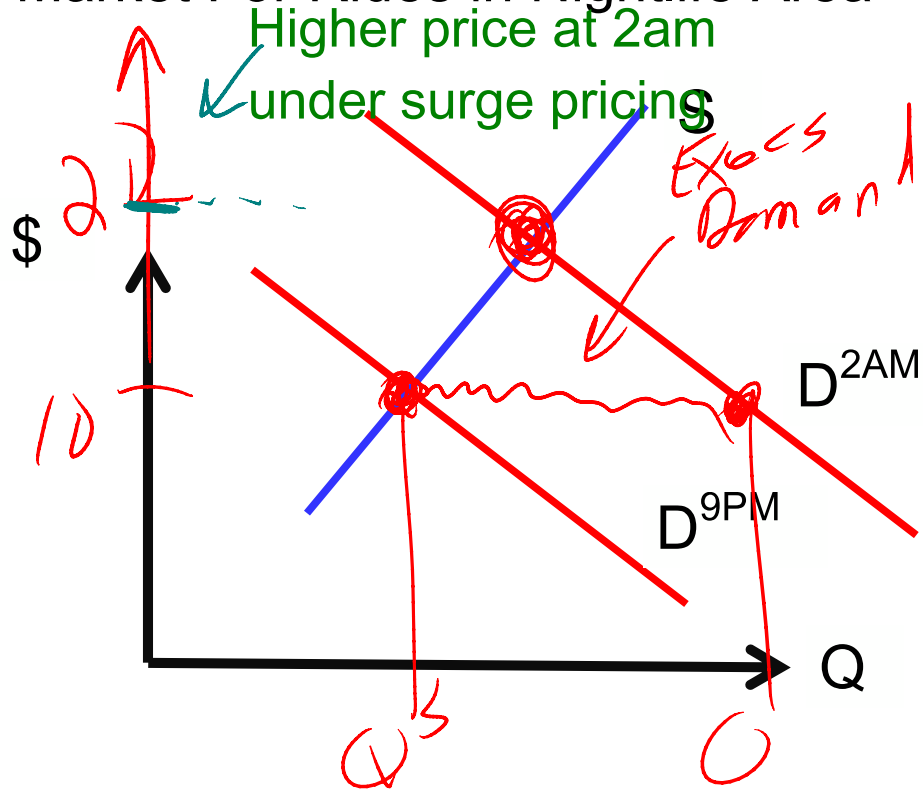
Uber has a usual fare for an area.

Also has “surge pricing”

Having surge pricing does 2 things when demand expands:

(1) at higher price, more drivers show up. (2) At higher price, consumers react, and are more likely to carpool. Without surge pricing, at 2am there is excess demand.

Market For Rides in Nightlife Area



Ban surge pricing altogether?
Bill introduced in New York legislature

Outcome:
Still have surge pricing for everyday kinds of things

If a natural disaster, put a cap (equal to some highest rate past month)

Also, Uber donates money it gets during disasters to a charity.

Good politics

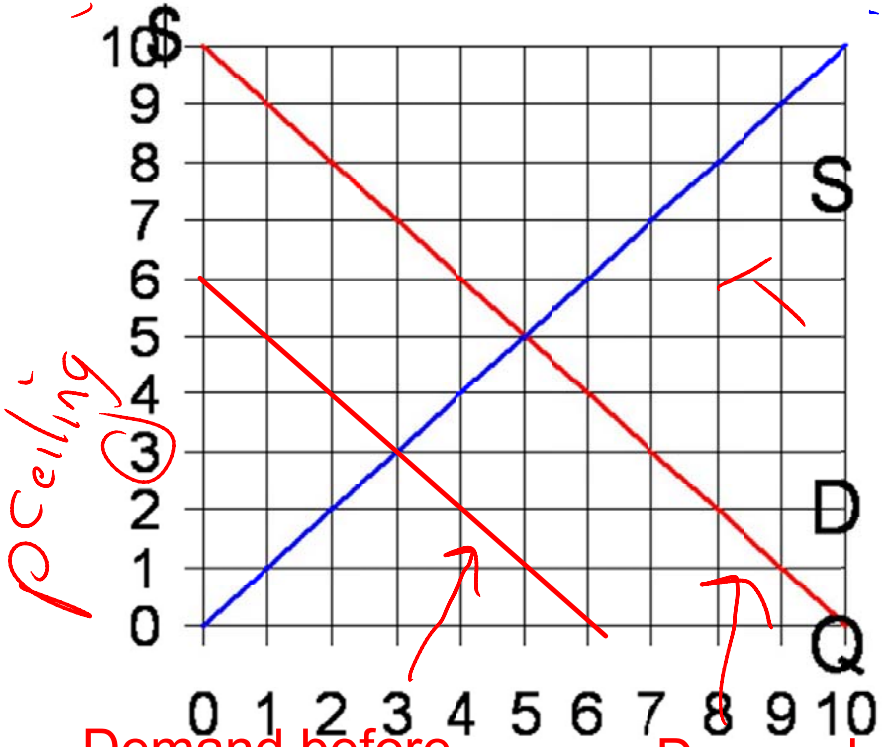
The economic argument for why it is efficient to have surge pricing at 2am when bars close, is the same as why it is efficient to have surge pricing when a hurricane hits. But the politics of surge pricing during a hurricane are not good.

Now let's look at Econland.
We have been talking about D1 through D10 as though they have been around forever. But suppose D1,D2,D3, and D4 have not been born yet, but all the other characters are there.

Then the demand curve will be different. The first unit in on the demand side is D5, the second is D6, and the demand curve will look different. The equilibrium price will be $3, and D5, D6, and D7 will buy

Impact on Consumer Surplus of Price Ceiling in Econland

Law in EconLand: Illegal for anyone to sell widget for more than $3.



At ceiling price of $3:

$Q^D = 7$

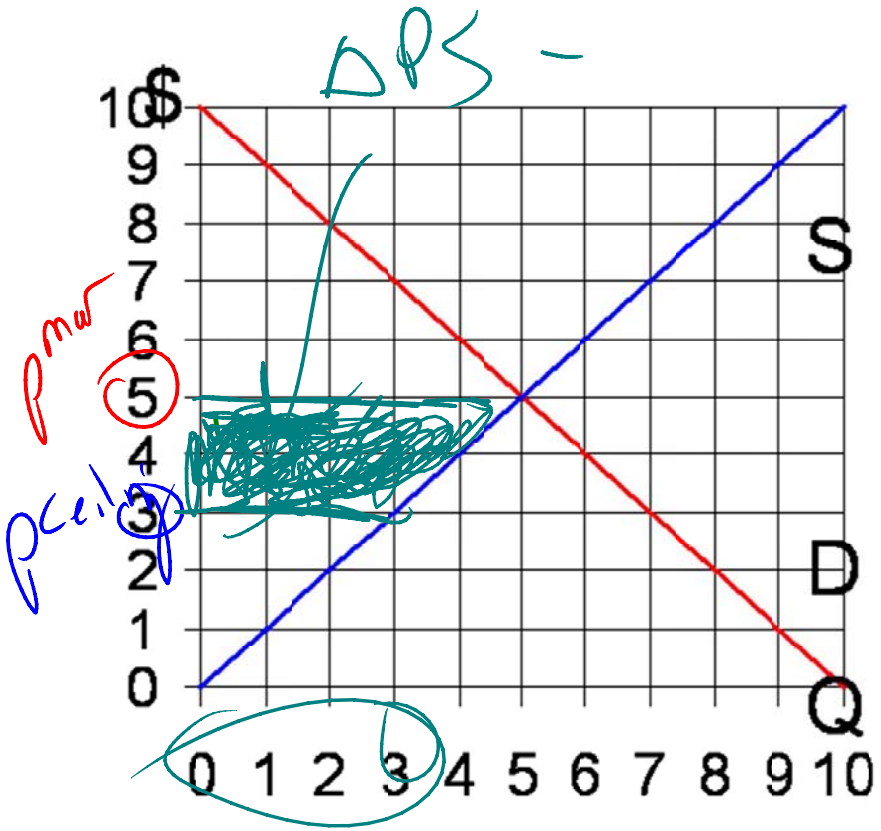
$Q^S = 3$

Excess Demand = 7 - 3 = 4

$Q^{Ceiling}$ = minimum of Q^D and Q^S
= 3

Producer Surplus easy to calculate (All sellers who want to sell are able to sell). So we use normal rule of calculating area under the P^S line (the price producers get) and above the supply curve.

Easy to calculate ΔPS



Change in PS from $3 ceiling

Key point: Sellers are on the supply curve, and effect is the same as a $4 tax.

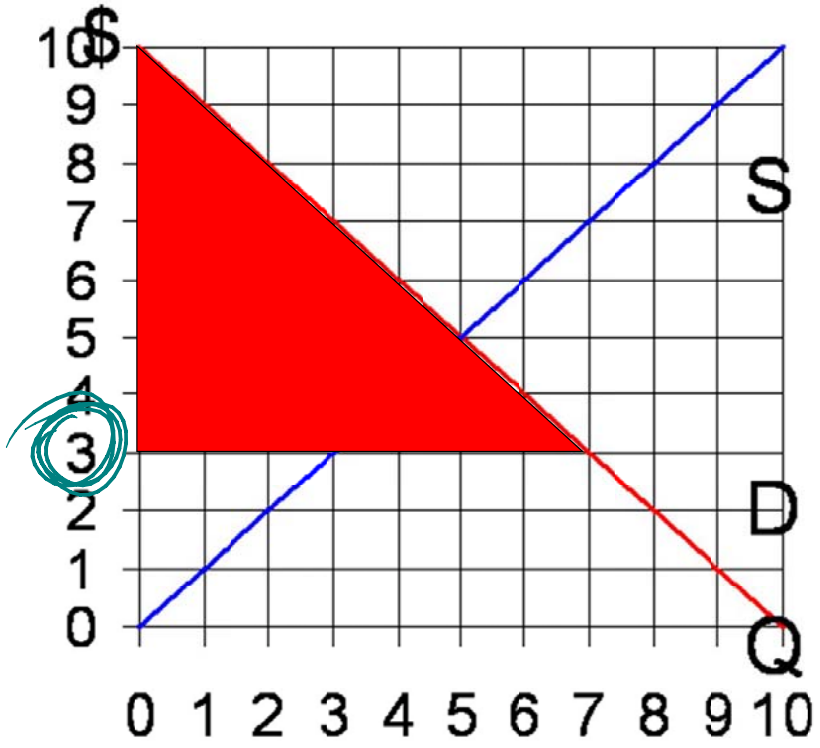
What is CS?
It depends

There are 7 people who want a widget (D1, D2, D3, D4, D5, D6, D7), but only 3 are for sale. CS depends on who gets the widgets because they differ in willingness to pay.

There is rationing!

CS under the price ceiling is

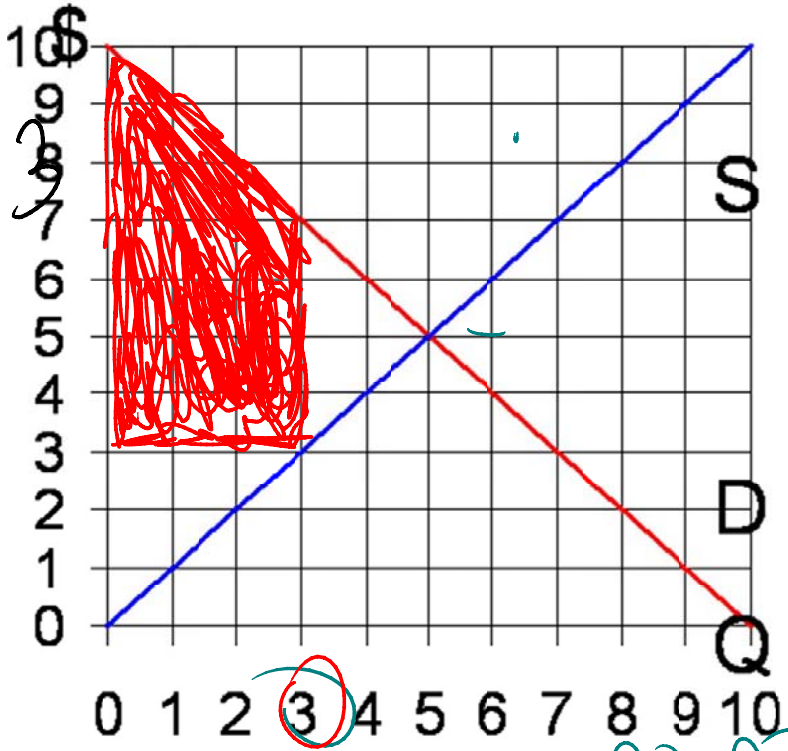
NOT THIS!



3 widgets consumed, not 7!

One Extreme: Case 1
Perfectly Efficient Rationing

Highest value consumers get the widgets (rationing goes their way)



CS = _____

For this extreme case, how does consumer surplus compare with its level in the free market?

CS = 4.5 + 12 = 16.5

Compare with 12.5 which is CS with free market in Econland. The ceiling raises welfare of consumers overall, so will have some political support.

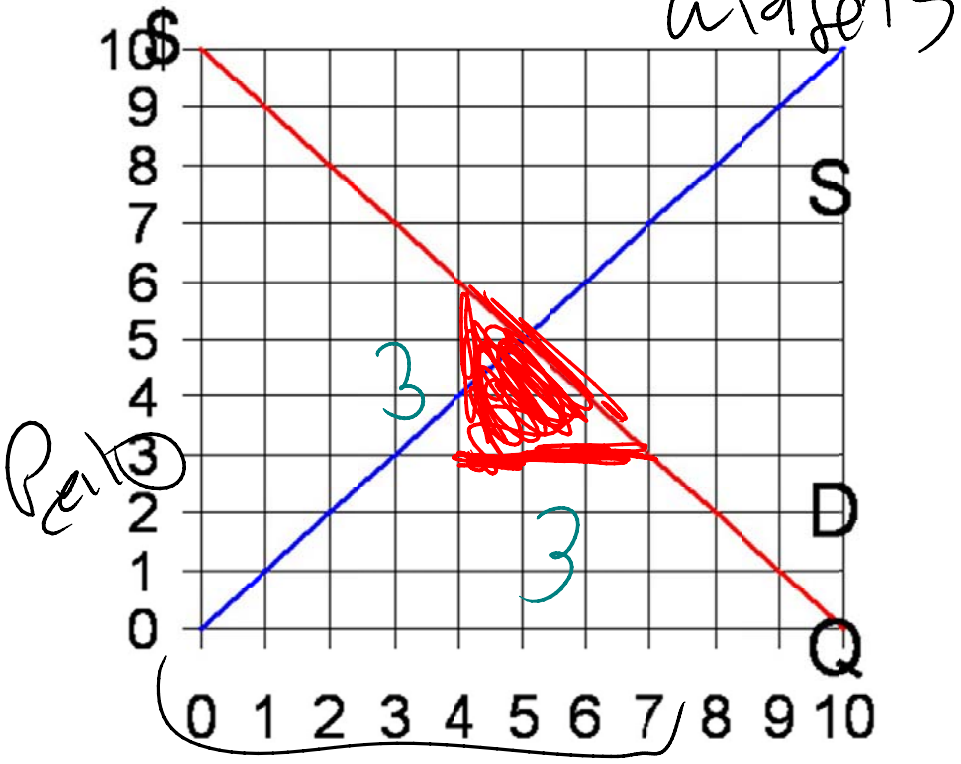
Lesson:

What about overall total surplus?

Goes down because of inefficient quantity. Has the same deadweight loss as a $4 tax.

Opposite Extreme: Case 2
Perfectly Inefficient Rationing

Lowest Value Consumers that want widget get it. **CS is much lower!**



CS = _____

Here we are starting from the right and going to the left.
(We are hand widgets out to D7, D6, D5, and then run out.

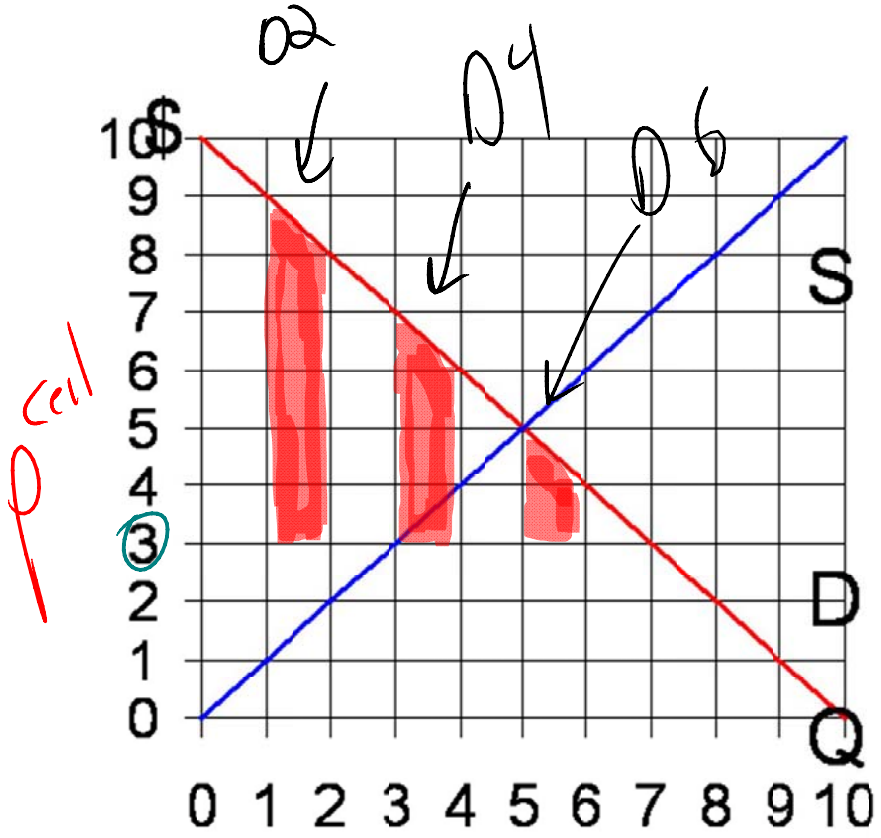
The figure shows the consumer surplus going to D7, D6, and D5

Something in between?
Uniform Rationing (likelihood of getting good unrelated to willingness to pay)

What if D2, D4, and D6 get widget?

We plot the surplus of D2, D4, D6.

Add it up CS comes to 10.5. Note this is halfway between CS with perfectly efficient rationing (=16.5) and CS with perfectly inefficient rationing (4.5).



Case 3: Uniform Rationing

CS = 10.5