Market for Refurbished Washing Machines

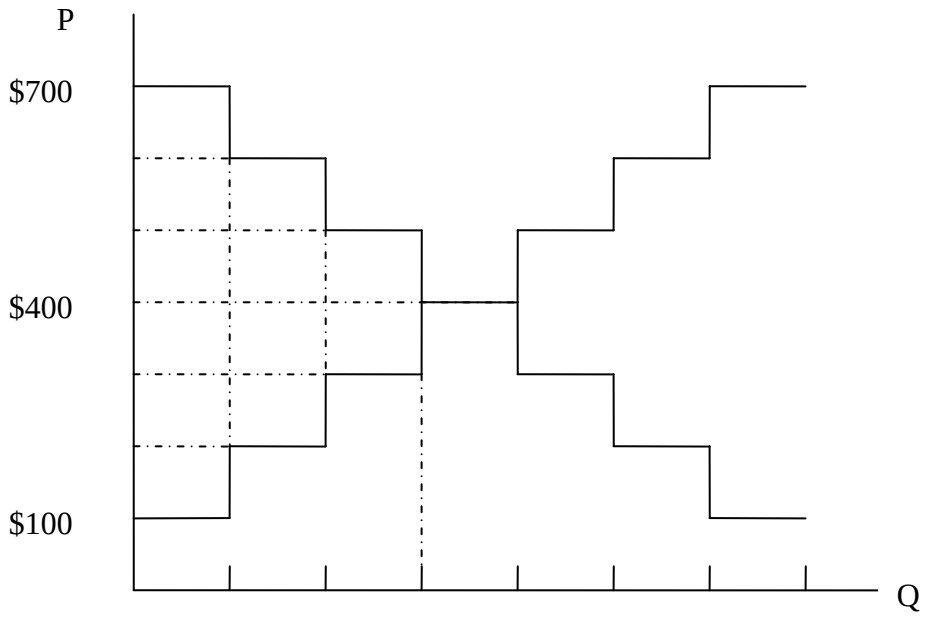
Each person demands a washing machine at the price next to their name.

Jose	$700
Richard	$600
Amy	$500
Anthony	$400
Nathan	$300
Darrell	$200
Geoffrey	$100

Each person is willing to supply a washing machine at the price next to their name.

Susan	$100
Betty	$200
Cathy	$300
Darva	$400
Emily	$500
Francis	$600
Germaine	$700

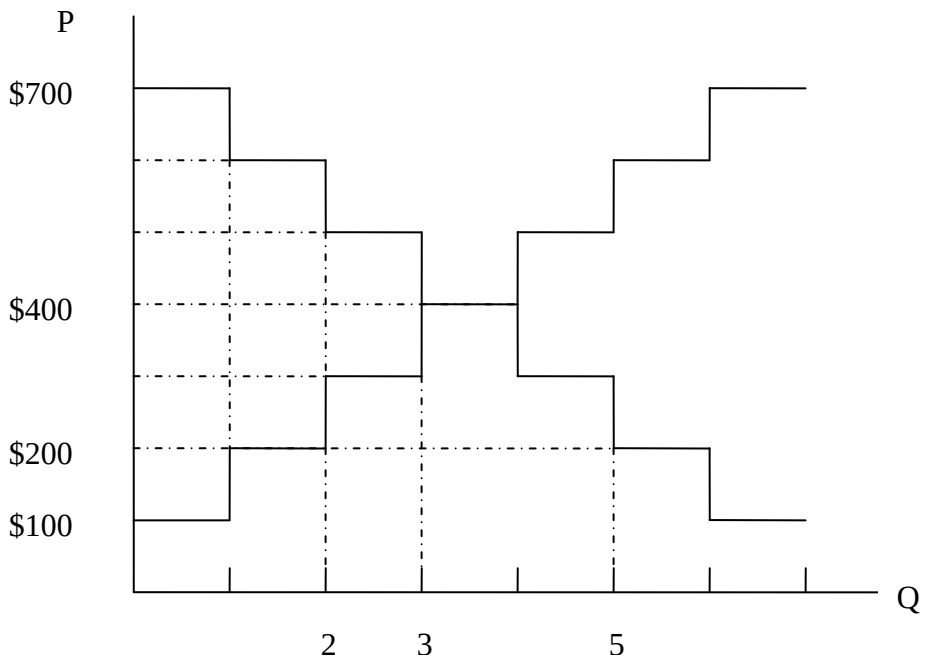
The market equilibrium is shown in the following figure.



At the equilibrium:

- Consumer Surplus (CS) is $600
  - Jose's CS is $300
  - Richards CS is $200
  - Amy's CS is $100
- Producer Surplus (PS) is $600
  - Susan's PS is $300
  - Betty's PS is $200
  - Cathy's PS is $100
- Total Welfare (TW)=CS+PS=$1,200

Example 1: Consider a price ceiling of $200. At this price producers will only be willing to supply 2 washing machines, but consumers will demand 5.



Assuming that only the consumers with the highest valuations get to buy refurbished wash machines.

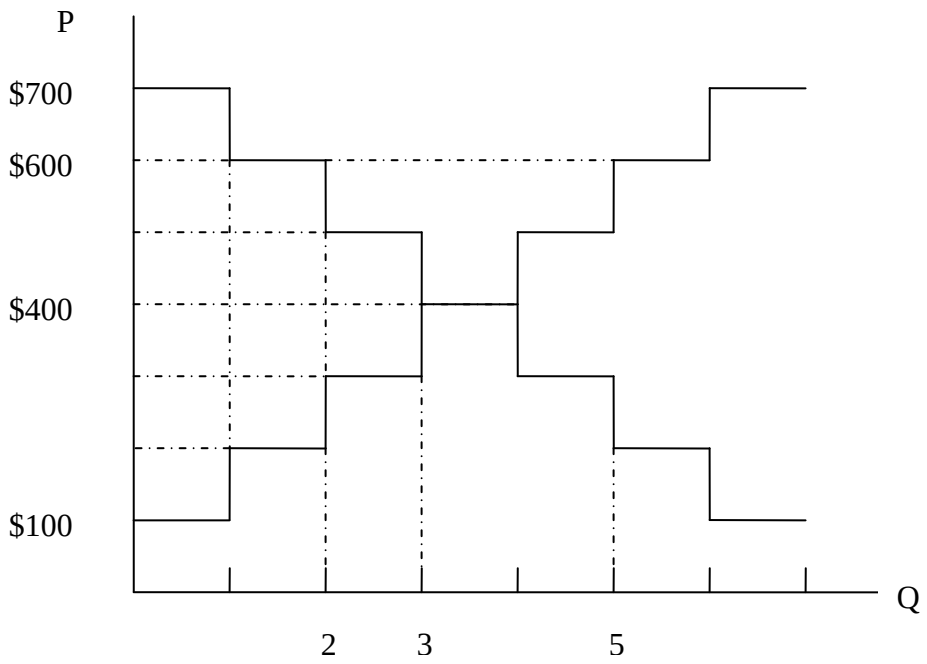
- CS is $900
  - Jose's CS is $500
  - Richards CS is $400
- PS is $100 (All of the PS is Susan's)
- TW is $1000

Comparing the TW at the equilibrium and at the price ceiling we see that the deadweight loss resulting form the price ceiling is $200. This deadweight loss results from the fact the quantity is too low under the price ceiling.

The point I was trying to make in lecture is that this sort of deadweight loss understates the efficiency loss due the price ceiling for several reasons:

1. Under the price ceiling there is a potential for an inefficient allocation of buyers. When we calculated a deadweight loss of $200 we assumed that both Jose and Richard were allowed to purchase washing machines. Assuming that Jose and Richard purchase washing machines under the price floor is assuming an efficient allocation of buyers as they are the two people with who most want to washing machines. Alternatively we could allow Nathan and Darrel to purchase washing machines. If Nathan and Darrel purchased the washing machines that come to market under the price ceiling consumer surplus will only be $100 (all from Nathan), rather than the $900 calculated above, and deadweight loss will be $1,000.
2. The consumers might have to get up early and spend some time waiting in line for the right to buy a refurbished washing machine at the price of $200.
3. Susan and Betty (the two people willing to supply washing machines at a price of $200) might start doing a crummy job with their refurbishing because they get the same price for a good refurbished washing machine as they do for a crummy one.
4. We could have unregulated black markets develop as consumers who were not able to buy washing machines at the ceiling price of $200 try to get washing machines at high prices.

Example 2: Consider a price floor of $600. At this price producers will be willing to supply 5 washing machines, but consumers will only demand 2.



Assuming that only the producers with the lowest opportunity cost get to sell refurbished wash machines.

- CS is $100 (All from Jose)
- PS is $900
    - Susan's PS is $500
    - Betty's PS is $400
- TW is $1000

Comparing the TW at the equilibrium and at the price floor we see that the deadweight loss resulting form the price floor is $200. This deadweight loss results from the fact the quantity is too low under the price floor.

This deadweight loss calculation understates the efficiency loss due the price floor for several reasons:

1. Under the price ceiling there is a potential for an inefficient allocation of sellers. When we calculated a deadweight loss of $200 we assumed that both Susan and Betty were allowed to sell washing machines. Assuming that Susan and Betty sell washing machines under the price floor is assuming an efficient allocation of sellers as they are the two people with the lowest opportunity cost of refurbishing washing machines. Alternatively we could allow Francis and Emily to sell washing machines. If Francis and Emily sold the washing machines that come to market under the price floor producer surplus will only be $100 (all from Emily) rather than the $900 calculated above, and deadweight loss will be $1,000.
2. Wasted resources resulting form the surplus.
    a. One approach to dealing with the problem of surplus is for the government to purchase the surplus and dispose of it. To do this the government would have to buy 3 washing machines at a price of $600 each for a total of $1,800, but only $600 of the $1,800 will go toward higher producer surplus (i.e. the government buys washing machines from Cathy, Darva, and Emily, but it only increases PS by $600. If the government doesn't buy the surplus then there is wasted time and effort as Cathy, Darva, and Emily seek buyers for their washing machines. Under this sort of policy (and assuming that the sellers with the lowest opportunity cost get to sell in the market or get their surplus purchased by the government).
        i. CS is $100 (All from Jose)
        ii. PS is $1,500 (from all sellers but Francis and Germaine)
        iii. Government Expenditures are $1,800.
        iv. Total welfare is -$200
3. The sellers might start offering quality to (that consumers don't value highly) because they cannot compete on price.
4. Corruption and illegal activity as the sellers via for the right to sell at the price floor price or sell at lower prices in a black market.