

## CHAPTER 3:

### Supply and Demand from a Neoclassical Perspective

Sasan Fayazmanesh

### Summary

In this chapter we will look at the neoclassical concept of the market, which involves the marginalist concepts of demand and supply under conditions of “perfect” or “pure competition.”

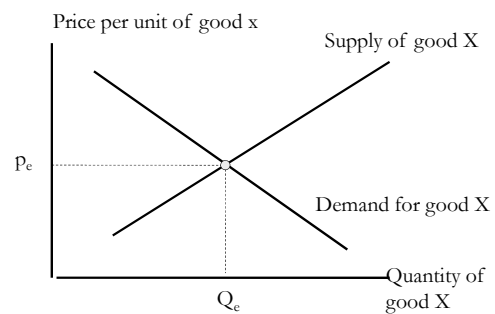
What is a market?

Def. **Market**: is a place where buying and selling takes place.

According to your text, a market is a “group of buyers and sellers with the potential to trade.”

From the neoclassical perspective, a market is represented by a Marshallian graph (due to Alfred Marshall, *Principles of Economics*, 1890):

### A Marshallian Market (Marshallian scissors )



### Functions of a Market

A market in this theoretical perspective plays 3 functions:

- 1) price determination
- 2) distribution of income between 3 “factors of production”: land, labor and capital.
- 3) Allocation of resources

Note: In this chapter we are dealing with “perfectly” or “purely competitive” markets.

Def. Perfect competition: a market characterized by:

- 1) “Many” consumers and producers, so many that no one acting alone can influence the market price.
- 2) Homogenous goods, all goods within an industry are identical (no brand names).

3) Free entry and exit of firms into and out of industries, no cost attached.

4) Perfect knowledge, everyone knows everything about the markets.

### Demand schedule

The story of the demand schedule in neoclassical economics is told in different ways:

One way is the “Walrasian auctioneer,” which goes back to Leon Walras (*Elements of Pure Economics*, 1874).



The “auctioneer” goes to where the buyers (consumers) are and calls out price per unit of a good (let us say oranges) and gets responses in terms of quantities of goods (oranges) demanded.

What is microeconomics?

Demand Schedule

Price per unit of oranges (p) (\$/unit)	Quantity of oranges demanded (Q <sub>d</sub> ) (Number of units)
7	100
6	200
5	300
4	400
3	500
2	600
1	700

Note:

Price per unit ( $p$ ) is the independent variable.  
Quantity demanded ( $Q_d$ ) is the dependent variable.

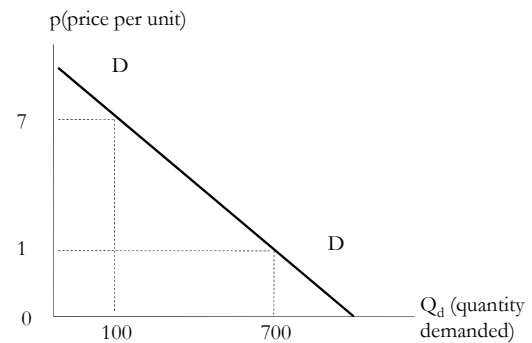
$Q_d$  is a function of  $p$ :

$$Q_d = f(p)$$

In our case:

$$Q_d = -100p + 800$$

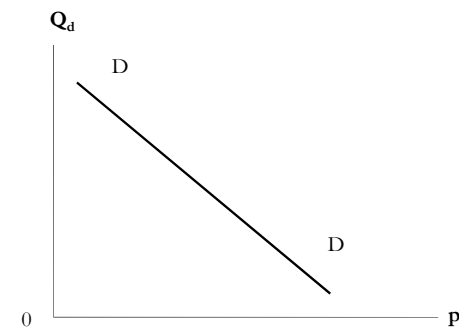
Graphically:



Two conceptual problems:

- 1) If the quantity demanded is a function of price per unit, then the axes are wrong!

Graphically:



The source of the problem:

The graph is due to Marshall, who assumed  $p = f(Q)$ .

The concept of demand is due to Walras, who assumed  $Q_d = f(p)$ .

2) A continuous line implies that **goods and prices are infinitesimally divisible!**

This may work for sugar, which Marshall used as an example, but it does not work for most goods!

The "Law of Demand"

Everything else remaining the same (**ceteris paribus**), quantity demanded increases as price per unit decreases.

What are the factors that must remain the same?

Or

What other factors, beside price per unit, could influence the quantity demanded?

Textbook factors that influence quantity demanded:

- 1) **Tastes and preferences (T)**
- 2) **Income (I)**
- 3) **Wealth** (value of assets such as a home, stocks and bonds, etc.) (**W**)
- 4) **Prices of related goods (PR)**
- 5) **Expectation (E)**
- 6) **Number of buyers (NB)**

Notationally, this means that:

$$Q_d = f(p, T, I, W, PR, E, NB).$$

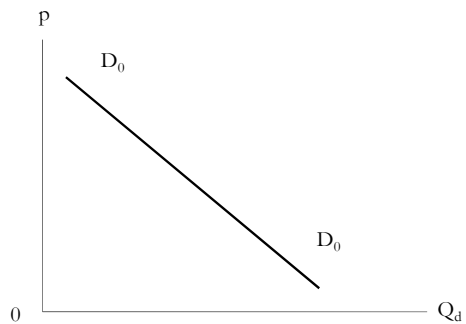
**Change in Demand or Shift in Demand**

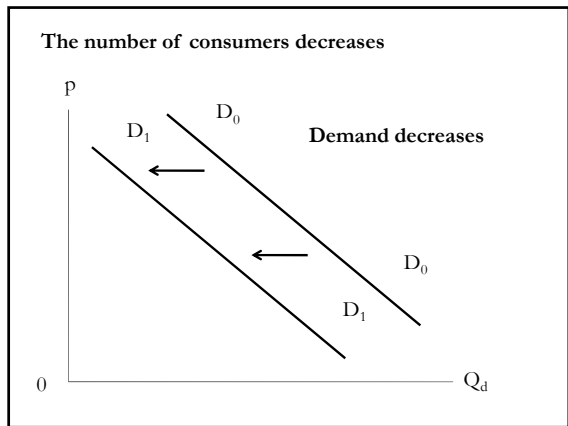
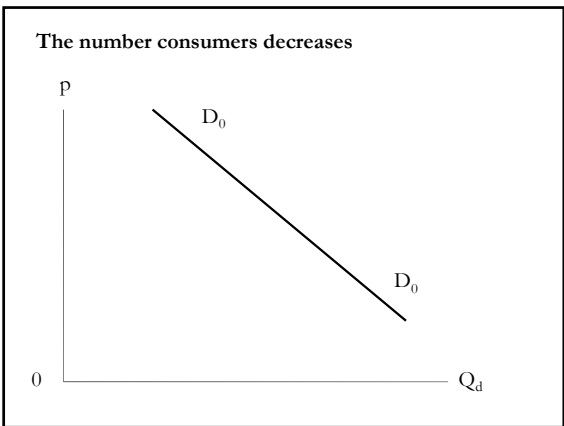
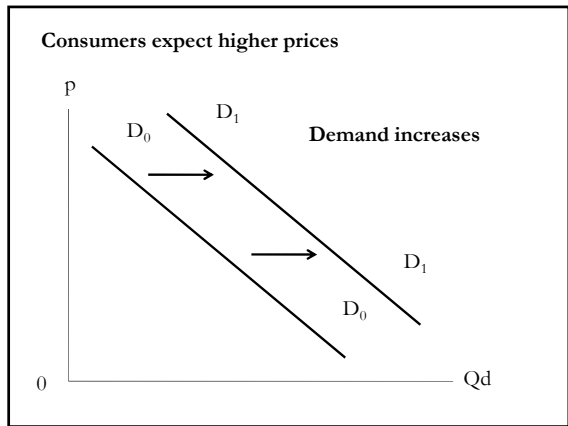
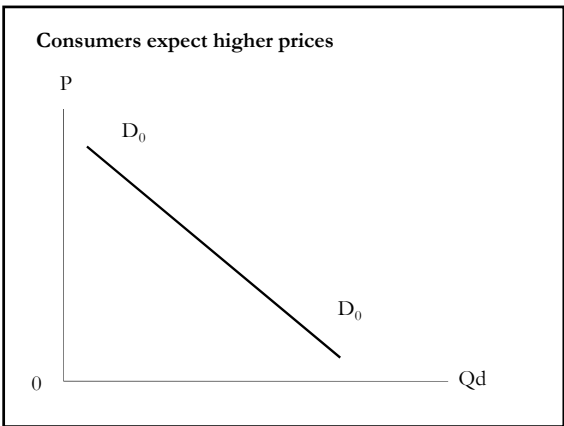
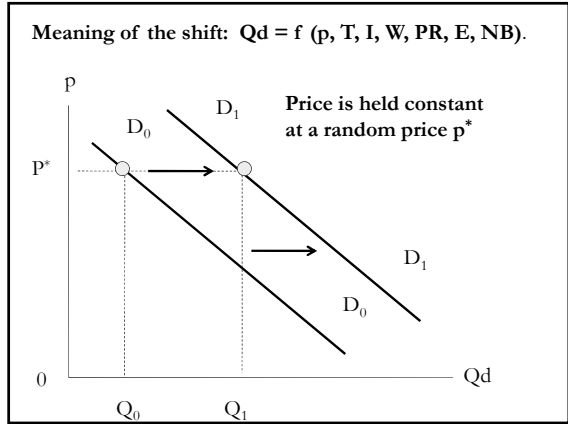
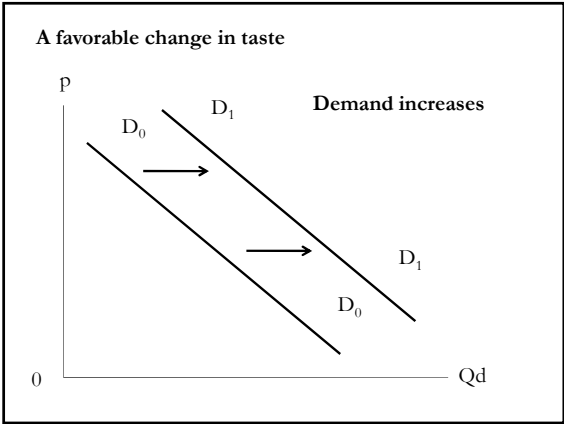
Q: What would happen to the demand curve if a variable other than price changes?

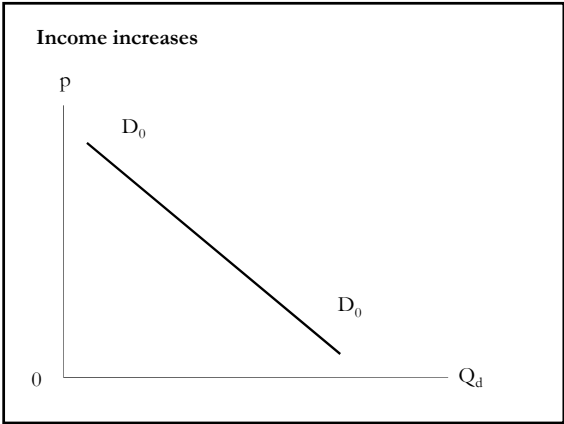
A: The entire demand curve would shift or change, or as neoclassicals say "**demand changes.**"

Let us change each variable:

**A favorable change in taste**





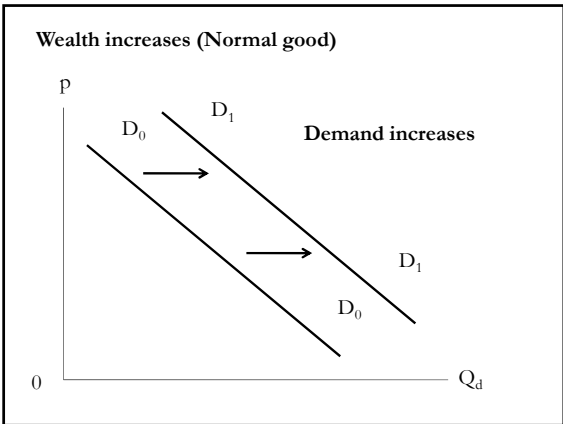
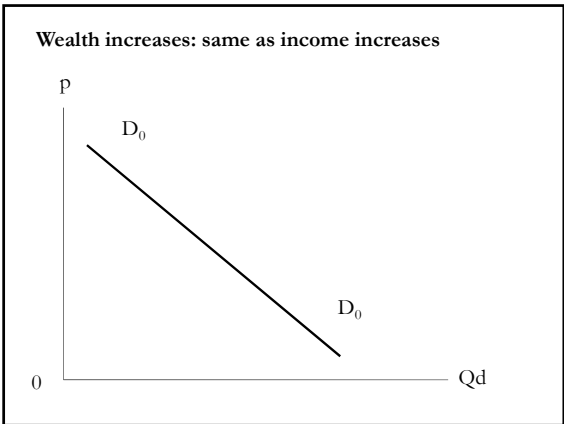
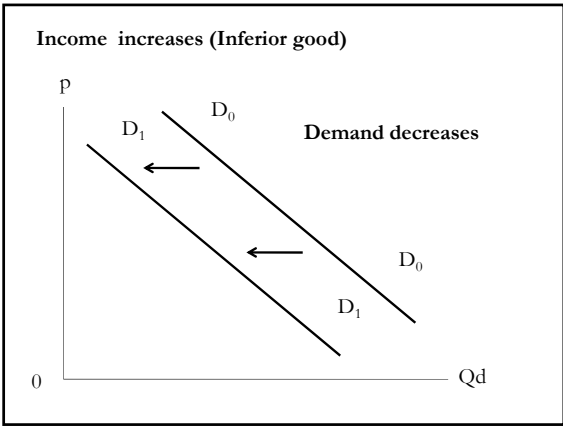
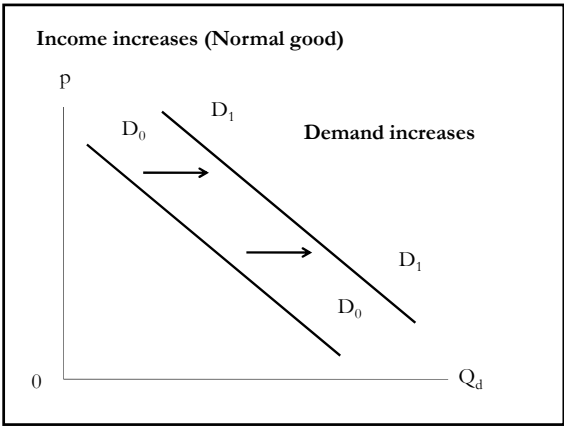


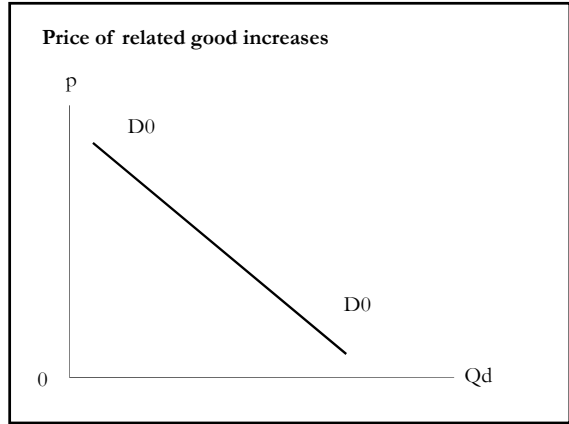
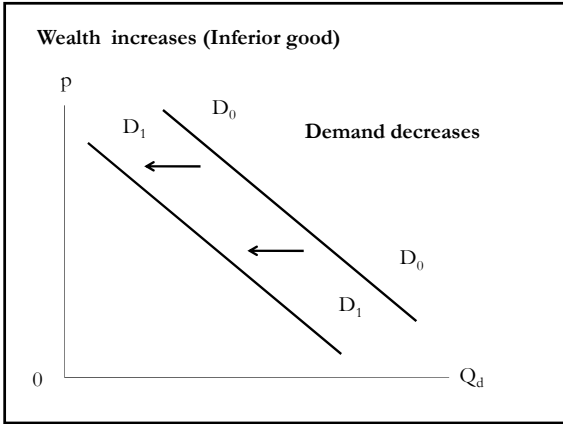
The shift depends on the type of goods:

Def **Normal goods**: as our income increases, our consumption of them would increase as well. e.g., most goods.

Def **Inferior goods**: as our income increases, our consumption of them would decrease. e.g., macaroni and cheese, secondhand items, potatoes, etc.

Inferior goods are sometimes called “Giffin goods”





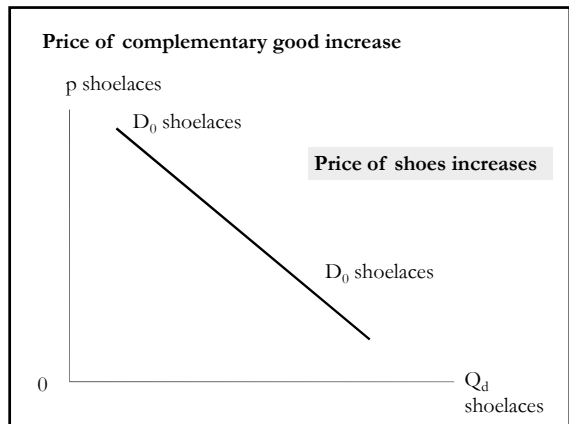
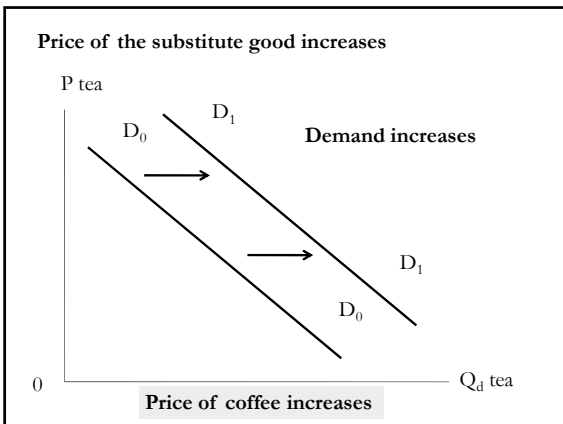
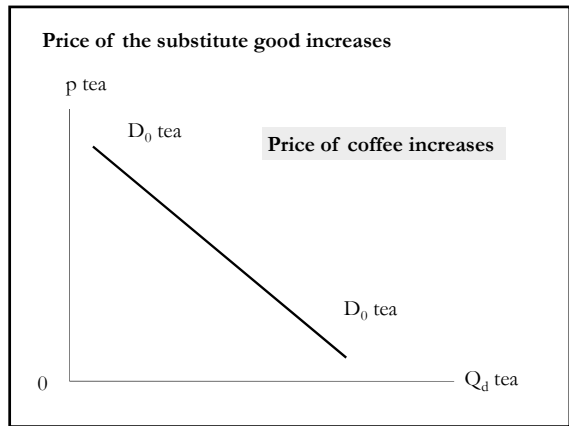
Some goods are related:

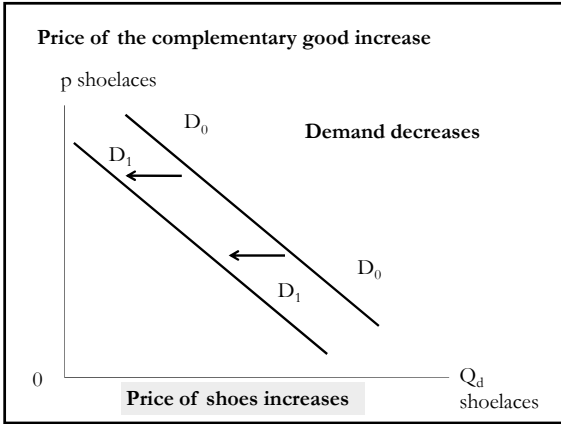
Def **Substitute goods**: used interchangeably.

e.g., tea and coffee, sugar and artificial sweeteners, oranges and tangerines.

Def **Complementary goods**: used jointly.

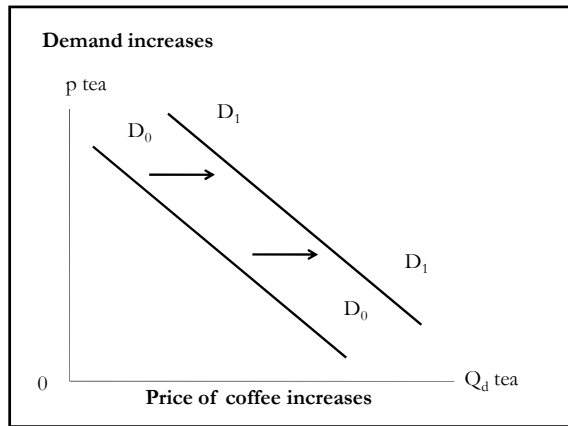
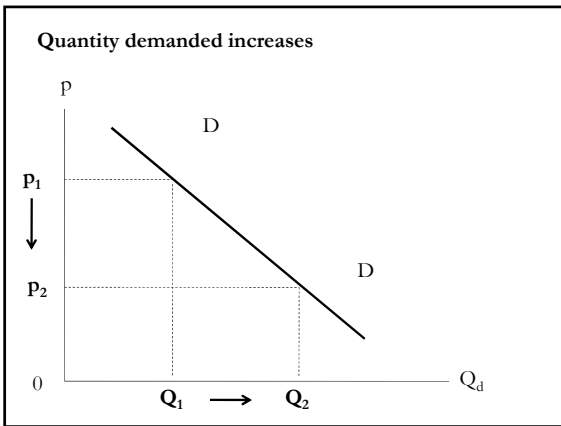
e.g., shoes and shoelaces, bread and butter, tennis rackets and tennis balls, ketchup and hamburgers.





Note the different expressions:

- 1) "Quantity demanded increases":  
**Price must decrease.**
- 2) "Demand increases":  
**A factor other than price must change.**



**Supply schedule**

The story of the supply schedule is similar to the demand schedule:

The "Walrasian auctioneer" now goes where the producers (sellers/suppliers) are and calls out price per unit of a good (let us say oranges) and gets responses in terms of quantity of goods (oranges) supplied.

What is microeconomics?

**Supply Schedule**

Price per unit of oranges ( $p$ ) (\$/unit)	Quantity of oranges supplied ( $Q_s$ ) (Number of units)
7	700
6	600
5	500
4	400
3	300
2	200
1	100



Again, price per unit ( $p$ ) is the independent variable.

Quantity demanded ( $Q_d$ ) is the dependent variable.

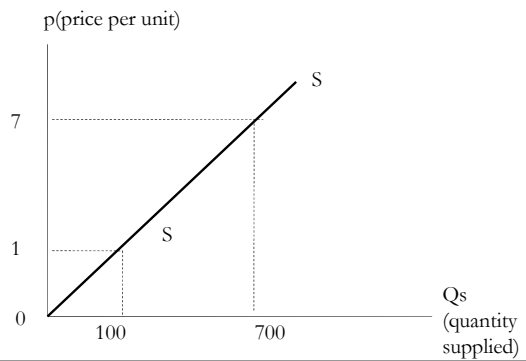
$Q_s$  is a function of  $p$ :

$$Q_s = f(p)$$

In our case:

$$Q_s = 100p$$

**Graphically:**



The “Law of Supply”

Everything else remaining the same (**ceteris paribus**), the quantity supplied increases as price per unit increases .

What other factors, beside price per unit, influence quantity supplied?

Textbook factors that influence quantity supplied

- 1) **Cost of inputs** (CI)
- 2) **Technology** (T):  
Def. Technology : The way inputs are put together
- 3) **Prices of related goods produced** (PRG)
- 4) **Expectation** (E)
- 5) **The number of sellers** (NS)

This means that:

$$Q_s = f(p, CI, T, PRG, E, NS).$$

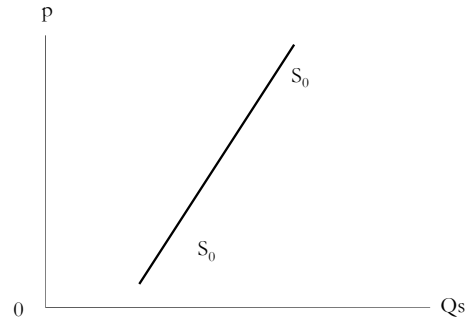
**Change in Supply or Shift in Supply**

Q: What would happen to the supply curve if a variable other than price changes?

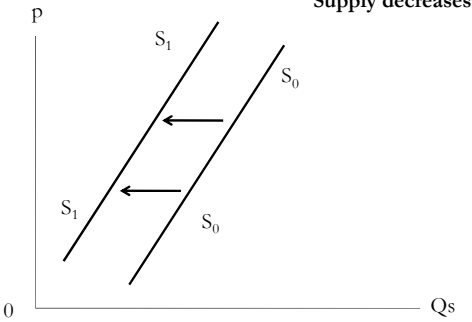
A: The entire supply curve would shift or change, or as neoclassicals say “**supply changes.**”

Let us change each variable:

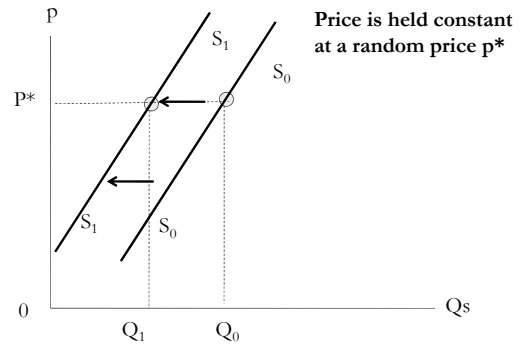
**Cost of inputs increases**



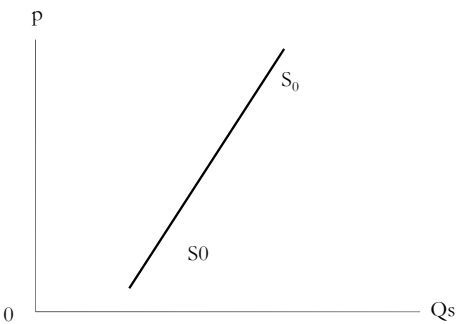
**Cost of inputs increases**



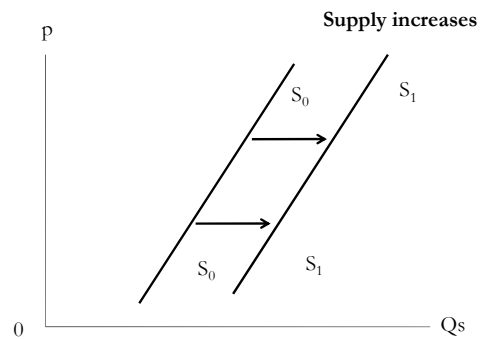
**Meaning of the shift:  $Q_s = f(p, CI, T, PRG, E, NS)$**

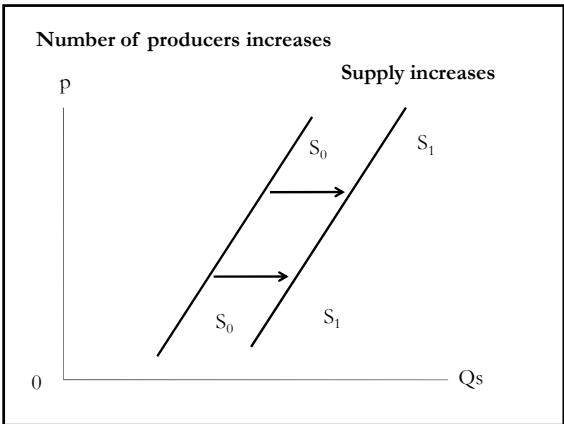
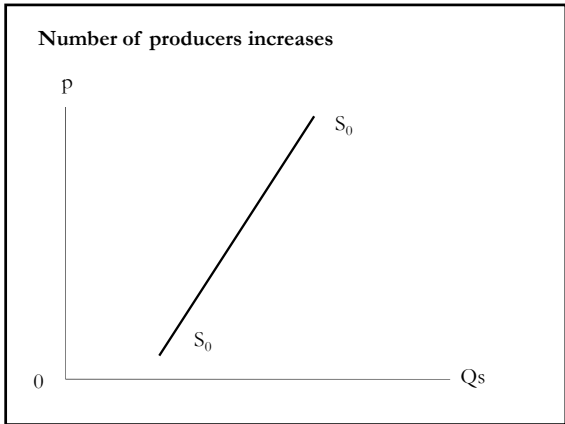
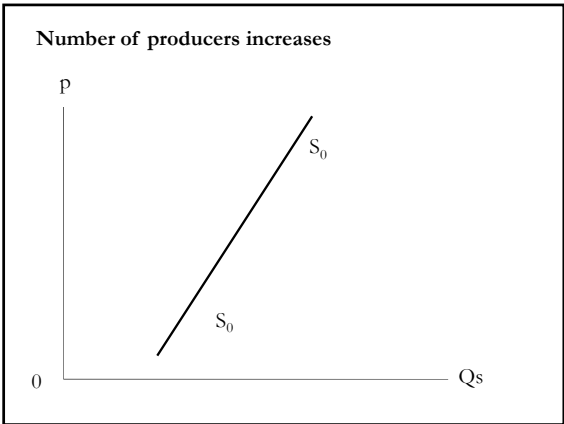
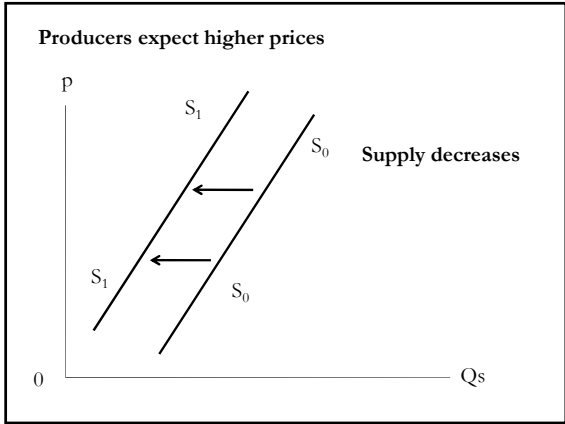
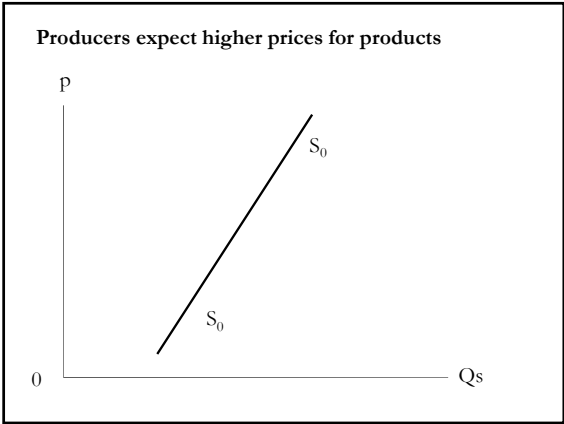


**Technological improvements**



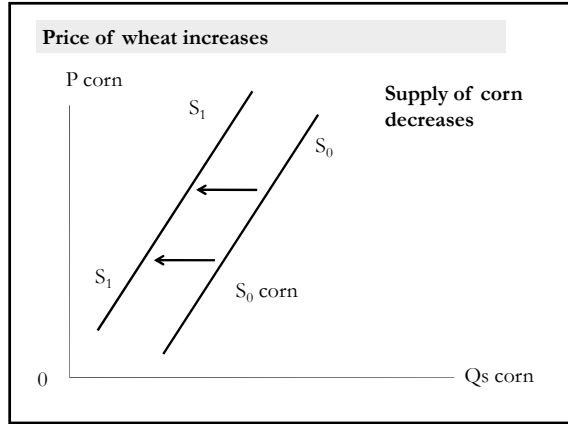
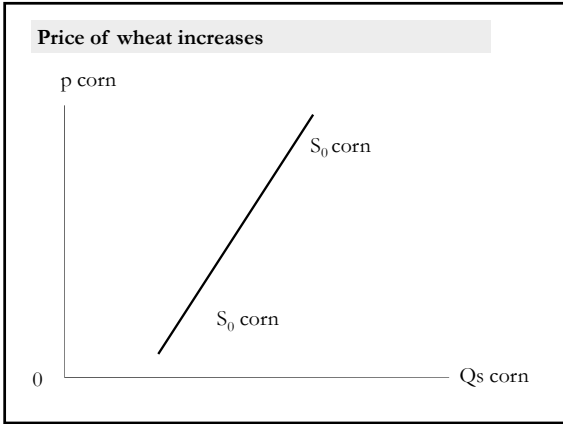
**Technological improvements**





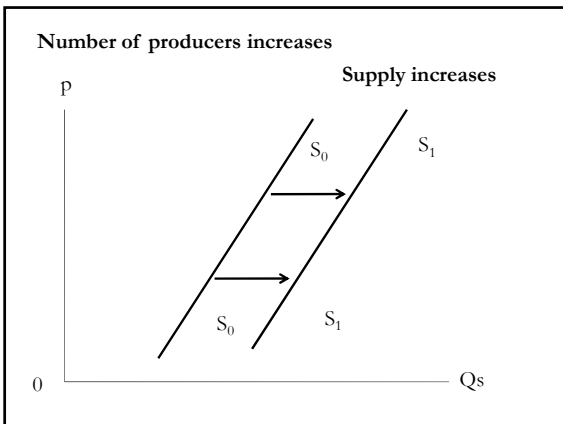
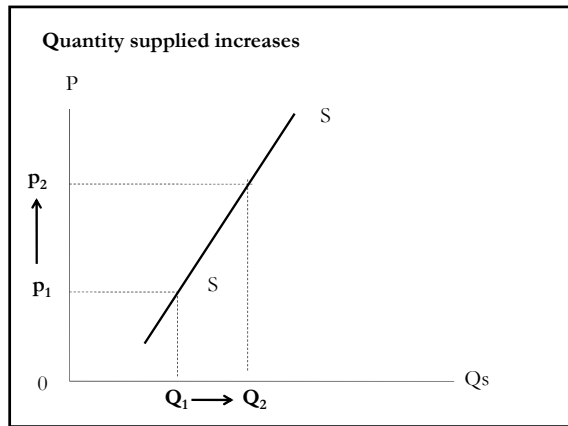
**Price of a related good produced increases**

**Suppose farmers produce both wheat and corn.**  
**Assume the price of wheat rises.**



Note, again, the different expressions:

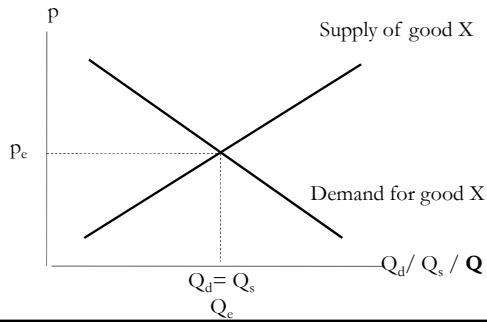
- 1) "Quantity supplied increases":  
**Price must increase.**
- 2) "Supply increases":  
**A factor other than price must change.**



**Market demand, market supply and equilibrium price**

The "Walrasian auctioneer" now puts the demand and supply schedules together.

**Market : Market in Equilibrium**



$p_e$  is called the “**equilibrium price**”:

At  $p_e$  market clears:

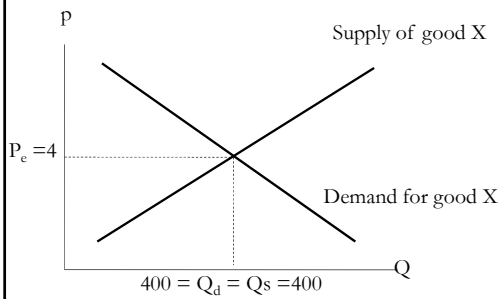
$$Q_d = Q_s$$

$p_e$  is also called the “**market clearance price**.”

$Q_e$  is the quantity at equilibrium price.

We often use  $p_0$  and  $Q_0$  for equilibrium price and quantity.

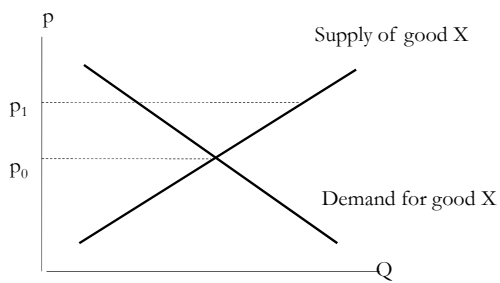
**Market in Equilibrium:  
Our previous example**



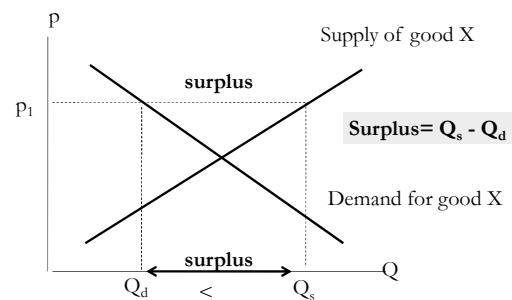
Market in disequilibrium:

Price is either above  $p_e$  or below  $p_e$ .

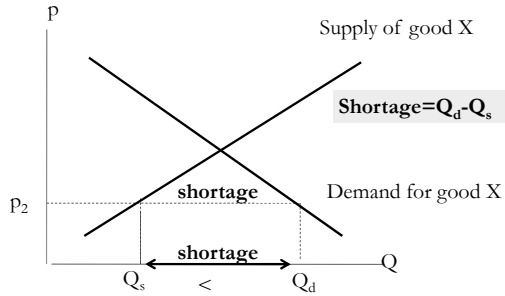
**Market in disequilibrium**



**Market in disequilibrium:  
A Surplus**



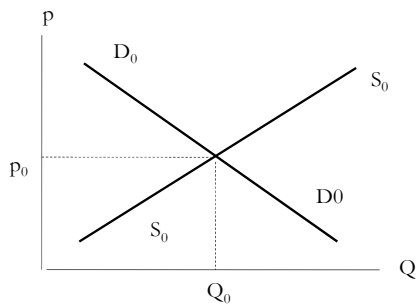
**Market in disequilibrium:  
A Shortage**



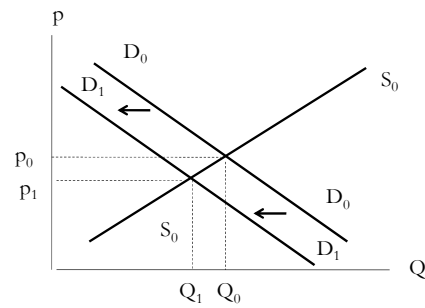
**Equilibrium Price and a Change in Demand**

Consider, ceteris paribus, a change in demand and its effect on the equilibrium price and quantity.

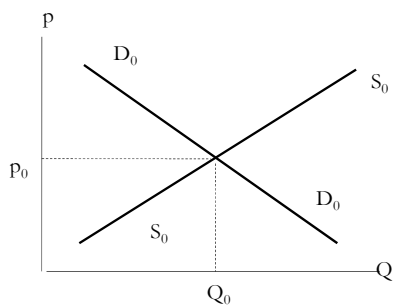
**Income increases (inferior good)**



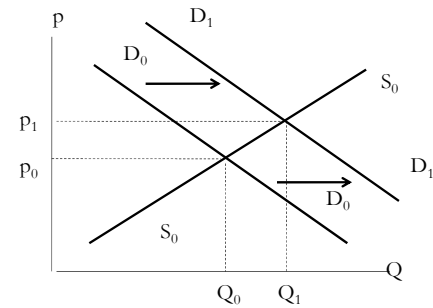
**Income increases (inferior good)**



**Price of the substitute good increases**



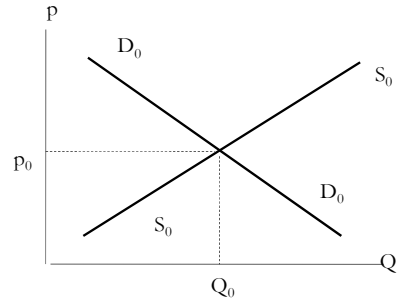
**Price of the substitute good increases**



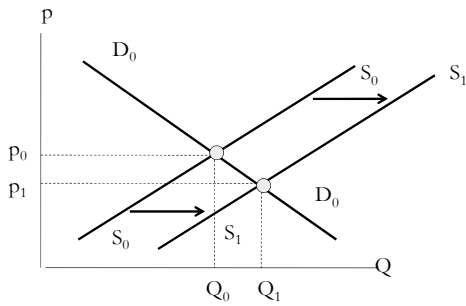
### Equilibrium Price and a Change in Supply

Consider, ceteris paribus, a change in supply and its effect on the equilibrium price and quantity.

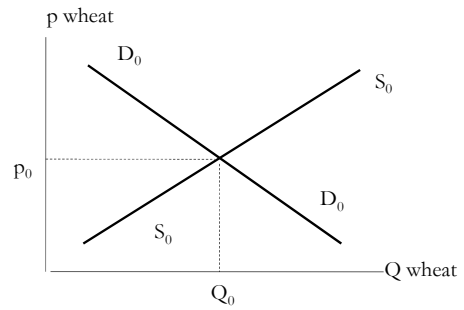
### Technological improvement



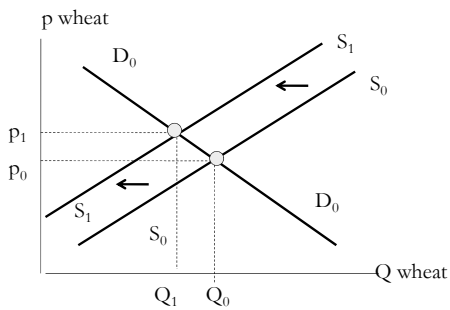
### Technological improvement



### Price of corn produced by the farmers will increase



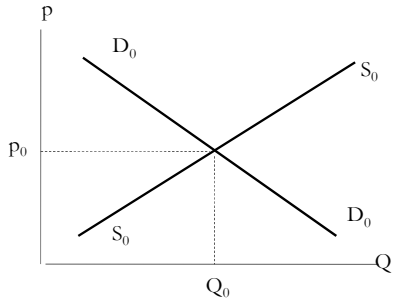
### Price of corn produced by the farmers will increase



### Equilibrium Price and a Change in Supply and Demand

Consider changes in both supply and demand simultaneously and their effect on the equilibrium price and quantity.

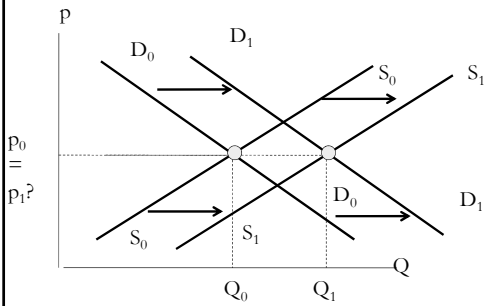
Price of complementary good decreases and rent of land falls



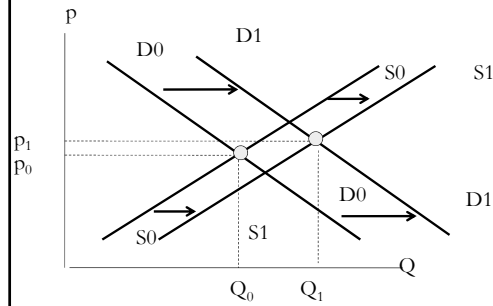
Quantity at equilibrium definitely increases

We can't tell what happens to equilibrium price: pe is indeterminate.

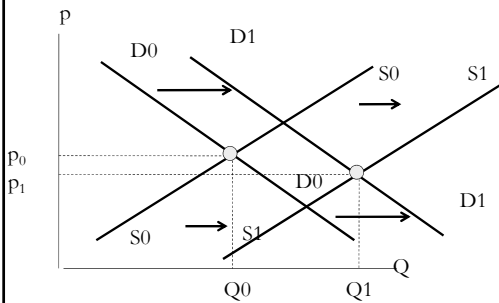
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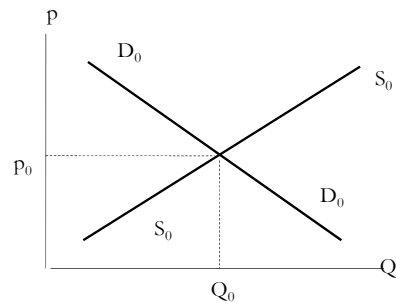
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Price of complementary good decreases and rent of land falls



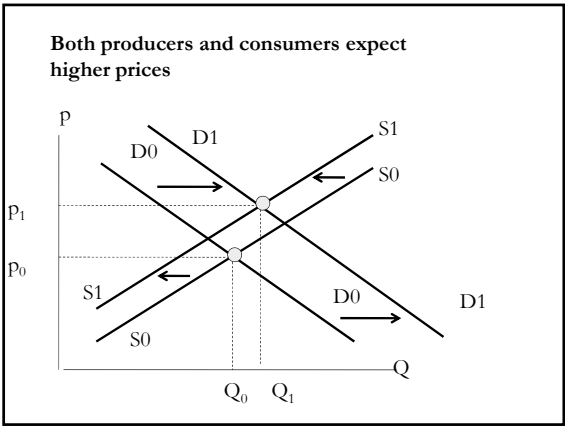
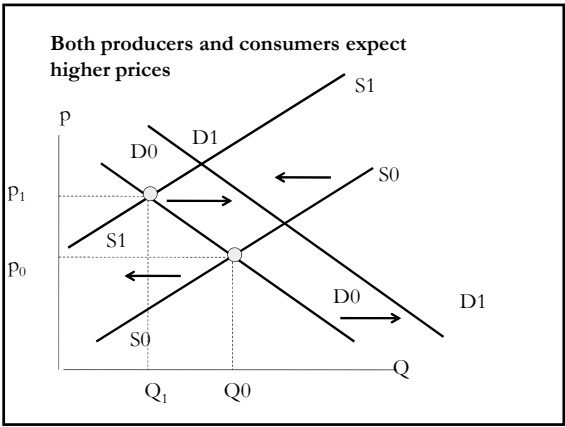
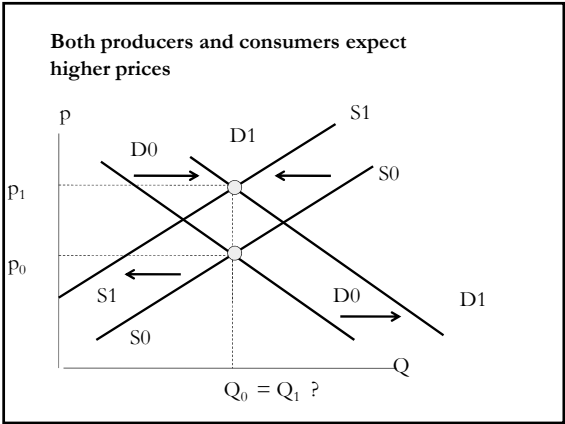
Both producers and consumers expect higher prices





Price at equilibrium definitely increases.

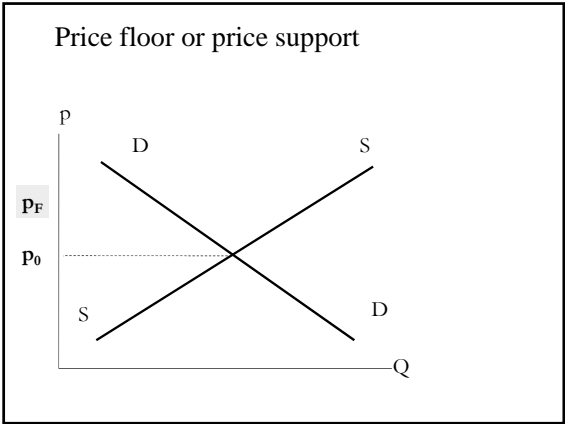
We can't tell what happens to equilibrium quantity:  $Q_e$  is indeterminate.



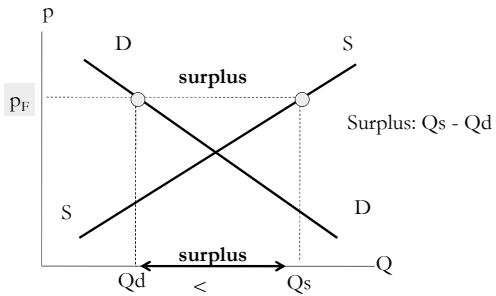
The concepts of “price floor” or “price support” and “price ceiling”

Def. Price floor: any price set above the equilibrium price

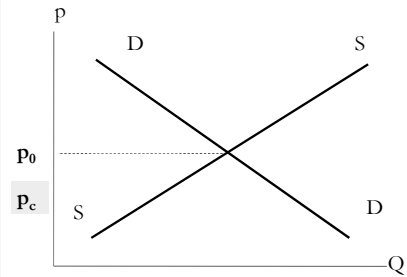
Def. Price ceiling: any price set below the equilibrium price



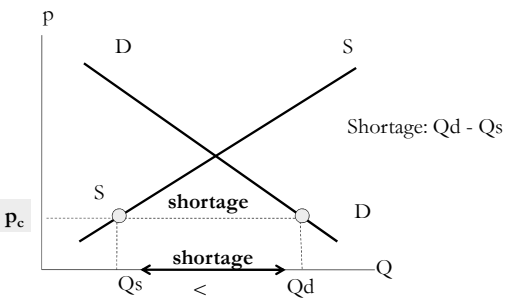
### Price floor or price support



### Price ceiling



### Price ceiling



### Political conclusion

#### Laissez faire!

Leave the markets alone.

They are self-adjusting.

Any government action is uncalled for.

Next stop: Chapter 5!