Chapter One

The Market

Example: Apartment Renting in a Neighborhood

Demand: Suppose at the rent of $500/month, only one person is willing to live in an apartment in the neighborhood. Then

$$p = \$500 \Rightarrow Q^D = 1.$$

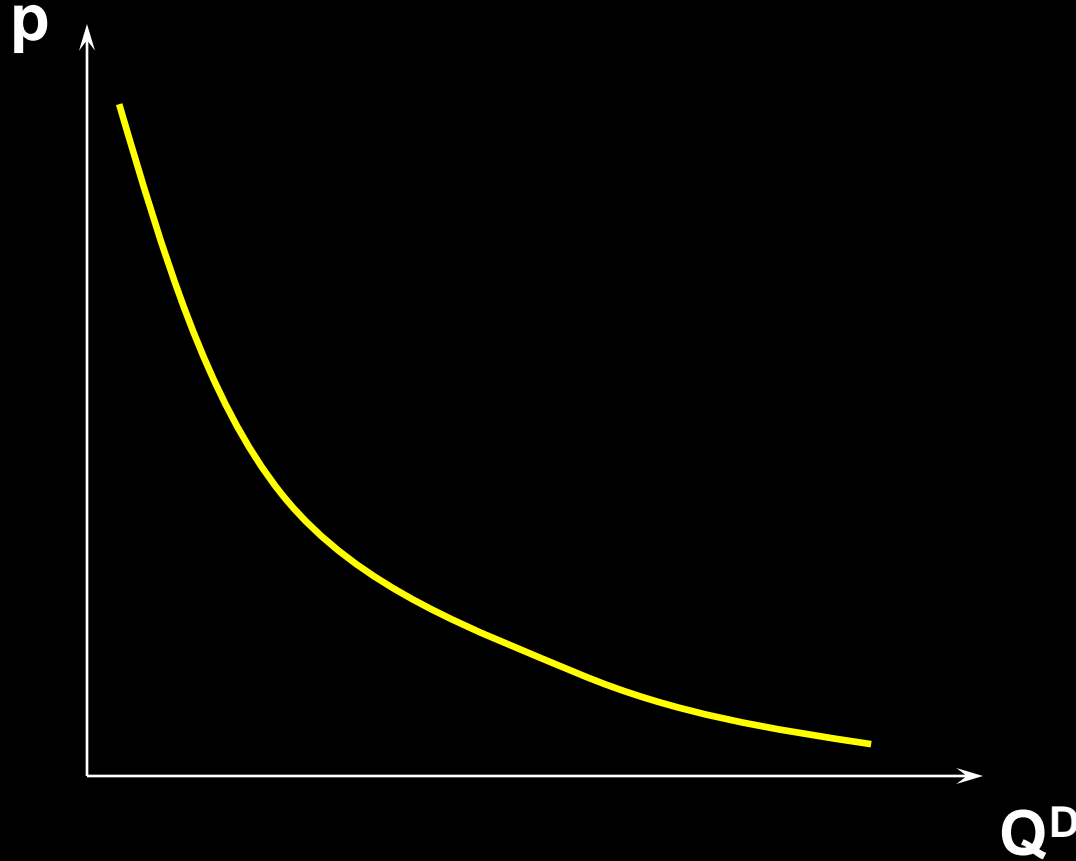Suppose the price has to drop to $490 before a 2nd person would do so. Then $p = \$490 \Rightarrow Q^D = 2.$

Modeling Apartment Demand

The lower is the rental rate p, the larger is the quantity of apartments demanded

$$p \downarrow \Rightarrow Q^D \uparrow.$$

The quantity demanded vs. price graph is the market demand curve for apartments.
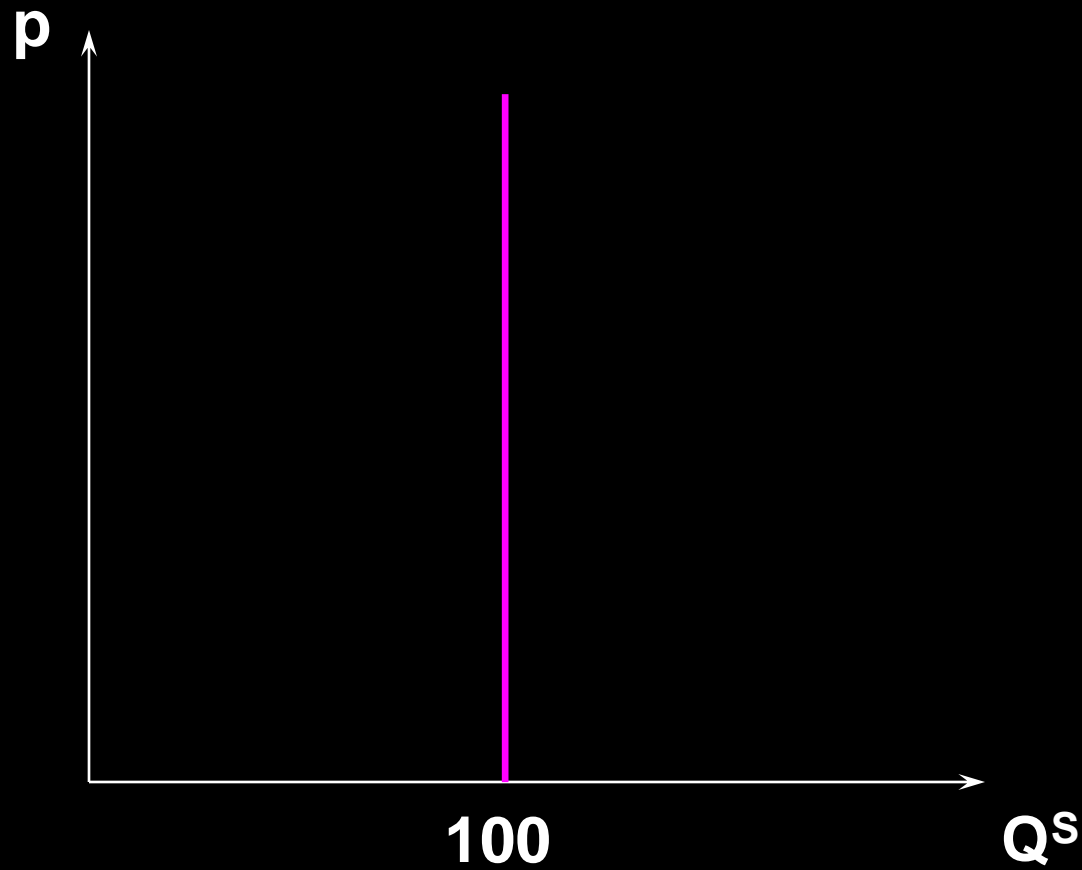
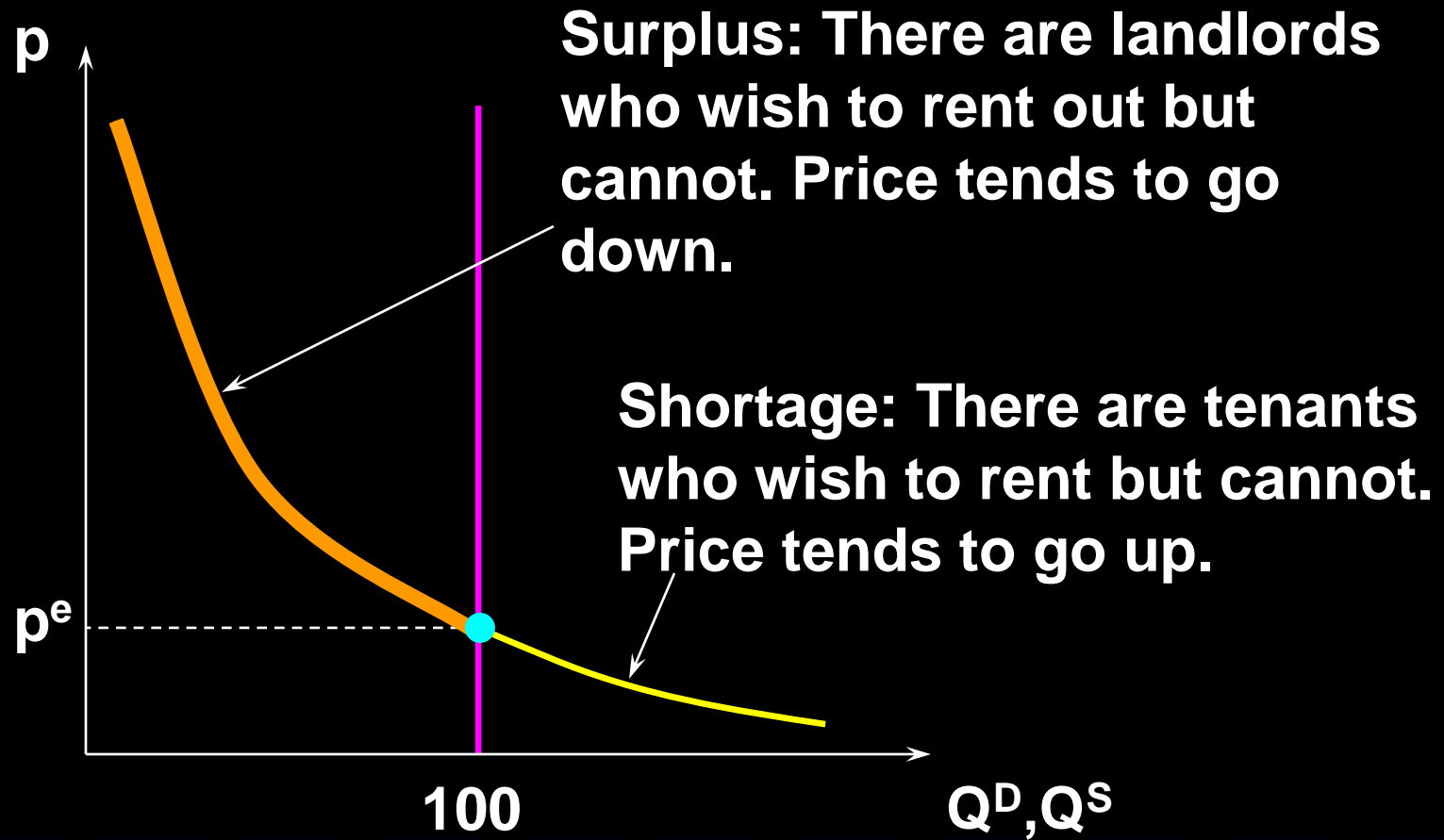# Market Demand Curve for Apartments

Modeling Apartment Supply

Supply: It takes time to build more apartments or convert existing apartment for commercial use.

so in the short-run the quantity available is fixed (at say 100).

Market Supply Curve

Competitive Market Equilibrium

p

Surplus: There are landlords who wish to rent out but cannot. Price tends to go down.

Shortage: There are tenants who wish to rent but cannot. Price tends to go up.

p^e

100

Q^D,Q^S

Competitive Market Equilibrium (竞争性市场均衡）

Quantity demanded = quantity available
$\Rightarrow$ No "force" to make price rise or fall

So the market is at a competitive equilibrium.

Caution: Gross vs Net

Breaking down the (gross) demand

- **Tenants who don't own an apartment in this neighborhood but wish to live there under the current price. (Net demand)**

- **Landlords who own an apartment in this neighborhood and wish to live there under the current price.**

Caution: Gross vs Net

Breaking down the (gross) supply

- **Landlords who own an apartment in this neighborhood and do not wish to live there under the current price. (net supply)**

- **Landlords who own an apartment in this neighborhood and wish to live there under the current price.**

Caution: Gross vs Net

Equilibrium is defined as

 Gross demand = gross supply

 Or equivalently,

 Net demand = net supply

The curves we drew in the graph were **gross** demand and **gross** supply.

Comparative Statics
（静态比较分析）

What happens if these exogenous variables change?

- **Building more apartments**

- **Incomes of potential renters**

- **Price of apartments nearby**

Some More Exercises: Taxation Policy Analysis

Local government taxes apartment owners.

If you own a house in this neighborhood, you have to pay a tax.

What happens to

- **price**
- **quantity of apartments rented?**

Taxation Policy Analysis

Market supply is unaffected (in the short run).

Market demand is unaffected.

So the competitive market equilibrium is unaffected by the tax.

Tenants are unaffected. Landlords pay all the tax.

What if Apartment Renting is Taxed?

Landlord pays a tax if and only if she rents out her apartment

Supply unaffected (in the short run).

Demand increases

- **Some landlords who found leasing their apartment profitable may no longer find it profitable.**
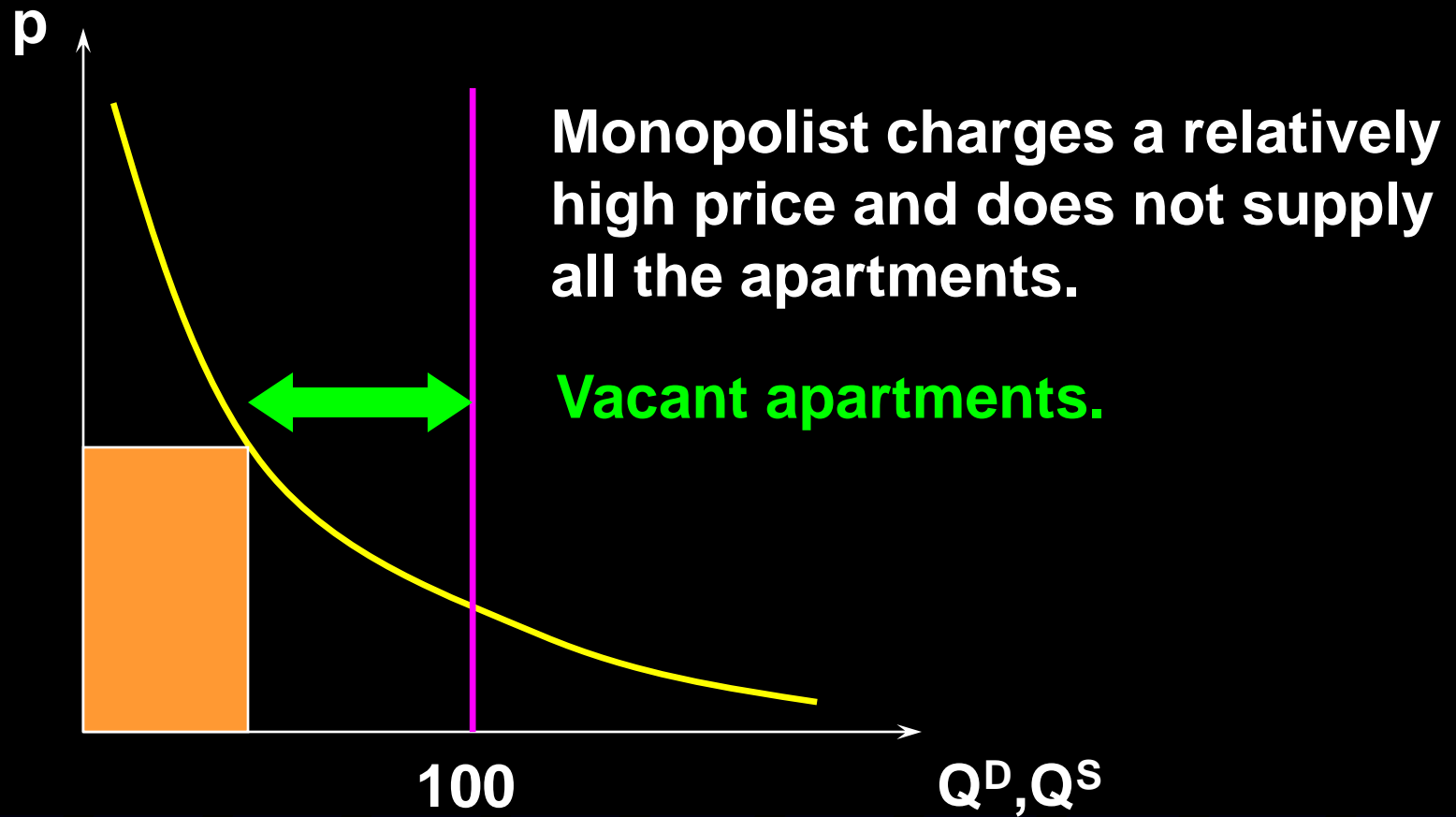
- **So they start to demand their own apartment.**

Imperfectly Competitive Market
Case 1:   A Monopolistic Landlord

Suppose one landlord controls all apartments in this neighborhood.

She can set a price p as she wishes.

Then the demand will be D(p).

Monopolistic Market Equilibrium

p

Monopolist charges a relatively high price and does not supply all the apartments.
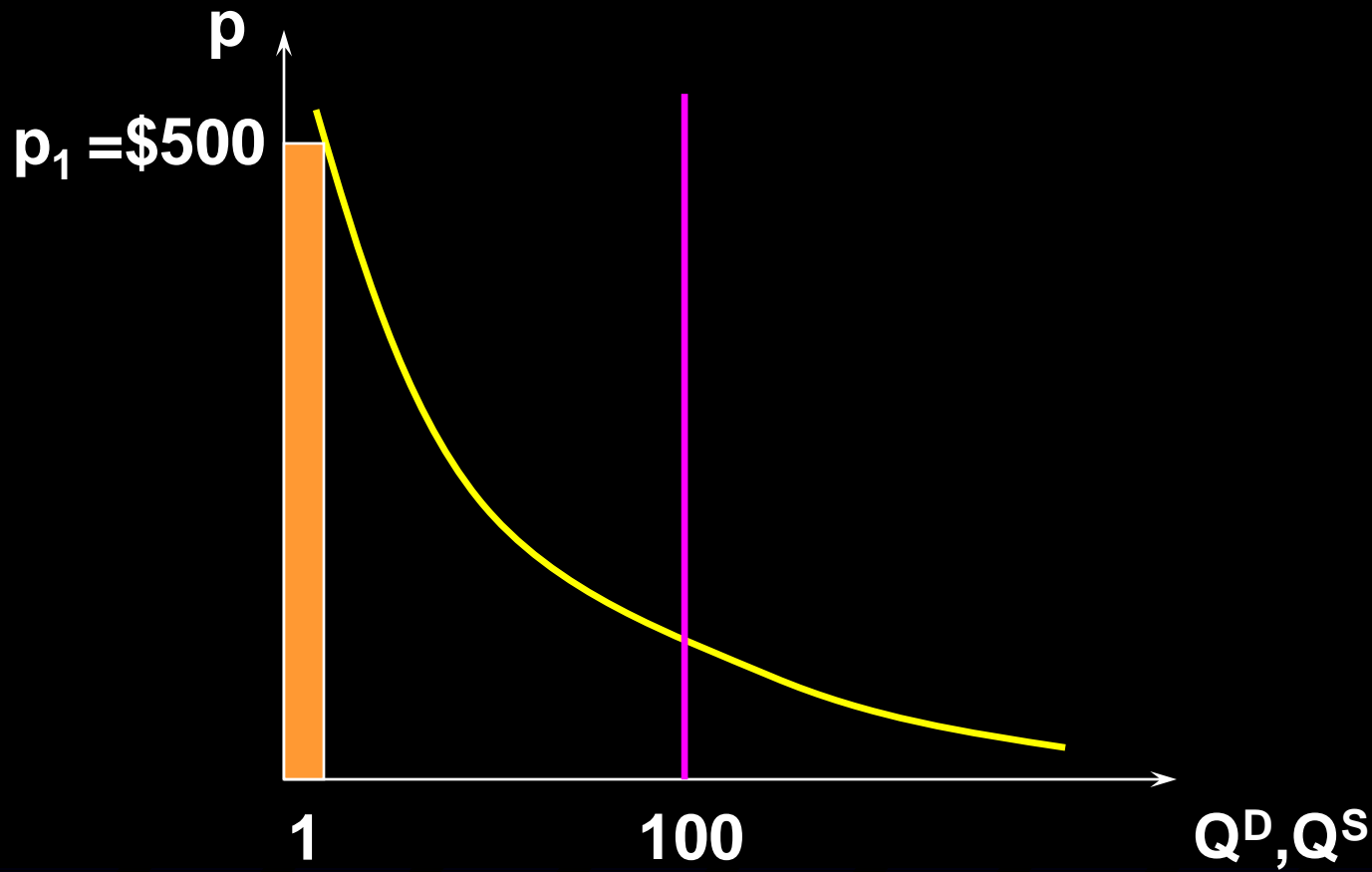
Vacant apartments.

100

Q^D, Q^S

Imperfectly Competitive Market Case 2:   Perfectly Discriminatory Monopolistic Landlord

Imagine the monopolist knew everyone's willingness-to-pay.

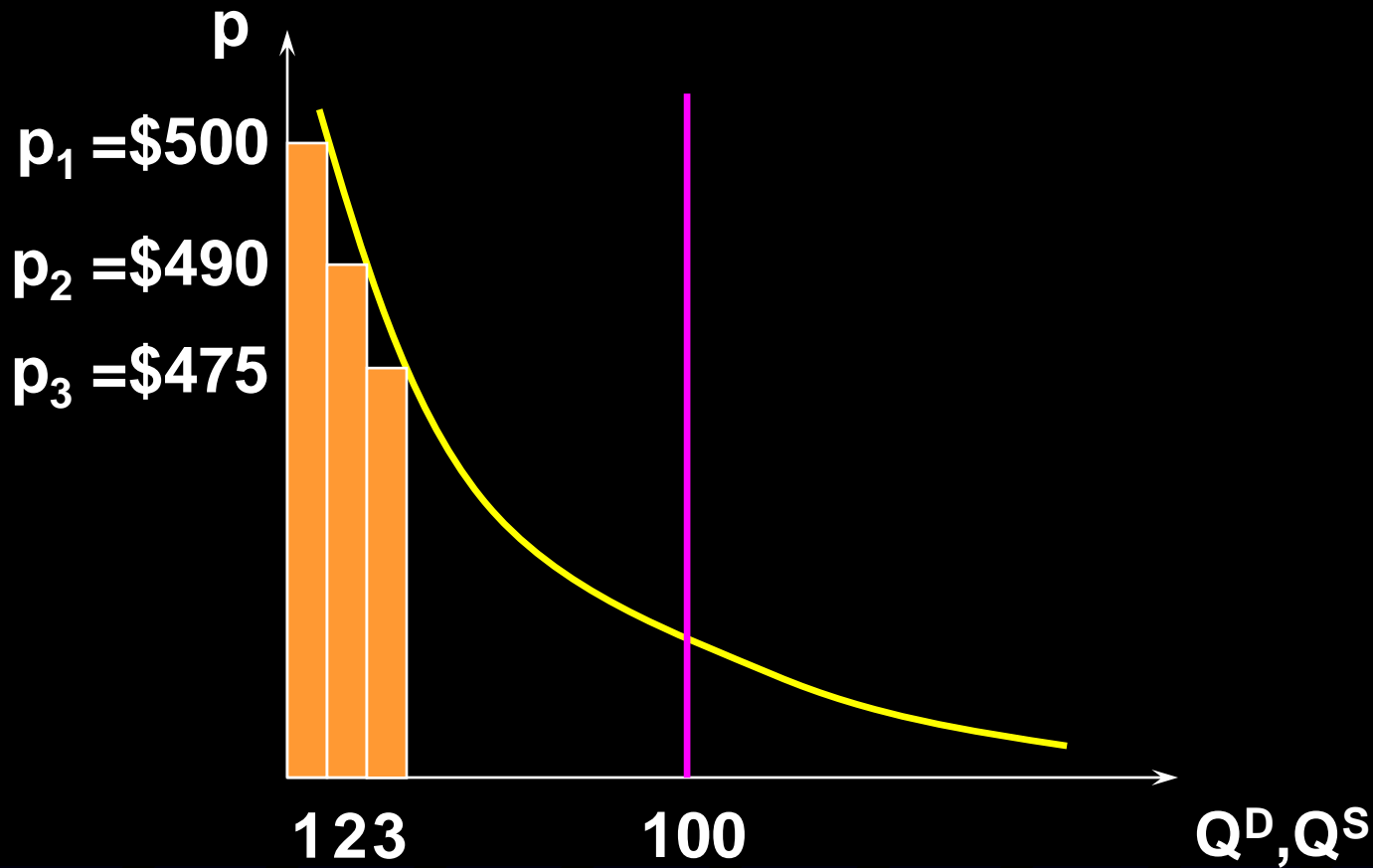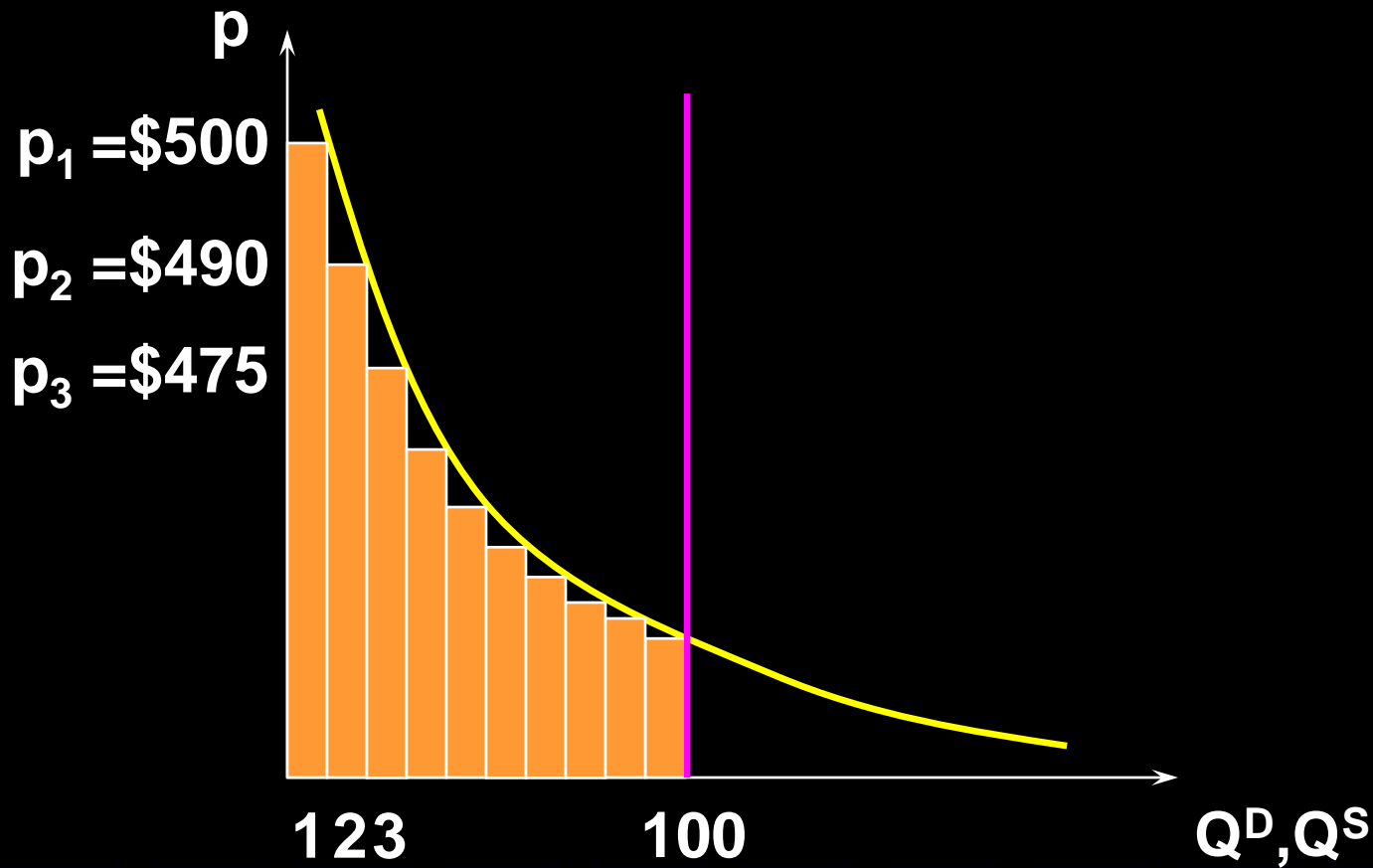**She charges everyone exactly their willingness to pay (or 1 cent below it)**

Discriminatory Monopolistic Market Equilibrium

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Discriminatory Monopolistic Market Equilibrium

$p_1 = \$500$

$p_2 = \$490$

$p_3 = \$475$
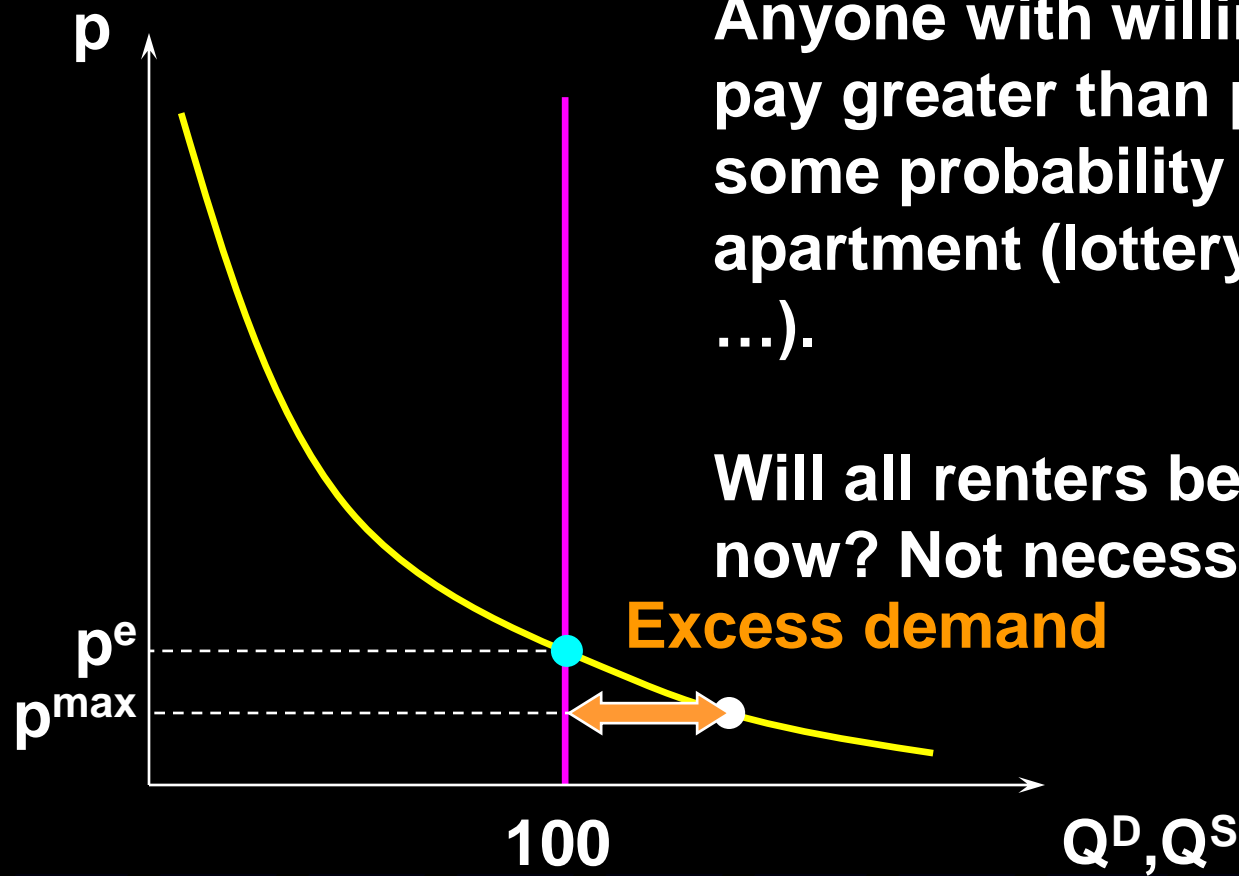
p^e

123   **100**

Q^D, Q^S
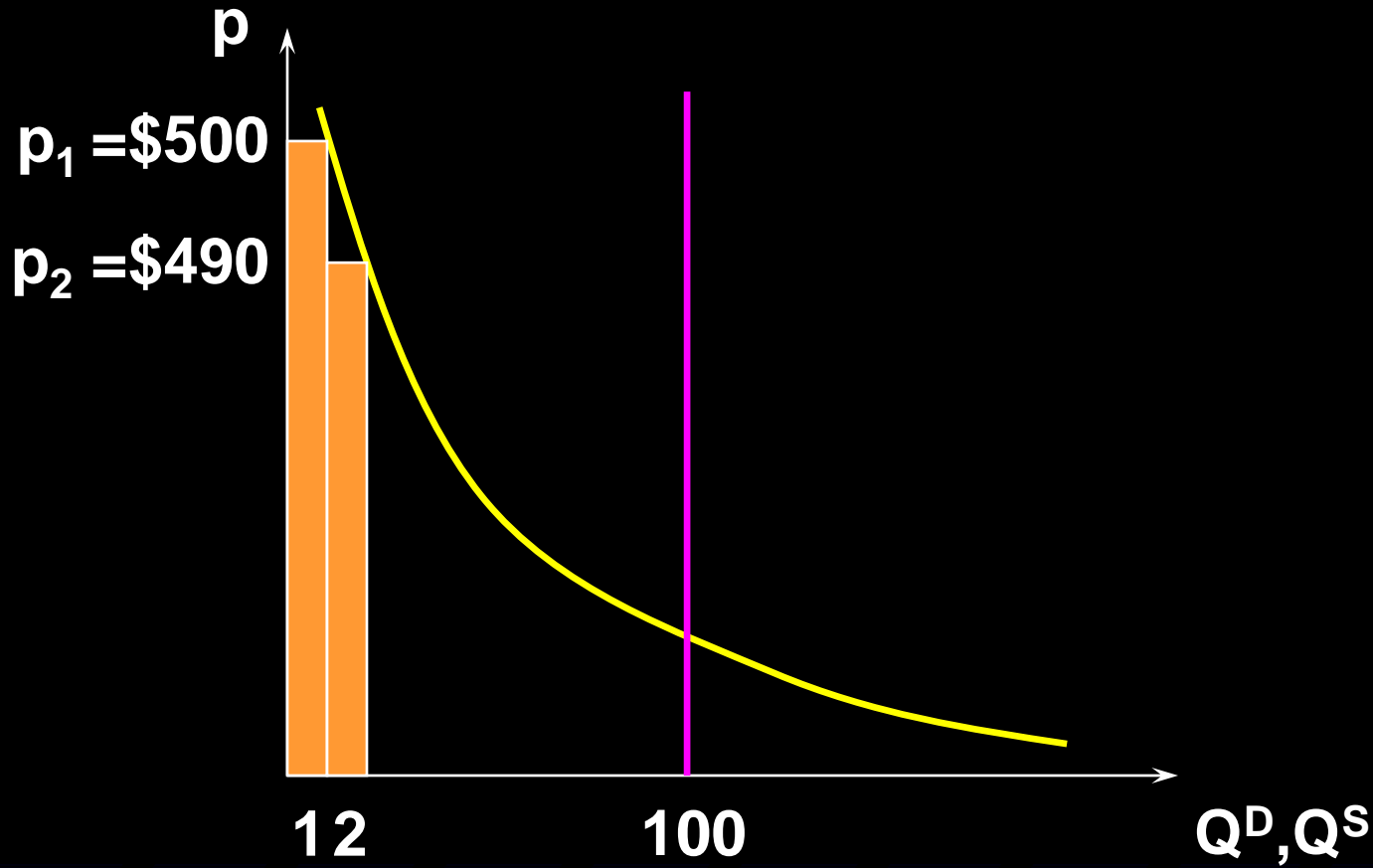
Discriminatory monopolist charges the competitive market price to the last renter, and rents out all apartments.

Rent Control
(房租管制）

Local government imposes a maximum legal price, $p^{max} < p^e$, the competitive price.

Market Equilibrium

Anyone with willingness to pay greater than p^{max} has some probability getting an apartment (lottery, queque, …).

Will all renters be happier now? Not necessarily.

Excess demand

p

p^e

p^{max}

100

Q^D, Q^S

Value Judgment
（价值判断）

Which of the following market environment is better?

- – **Rent control**
- – **Perfect competition**
- – **Monopoly**
- – **Discriminatory monopoly**

But, what do you mean by "better"?

- – **Efficiency and fairness**

Efficiency
（效率）

Vilfredo Pareto; 1848-1923.

A Pareto efficient outcome allows no "wasted welfare":

– **It is not possible to make some one better off without making some other people worse off.**

Pareto Efficiency

Competitive equilibrium:

– **all apartments go to people who value them the most**

– **so no more mutually beneficial trades can be made**

– **so the outcome is Pareto efficient.**

Pareto Efficiency

Discriminatory Monopoly:

- all apartments go to people who value them the most

- so no more mutually beneficial trades can be made

- so the outcome is Pareto efficient.

Pareto Efficiency

Monopoly:

- not all apartments are occupied
- Some renters do not get an apartment but have positive value for it.
- Renting out a vacant apartment to such a person at any positive price will benefit the renter and the landlord.
- So the outcome is not Pareto efficient

Pareto Efficiency

Rent Control:

– **Apartments may not go to people who value them the most**

– **Transferring an apartment from a person with low value to another person with high value under some intermediate price will benefit both of them**

– **So very likely, the outcome is not Pareto efficient**

What about Fairness (公平)?

A definition of fairness is a lot more difficult, which is an advanced topic.

We will not discuss fairness and equity until Chapter 34.