第五章

弹性及其应用
Elasticity and Its Application

弹性　Elasticity . . .

§ …… 衡量了买者和卖者对市场环境变化作出反应的程度大小
… **is a measure of how much buyers and sellers respond to changes in market conditions**

§ …… 使我们能够更精确地分析供给和需求
… **allows us to analyze supply and demand with greater precision.**

需求的价格弹性
Price Elasticity of Demand

♫ 给定百分之一的价格变化，需求量变化的百分数就是需求的价格弹性。
Price elasticity of demand is the percentage change in quantity demanded given a percent change in the price.

♫ 它衡量了一种物品的需求量对该物品价格变化作出反应的程度大小。
It is a measure of how much the quantity demanded of a good responds to a change in the price of that good.

需求价格弹性的决定因素
Determinants of
Price Elasticity of Demand

- 必需品还是奢侈品
  Necessities versus Luxuries
- 相近替代品的可获得性
  Availability of Close Substitutes
- 市场的界定
  Definition of the Market
- 时间范围
  Time Horizon

需求价格弹性的决定因素
Determinants of
Price Elasticity of Demand

需求倾向于更富有弹性：
Demand tends to be more elastic :

- 如果该商品是奢侈品
  if the good is a luxury.
- 相近替代品的个数越多
  the larger the number of close substitutes.
- 市场界定得越狭隘
  the more narrowly defined the market.
- 时间间隔越长
  the longer the time period.

计算需求价格弹性
Computing the Price Elasticity of Demand

用需求量变动的百分数除以价格变动的百分数，就计算出了需求的价格弹性

The price elasticity of demand is computed as the percentage change in the quantity demanded divided by the percentage change in price.

Price Elasticity of Demand = 需求价格弹性

$$\text{Price Elasticity of Demand} = \frac{\textit{Percentage Change in Quantity Demanded}}{\textit{Percentage Change in Price}}$$

需求量变化的百分数

价格变化的百分数

计算需求价格弹性
Computing the Price Elasticity of Demand

$$Price\ elasticity\ of\ demand\ =\ \frac{Percentage\ change\ in\ quatity\ demanded}{Percentage\ change\ in\ price}$$

例：如果冰淇淋蛋卷的价格从 **2.00** 美元上升到 **2.20** 美元，你所购买的数量从 **10** 个下降到 **8** 个，那么你的需求弹性可以计算如下：**Example: If the price of an ice cream cone increases from \$2.00 to \$2.20 and the amount you buy falls from 10 to 8 cones then your elasticity of demand would be calculated as:**

$$\frac{\dfrac{(8-10)}{10}\ \square\ 100}{\dfrac{(2.20-2.00)}{2.00}\ \square\ 100} = \frac{-20\ percent}{10\ percent} = -2$$

运用中点公式计算需求价格弹性
Computing the Price Elasticity of Demand Using the Midpoint Formula

ᜒ 计算需求曲线上两点之间的需求价格弹性时遇到一个恼人的问题：从 A 点到 B 点的弹性，与从 B 点到 A 点的弹性是不同的。

If you try calculate the price elasticity of demand between two points on a demand curve, you will quickly notice an annoying problem: The elasticity from point A to point B seems different from the elasticity from point B to point A.

ᜒ 例如，考虑下面的数字
For example, consider these numbers:

ᜒ **Point A: Price=\$4, Quantity=120**

ᜒ **Point B: Price=\$6, Quantity=80**

ᜒ 弹性分别是 **Elasticities are,**

ᜒ **A→B:**
[(80-120)/120]/[(6-4)/4] =(-.33)/.5=-0.66

ᜒ **B →A:**
[(120-80)/80]/[(4-6)/6]=.5/(-.33)=-1.5

运用中点公式计算需求价格弹性
Computing the Price Elasticity of Demand Using the Midpoint Formula

当计算需求价格弹性时，中点公式更为可取，因为无论变化的方向如何，它都能给出相同的答案 **The midpoint formula is preferable when calculating the price elasticity of demand because it gives the same answer regardless of the direction of the change.**

$$\text{Price Elasticity of Demand} = \frac{(Q_2 - Q_1)/[(Q_2 + Q_1)/2]}{(P_2 - P_1)/[(P_2 + P_1)/2]}$$

运用中点公式计算需求价格弹性
Computing the Price Elasticity of Demand Using the Midpoint Formula

◠ 在我们的例子中， A 点和 B 点的中点是
  In our example, the midpoint between point A and B is,

  价格 Price=$5, 数量 Quantity=100.

◠ 无论方向，弹性均为 1
  Elasticity in both directions equals 1,

  ◠A→B:

  [(80-120)/100]/[(6-4)/5] =(-.2)/.2=-1

  ◠B →A:

  [(120-80)/100]/[(4-6)/5]=.2/(-.2)=-1

计算需求价格弹性
Computing the Price Elasticity of Demand

$$\text{Price Elasticity of Demand} = \frac{(Q_2 - Q_1)/[(Q_2 + Q_1)/2]}{(P_2 - P_1)/[(P_2 + P_1)/2]}$$

例：如果冰淇淋蛋卷的价格从 **2.00** 美元上升到 **2.20** 美元，而你购买的数量从 **10** 个下降到 **8** 个，运用中点公式，你的需求弹性就可以计算如下： **Example: If the price of an ice cream cone increases from \$2.00 to \$2.20 and the amount you buy falls from 10 to 8 cones, then your elasticity of demand, using the midpoint formula, would be calculated as:**

$$\frac{\dfrac{(10-8)}{(10+8)/2}}{\dfrac{(2.20-2.00)}{(2.00+2.20)/2}} = \frac{22 \ percent}{9.5 \ percent} = 2.32$$

弹性的范围
Ranges of Elasticity

## 缺乏弹性的需求 *Inelastic Demand*

- 需求量的变化对价格变化的反应不强烈
  Quantity demanded *does not respond* strongly to price changes.
- 需求价格弹性小于 1
  Price elasticity of demand is *less than* one.

富于弹性的需求 *Elastic Demand*

- 需求量的变化对价格的变化反应强烈
  Quantity demanded *responds strongly* to changes in price.
- 需求价格弹性大于 1
  Price elasticity of demand is *greater than* one.

计算需求价格弹性
Computing the Price Elasticity of Demand

Price

$5

4

Demand
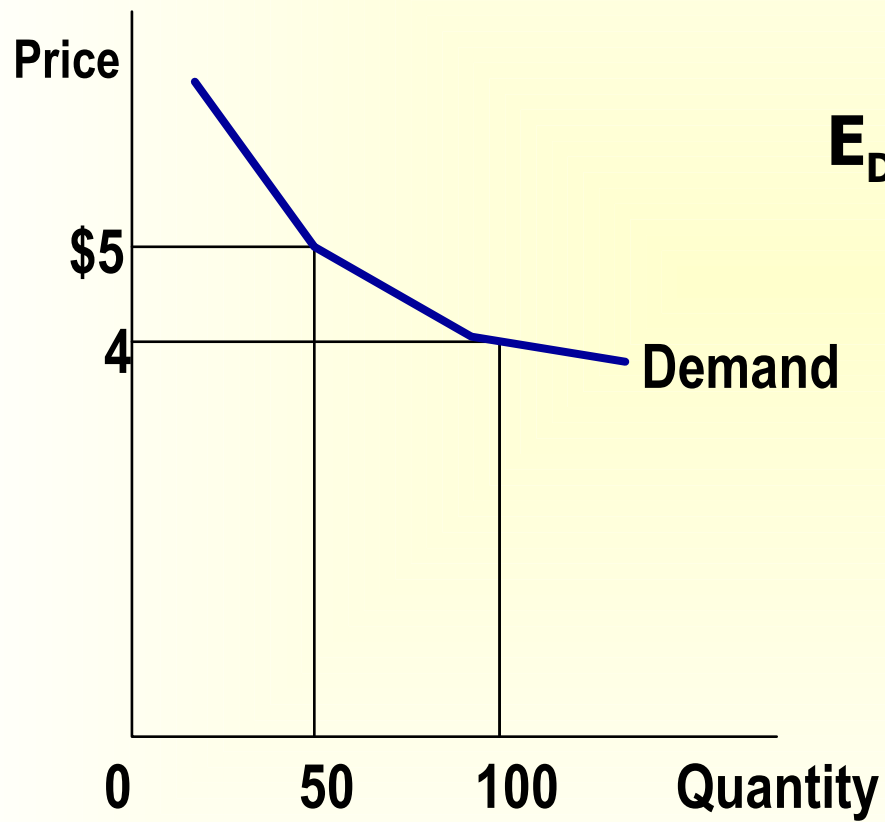
0   50   100   Quantity

$$E_D = \frac{(100-50)\Big/(100+50)/2}{(4.00-5.00)\Big/(4.00+5.00)/2}$$

$$= \frac{67 \text{ percent}}{-22 \text{ percent}} = -3$$

需求是富于价格弹性的
Demand is price elastic

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弹性的范围
Ranges of Elasticity

完全无弹性　*Perfectly Inelastic*

需求量对价格变化不作出反应

　　Quantity demanded does not respond to price changes.

完全（有）弹性　*Perfectly Elastic*

对价格的任何变化，需求量的变化无穷大

　　Quantity demanded changes infinitely with any change in price.
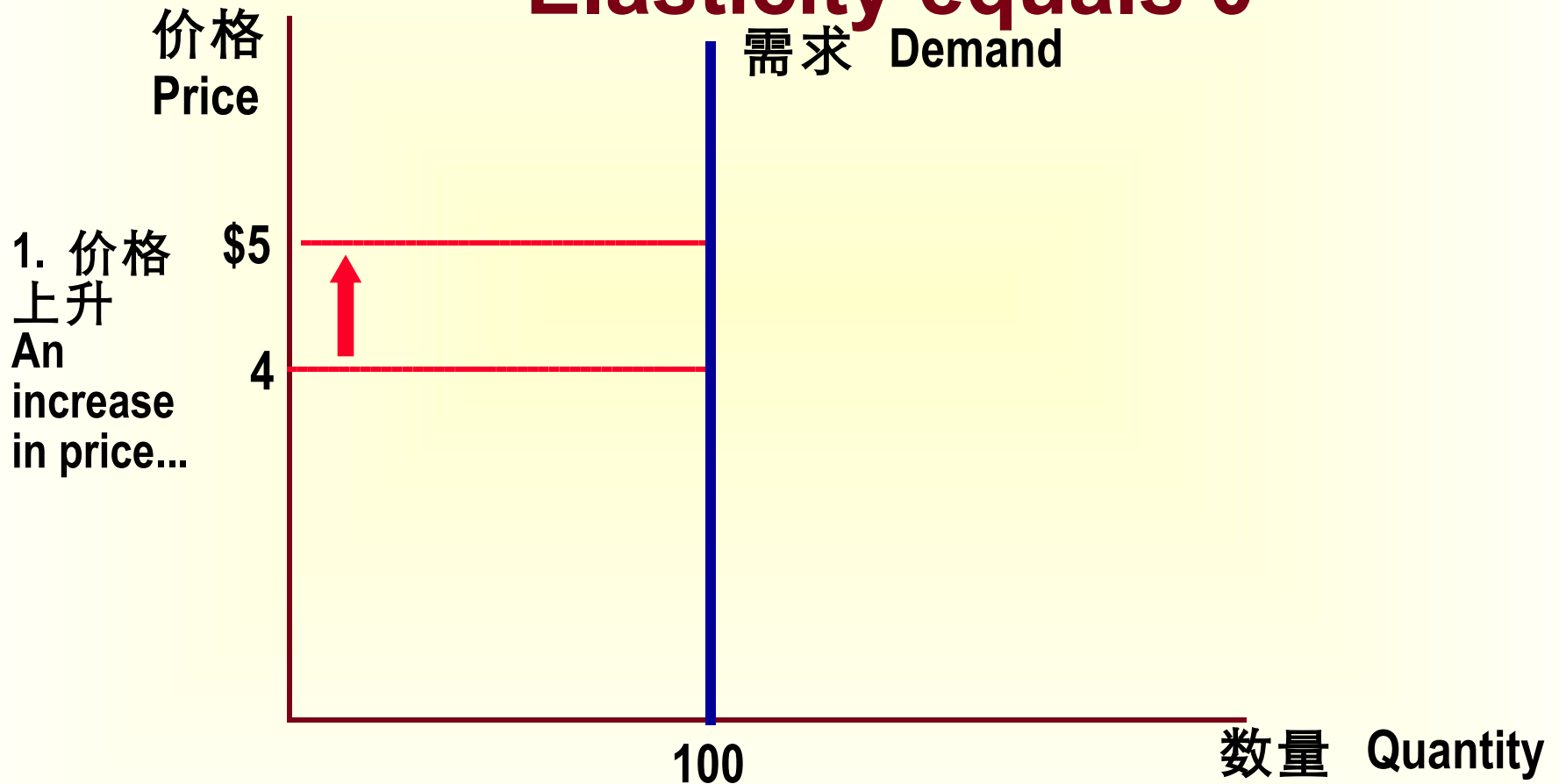
单位弹性　*Unit Elastic*

需求量变化和价格变化的百分数相同

　　Quantity demanded changes by the same percentage as the price.

完全无弹性的需求：弹性为零
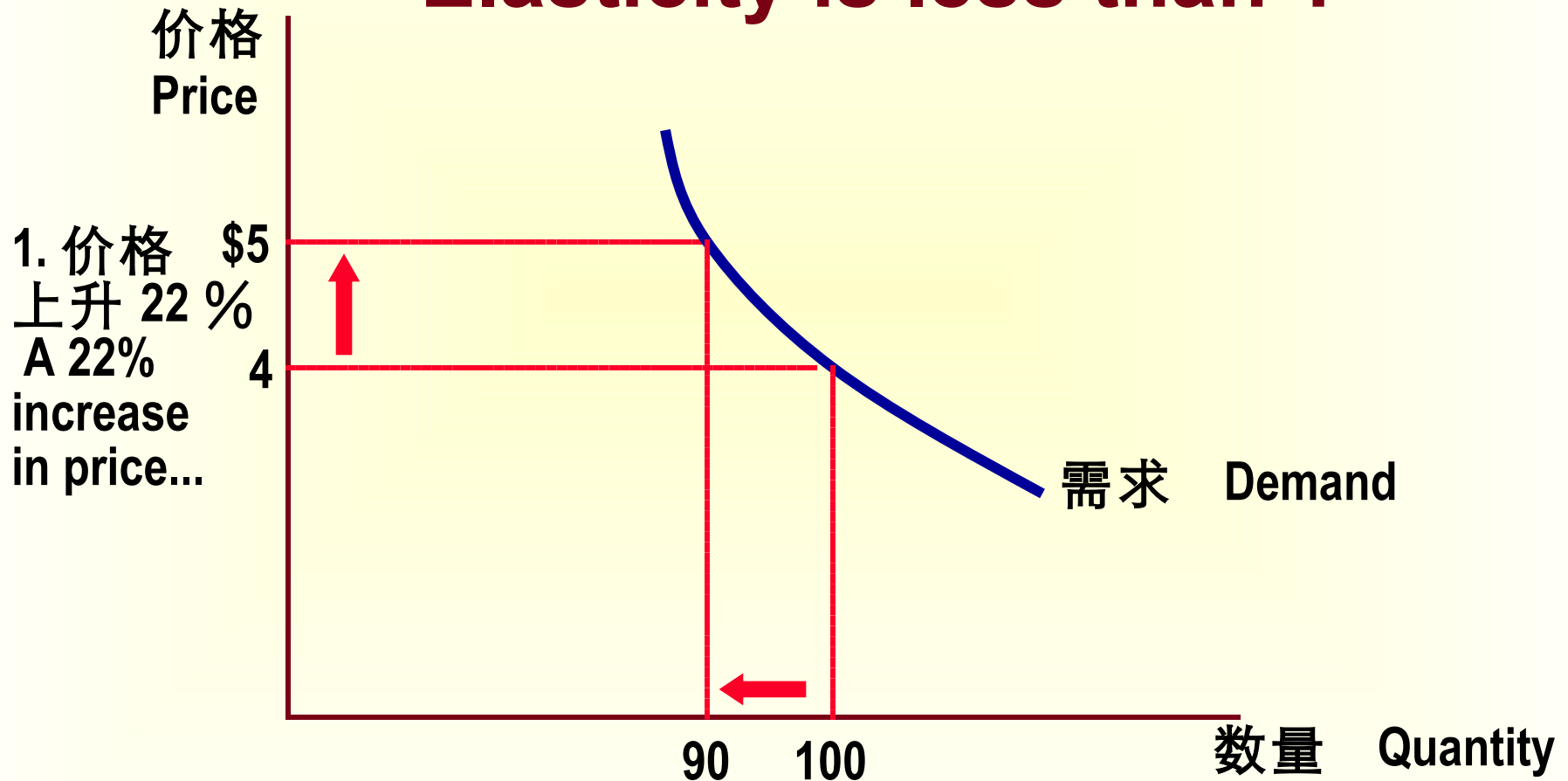## Perfectly Inelastic Demand
- Elasticity equals 0

价格
Price

需求 Demand

1. 价格
上升
An
increase
in price...

$5

4

100

数量 Quantity

2. ... 没有引起需求量的任何变化
leaves the quantity demanded unchanged.

15

缺乏弹性的需求：弹性小于 1
Inelastic Demand
- Elasticity is less than 1

价格
Price

1. 价格
上升 22 ％
A 22%
increase
in price...

$5

4

需求   Demand

90   100

数量   Quantity

2. ... 导致需求量下降 11 ％
leads to a 11% decrease in quantity.

16

单位弹性的需求：弹性等于 1
Unit Elastic Demand
- Elasticity equals 1

价格
Price

1. 价格 $5
上升 22 ％
A 22%
increase
in price...

4

需求
Demand

80   **100**

数量   **Quantity**

2. ... 导致需求量下降 22 ％
leads to a 22% decrease in quantity.
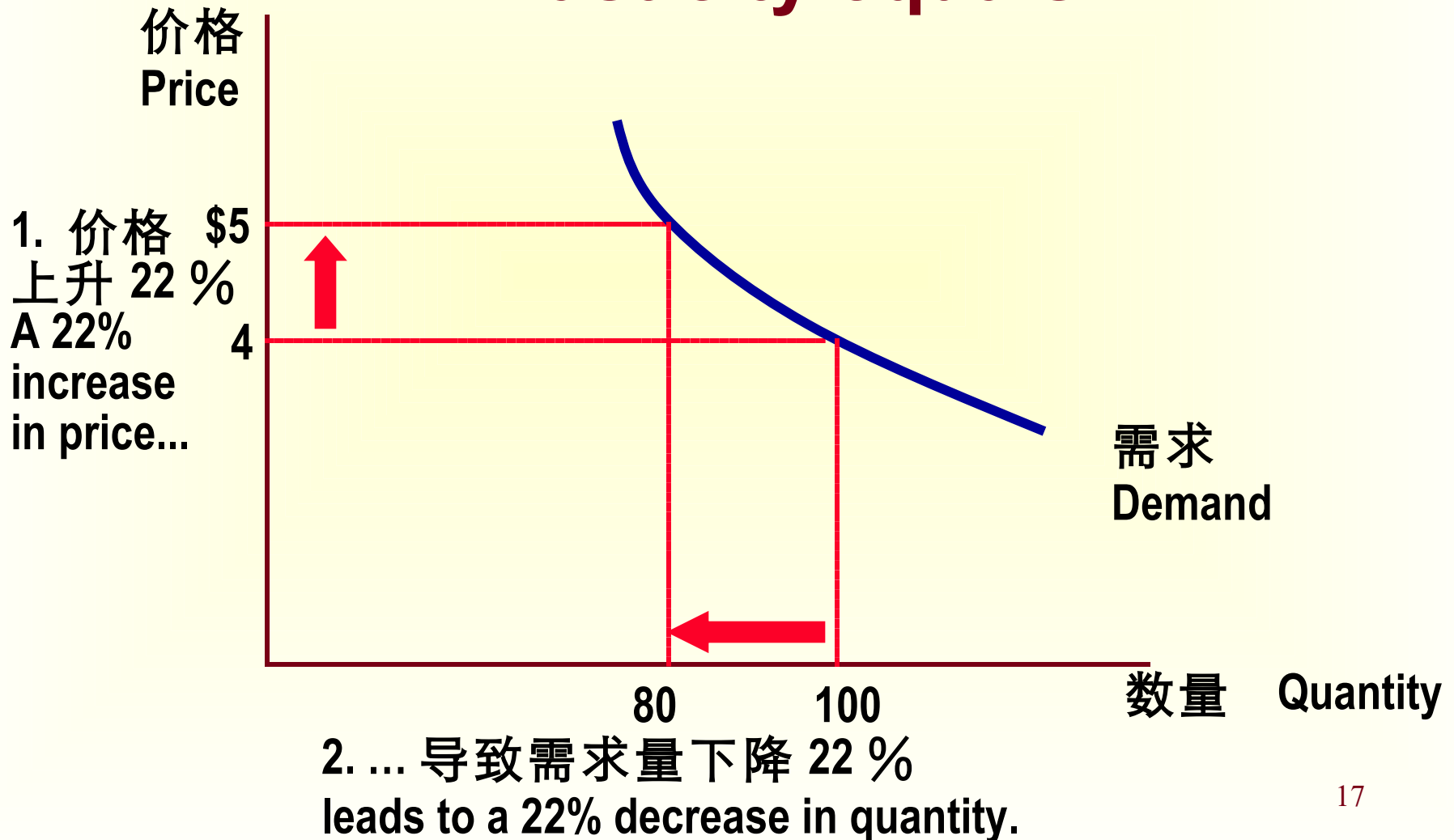
富于弹性的需求：弹性大于 1
Elastic Demand
- Elasticity is greater than 1

价格
Price

1. 价格
上升 22 ％
A 22%
increase
in price...

$5

4

需求
Demand

50   100   数量   Quantity

2. ... 导致需求量下降 67 ％
leads to a 67% decrease in quantity.

18
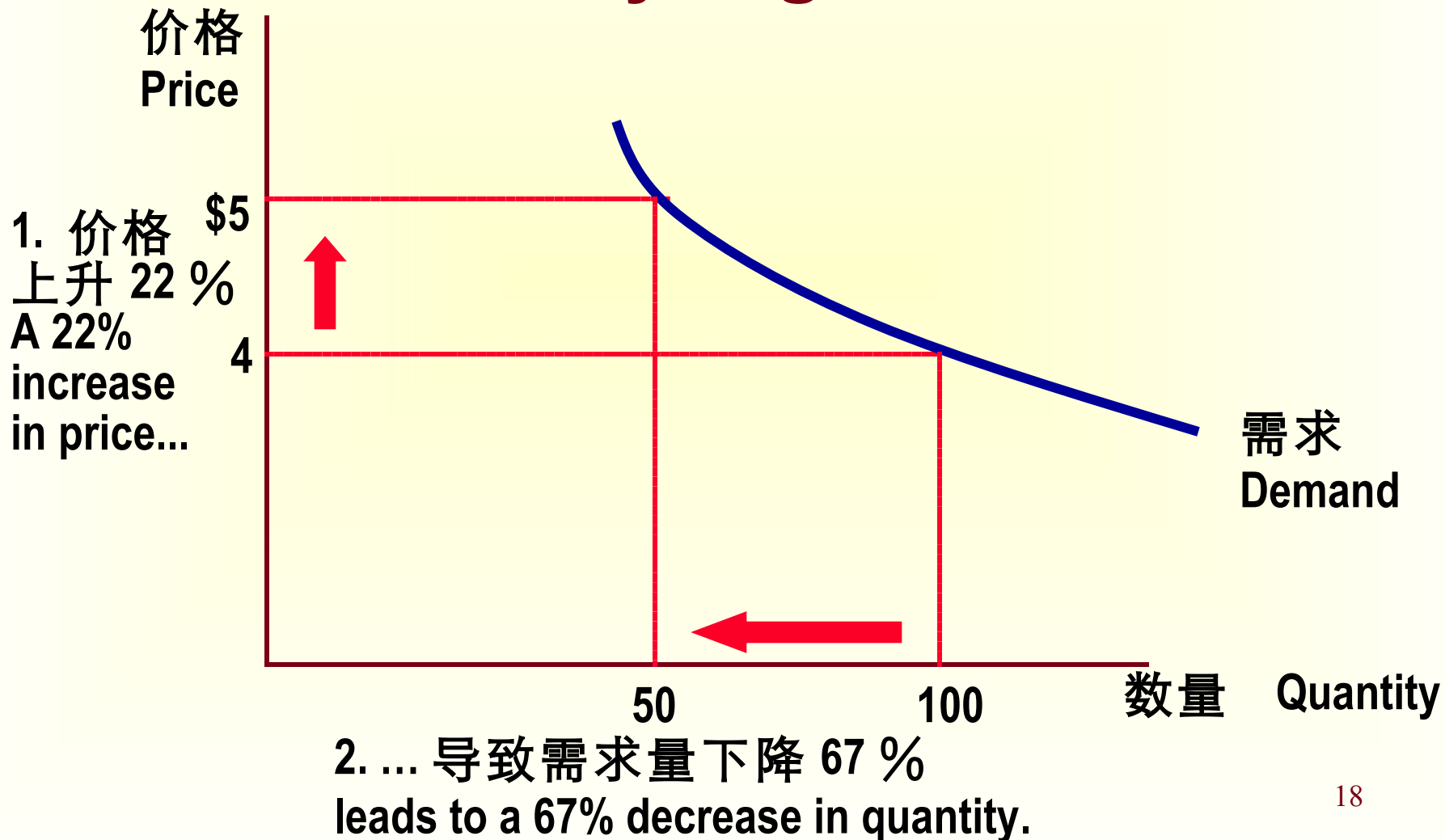
完全弹性的需求：弹性无穷大
Perfectly Elastic Demand
- Elasticity equals infinity

价格
Price

1. 在 4 美元以上的任何价格，需求量都为零
At any price above $4, quantity demanded is zero.

$4

需求　**Demand**

2. 价格恰为 4 美元时，消费者愿意购买任何数量
At exactly $4, consumers will buy any quantity.

3. 在价格低于 4 美元时，需求量为无穷大
At a price below $4, quantity demanded is infinite.

数量　**Quantity**

19
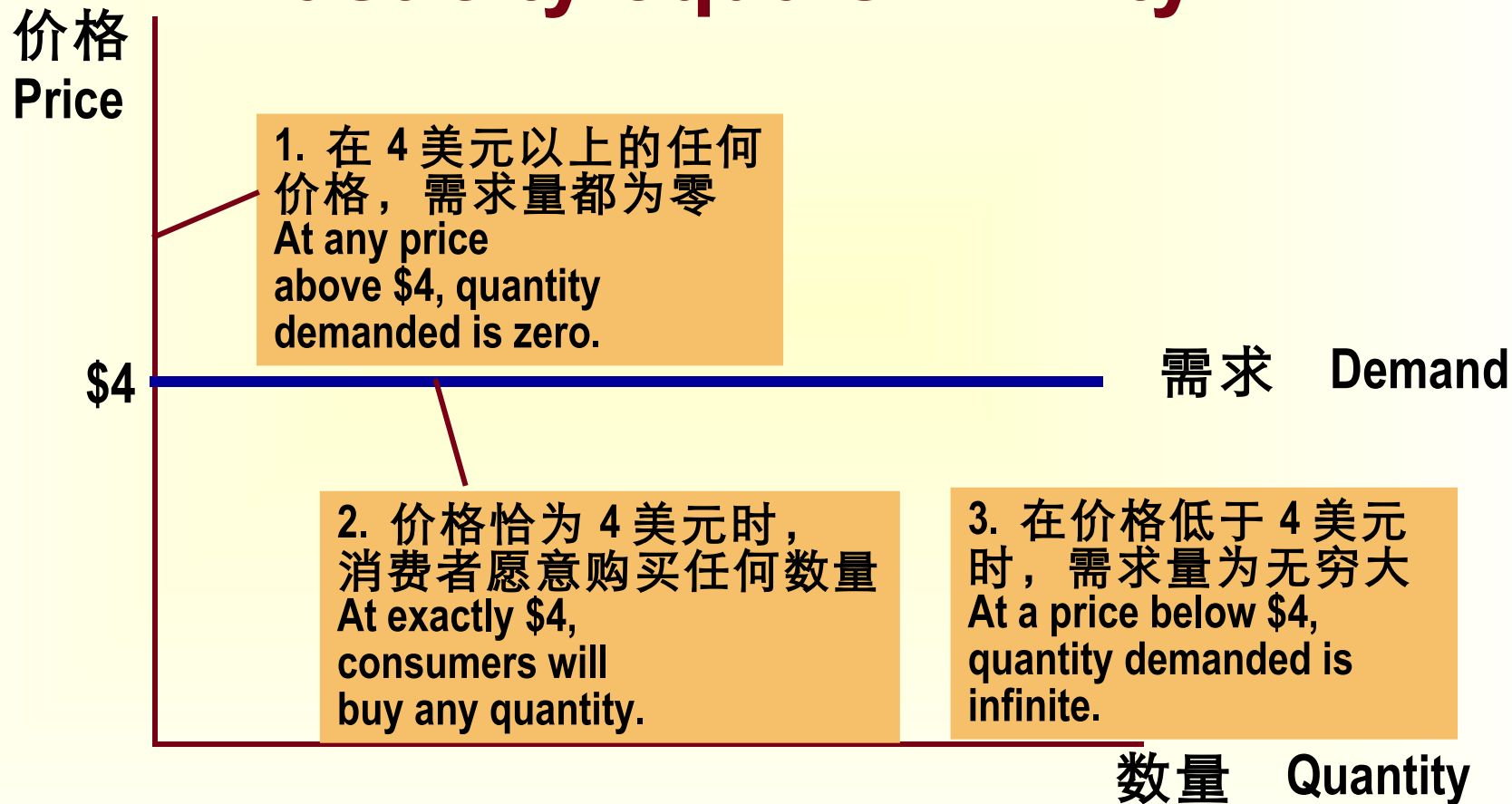
美国经济中部分物品的弹性
Some Price Elasticities in the U.S. Economy

ℰ 富于弹性的需求　Elastic demands

在外就餐	Purchased meals	2.27
金属	Metals	1.52
木制家具	Furnitures, timber	1.25
汽车	Motor Vehicles	1.14
运输	Transportation	1.03

ℰ 缺乏弹性的需求　Inelastic demands

水电气	Gas, electricity, water	.92
石油	Oil	.91
化学药品	Chemicals	.89

美国经济中部分物品的弹性 Some Price Elasticities in the U.S. Economy

ℱ 缺乏弹性的需求 Inelastic demands (contd.)

饮料　**Beverages** .78

烟草　**Tobacco** .61

粮食　**Food** .58

住宅服务　**Housing service** .55

衣服　**Clothing** .49

书报杂志　**Books, magazines, newspapers** .34

肉类　**Meat** .2

Sources: Ahson Mansur and John Whalley, "Numerical Specification of Applied General Equilibrium Models: Estimation, Calibration, and Data", in Scarf and Shoven, eds., *Applied General Equilibrium Analysis* (New York: Cambridge University Press,1984), p. 109; Hendrik S. Houthakker and Lester D. Taylor, *Consumer Demand in the United States: Analysis and Projections* (Cambridge: Harvard University Press, 1970).

弹性与总收益
Elasticity and Total Revenue
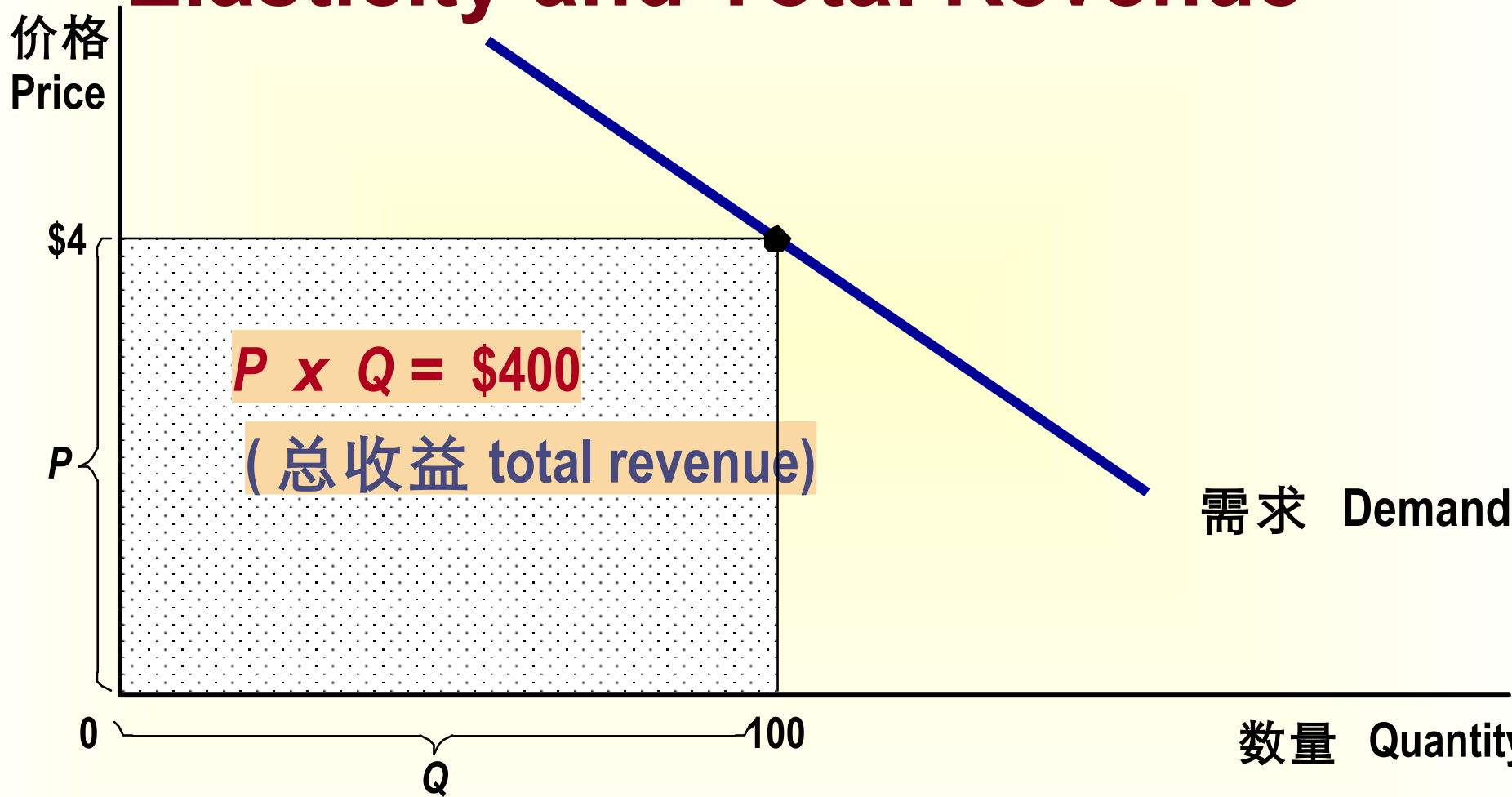
总收益是一个物品的买者支付的金额，也是其卖者得到的金额。 **Total revenue** is the amount paid by buyers and received by sellers of a good.

用该物品的价格乘以出售量来计算。 Computed as the price of the good times the quantity sold.
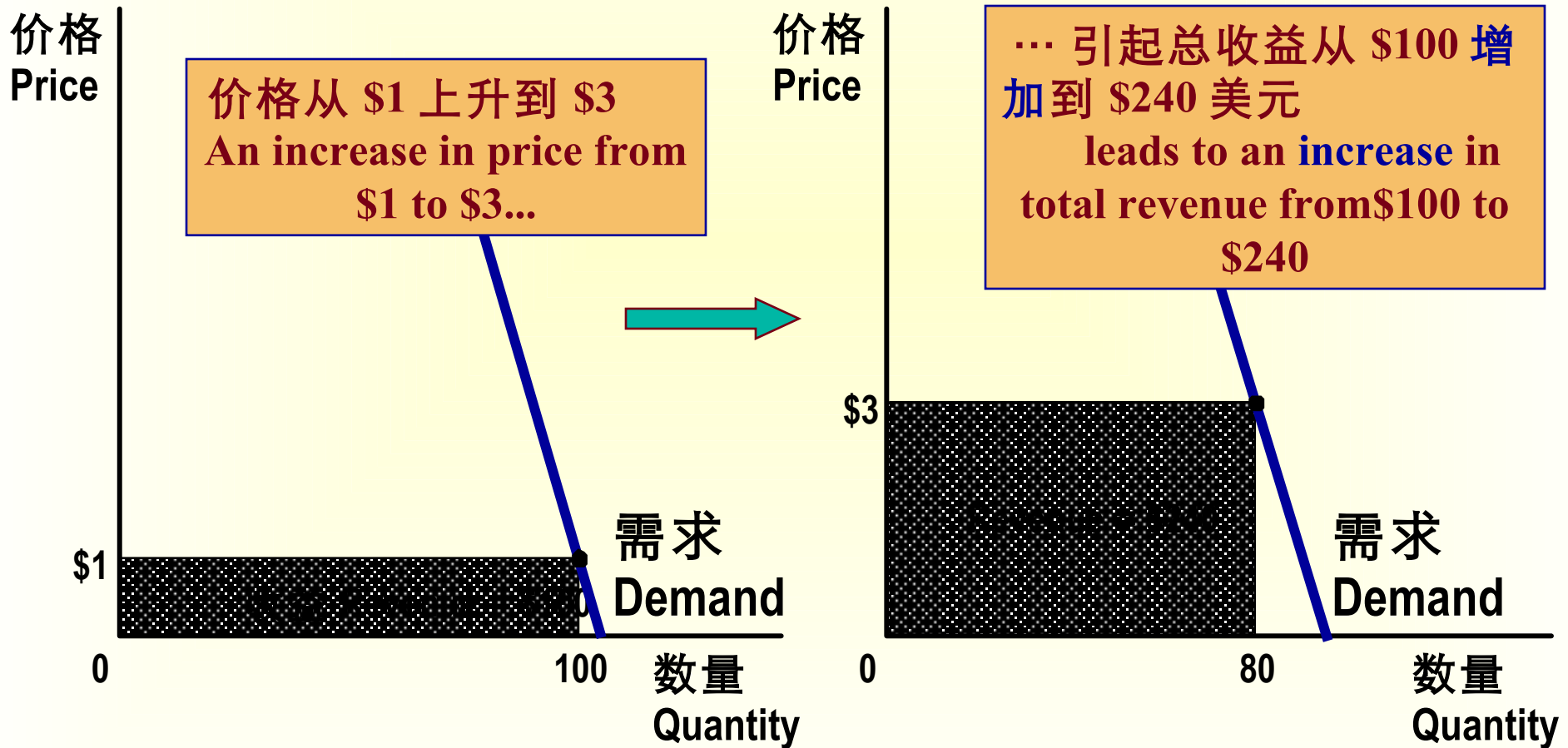
TR = P x Q

弹性与总收益
Elasticity and Total Revenue

价格
Price

$4

$P \times Q = \$400$

(总收益 total revenue)

P

需求 Demand

0

100

数量 Quantity

Q

弹性与总收益
Elasticity and Total Revenue

对于**缺乏弹性**的需求曲线，当价格上升时，需求量下降的比例小于价格上升的比例。从而**总收益上升**。

With an inelastic demand curve, an increase in price leads to a decrease in quantity that is proportionately smaller. Thus, total revenue increases.

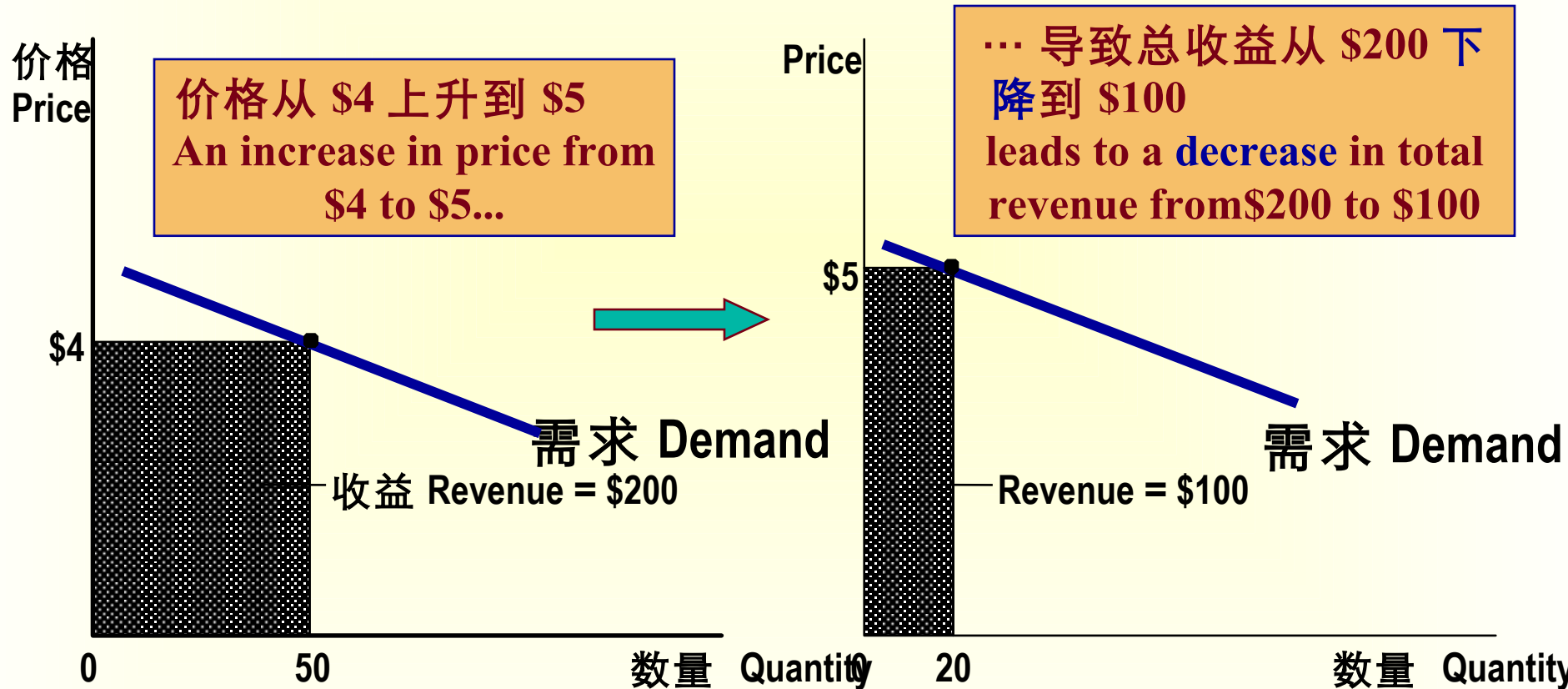# 弹性与总收益：缺乏弹性的需求 Elasticity and Total Revenue: Inelastic Demand

价格
Price

价格从 $1 上升到 $3
An increase in price from $1 to $3...

价格
Price

… 引起总收益从 $100 增加到 $240 美元
leads to an **increase** in total revenue from $100 to $240

需求
Demand

$1

0   100   数量
Quantity

$3

需求
Demand

0   80   数量
Quantity

弹性与总收益
Elasticity and Total Revenue

对于**富于弹性**的需求曲线，当价格上升时，需求量下降的比例大于价格上升的比例。从而**总收益下降**。 **With an elastic demand curve, an increase in the price leads to a decrease in quantity demanded that is proportionately larger. Thus, total revenue decreases.**

弹性与总收益：富于弹性的需求 Elasticity and Total Revenue: Elastic Demand

价格
Price

价格从 $4 上升到 $5
An increase in price from $4 to $5...

$4

需求 Demand

收益 Revenue = $200

0   50   数量 Quantity

Price

··· 导致总收益从 $200 下降到 $100
leads to a decrease in total revenue from$200 to $100

$5

需求 Demand

Revenue = $100

20   数量 Quantity

案例研究：旅游景点门票定价

❧如果你是颐和园的负责人，你的财务经理告诉你，由于资金缺乏，无法进行正常的景观维护，建议你考虑改变门票价格以增加总收益。

❧你将提高还是降低门票价格？

弹性与斜率
Elasticity vs. Slope

ᔆ **因为需求价格弹性衡量了需求量对价格的反应程度，它就和需求曲线的斜率密切相关。**
Because the price elasticity of demand measures how much quantity demanded responds to the price, it is closely related to the slope of the demand curve.

ᔆ **斜率 $=\Delta Q/\Delta P$ ，**
   弹性 $= (\Delta Q/Q)/(\Delta P/P)=(\Delta Q/\Delta P)/(Q/P)$

ᔆ **给定某一点，通过该点的需求曲线越平坦（斜率越大），在该点附近的需求价格弹**

计算线性需求曲线的弹性
Computing the Elasticity of a Linear Demand Curve

Price	Quantity	Total Revenue (Price x Quantity)	Percent Change in Price	Percent Change in Quantity	Elasticity	Description
$0	14	$0	200%	15%	0.1	Inelastic
1	12	12	67	18	0.3	Inelastic
2	10	20	40	22	0.6	Inelastic
3	8	24	29	29	1	Unit elastic
4	6	24	22	40	1.8	elastic
5	4	20	18	67	3.7	elastic
6	2	12	15	200	13	elastic
7	0	0				

线性需求曲线的斜率是不变的，但弹性不是不变的。
The slope of a linear demand curve is constant, but its elasticity is not.

需求的收入弹性
Income Elasticity of Demand

📌 **需求收入弹性**衡量一个物品的需求量对消费者收入变化的反应程度大小。

Income elasticity of demand measures how much the quantity demanded of a good responds to a change in consumers' income.

📌 用需求量变化的百分数除以收入变化的百分数来计算。

It is computed as the percentage change in the quantity demanded divided by the percentage change in income.

计算收入弹性
Computing Income Elasticity

Income Elasticity of Demand $=$ $\dfrac{\textbf{Percentage Change in Quantity Demanded}}{\textbf{Percentage Change in Income}}$

需求的收入弹性 =
需求量变化的百分数 / 收入变化的百分数

收入弹性：物品的类型
Income Elasticity
- Types of Goods -

❧ *正常品* *Normal Goods*

❧ *劣等品* *Inferior Goods*

❧ 对于正常品来说，更高的收入增加了对它的需求量（弹性为正）；对于劣等品来说，更高的收入减少了对它的需求量（弹性为负）。
Higher income *raises* the quantity demanded for normal goods (positive elasticity) but *lowers* the quantity demanded for inferior goods (negative elasticity).

收入弹性的应用

- 随着一国的经济增长和人们收入水平提高，哪种物品的支出额在收入中的比重增加，必需品还是奢侈品？
- 奢侈品！
- 例子：中国，奢侈品成为消费"热点"
  - 80年代："三大件"——电视、冰箱、洗衣机
  - 90年代：空调、汽车、电脑
  - 现在：住房、旅游

中国：居民消费支出构成变化

	农村		城镇	
	1990	2010	1990	2010
食品	58.8	41.09	54.25	35.67
衣着	7.77	6.03	13.36	10.72
居住	17.34	19.06	6.98	9.89
家庭设备	5.29	5.34	10.14	6.74
交通通讯	1.44	10.52	1.2	14.73
文教娱乐	5.37	8.37	11.12	12.08
医疗保健	3.25	7.44	2.01	6.47
其他	0.74	2.15	0.94	3.71
合计	100	100	100	100

资料来源：《中国统计年鉴（2011）》

需求的交叉价格弹性
The Cross-Price Elasticity of Demand

经济学家用需求的交叉价格弹性来衡量一种商品的需求量随另一种商品价格改变的改变。 **Economists use the cross-price elasticity of demand to measure how the quantity demanded of one good changes as the price of *another* good changes.**

$$\text{Cross-price elasticity of demand} = \frac{\text{Percentage change in quantity demanded of good 1}}{\text{Percentage change in the price of good 2}}$$

需求交叉价格弹性
= 商品 **1** 需求量的百分比变化 / 商品 **2** 价格的百分比变化

需求的交叉价格弹性
The Cross-Price Elasticity of Demand

ຈ 交叉价格弹性是正数还是负数取决于这两
种物品是替代品还是互补品。 **Whether the cross-price elasticity is a positive or negative number depends on whether the two goods are substitutes or complements.**

ຈ 对于替代品而言，越是相近的替代品，交
叉价格弹性就越大。 **For substitutes, the closer they are, the higher the cross-price elasticity.**

供给的价格弹性
Price Elasticity of Supply

ଈ**供给的价格弹性**是价格变化百分之一导致的供给量变化的百分数

Price elasticity of supply is the percentage change in quantity supplied resulting from a percent change in price.

ଈ它是对物品的供给量对该物品的价格变化作出反应的程度大小的一种度量方法

It is a measure of how much the quantity supplied of a good responds to a change in the price of that good.

弹性的范围
Ranges of Elasticity

完全弹性　Perfectly Elastic

$$E_s = \infty$$

较富于弹性　Relatively Elastic

$$E_s > 1$$

单位弹性　Unit Elastic

$$E_s = 1$$

弹性的范围
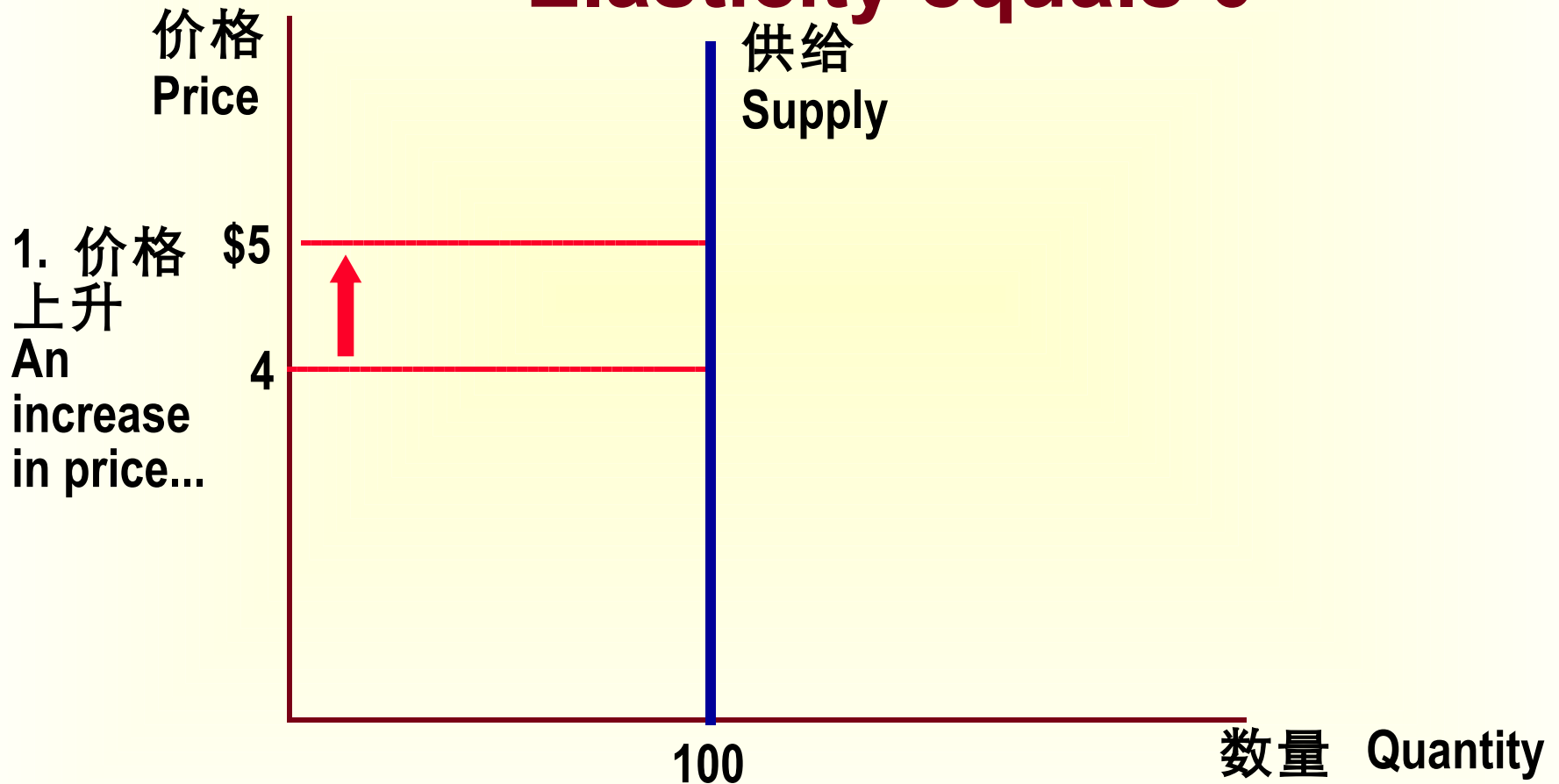## Ranges of Elasticity

- 较缺乏弹性　**Relatively Inelastic**

$$E_s < 1$$

- 完全无弹性　**Perfectly Inelastic**

$$E_s = 0$$

完全无弹性的供给：弹性为零
Perfectly Inelastic Supply
- Elasticity equals 0

价格
Price

供给
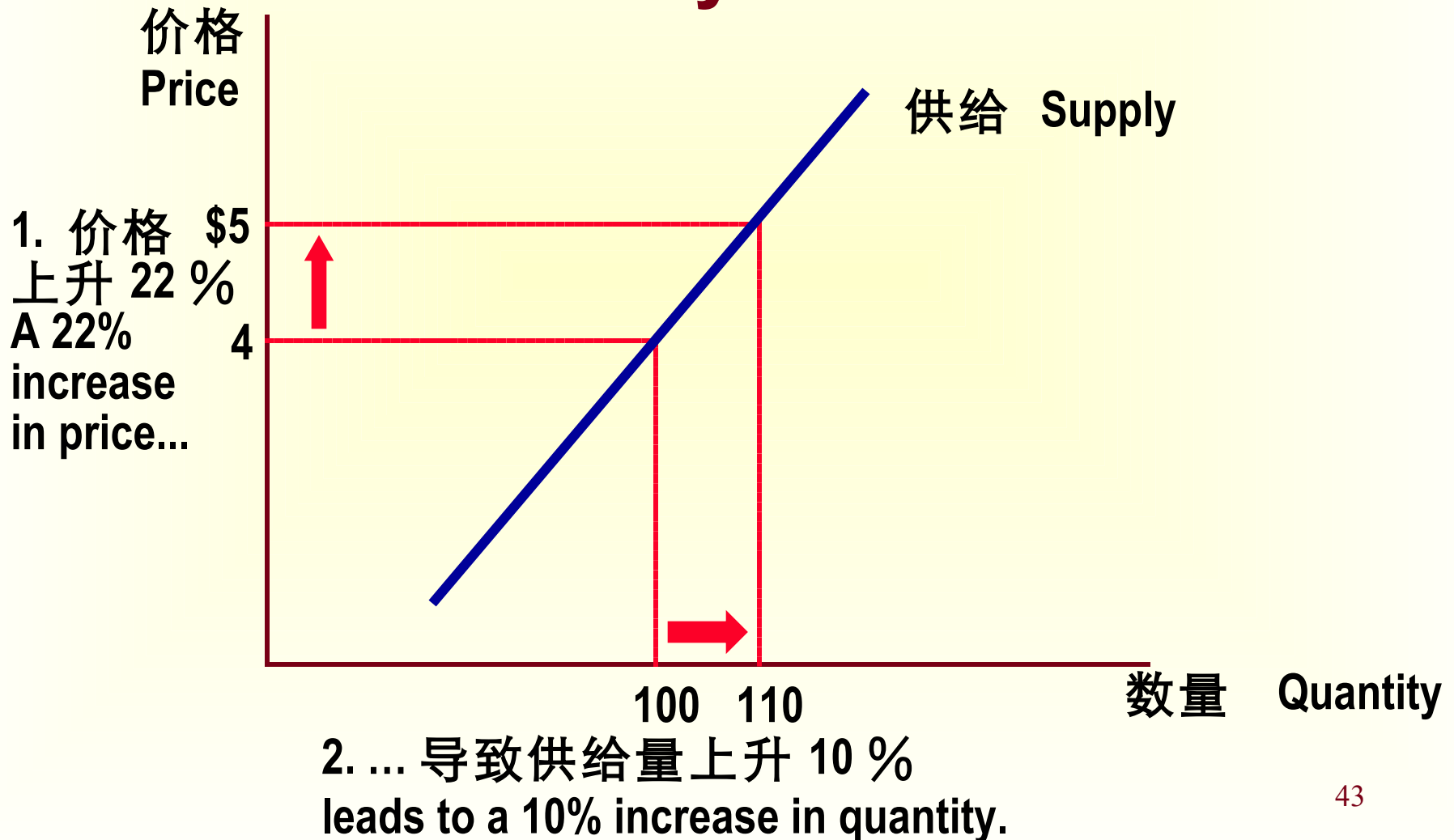Supply

1. 价格上升
An increase in price...

$5

4

100

数量 Quantity

2. ... 没有引起供给量的改变
leaves the quantity supplied unchanged.

缺乏弹性的供给：弹性小于 1
Inelastic Supply
- Elasticity is less than 1

价格
Price

供给 Supply

1. 价格 $5
上升 22 ％
A 22%
increase
in price...

4

100 110

数量 Quantity

2. ... 导致供给量上升 10 ％
leads to a 10% increase in quantity.

单位弹性的供给：弹性等于 1
Unit Elastic Supply
- Elasticity equals 1

价格
Price

供给 Supply

1. 价格 $5
上升 22 ％
A 22%
increase
in price...

4

100   125
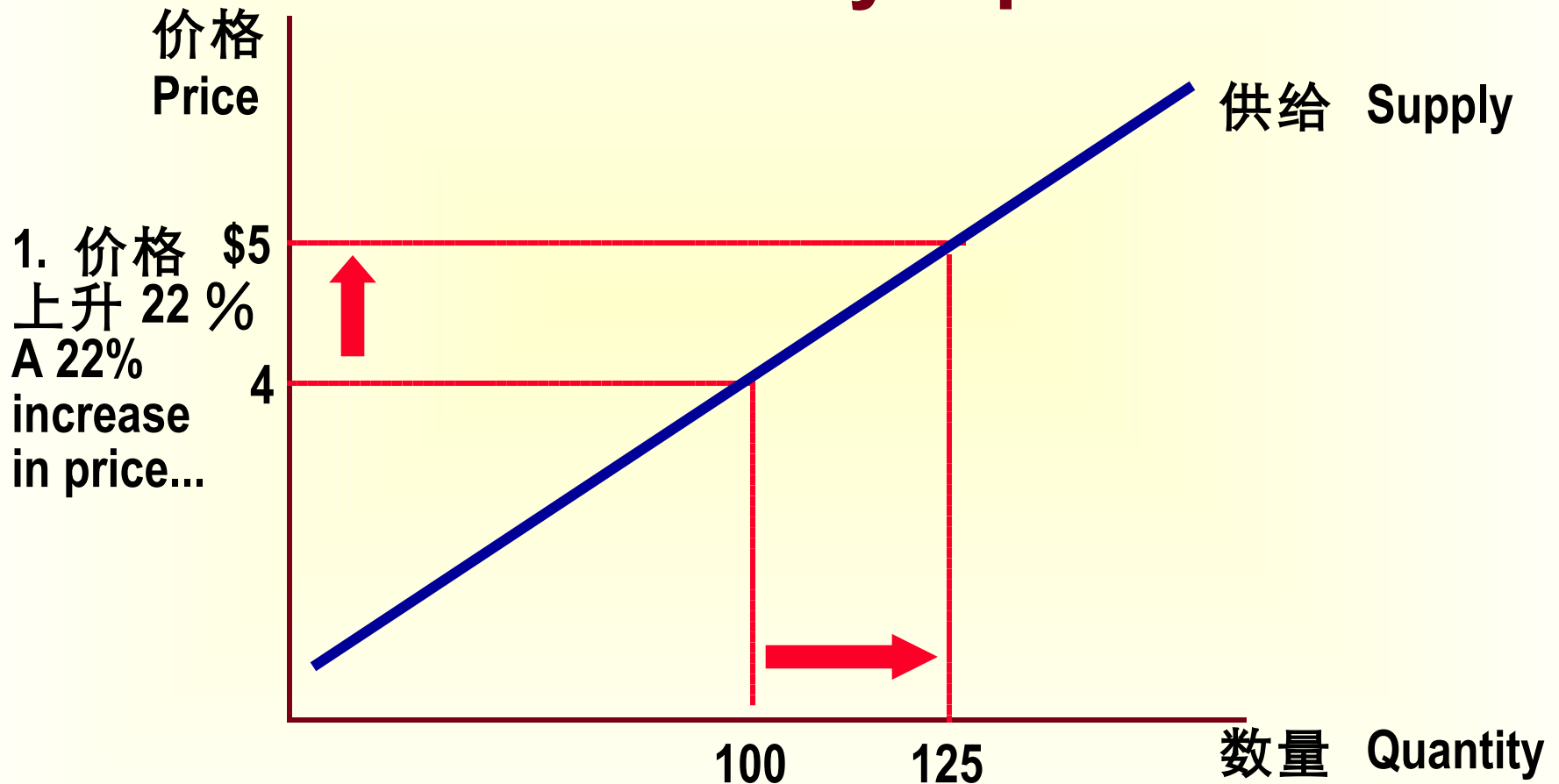
数量 Quantity

2. … 导致供给量上升 22 ％
leads to a 22% increase in quantity.

富于弹性的供给：弹性大于 1
Elastic Supply
- Elasticity is greater than 1

价格
Price

供给 Supply

1. 价格 $5
上升 22 %
A 22%
increase
in price...

4

100

200 数量 Quantity
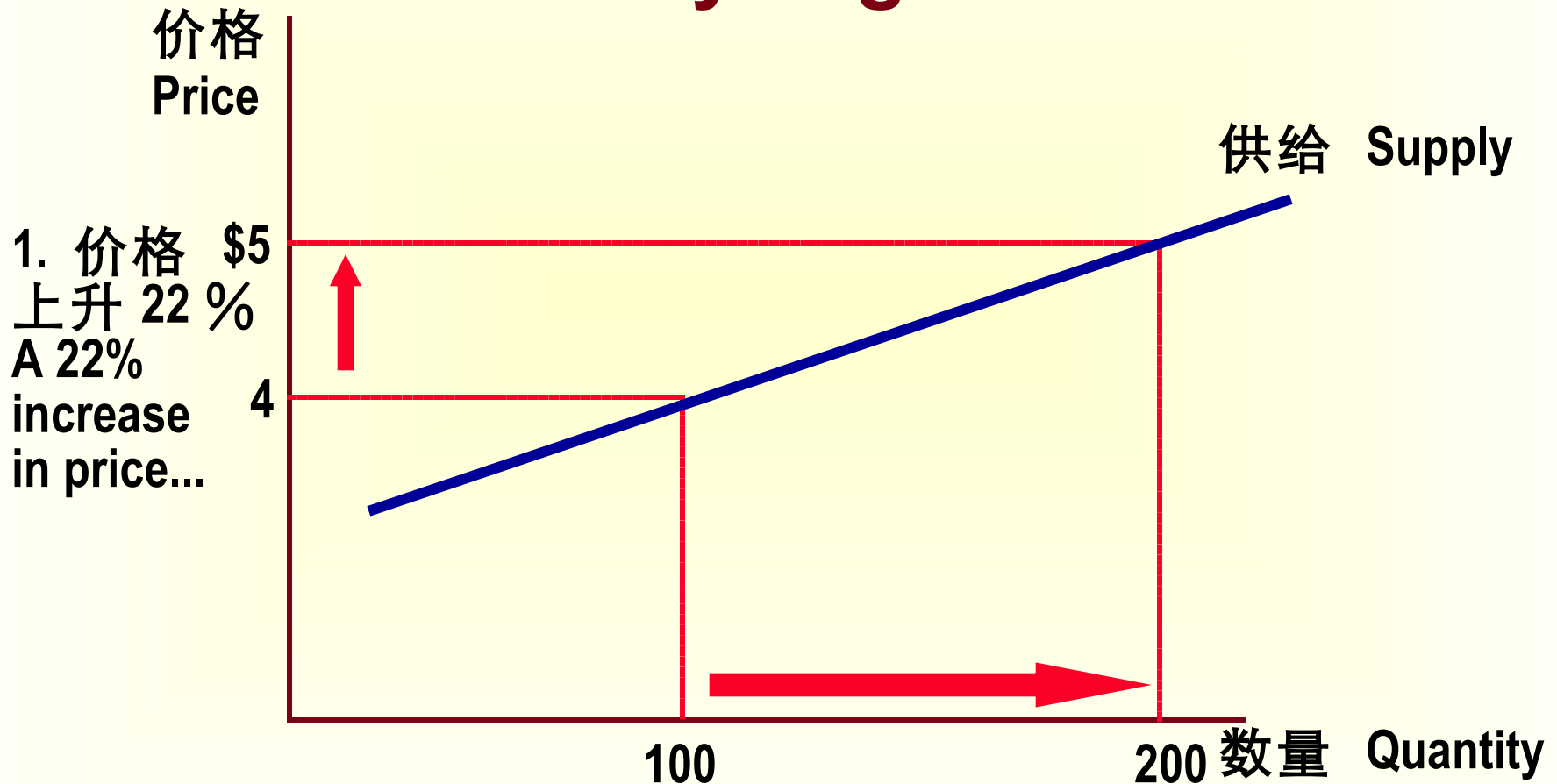
2. ... 导致供给量上升 67 %
leads to a 67% increase in quantity.

完全弹性的供给：弹性无穷大
Perfectly Elastic Supply
- Elasticity equals infinity

价格
Price

1. 只要价格高于 $4 ，供给量无穷大
At any price above $4, quantity supplied is infinite.

$4 ————————————————————— 供给 **Supply**

2. 价格恰好为 $4 ，生产者愿意供给任一数量
At exactly $4, producers will supply any quantity.

数量 **Quantity**

3. 价格低于 $4 ，供给量为零
At a price below $4, quantity supplied is zero.

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供给弹性的决定因素
Determinants of Elasticity of Supply

卖者改变其生产物品的数量的能力

Ability of sellers to change the amount of the good they produce.

海滩边的土地是无弹性的

Beach-front land is inelastic.

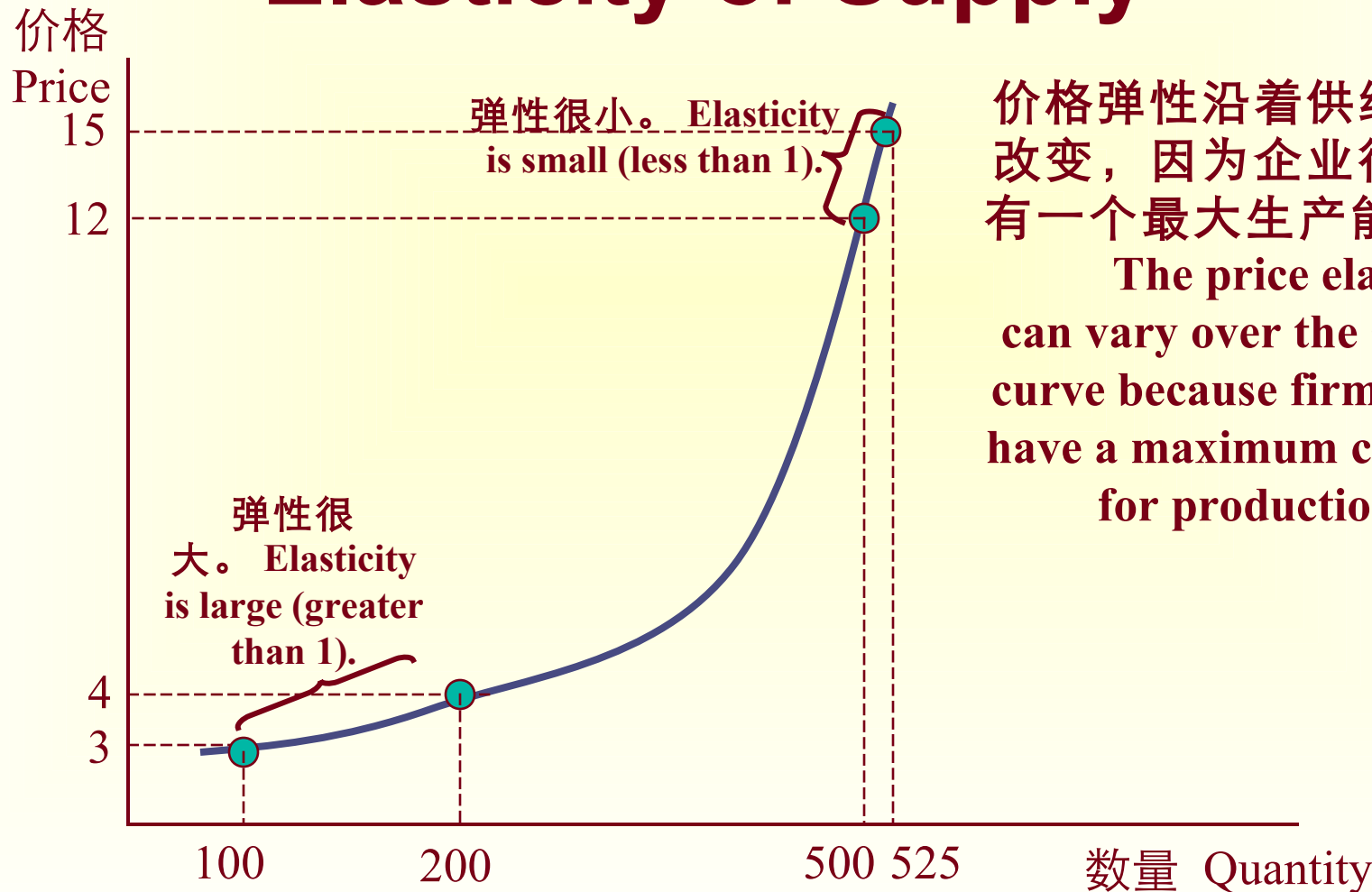书籍、汽车或者制成品是富于弹性的

Books, cars, or manufactured goods are elastic.

时间间隔　Time period.

在长期，供给更有弹性

Supply is more elastic in the long run.

供给弹性的决定因素
Determinants of Elasticity of Supply

价格
Price

弹性很小。 Elasticity is small (less than 1).

弹性很大。 Elasticity is large (greater than 1).

15

12

4

3

100   200   500 525   数量 Quantity

价格弹性沿着供给曲线改变，因为企业往往具有一个最大生产能力。

The price elasticity can vary over the supply curve because firms often have a maximum capacity for production.

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计算供给价格弹性
Computing the Price Elasticity of Supply

用供给量变化的百分数除以价格变化的百分数，就算出来了供给的价格弹性。

The price elasticity of supply is computed as the percentage change in the quantity supplied divided by the percentage change in price.

Elasticity of Supply =
供给价格弹性

$$= \frac{\text{供给量变化的百分数}}{\text{价格变化的百分数}}$$

Percentage Change in Quantity Supplied
供给量变化的百分数

Percentage Change in Price
价格变化的百分数

弹性的应用
Application of Elasticity

🎵农业的好消息能是农民的坏消息吗？
Can Good News for Farming Be Bad News for Farmers?

🎵为什么欧佩克不能保持高油价？
Why Did OPEC Fail to Keep the Price of Oil High?

🎵禁毒增加还是减少了与毒品相关的犯罪？
Does Drug Interdiction Increase or Decrease Drug-related Crime?

Supply, Demand and …… Elasticity

供给，需求与弹
性

50

弹性的应用
Application of Elasticity

考察是供给还是需求曲线移动。
Examine whether the supply or demand curve shifts.

确定曲线移动的方向。
Determine the direction of the shift of the curve.

用供求图说明市场均衡如何变化。
Use the supply-and-demand diagram to see how the market equilibrium changes.

农业的好消息能是农民的坏消息吗？ Can Good News for Farming Be Bad News for Farmers?

当大学里的农学家们发现了一个比现有品种更高产的新小麦杂交品种时，小麦种植者和小麦市场上会发生什么？

What happens to wheat farmers and the market for wheat when university agronomists discover a new wheat hybrid that is more productive than existing varieties?

农业的好消息能是农民的坏消息吗? Can Good News for Farming Be Bad News for Farmers?

Price of Wheat

1. 当需求缺乏弹性时，供给增加
When demand is inelastic,
an increase in supply...

S_1 S_2

$3

2. ... 引起价格的大幅度下降
Leads to a large fall in price...

2

需求 Demand

小麦的数量
Quantity of Wheat

0
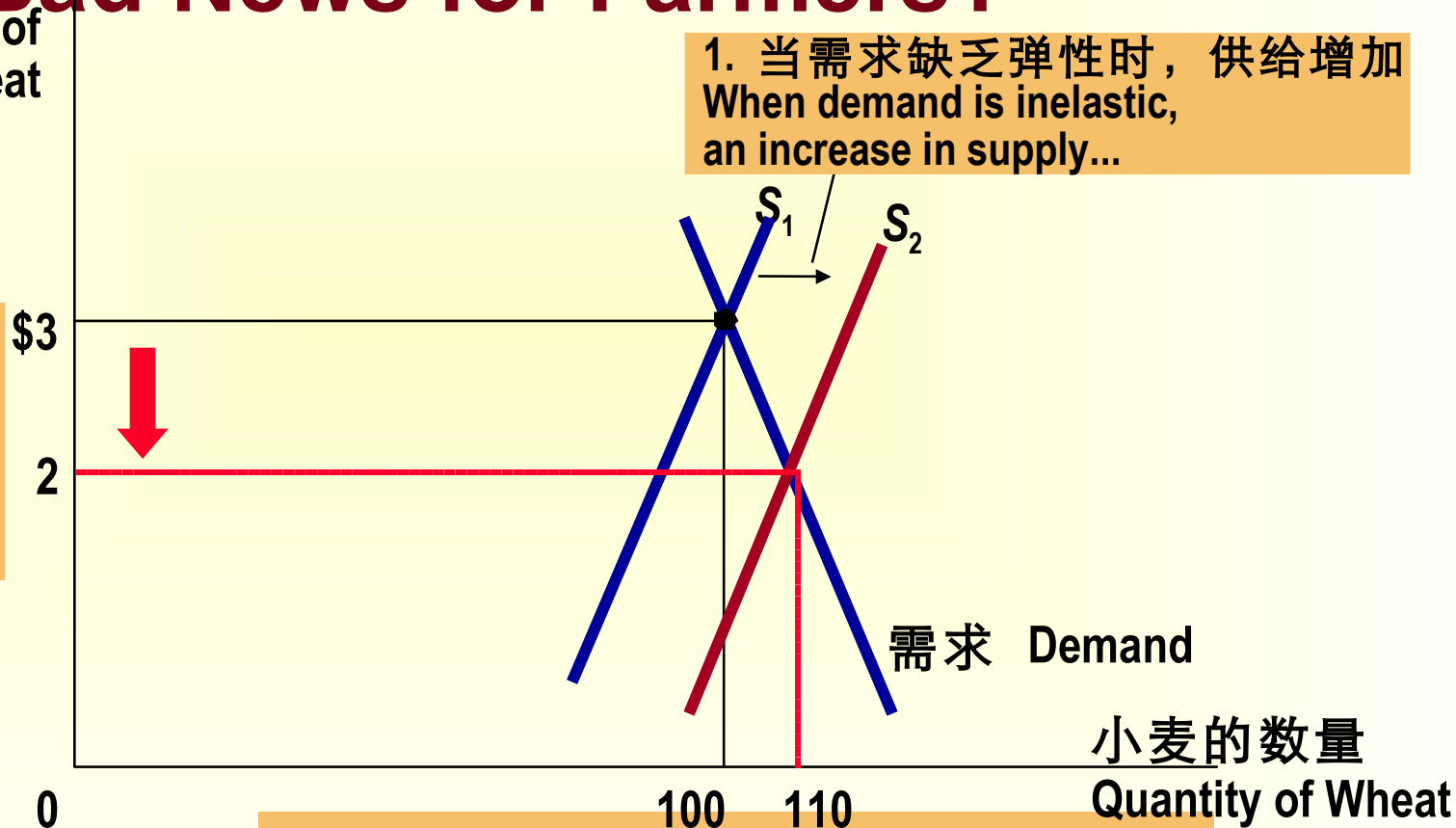
100 110

3. ... 而销售量却只能以更小的比例增加。结果，收益从 $300 下降到 $220 。
and a proportionately smaller increase in quantity sold. As a result, revenue falls from $300 to $220.

农业的好消息能是农民的坏消息吗？ Can Good News for Farming Be Bad News for Farmers?

计算弹性 Compute Elasticity

$$E_D = \frac{100 - 110 \big/ (100 + 110)/2}{3.00 - 2.00 \big/ (3.00 + 2.00)/2}$$

$$= \frac{-0.095}{0.4} \approx -0.24$$

需求是缺乏弹性的 Demand is inelastic

农业的好消息能是农民的坏消息吗？
Can Good News for Farming Be Bad News for Farmers?

- 在人类史上，农业技术进步提高了单个农民生产的粮食数量。 **Over the human history, advances in farm technology increased the amount of food that each farmer produce.**
- 由于粮食需求缺乏弹性，粮食供给的增加导致了农业收益下降，这又鼓励了人们离开农业。 **This increase in food supply, together with inelastic food demand, caused farm revenues to fall, which in turn encouraged people to leave farming.**

- 证据 **Evidences：**
  - 美国的农民数量从 1950 年到 2004 年下降了 70％，但农业产量为原来的 2 倍多。 **Despite the 70 percent drop in the number of farmers, U.S. farms produced more than twice the output of crops and livestock in 2004 as they did in 1950.**
  - 中国的农业（第一产业）劳动力数量从 1991 年（开始下降）到 2008 年下降了 22％，农业增加值增加了 1 倍。

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为什么欧佩克不能保持高油价？
Why Did OPEC Fail to Keep the Price of Oil High?

☽ 在上世纪 70 年代，石油输出国组织（OPEC）决定提高世界石油价格以提高其收入。
In the 1970s members of the Organization of Petroleum Exporting Countries (OPEC) decided to raise the world price of oil in order to increase their incomes.

☽ 这些国家通过共同减少他们供给的石油来实现这一目标。
These countries accomplished this goal by jointly reducing the amount of oil they supplied.
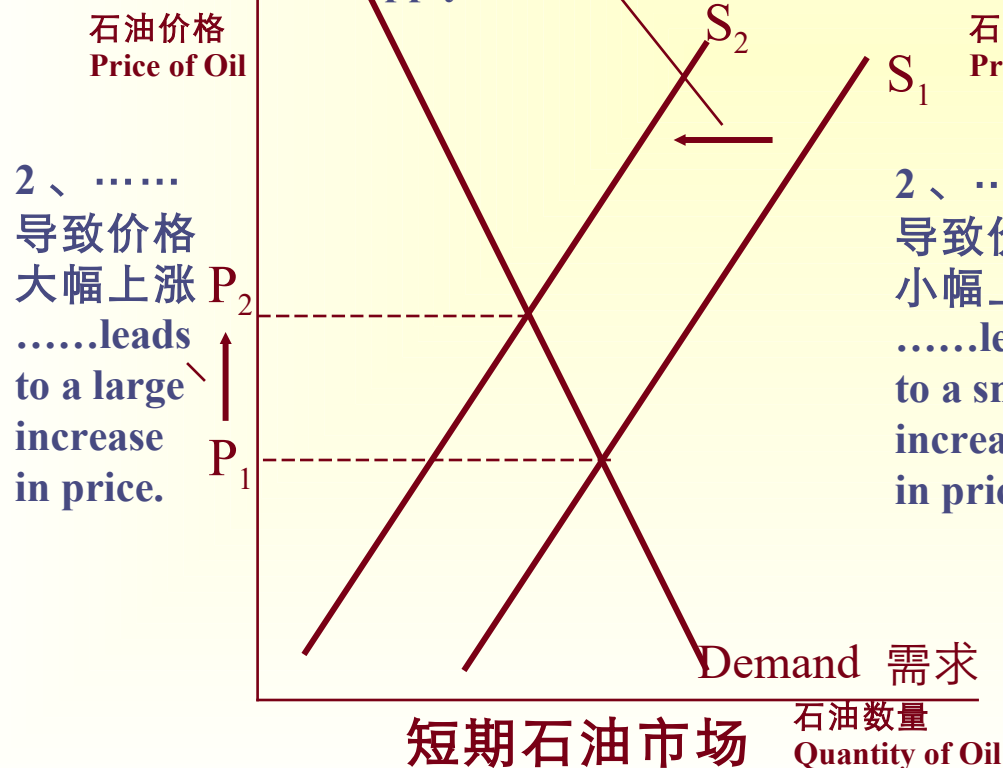
☽ 但是，欧佩克发现维持高油价是困难的。
Yet OPEC found it difficult to *maintain* a high price.

56

为什么欧佩克不能保持高油价?
Why Did OPEC Fail to Keep the Price of Oil High?
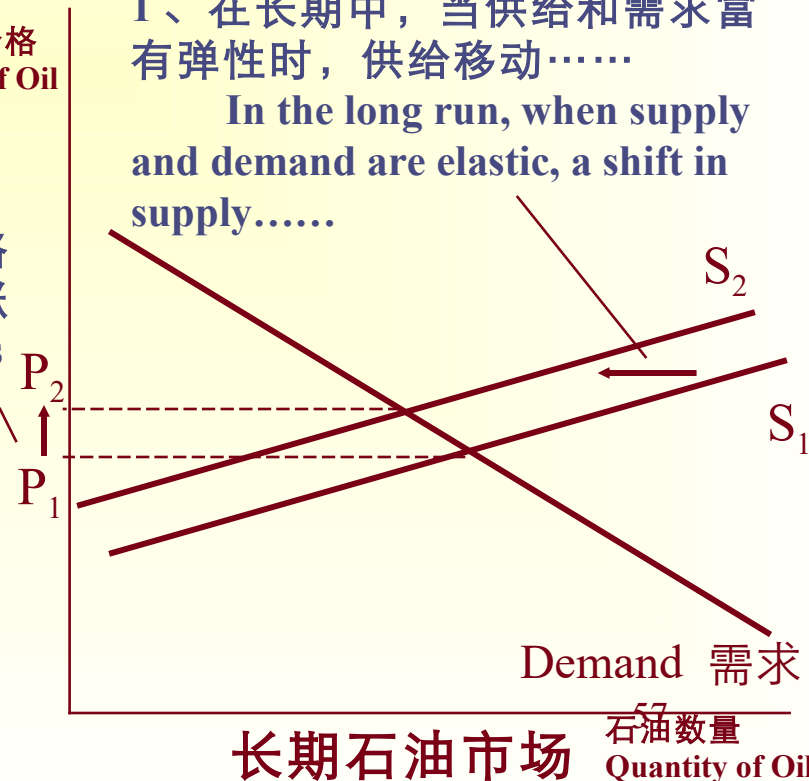
1、在短期中，当供给和需求缺乏弹性时，供给移动……

In the short run, when supply and demand are inelastic, a shift in supply……

石油价格
Price of Oil

S_2

S_1

1、在长期中，当供给和需求富有弹性时，供给移动……

石油价格
Price of Oil

In the long run, when supply and demand are elastic, a shift in supply……

2、……导致价格大幅上涨……leads to a large increase in price.

P_2

P_1

2、……导致价格小幅上涨……leads to a small increase in price.

P_2

P_1

S_2

S_1

Demand 需求

Demand 需求

短期石油市场

石油数量
Quantity of Oil

长期石油市场

石油数量
Quantity of Oil

禁毒增加还是减少了与毒品相关的犯罪？ Does Drug Interdiction Increase or Decrease Drug-related Crime?

- 由于毒品的需求缺乏弹性，禁毒带来的价格提高的比例大于毒品使用减少的比例，因而增加了吸毒者为毒品支出的总货币量。

  Since the demand for drugs is inelastic, drug interdiction raises the price of drugs proportionately more than it reduces drug use, thus raises the total amount of money that drug users pay for drugs.
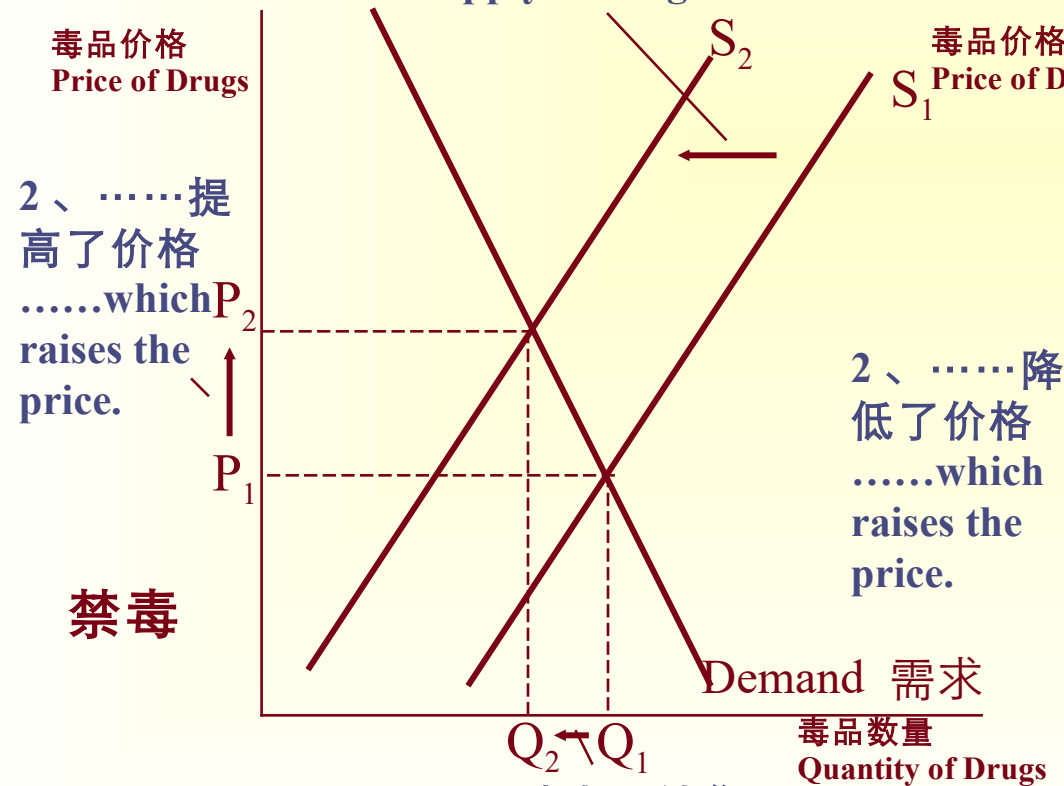
- 这样禁毒可能增加了与毒品相关的犯罪。

  Thus, drug interdiction could increase drug-related crime.

- 相反的，禁毒教育既减少了毒品使用，又减少了与毒品相关的犯罪。

  In contrast, drug education can

禁毒增加还是减少了与毒品相关的犯罪？ Does Drug Interdiction Increase or Decrease Drug-related Crime?

1、禁毒减少了毒品供给……
Drug interdiction reduces the supply of drugs……

毒品价格
Price of Drugs

S$_2$

毒品价格 Price of Drugs

S$_1$

2、……提高了价格……which raises the price.

P$_2$

P$_1$

禁毒

Demand 需求

Q$_2$ Q$_1$
毒品数量
Quantity of Drugs

3、……减少了销售量
and reduces the quantity sold.

1、禁毒教育减少了毒品需求……
Drug education reduces the demand of drugs……

Supply
供给

2、……降低了价格……which raises the price.

P$_1$

P$_2$

禁毒教育

D$_2$ D$_1$

Q$_2$ Q$_1$
毒品数量
Quantity of Drugs

59
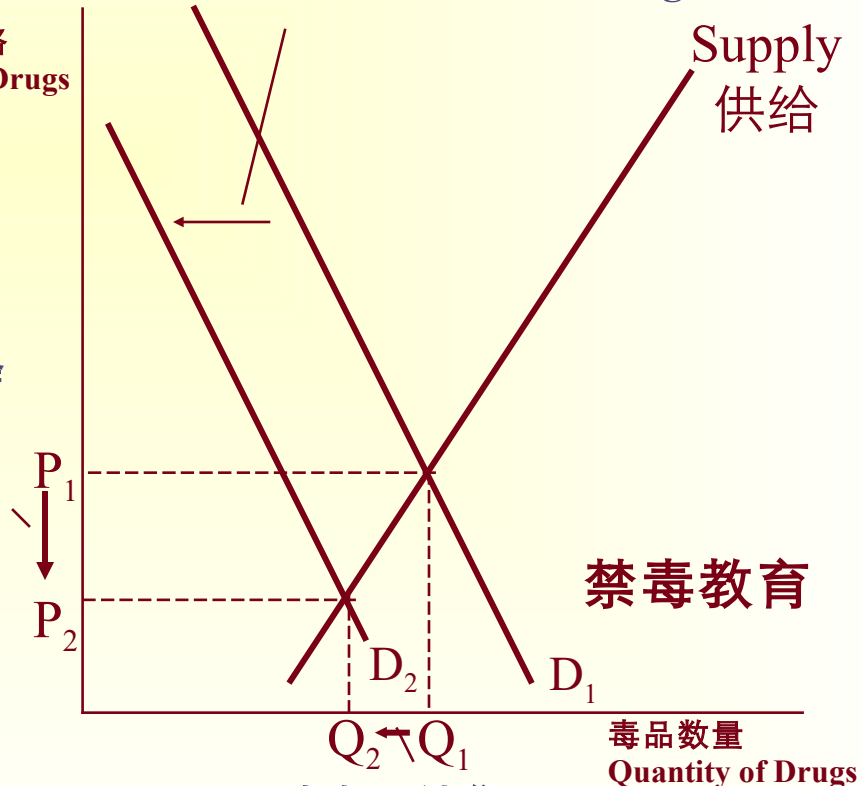
3、……减少了销售量
and reduces the quantity sold.

总结
Summary

๑ 需求价格弹性衡量了需求量对价格变化作出反应的程度。
Price elasticity of demand measures how much the quantity demanded responds to changes in the price.

๑ 如果需求曲线富于弹性，价格上升会导致总收益下降
If a demand curve is elastic, total revenue falls when the price rises.

๑ 如果需求曲线缺乏弹性，价格上升会导致总收益上升
If it is inelastic, total revenue rises as the price rises.

总结
Summary

୬供给价格弹性衡量了供给量对价格变化作出反应的程度。

The price elasticity of supply measures how much the quantity supplied responds to changes in the price.

୬在大多数市场上，供给在长期比在短期更富于弹性 。

In most markets, supply is more elastic in the long run than in the short run.