第七章　完全竞争市场
（Perfect Competition）

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二〇一二年

§1 完全竞争市场的特征

1. 市场中买卖双方人数众多
2. 单个买（卖）者市场供给或需求的份额极小，单个厂商变动产量，无法影响市场价格，单个厂商是price taker(对应是 price setter)
3. 厂商能够自由进入和退出产业，即资源可以自由流入或流出产业部门
4. 市场中产品无差异
5. 买卖双方具有完备的市场信息

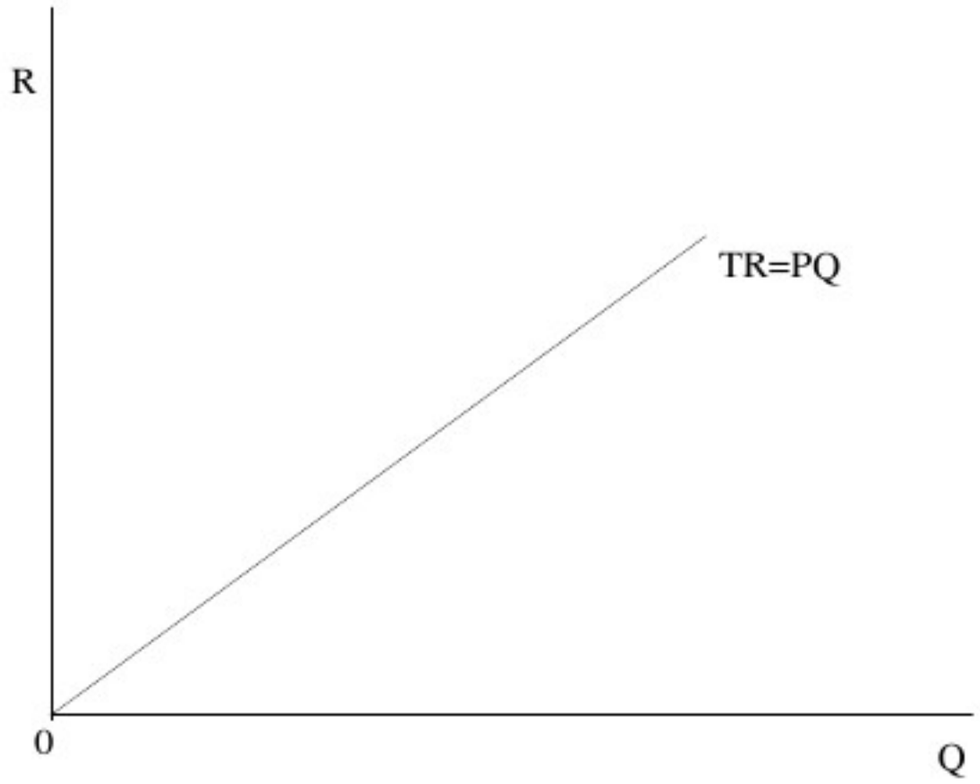
§2 厂商的收益（Revenue curves）

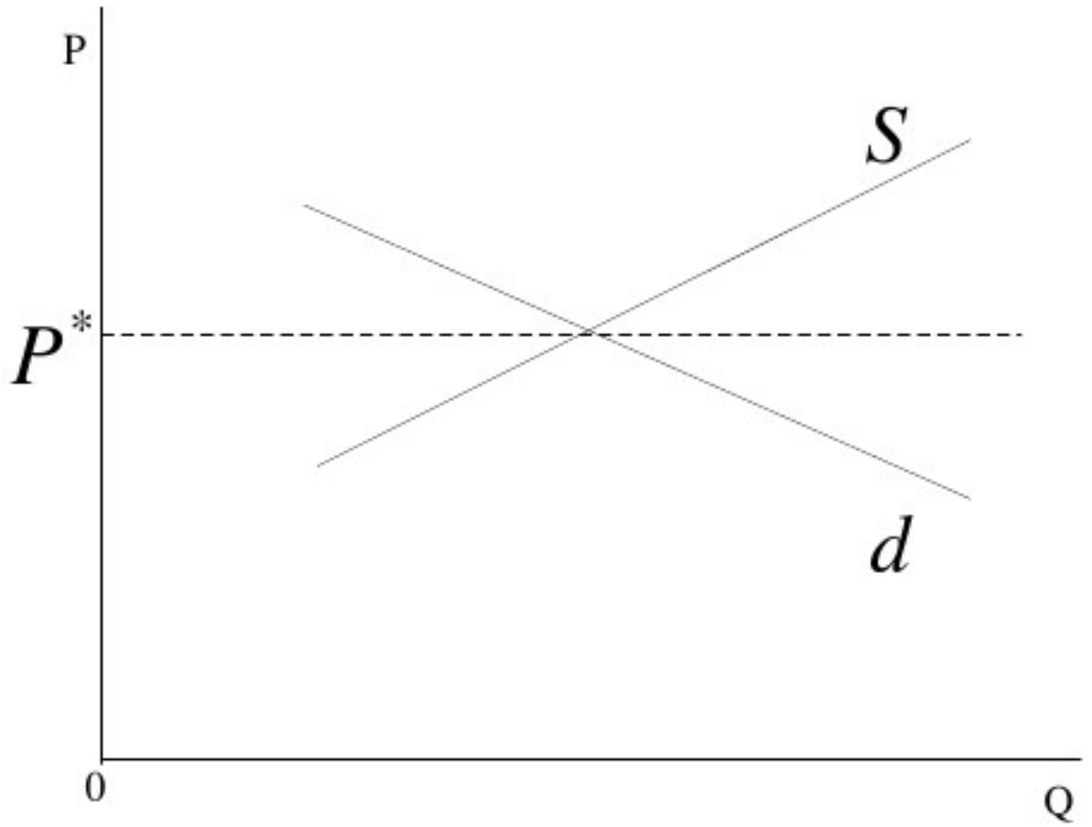
1. 总收益（TR）、平均收益（AR）和边际收益（MR）曲线

① $TR = PQ$

② $AR = \dfrac{TR}{Q} = \dfrac{PQ}{Q} = P$

③ $MR = \dfrac{d(TR)}{dQ} \quad or \quad MR = \Delta TR = TR_n - TR_{n-1}$


R
TR=PQ
0
Q


P
S
P*
d
0
Q

2. Perfect competition条件下AR、MR与dd'的关系

① AR **and** P

$AR = P; AR = dd'(Demand\ Function)$

② $AR\ and\ MR$

$$MR = \frac{d(TR)}{dQ} = \frac{d(PQ)}{dQ} = P\frac{dQ}{dQ} + \frac{dP}{dQ}Q$$

$$MR = P(1 + \frac{dP}{dQ}\frac{Q}{P}) = P(1 - \frac{1}{|E_d|}) \ ; \qquad |E_d| = \infty$$

$$\Rightarrow \frac{1}{|E_d|} = 0 \quad MR = P$$

Example $P = 2 \quad TR = PQ = 2Q$

$$AR = \frac{TR}{Q} = \frac{PQ}{Q} = P = 2$$

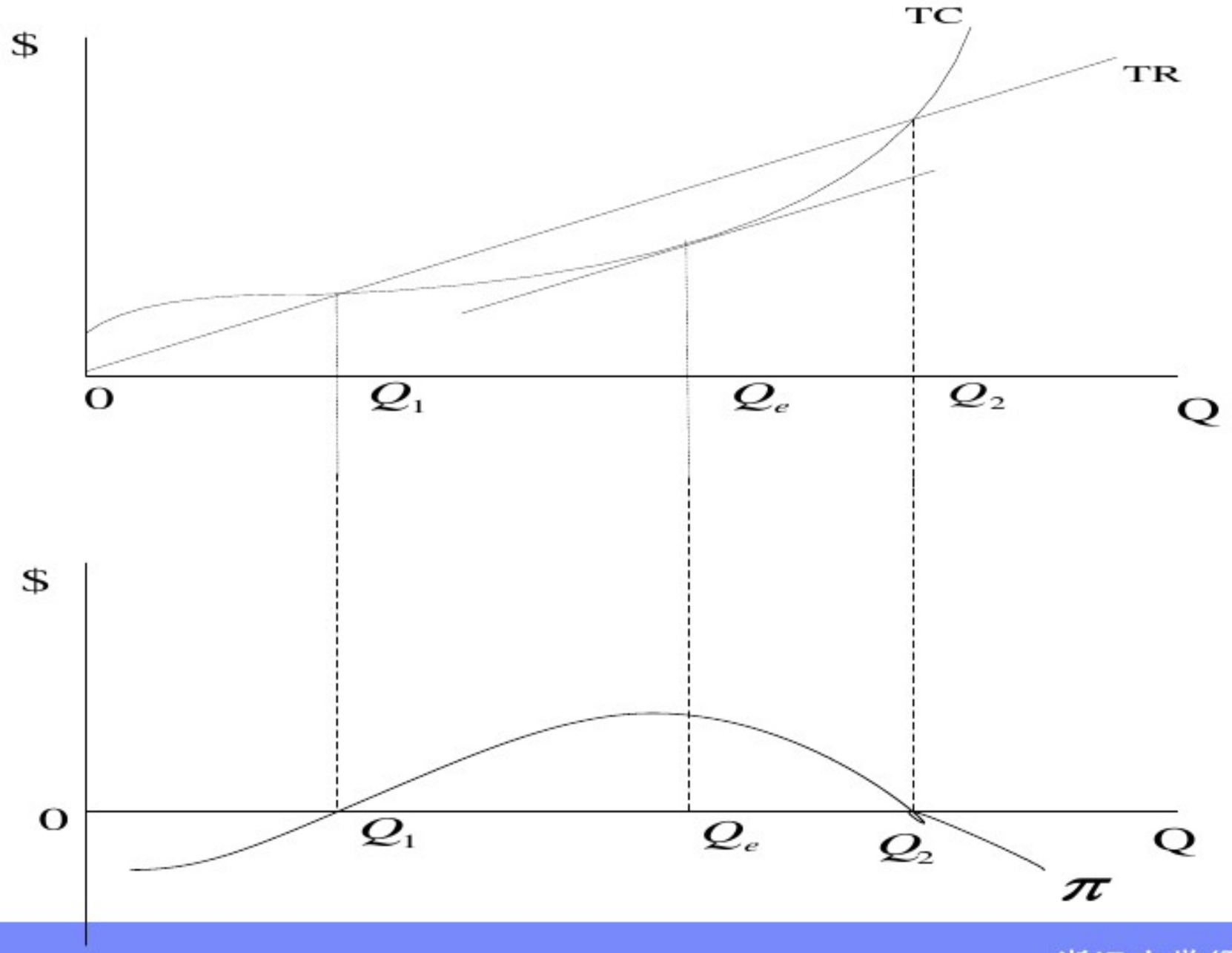
$$MR = \frac{d(TR)}{dQ} = 2$$

$$MR = \Delta TC = TC_5 - TC_4 = 10 - 8 = 2$$

R、P
P
AR=dd’ =MR
O
Q

§3 厂商的短期均衡—利润（π）最大化

1. TC，TR，π分析



$(i)\ \ 0<Q<Q_1\ ,\ \ Q>Q_2\ \ TR<TC\ \ \pi=(TR-TC)<0$

$(ii)\ Q_1<Q<Q_2,\ TR>TC\ \ \pi=(TR-TC)>0$

$(iii)\ Q=Q_1\ \ ,\ \ Q=Q_2\ \ TR=TC\ \ \pi=(TR-TC)=0$

$(iv)\ Q=Q_e\ \ ,\ (TR-TC)=\pi\ (\text{最大化})$

Math证明

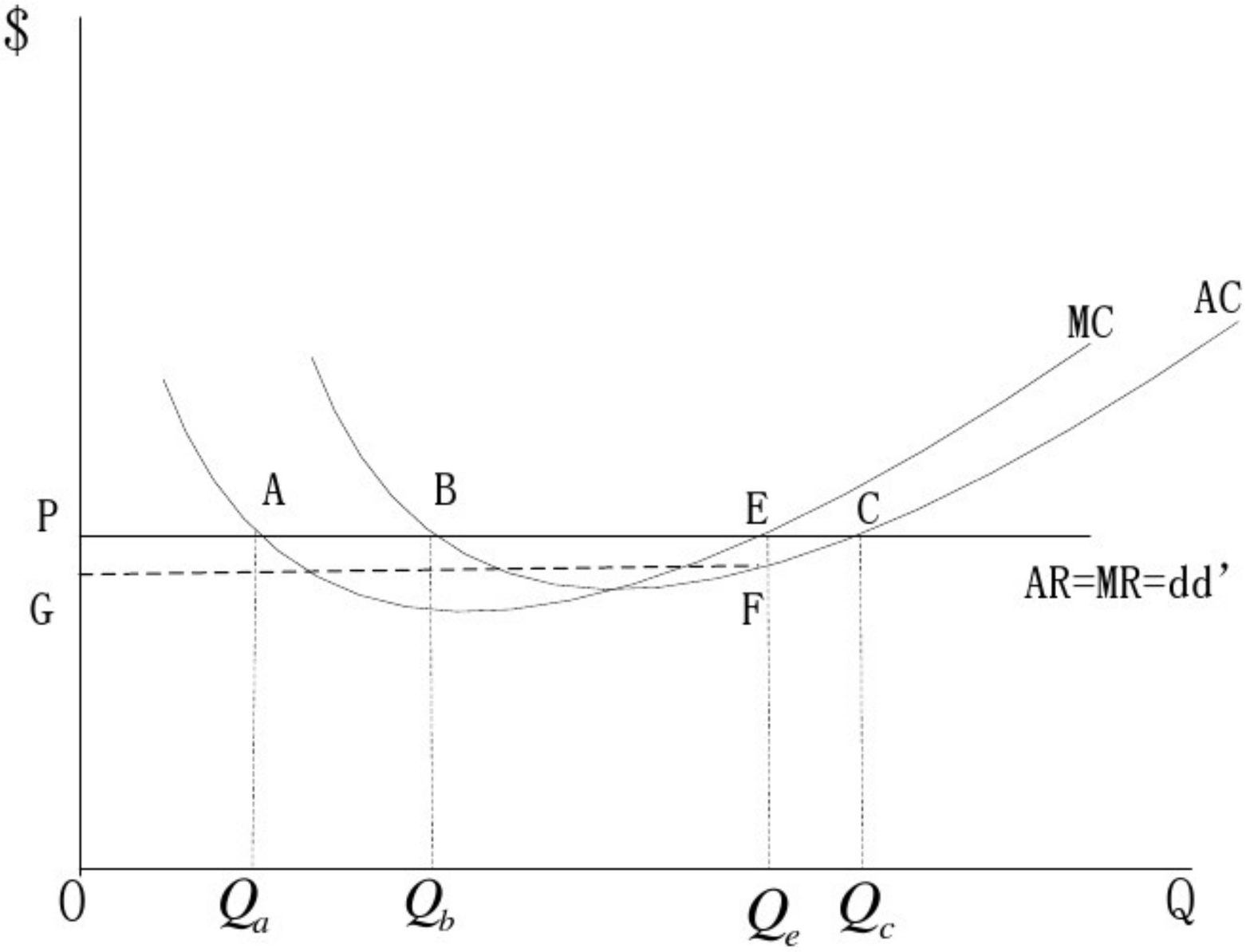
$$\pi = TR - TC \Rightarrow \pi(Q) = TR(Q) - TC(Q)$$

$$M\pi = \frac{d\pi}{dQ} = \frac{d(TR)}{dQ} - \frac{d(TC)}{dQ} = 0$$

$$M\pi = MR - MC = 0$$

$$MR = MC$$

2. MR，MC，AR，AC分析



$(i) 0 < Q < Q_b \ , \ Q > Q_c \qquad AR < AC \quad \pi < 0$

$(ii) Q = Q_b \ , Q = Q_c \qquad AR = AC \quad \pi = 0$

$(iii) Q_b < Q < Q_c \qquad AR > AC \quad \pi > 0$

$(iv) Q = Q_e \quad AR > AC$ 且 $AR = MR = AC = P$

$$\pi_{\max}(M\pi = MR - MC = 0, \text{且}\ (M\pi)' < 0)$$

① $Q_b < Q < Q_e \quad AR > AC \ \ but MR > MC$

$$Q\uparrow \ \ M\pi = (MR - MC) \ \ M\pi > 0 \ \ \pi\uparrow ing$$

② $Q_e < Q < Q_c \quad AR > AC \ \ but MR < MC$

$$Q\uparrow \ \ M\pi = (MR - MC) \ \ M\pi < 0 \ \ \ \pi\downarrow ing$$

$$\pi_{\max} = PEFG = PEQ_eO - GFQ_eO$$

$$(TR) \qquad (TC)$$

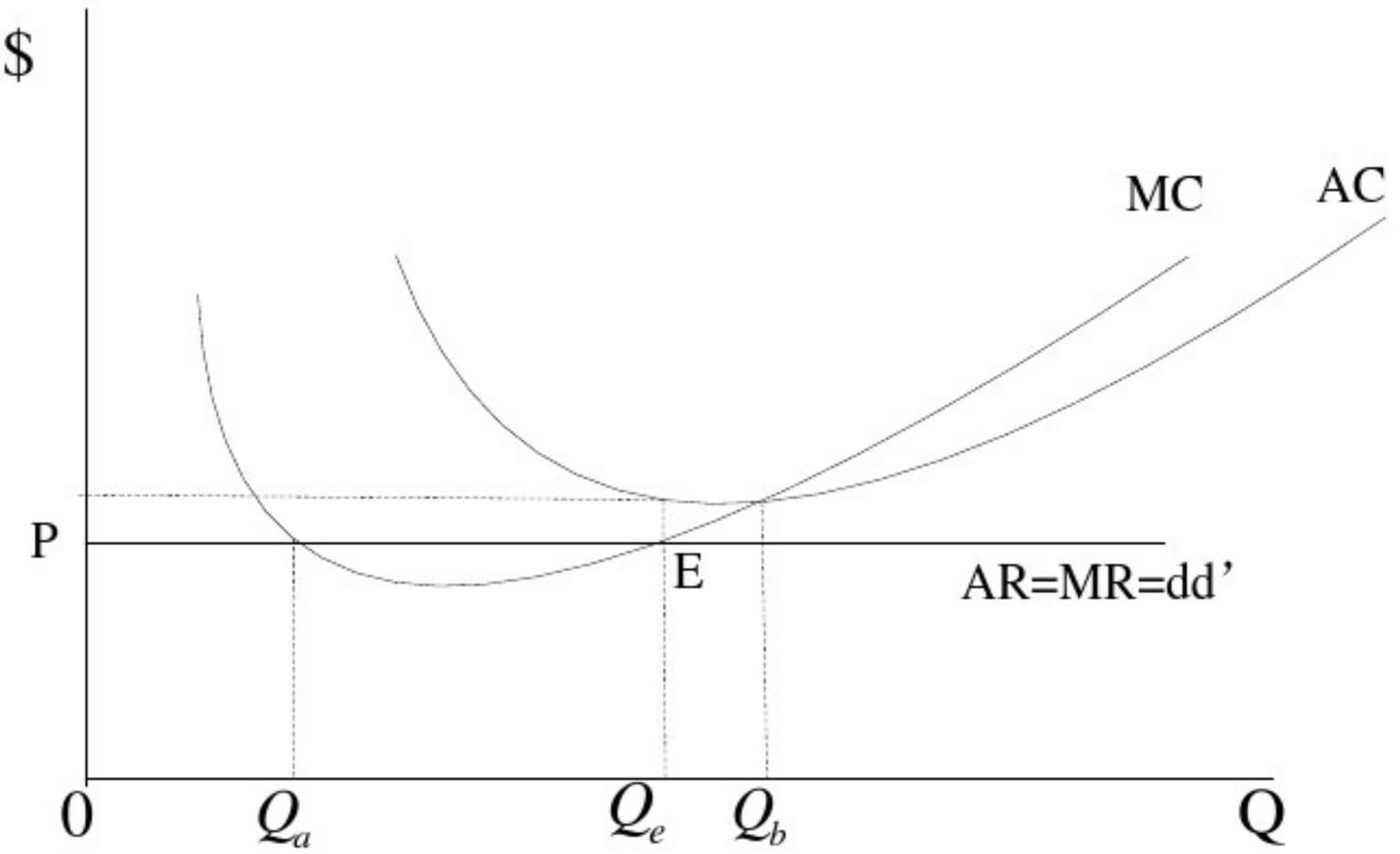
$$(V)\ Q = Q_a \quad MR - MC = 0 \quad MR = MC$$

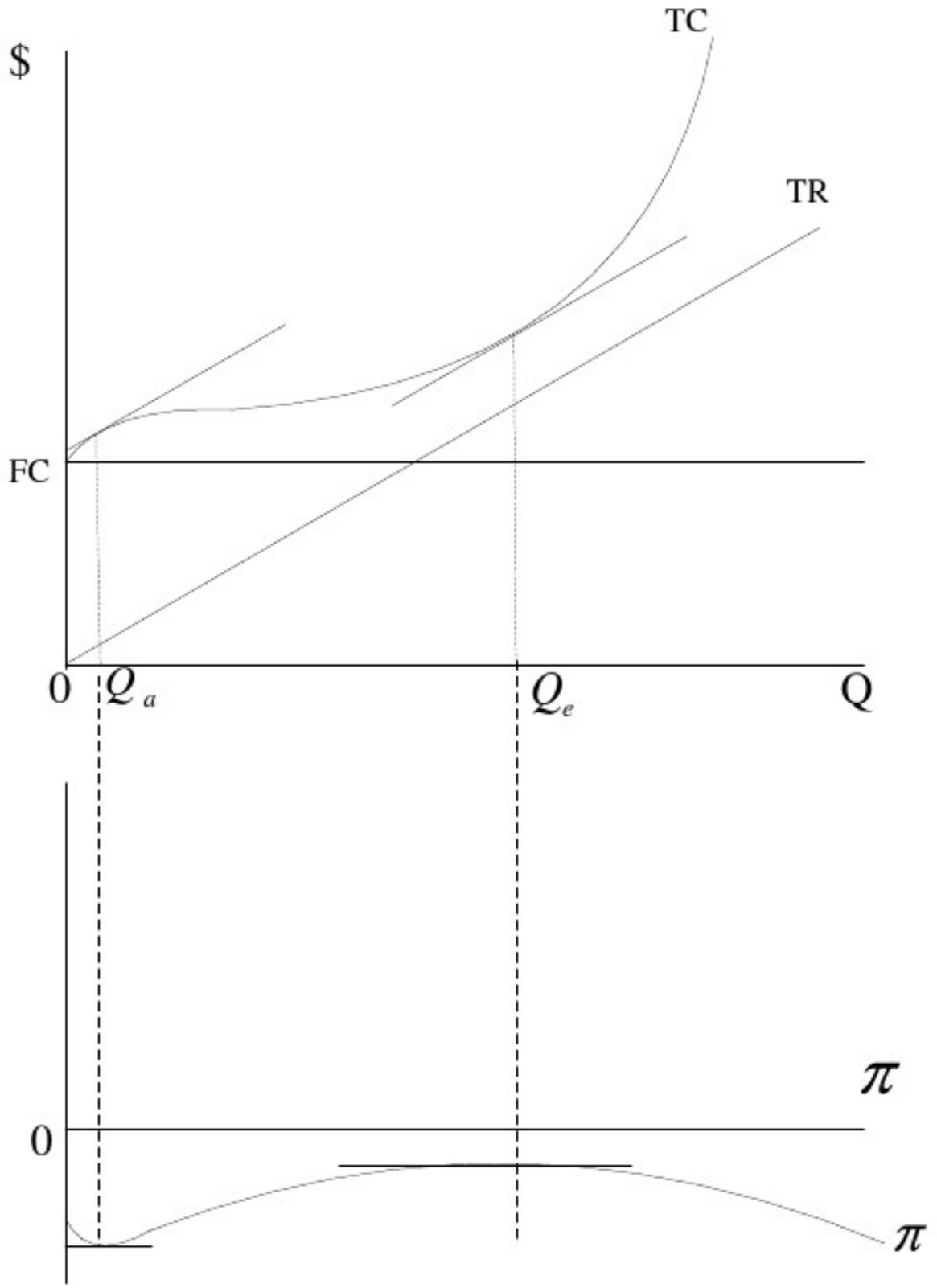
$$AC > AR$$

$$\pi < 0$$

§4 厂商的短期均衡——亏损最小化

1. 亏损情形中的厂商均衡




TC
$
TR
FC
0
Q_a
Q_e
Q
π
0
π

$$(i)\quad Q=Q_e\quad MR=MC\quad M\pi=0\quad (M\pi)'<0\qquad -\pi_{\min}$$

$$-\pi=PEQ_eO-GFQ_eO=PEFG_{\min}$$

$$(ii)\quad Q=Q_a\quad MR=MC\quad (M\pi)'>0\Rightarrow\quad Q\uparrow$$

$$MR>MC\quad M\pi>0\qquad -\pi\downarrow ing$$

$$(iii)\ Q > Q_e\ \ (\ if\ Q = Q_b\ ),\ MR < MC\ \ M\pi < 0 \Rightarrow\ Q\uparrow,\ \ -\pi\uparrow ing$$

$$(iv)\ Q = Q_a\ \ MR = MC\ \ M\pi = 0\ \ but\ (M\pi)' > 0 \Rightarrow\ Q\uparrow \rightarrow\ MR > MC\ \ \ M\pi > 0$$

$$-\pi\downarrow ing\quad Q = Q_a\quad\quad -\pi_{\max}$$

2. 厂商短期的供给曲线

π=－π Firm为何在short-run不退出生产或停产（Shut down）？

AC>AR(=p=MR)>AVC

AC=AFC+AVC; AC>AR>AVC

停产 $\Rightarrow \pi <$ **AFC**

生产 $\Rightarrow \pi <$ **AFC （可弥补部分FC）**

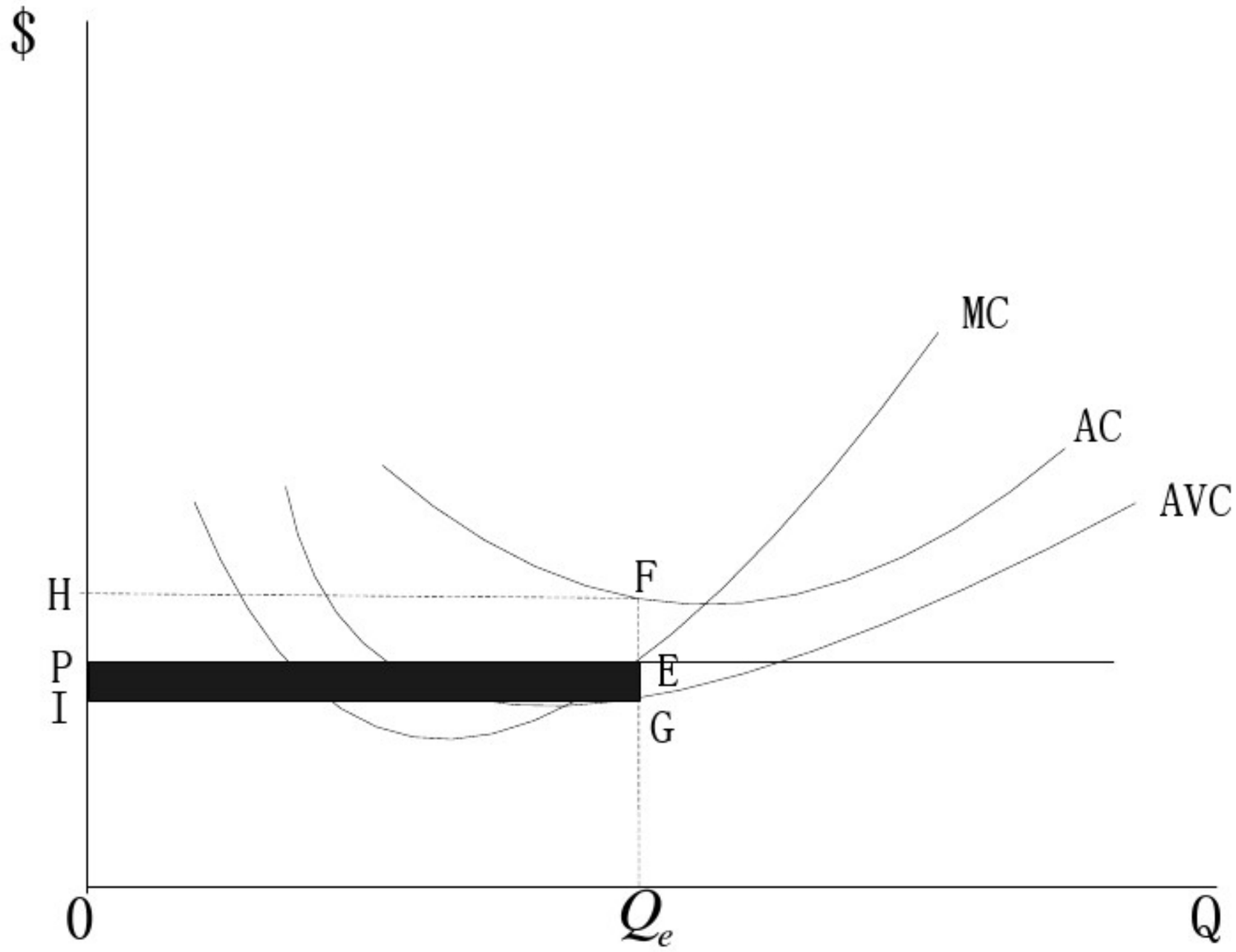
$$Q = Q_e \quad AC = FQ_e \quad AVC = GQ_e$$

$$AFC = FG \quad FC = HFGI$$

$$if \quad shut\,down: \quad -\pi = TR - TC = PEQ_eO - HFGI = HFEP$$

$$HFEP < HFGI$$

$$\text{被弥补的亏损} = HFGI - HFEP = PEGI$$


$
MC
AC
AVC
H
F
P
I
E
G
0
Q_e
Q

§5 厂商的长期均衡

1. 收益曲线的变动

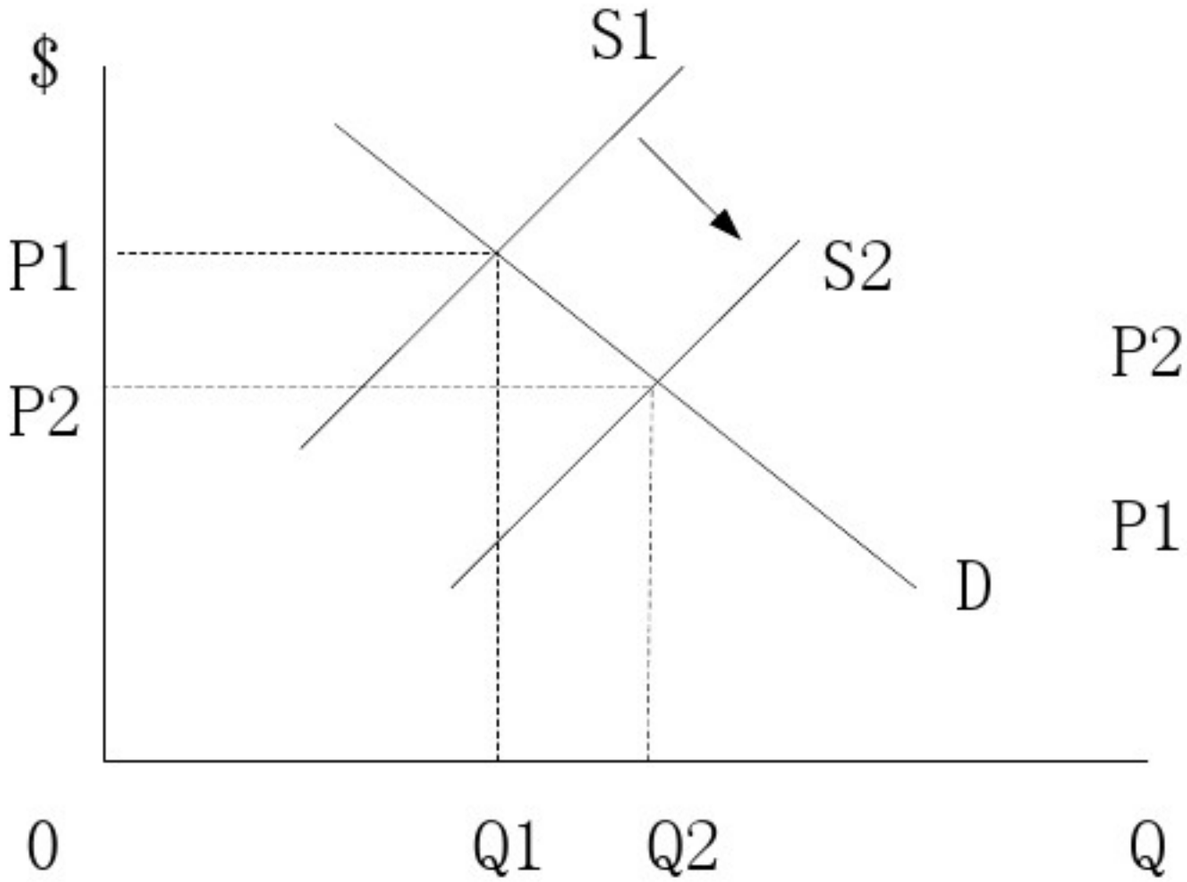
Revenue curve changes from short run to long run

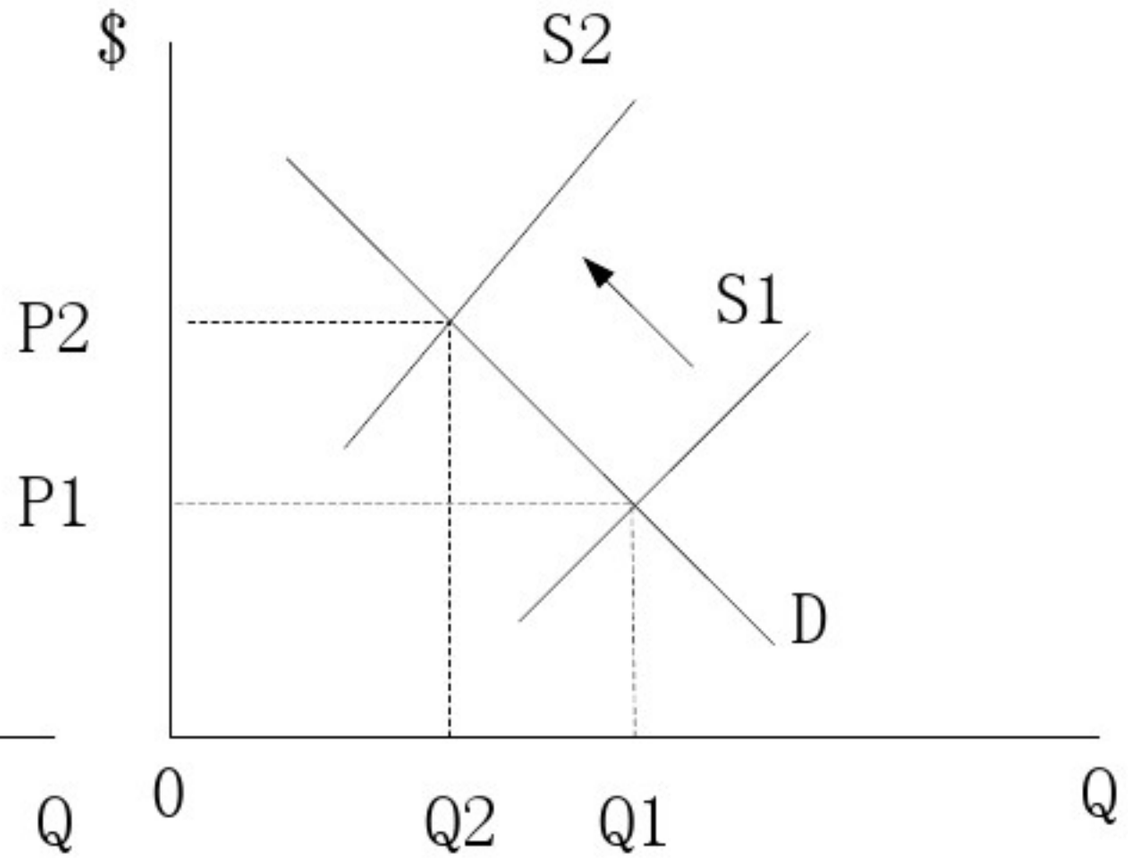
① π>0 in Long run

π>0→新firms进入→行业生产能力扩大→行业产量和市场供应量增加→产品的市场价格下降 ($Q_1<Q_2, P_1>P_2$)→厂商所面临的AR(=MR=dd')下降

②π<0 in Long run

π<0→原有Firms退出→行业生产能力缩减→行业产量和市场供应量下降→产品市场价格上升（$Q_1>Q_2$, $P_1<P_2$）→厂商所面临的AR(=MR=dd')上升

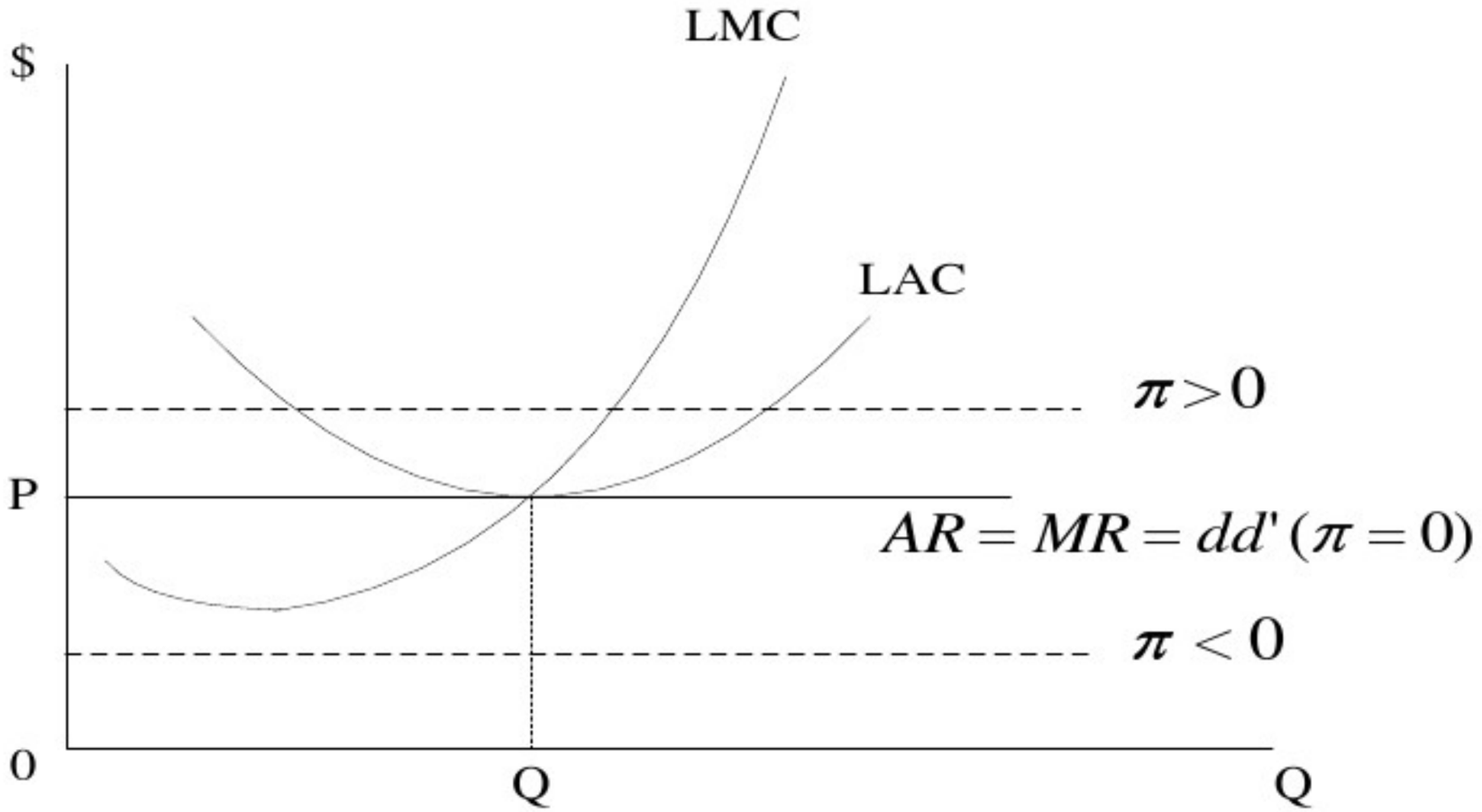

$
S1
S2
P1
P2
D
0
Q1
Q2
Q


$
S2
S1
P2
P1
D
0
Q2
Q1
Q

2. 长期均衡的条件

③ 条件分析：

- MR=MC=AR=P=AC
- Efficiency: Firm在LAC的最低点生产



②长期均衡与短期均衡比较

厂商均衡条件:

$$Short\text{-}run: MR = MC = AR = P \ , AR \neq AC$$

$$Long\text{-}run: MR = MC = AR = P = AC$$

厂商成本与利润:

$$Short\text{-}run: AC > AC_{\min} , \pi > 0$$

$$Long\text{-}run: AC = AC_{\min} , \pi = 0$$

产商产量与价格:

$Long\text{-}run$时厂商产量低于$Short\text{-}run$厂商产量

$Long\text{-}run$时厂商价格低于$Short\text{-}run$厂商价格

讨论！