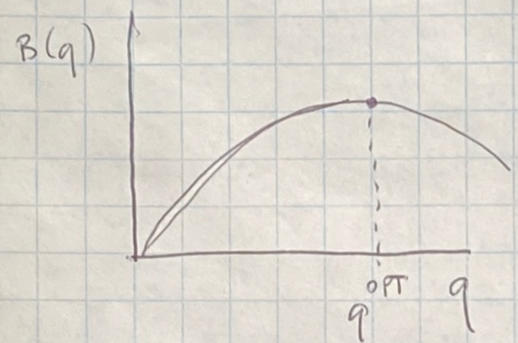
LECTURE 4: PROVIDER PAYMENT

$$U_{MD} = \underbrace{\pi(q)}_{\text{profit}} + \alpha \underbrace{B(q)}_{\text{patient benefit}}$$

$B'(q) > 0$, $B''(q) < 0$

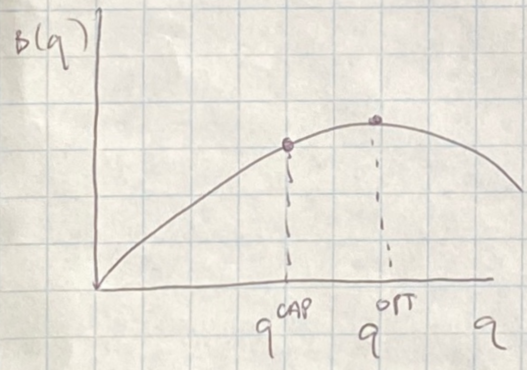


Ⓐ 100% CAPITATION

$\pi(q) = a \Rightarrow \frac{\partial \pi}{\partial q} = 0$

$U_{MD} = a + \alpha B(q)$

FOC: $\alpha \underline{B'(q) = 0} \Rightarrow q^{CAP}$



q^{OPT} satisfies $B'(q) = 0$

$q^{CAP} = \alpha q^{OPT}$

$\frac{\partial q^{CAP}}{\partial \alpha} > 0$

What if $u(q) = \pi(q) + \alpha B(q) - C(q)$

$= a - C(q) + \alpha B(q)$

$\Rightarrow$ FOC: $\alpha B'(q) - C'(q) = 0$

$\Rightarrow$ exacerbate underprovision

B. Full FFS

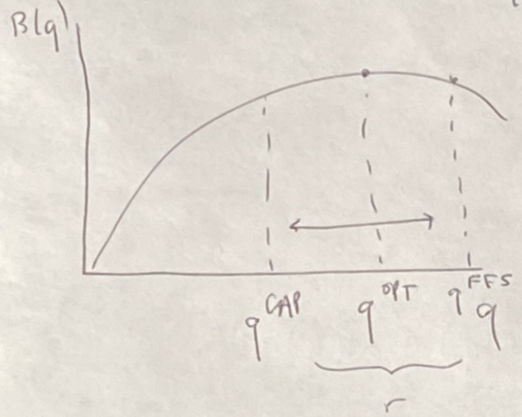
$$\pi(q) = r \cdot q - c(q)$$

$$U_{MD} = r \cdot q - c(q) + \alpha B(q)$$

FOC: $\underbrace{r}_{\text{shift up level of treatment}} - c'(q) + \alpha B'(q) = 0$

If we ignore costs $(c'(q) = 0)$

FOC: $r + \alpha B'(q) = 0$



If we wanted to implement q^{OPT} with FFS:

$$r + \alpha B'(q) - c'(q) = B'(q)$$

$$\boxed{r^* = (1-\alpha) B'(q) + c'(q)}$$

COMPARATIVE STATIC:

$$\frac{\partial r^*}{\partial \alpha} < 0$$

$\cancel{\to B'(q)}$

C. MIXED PAYMENT

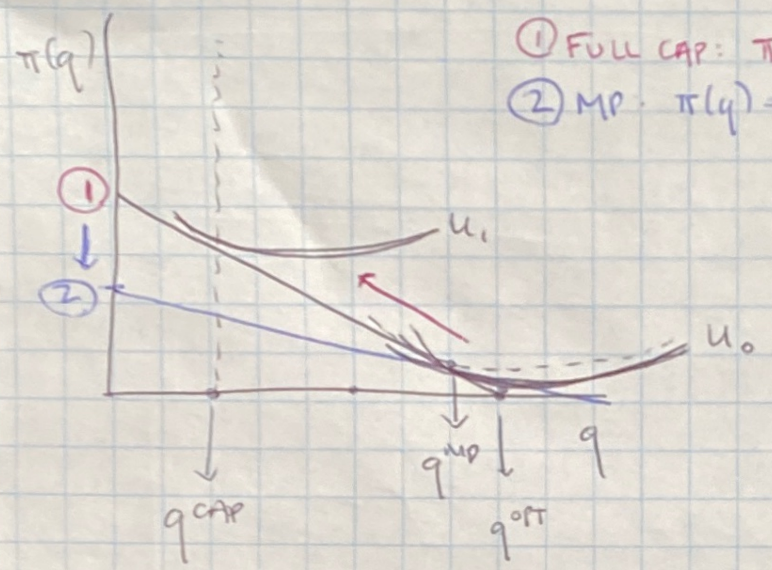
$$U(q) = a + R(q) - C(q) + \alpha B(q)$$

$$= a + r \cdot q - c(q) + \alpha B(q)$$

FOC: $r - c'(q) + \alpha B'(q)$

$$q^{MP} = q^{FFS}$$

PROVIDER'S ~~UTILITY~~ PROFIT

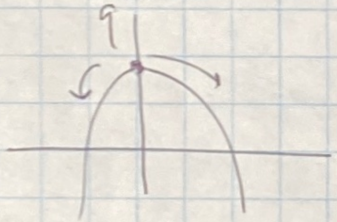


① FULL CAP: $\pi(q) = a - c(q)$

② MP: $\pi(q) = \underbrace{a'}_{\text{intercept}} + \underbrace{r}_{\text{slope}}(q) - c(q)$

D. BARGAINING

$$U_{PAT} = \left(aq - \tfrac{1}{2}bq^2\right) - c(q)$$



What is q^{PAT}? $a - bq - c = 0$

$$q = \frac{c-a}{-b} = \boxed{\frac{a-c}{b}}$$

$$V_{MD} = R_0 - rq + \alpha\left(aq - \tfrac{1}{2}bq^2 - cq\right)$$

FOC: $-r + \alpha a - \alpha bq - \alpha c = 0$

$$\boxed{q^{MD} = \alpha\left(\frac{a-c}{b}\right) + r}$$

$$\max_q \left[U_{PAT}(q) - U_{PAT}(q^{MD})\right]^{1-\gamma} \left[V_{MD}(q) - V_{MD}(q^{PAT})\right]^{\gamma}$$

MA + MAK (2019)

SOCIAL BENEFIT:

$$B(q) - D(q)C(q,e) - H(q,e)$$

FOC: $B'(q) - \underline{D(q)C_q(q,e) - D'(q)C(q,e) - H_q(q,e)}$

$\updownarrow$ MATCH

PROVIDERS:

FOC: $pD'(q) - \underline{D(q)C_q(q,e) - D'(q)C(q,e) - H_q(q,e)}$

FIRST BEST: $pD'(q) = B'(q)$