

Friberg: managing risk and uncertainty. Q12.3.

a) **Cost side**

Cost function:  $C = a + bq + \frac{q^2}{(2\gamma)}$

Marginal cost:  $\frac{dC}{dq} = b + \frac{q}{\gamma}$

Curvature of cost:  $\frac{d^2C}{dq^2} = \frac{1}{\gamma}$

so a higher  $\gamma$  is associated with a flatter cost curve, greater flexibility.

b) **Profit maximizing quantity**

$$\max_q pq - \left( a + bq + \frac{q^2}{(2\gamma)} \right)$$

so supply given by first order condition for profit maximization ( $p=mc$ )

$$p = b + \frac{q}{\gamma}$$

or equivalently:

$q = \gamma(p - b)$ . So we see intuitively that a higher  $\gamma$ , greater flexibility, raises the supply response to price changes.