Decline in Value of Stock, S_t:

$$V(S_t) = \pi(q_t) + \frac{\pi(q_{t+1})}{1+r} + \frac{\pi(q_{t+2})}{(1+r)^2} + \ldots + \frac{\pi(q_T)}{(1+r)^T}$$

$$S_t = q_t + q_{t+1} + q_{t+2} + \ldots + q_T$$

$$V(S_{t+1}) = \pi(q_{t+1}) + \frac{\pi(q_{t+2})}{1+r} + \ldots + \frac{\pi(q_T)}{(1+r)^{T-1}}$$

$$S_{t+1} = q_{t+1} + q_{t+2} + \ldots + q_T$$

$$V(S_t) - \frac{1}{1+r}V(S_{t+1}) = \pi(q_t)$$

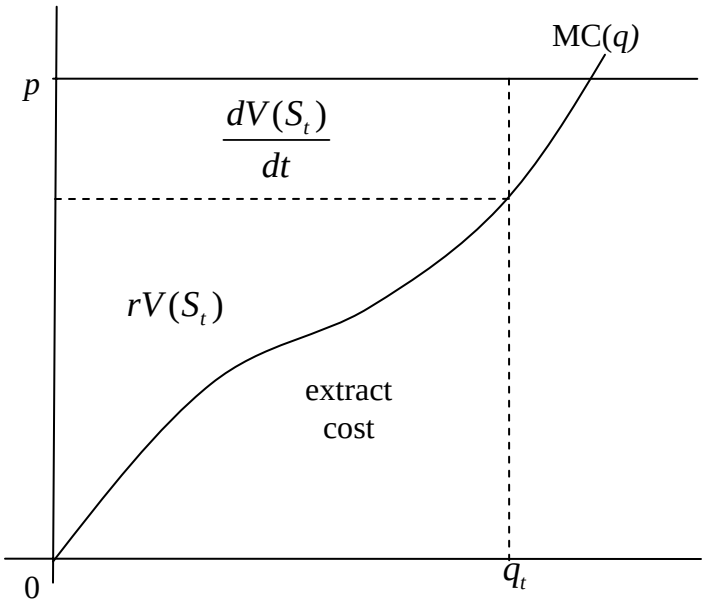
$$(1+r)\pi(q_t) - [V(S_t) - V(S_{t+1})] = rV(S_t)$$

Continuous Time:

$$\pi(q_t) - \frac{dV(S_t)}{dt} = rV(S_t)$$

From Dynamic Optimization we know,

$$\frac{dV(S_t)}{dt} = \frac{d\pi(q_t)}{dq_t} q_t$$



Decline in Value of Stock is equal to rent, $q_t[p - MC(q_t)]$.