An Option Value Problem About Nothing

Open Macro's Code Camp

Maestría en Economía, Universidad de San Andrés

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AN OPTION VALUE PROBLEM FROM *SEINFELD*

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This is a paper about nothing. (*JEL* C61, D91, G11)

Seinfeld S07E09, *The Sponge*

- Jerry: I thought you said it was imminent.
- Elaine: Yeah, it was, but then I just couldn’t decide if he was really sponge-worthy.
- Jerry: “Sponge-worthy”?
- Elaine: Yeah, Jerry, I have to conserve these sponges.
- Jerry: But you like this guy, isn’t that what the sponges are for?
- Elaine: Yes, yes - before they went off the market. But I mean, now I’ve got to re-evaluate my whole screening process. I can’t afford to waste any of ‘em.

An Optimal Stopping Problem About Nothing

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$$V(Q_t) = max\{Q_t, \delta EV(Q_{t+1})\}$$

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$$Q^* = Q_t = \delta EV(Q_{t+1})$$

Yada, yada, yada...

$$Q^* = \delta(\int_0^{Q^*} Q^* \, dQ_{t+1} + \int_{Q^*}^{1} Q_{t+1} \, dQ_{t+1})$$

Yada, yada, yada...

$$Q^* = \delta\left(\int_0^{Q^*} Q^* \, dQ_{t+1} + \int_{Q^*}^1 Q_{t+1} \, dQ_{t+1}\right)$$

$$Q^* = \delta\left(Q^* Q_{t+1}\Big|_0^{Q^*} + \frac{(Q_{t+1})^2}{2}\Big|_{Q^*}^1\right)$$

Yada, yada, yada...

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$$Q^* = \frac{1}{\delta} - \sqrt{\frac{1}{\delta^2} - 1}$$

Serenity Now: Parametrize Patience

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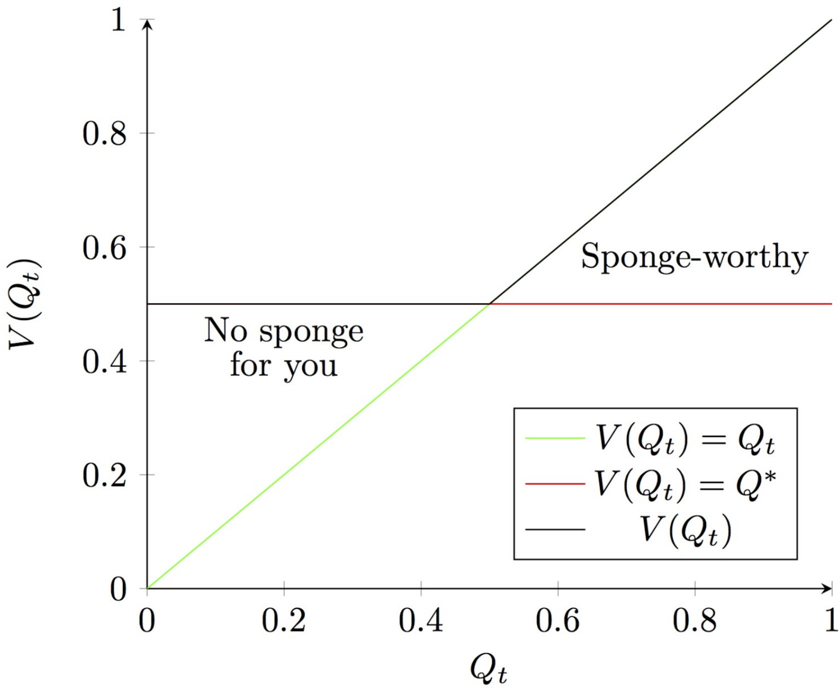
$$\delta = 0.8$$

$$Q^* = 0.5$$



$V(Q_t)$
Q_t
0
0.2
0.4
0.6
0.8
1
Sponge-worthy
No sponge for you
$V(Q_t) = Q_t$
$V(Q_t) = Q^*$
$V(Q_t)$