OURSE ECO3054 INSTRUCTOR Luke Boosey

ODAY'S SUBJECT DATE 2/7/17

Ex) $u(x) = 1 - e^{-x/800}$

$u'(x) = 0 - \left(-\frac{1}{800} e^{-x/800}\right) = \frac{1}{800} e^{-x/800}$

$u''(x) = \frac{1}{800}\left(\frac{-1}{800\, e}^{-x/800}\right)$

$\Longrightarrow A_u(x) = \frac{-u''(x)}{u'(x)}$

$= \frac{-(-1/800)(1/800)\, e^{-x/800}}{(1/800)(e^{-x/800})}$

$= \frac{1}{800}$

*Note: If $u(x) = 1 - e^{-\gamma x}$
then $A_u(x) = \gamma$

- Relative Risk Aversion

→ Now we consider a proportionate gamble

* $t > 0$ is a random variable w/ distribution F.
* Given initial wealth w, the proportionate gamble pays tw.
* Think of t as a random rate of return

→ Definition: A certainty equivalent for the rate of return is $\hat{t}$ where

$$u(\hat{t}w) = \int u(tw)\, dF(t)$$

[$\hat{t}$ is the certain rate of return s.t. the DM is indifferent between $\hat{t}w$ for sure and the gamble paying tw when t is distributed according to F. For a given distribution F, initial wealth w and utility function u, we'll write the certainty equivalent rate of return as $\hat{t}_F^{u,w}$.]