
2009 Problem 4

(a) og (b) is repetition.

c) The future for the sophisticate always seems less promising than the future for the naif, since the sophisticated understands the stupid things he will do in the future. Doing it now therefore is relatively more attractive.

d) Assume that the decision-maker with \(0 < \beta < 1\) and \(0 < \delta < 1\). It might be worse to visit the museum now rather than a week from now; still, it might better to visit the museum now rather than a year from now. The naive inhabitant decides each week to visit the museum a week from now. The tourist, even if naive, is not willing to wait a year.

e) i) The best time is day 1.

ii) Naifs complete the task on day 6.

iii) Sophisticates complete the task on day 3.

f) i) The best time is day 5.

ii) Naifs complete the task on day 3.

iii) Sophisticates complete the task on day 2.

2011 Problem 2

(a) og (b) is repetition.

Discounted utility in period 1 of the four alternatives:

\[
\begin{align*}
(0,0) &: 0 \\
(1,0) &: 1 \\
(0,1) &: -2 \\
(1,1) &: -4
\end{align*}
\]

Discounted utility in period 2 if \(a_1=0\)

\[
\begin{align*}
0 &: 0 \\
1 &: 3
\end{align*}
\]

Discounted utility in period 2 if \(a_1=1\)

\[
\begin{align*}
0 &: -11 \\
1 &: -10
\end{align*}
\]

(c) Optimal plan: \((1,0)\). Naive behavior: 1 in period 1 and deviation to 1 in period 2, that is \((1,1)\).

(d) The sophisticate understands that he will do 1 in period 2. His choice is between

\[
\begin{align*}
(0,1) &: -2 \\
(1,1) &: -4
\end{align*}
\]

Therefore he chooses \((0,1)\).

(e) With naïve behavior, the person is not willing to pay for commitment in period 2, since she does not realize that the plan will not be followed. With sophisticated behavior, the optimal plan, \((1,0)\), becomes available, with discounted utility in period 1 equal to 1. Without commitment she chooses \((0,1)\) with discounted utility in period 1 equal to -2. Therefore, she is willing to pay \(1 \cdot (-2) = 3\). If \(c\) is the cost of commitment, the stream

\[
\begin{align*}
0,10,-14
\end{align*}
\]

is replaced with the stream

\[
\begin{align*}
10-c,-4,-14
\end{align*}
\]

The person wishes to do so in period 1, but not at an earlier period 0.