



ADVANCED MICROECONOMICS - 2013/2014

Solutions Sheet 2: Choice under uncertainty

1 (a)

$$U(p_1, p_2, p_3) = p_1 + \frac{2}{3}p_2$$

(b) It is not possible.

2

$$U(p_1, p_2, p_3, p_4) = p_1 + p \cdot p_2 + q \cdot p_3$$

3

$$p = \frac{w + x_0}{2}.$$

4

5 (a)

$$\pi \leq \frac{2v'(3w)}{v'(0) + 2v'(3w)}.$$

(b) $\frac{\alpha}{w}$ stays constant. $R_A(x) = \frac{1}{2x}$ and $R_R(x) = \frac{1}{2}$.

6

7

8 (a)

$$\left. \begin{array}{l} \max_c \ln(c) + \frac{1}{2} \left[\left(1 + \frac{5}{100}\right) (10 - c) + 5 + \alpha \right] + \frac{1}{2} \left[\left(1 + \frac{5}{100}\right) (10 - c) + 5 - \alpha \right] \\ \text{s.t.} \quad 0 \leq c \leq m \end{array} \right\}$$

(b)

$$c(\alpha) = \frac{465}{42} - \frac{5\sqrt{961 + 32\alpha^2}}{42}.$$

9 (a) Either a or b (or both) has to be strictly smaller than 1.

(b) $\pi a + (1 - \pi)b > 1$.

10

11

12

13 (a) 170

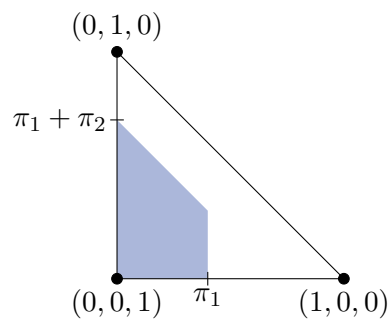
(b) 2

14

15

$$U(F) = e^{\frac{r^2 \sigma^2}{2} - \mu r}$$

16 Set of lotteries that dominates π in the sense first-order stochastic dominance:



- 17 (a) Expected monetary loss of A: $\frac{1}{5}m$. Expected monetary loss of B: $\frac{1}{5}m$.
 (b) Country B.