Microeconomics 1 – Part A: Individual decision making
Masters M1 IMMAEF & MAEF

TD – Monday, September 23, 2024

Consumer Theory

The following exercises should be submitted on Monday, September 23. A particular attention will be given to your presentation.

$L = 2$ is the number of commodities and $\mathbb{R}^2_+$ is the consumption set of the consumer.

Exercise 1 (Lexicographic preferences). For all $x = (x_1, x_2) \in \mathbb{R}^2_+$ and $\overline{x} = (\overline{x}_1, \overline{x}_2) \in \mathbb{R}^2_+$,

$x \succsim \overline{x} \iff$ " $x_1 > \overline{x}_1$ " or " $x_1 = \overline{x}_1$ and $x_2 \geq \overline{x}_2$ "

1. For every $\overline{x} \in \mathbb{R}^2_+$, determine and draw the upper contour set $U(\overline{x})$.
2. Show that for every $\overline{x} \in \mathbb{R}^2_+$, the indifference set $I(\overline{x})$ is a singleton.

Exercise 2 (Linear preferences). For all $x = (x_1, x_2) \in \mathbb{R}^2_+$ and $\overline{x} = (\overline{x}_1, \overline{x}_2) \in \mathbb{R}^2_+$,

$$x \succsim \overline{x} \iff ax_1 + bx_2 \geq a\overline{x}_1 + b\overline{x}_2$$

with $a > 0$ and $b > 0$. For every $\overline{x} \in \mathbb{R}^2_+$, determine and draw the indifference curve $I(\overline{x})$ and the upper contour set $U(\overline{x})$.

Exercise 3 (Leontief preferences). For all $x = (x_1, x_2) \in \mathbb{R}^2_+$ and $\overline{x} = (\overline{x}_1, \overline{x}_2) \in \mathbb{R}^2_+$,

$$x \succsim \overline{x} \iff \min\{x_1, x_2\} \geq \min\{\overline{x}_1, \overline{x}_2\}$$

For every $\overline{x} \in \mathbb{R}^2_+$, determine and draw the indifference curve $I(\overline{x})$ and the upper contour set $U(\overline{x})$.