

TD – Monday, October 2, 2023

Consumer Theory

The following exercises should be submitted on Monday, October 2. 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 $\bar{x} = (\bar{x}_1, \bar{x}_2) \in \mathbb{R}_+^2$,

$$x \succ \bar{x} \iff "x_1 > \bar{x}_1" \text{ or } "x_1 = \bar{x}_1 \text{ and } x_2 \geq \bar{x}_2"$$

Show that this preference relation is strictly monotone and strictly convex, but not continuous.

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

$$x \succ \bar{x} \iff ax_1 + bx_2 \geq a\bar{x}_1 + b\bar{x}_2$$

with $a > 0$ and $b > 0$. Show that this preference relation is continuous, convex, strictly monotone, but not strictly convex.

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

$$x \succ \bar{x} \iff \min\{x_1, x_2\} \geq \min\{\bar{x}_1, \bar{x}_2\}$$

Show that this preference relation is continuous, convex, monotone, but it is not strictly convex and it is not strictly monotone.