

Microeconomics – class 4

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1.

Calculate the indirect utility function and demand correspondence for utility functions $u(x_1, x_2)$ equal to

- a) $a_1 \cdot x_1 + a_2 \cdot x_2$ for $a_i > 0$ (perfect substitutes);
- b) $\min\{a_1 \cdot x_1, a_2 \cdot x_2\}$ for $a_i > 0$ (perfect complements);
- c) $x_1^{a_1} \cdot x_2^{a_2}$ for $a_i > 0$ (Cobb-Douglasa utility).

2.

Calculate the indirect utility function and demand correspondence for utility function (called CES by economists) $u(x_1, x_2) = (x_1^\rho + x_2^\rho)^{\frac{1}{\rho}}$.

Hint! – first check, how concavity or quasi-concavity of u is related to ρ .

3.

Can v be the indirect utility function of a consumer with locally nonsatiated preferences and continuous utility function?

Assuming, that it is possible, calculate x .

- a) $v(\mathbf{p}, m) = 2 \ln(m) - \ln(p_1 \cdot p_2) + C$;
- b) $v(\mathbf{p}, m) = \frac{m^3}{\sqrt{p_1 + p_2 - 1}}$ if $p_1 + p_2 > 1$, 0 otherwise;
- c) $v(\mathbf{p}, m) = \frac{2010m}{p_1 + p_2}$.

What was the assumption? Is really the calculated x equal to the demand?