# Recitation #4 (09/14/2018)

1. An individual consumes only goods 1 and 2, and his indirect utility function, $v(p_1, p_2, w)$, is given by the following expression

$$v(p_1, p_2, w) = \frac{w}{p_1 + \alpha p_2} \quad \text{where } \alpha > 0, \text{ and } p_1,\ p_2,\ w > 0$$

   (a) Find this individual's Walrasian demand for good 1, $x_1(p, w)$, and for good 2, $x_2(p, w)$, where $p$ denotes the price vector $p \equiv (p_1, p_2)$. [*Hint*: Use an equivalence in order to go from indirect utility function to Walrasian demand in only one step.] Then, find the ratio $\frac{x_2(p,w)}{x_1(p,w)}$. Explain the intuition behind your result.

   (b) Find this individual's Hicksian demand for good 1, $h_1(p, u^0)$, and good 2, $h_2(p, u^0)$. [*Hint*: Use equivalences in this part of the exercise as well: one to go from indirect utility function to expenditure function, and another to go from expenditure function to hicksian demand.] Then, find the ratio $\frac{h_2(p,u^0)}{h_1(p,u^0)}$. Explain the intuition behind your result.

   (c) Using the Walrasian and Hicksian demands you found in parts (a) and (b), find the Slustky equation for goods 1 and 2. Explain your result, and connect it with your intuitions on parts (a) and (b).

   (d) Let us now assume that the initial price of good 1 doubles, the price of good 2 is cut in half, and wealth is kept constant. That is, denoting by $p^0 \equiv (p_1^0, p_2^0)$ the vector of initial prices and $p^1 \equiv (p_1^1, p_2^1)$ the vector of final prices, we have that

$$p_1^1 = 2p_1^0 \text{ for good 1, and } p_2^1 = \frac{1}{2}p_2^0 \text{ for good 2.}$$

      (i) Find the compensating variation (CV) due to the price change. Explain intuitively what CV measures.

      (ii) Find the equivalent variation (EV) due to the price change. Explain intuitively what EV measures.