Recitation #3 - September 11th, 2020

1. [**Relationship between WARP and CLD**] Figure 1 illustrates the change in a decrease in the price of good 1, thus producing an outward pivoting effect on the consumer's budget line, from $B_{p,w}$ to $B_{p',w}$, where the price of good 2 and wealth remain constant. This corresponds to the case where the consumer receives a wealth compensation (changing his wealth level from w to w') that guarantees he can still afford his initial consumption bundle, $x(p,w)$. (This type of wealth compensation is often referred to as the "Slutsky wealth compensation.") Assuming that the Walrasian demand satisfies the Weak Axiom of Revealed Preference (WARP), answer the following questions.

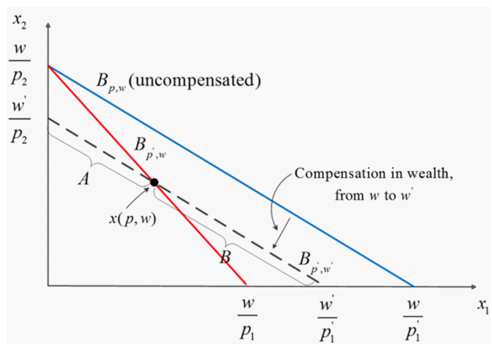

Figure 1. WARP and the Compensated Law of Demand.

   (a) Bundle $x(p', w')$ cannot lie on segment A, which is to the left-hand side of bundle $x(p,w)$, but it must lie on segment B, which is to the right-hand side of bundle $x(p,w)$.

   (b) What conclusions can you infer from your results in part (a) about the slope of the Walrasian demand function? And the slope of the Hicksian demand function?

2. [**Slutsky matrix**] Consider a setting with three goods ($L = 3$) and a consumer with Walrasian demand function $x(p,w)$ given by

$$x_1(p,w) = \frac{p_2}{p_3}; \quad x_2(p,w) = -\frac{p_1}{p_3}; \quad \text{and} \quad x_3(p,w) = \frac{w}{p_3}$$

   (a) Show that the Walrasian demand is homogeneous of degree zero in prices and wealth, (p,w).

   (b) Show that $x(p,w)$ satisfies Walras' law.

   (c) Show that $x(p,w)$ violates the weak axiom of revealed preference (WARP).

   (d) Find the Slutsky matrix $S(p,w)$.