1 Slutsky Decompositon

1.1 Two Effects

Decome changes into demand into two effects.

Substitution

Law of demand. For a price increase, the substitution effect will always lower demand. "Substitution effect is always negative".

Income

If the good is a **normal** good. A price increase lowers the value of your income which will lower demand.

If the good is a **inferior** good. A price increase lowers the value of your income which will increase demand.

1.2 Decomposition

Slutsky decomposition.

We want to isolate the substitiion effect with a thought experiment where we compesnate their income to wipe out the income effect.

$$u(x_1, x_2) = x_1 x_2$$

$$x_1 = \frac{\frac{1}{2}m}{p_1}, x_2 = \frac{\frac{1}{2}m}{p_2}$$

$p_1 = 1, p_2 = 2, m = 40$

Original budget:

$$(20, 10)$$

p_1 changes to $p_1 = 2$

$$(10, 10)$$

Dedmand decrased by 10. (Total effect)

Prices are now $p_1 = 2, p_2 = 2$. To afford old bundle $(20, 10)$.

$$\tilde{m} = 20 * 2 + 10 * 2 = 60$$

What would they actually buy with this income?

$p_1 = 2, p_2 = 2, \tilde{m} = 60$

$$\left(\frac{\frac{1}{2}60}{2}, \frac{\frac{1}{2}60}{2}\right)$$

$$= (15, 15)$$

20 original, and 15 at the new prices with compensated income.

The demand decreases by 5 due to subtitition.

The remaining 5 is due to the income effect.

2 Cobb Douglass

$$x_1^a x_2^b$$

$$\frac{\frac{a}{a+b}m}{p_1}, \frac{\frac{b}{a+b}m}{p_2}$$

3 Buying/Selling

Fixed income m

Endowment of goods. (ω_1, ω_2)

$$p_1 x_1 + p_2 x_2 = p_1 \omega_1 + p_2 \omega_2$$

apple farmer $(10, 0)$. $p_1 = 1, p_2 = 1$

$$x_1 + x_2 = 10$$

$p_1 = 2, p_2 = 1$

$$2x_1 + x_2 = 20$$

A net buyer of a good will remain a net buyer if the price goes down and will be better off.

A net seller of a good will remain a net seller if the price goes up and will be better off.