People’s Indifferences

Goods are good

Assumptions dominance

North-East is preferred direction. Given those assumptions, it means that indifference curves are negatively sloped. There is empirical application to it: budget exhaustion = no matter how big Mother Theresa’s budget, it all had been spent.

Budget Constraint

\[ P_1 X_1 + P_2 X_2 \leq I \] where I is money (income)

\[ P_1 \] are money prices

\[ X_i \] are rates of consumption

We are interested:

a.) looks like?

b.) \( \Delta \) in response to \( \Delta I \) or \( \Delta P_1 \)?

\[ X_2 \leq \frac{I}{P_2} - \frac{P_1}{P_2} X_1 \]

if a person chooses \( X_1 = 0 \) then \( X_2 = \frac{I}{P_2} \)
slopes of budget constraint: \( \frac{\partial X_2}{\partial X_1} = -\frac{P_1}{P_2} \), holding money income and prices constraint.

What happens to the \( X_2 \) consumption as \( X_1 \) changes?

Rewrite budget constraint:
\[
X_1 \leq \frac{I}{P_1} - \frac{P_2 X_2}{P_1}
\]
consumption

How does it change in response to \( \Delta I \)?

\( M^I > M \Rightarrow \) shift parallel
\( M^H < M \Rightarrow \) shift parallel

How does it change in response to \( \Delta P_1 \)?

Vertical intercept: \( \frac{I}{P_2} \), so \( \Delta P_1 \) does not change on vertical intercept.

Slope: \( -\frac{P_2}{P_1} \), so \( \Delta P_1 > 0 \) means budget constraint is steeper; \( \Delta P_1 < 0 \) means flatter

horizontal intercept: \( \frac{I}{P_1} \)    \( \Delta P_1 > 0 \) shift in
\( \Delta P_1 < 0 \) shift out

Corner solution
Value of $X_1^*$ that is obtained as a result of maximizing subject to constraint (special value)

$$X_1^* = \frac{I}{2P_1}$$

$X_1^*$ is optimum (endogenous variable)
I, P, and P_2--exogenous variables or parameters (fixed from outside)

**Comparative static**

What happens to the choice of $X_1$ when I or $P_1$, or $P_2$ changes?

$$\frac{\partial X_1^*}{\partial I} = \frac{1}{2P_1} > 0 \text{ given that } P_1 > 0$$

Thus a rise in consumer income will increase consumption of $X_1$. There will be more of everything in my shopping cart.

$$\frac{\partial X_2^*}{\partial I} = \frac{1}{2P_2} > 0, \text{ in general } \frac{\partial X_1^*}{\partial I} = \frac{1}{2P_i} > 0$$

Consumption of both goods increase when income increases or prices decrease.

$$\frac{\partial X_1^*}{\partial P_1} = -\frac{I}{2P_1^2} < 0 \text{ given that } I > 0, P_1 > 0$$

Holding money/income constraint the demand curve is downward sloping.

$$\frac{\partial X_2^*}{\partial P_2} = -\frac{I}{2P_2^2} < 0, \text{ in general } \frac{\partial X_1^*}{\partial P_i} = -\frac{I}{2P_i^2} < 0$$

Homework: derive $\frac{\partial X_1^*}{\partial P_2} = 0$ is it true?