

BurkeyAcademy:

Hicksian Decomposition of Income and Substitution Effects: When a Price Decreases

When one price changes: The price of good X decreases, for example.

Suppose to begin with, $U=x^4y^5$, $P_x=5$, $P_y=10$ $B=200$.

1) Find the optimal basket at the original prices and income. Call this Basket A with Utility U_A .

$$MRS_{xy} = \frac{MU_x}{MU_y} = \frac{P_x}{P_y} \quad P_x X + P_y Y = B$$

Now the price of y changes to $P_y=5$.

2) Find the optimal basket (Final Basket) at the new prices. Call this Basket B with Utility U_B .

$$MRS_{xy} = \frac{MU_x}{MU_y} = \frac{P_x}{P_y} \quad P_x X + P_y Y = B$$

3) Find the "Decomposition Basket" C: We want to figure out what would happen if we were at the OLD Utility level (U_A) but the NEW prices. This lets us figure out exactly what changes are because of the relative price change (Substitution effect) and what changes because you feel richer or poorer (Income effect).

Now your two equations are:

$$\text{Utility Function} = U_A \text{ (old Utility level)} \quad \frac{MU_x}{MU_y} = \frac{P_x}{P_y} \text{ (new prices)}$$

Solve for the decomposition basket.

Graph all of this, and summarize what happened in a few sentences:

