

#1 Demonstrate how PCC with varying price  $P_y$ , ( $P_x$  and Income are fixed) can give us the price elasticity of  $Y$  to be equal to, less than, or greater than 1 in absolute value

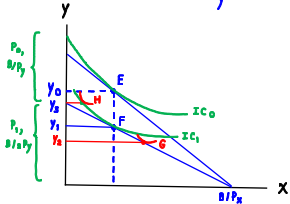
#2

7. A college student has two options for meals: eating at the dining hall for \$6 per meal, or eating a Cup O' Soup for \$1.50 per meal. Her weekly food budget is \$60.
  - a. Draw the budget constraint showing the trade-off between dining-hall meals and Cups O' Soup. Assuming that she spends equal amounts on both goods, draw an indifference curve showing the optimum choice. Label the optimum as point A.
  - b. Suppose the price of a Cup O' Soup now rises to \$2. Using your diagram from [part \(a\)](#), show the consequences of this change in price. Assume that our student now spends only 30 percent of her income on dining-hall meals. Label the new optimum as point B.
  - c. What happened to the quantity of Cups O' Soup consumed as a result of this price change? What does this result say about the income and substitution effects? Explain.
  - d. Use points A and B to draw a demand curve for Cup O' Soup. What is this type of good called?

#3

11. Economist George Stigler once wrote that, according to consumer theory, "if consumers do not buy less of a commodity when their incomes rise, they will surely buy less when the price of the commodity rises." Explain this statement using the concepts of income and substitution effects.

① Calculate  $n_y$

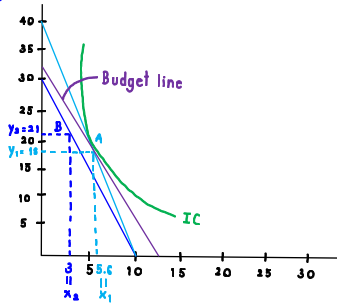


$$\begin{aligned} |n_y| &= \frac{\Delta y}{\Delta P_y} = 1 \\ \Delta P_y &= \frac{\Delta P_y}{\Delta P_y} = \frac{P_y}{\Delta P_y} = \frac{1}{3} \\ \Delta y &= \frac{-Y_0/2}{\frac{1}{3} Y_0} = -\frac{2}{3} \\ \therefore n_y &= \frac{-2/3}{1/3} = -1 \end{aligned}$$

$$\begin{aligned} \frac{P_1 + P_0}{2} &= \frac{3}{2} P_y \\ Y_1 &= \frac{Y_0}{2}, Y_0 \\ \Delta y &= Y_1 - Y_0 = \frac{Y_0}{2} - Y_0 = -\frac{Y_0}{2} \\ \frac{Y_1 + Y_0}{2} &= \frac{Y_0/2 + Y_0}{2} = \frac{3}{4} Y_0 \end{aligned}$$

At E > G  $|n_y| > 1$   $|n_y| = 1 - 1 = 0 < E > G$   
 At E > H  $|n_y| < 1$   $P_0 = P_y$   
 $P_1 = 2P_y$   
 $\Delta P_y = P_1 - P_0 = 2P_y - P_y = P_y$

②



(a)  $6x + 1.5y = 60$  spend equally  $\rightarrow \frac{60}{2} = 30$   
 $y = 0, 6x = 60$   
 $x = 10$   
 $x = 0, 1.5y = 60$   
 $y = 40$

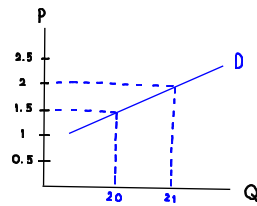
(b)  $6x + 2y = 60$   $P_y = 1.5 \rightarrow P'_y = 2$   
 $y = 0, 6x = 60$   $0.3(60) = 18$   
 $x = 10$   $y = 0, 6x = 12$   
 $x = 2$   
 $x = 0, 2y = 60$   $y = 30$   
 $x = 0, 2y = 42$   
 $y = 21$

(c) As a price changes, the consumption of soup increased by 1

S.E.  $\begin{cases} \Delta x = x_1 - x_0 = 0.5 > 0 \\ \Delta y = y_1 - y_0 = -2 < 0 \end{cases}$

I.E.  $\begin{cases} \Delta x = x_2 - x_1 = -1.5 < 0 \\ \Delta y = y_2 - y_1 = 3 > 0 \end{cases}$

T.E.  $\begin{cases} \Delta x = -2 < 0 \\ \Delta y = 1 > 0 \end{cases}$



Q old 20 P old 1.5  
 Q new 21 P new 2  
 The demand curve is positive which against the law of demand.  
 $\therefore$  Cups of soup is giffen goods.

$\therefore$  The consumption of x decreases and y increases when real income decreases.

③ The goods should be normal goods and as a result of substitution effect when the goods look more expensive, consumers buy less. When there's rise in price, consumers can afford less so substitution and income effect of rise in price affects consumers to buy less.