

#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

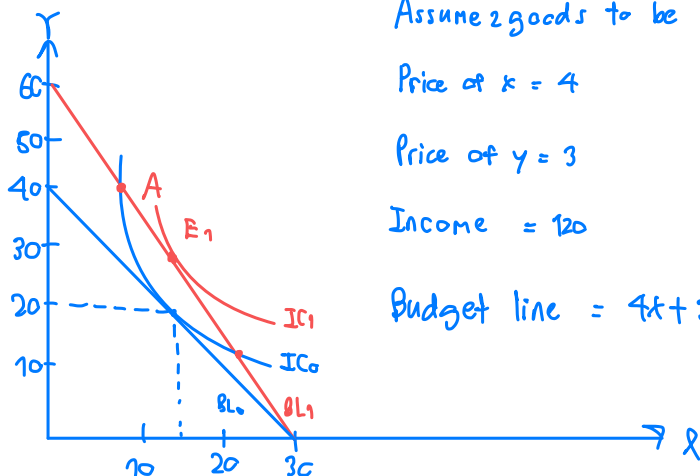
#2

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.
- 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.
 - 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.
 - 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.
 - 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)



Assume 2 goods to be x, y

Price of $x = 4$

Price of $y = 3$

Income = 120

Budget line = $4x + 3y = 120$

Suppose that price of y decreases to 2£ while price of x and income remain unchanged the budget line changes to $BL: 4x + 2y = 120$

I want to find the point such that $\eta_y = \frac{\% \Delta Q_y}{\% \Delta p_y} = -1$

Mid-point elasticity

• With the $\% \Delta p_y = \frac{2-3}{(2+3)} = -40\%$, $\% \Delta Q_y = 40\%$ so that η_y exactly equal to -1

$$\% \Delta Q_y = \frac{y_1 - y_0}{(y_1 + y_0)/2} \times 100 = 40$$

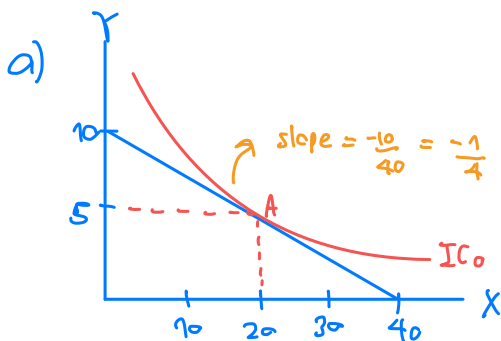
$$= \frac{y_1 - 20}{(y_1 + 20)/2} \times 100 = 40 \Rightarrow y_1 = 30$$

• If the consumer 30 units of y , he will consume 15 units of x

#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 $\$60$.

- 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.
- 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.
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If a college student want to consume an additional unit of x ,

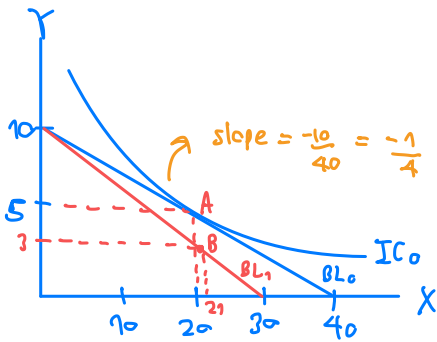
he has to sacrifice $\frac{10}{40} = 0.25$ unit of y , but if he wants to

consume an additional unit of y , $\frac{40}{10}$ units of x must be forgone.

Find the point where he equally spends on both goods

$$\left. \begin{array}{l} X_0 : 1.5x = 30 \Rightarrow x = 20 \\ Y_0 : 6y = 30 \Rightarrow y = 5 \end{array} \right\} A = (20, 5)$$

b)

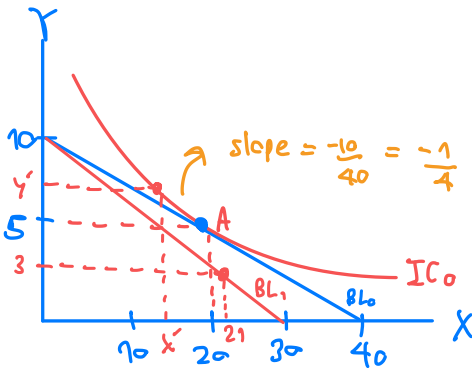


$$\text{Budget line : } 2x + 6y = 60$$

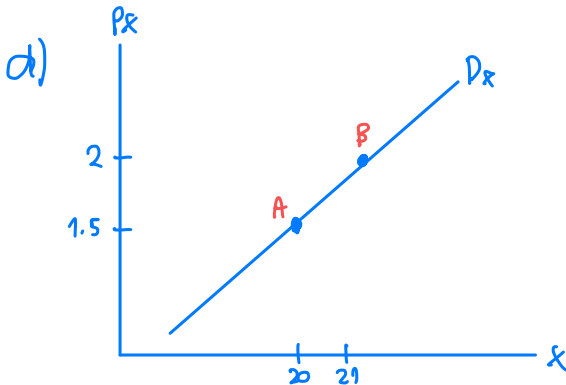
The student spends 30% of income on Y

$$\left. \begin{aligned} X_1 : 2x &= 60(0.7) \Rightarrow x_1 = 21 \\ Y_1 : 6y &= 60(0.3) \Rightarrow y_1 = 3 \end{aligned} \right\} B = [21, 3]$$

c) The consumption of x is higher when price of x increases



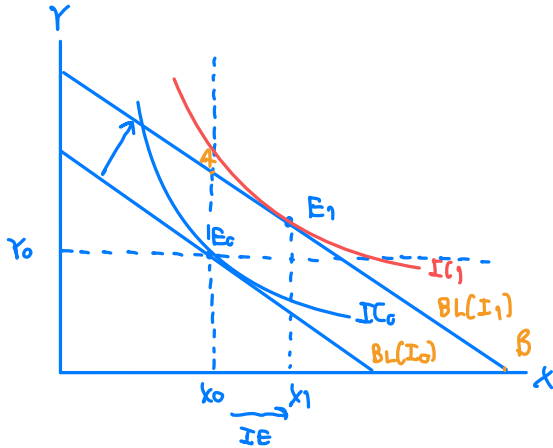
Income effect dominates
substitution effect



Type of goods = Giffen goods

(The goods in which the law
of demand is violated)

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.



Assume the commodity x is being analyzed

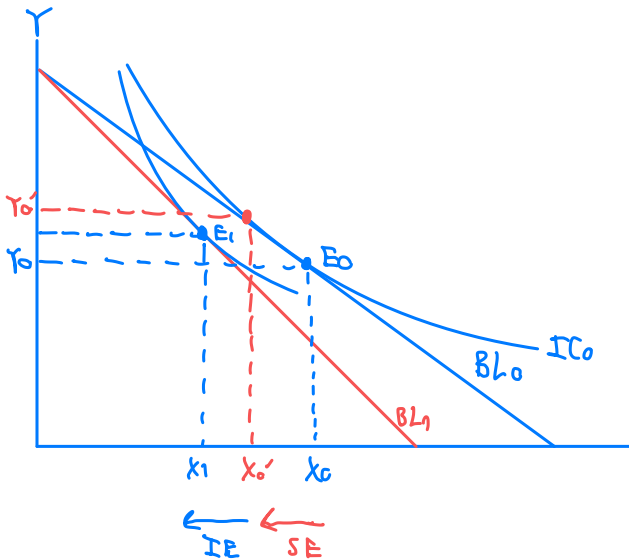
The first part of the statement

"if consumer do not buy less of a commodity when income rises."

implicitly means that the

Income effect is nonnegative,

i.e. $n_x \geq 0$; the goods is normal.



Suppose price of x increases

It can be seen that the consumer will buy less of x . This can be

guaranteed by the fact that

the income effect is non-negative