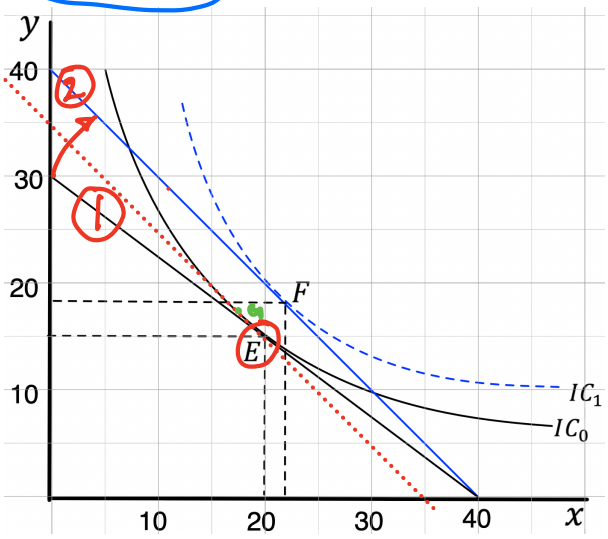
Chapter 14.b Substitution and Income Effects

3. p_y decreases from $p_y = 4$ to $p_y' = 3$.



- The equilibrium point changes from $E = (x_0, y_0)$ to $F = (x_2, y_2)$.
- The relative price changes from $\frac{p_x}{p_y} =$ to $\frac{p_x}{p_y'} =$
- To keep the same satisfaction with the new relative price $\frac{p_x}{p_y'}$ draw an ***imaginary budget line*** with slope $\frac{p_x}{p_y'}$ to be tangent with the original Indifference Curve IC_0.
- The Substitution Effect is:

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

- When price changes in such a way that x is relatively more expensive, the Substitution Effect is always such that $\Delta x < 0$ and $\Delta y > 0$. Why?
- Income Effect can be found by moving the imaginary budget line to be tangent with the new budget line.

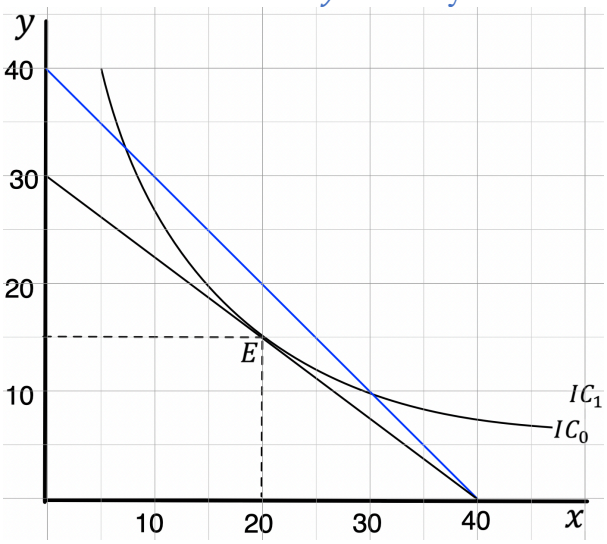
$$I.E. = \begin{cases} \Delta x = x_2 - x_1 = \\ \Delta y = y_2 - y_1 = \end{cases}$$

- According to the resulting $I.E.$, x and y are normal goods because as the real income increases, the consumer consumes more of both x and y.
- $Total\ Effect = T.E. = S.E. + I.E.$

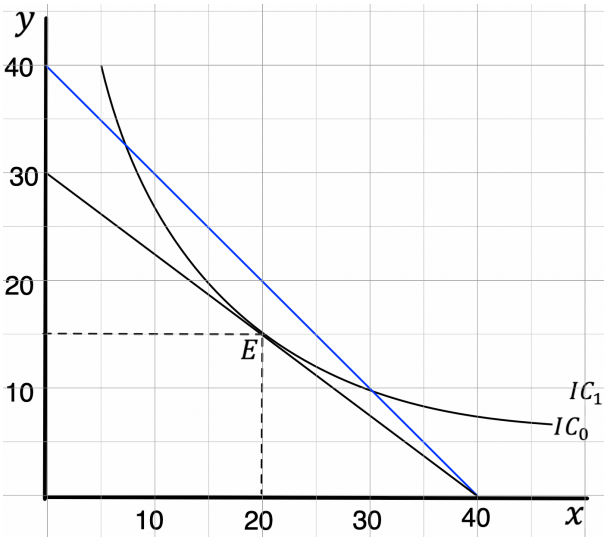
$$= \begin{cases} \Delta x = (x_1 - x_0) + (x_2 - x_1) = x_2 - x_0 \\ \Delta y = (y_1 - y_0) + (y_2 - y_1) = y_2 - y_0 \end{cases}$$

- In the following graphs, draw IC_1 in such a way that y is luxury and inferior.

y is luxury

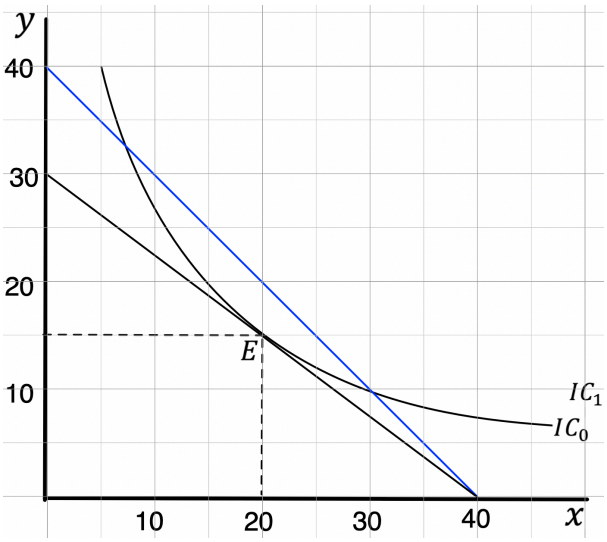


y is inferior



- Can y be so inferior such that when the price p_y decreases, the consumer buys less of y?

y is Giffen good



- This means that when price p_y decreases, the consumer ends up buying less of y. Thus, this violates the Law of Demand even when the consumer is being rational.