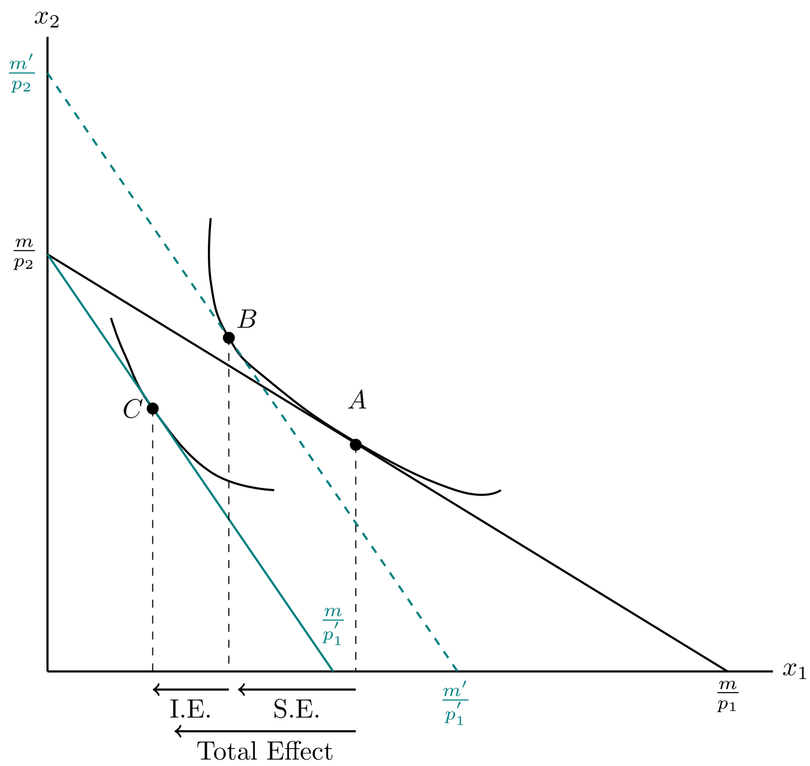
Income and substitution effects with graphs

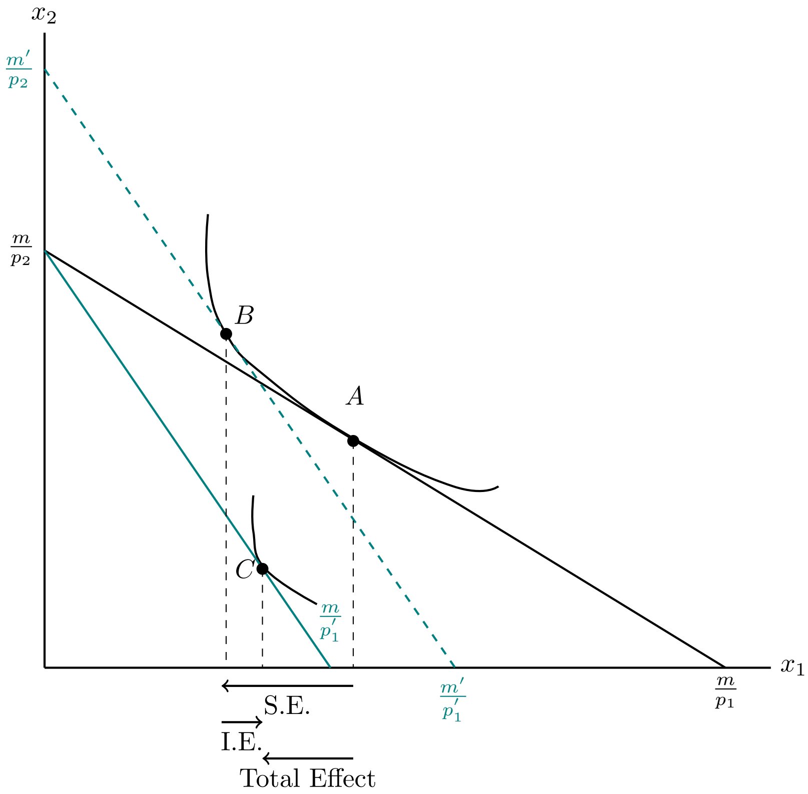
Normal, ordinary good

For a typical normal good, when p_1 rises, the income and substitution effects act in the same direction, reducing the demand from point A to point C. This can be seen in the following graph. The rise in price p_1 rotates the budget line from the black one to the teal one. Then we create a hypothetical budget line that allows the agent to achieve the same utility but with the new price relationship (implying a new income). The substitution effect is the reduction in demand generated by the change in relative prices (A to B). The income effect is the reduction in demand caused by the decrease in purchasing power (B to C).



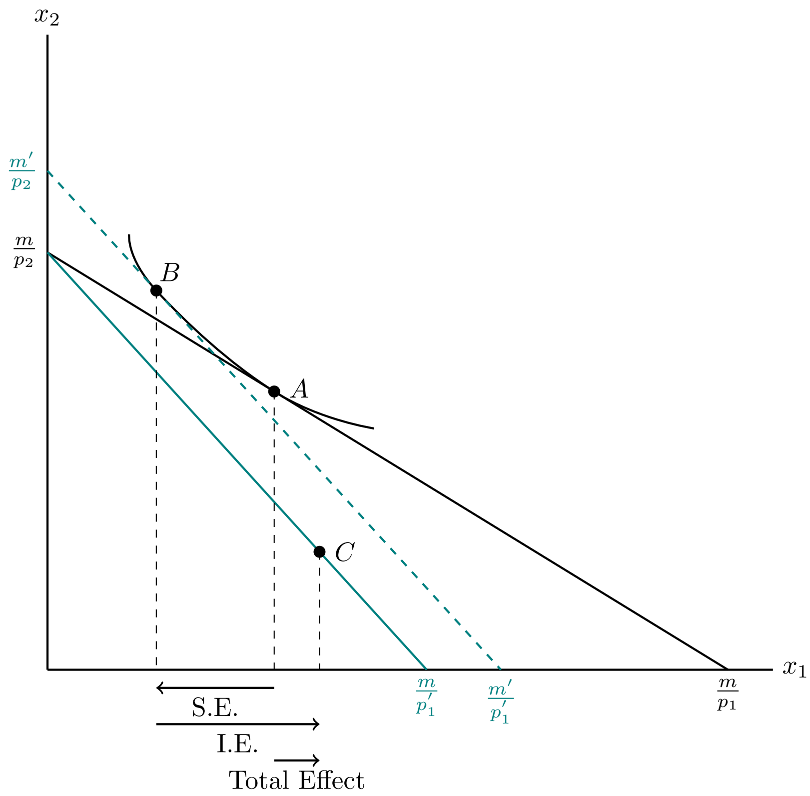
Inferior, ordinary good

For an inferior good, when p_1 rises, the income and substitution effects act in opposite directions. The substitution effect will reduce the demand, while the income effect will increase it. This can be illustrated in the following graph. The rise in price p_1 rotates the budget line from the black one to the teal one. We then create a hypothetical budget line that allows the agent to achieve the same utility but with a new price relationship (implying a new income). The substitution effect is the reduction in demand caused by the change in relative prices (A to B). The income effect, in the case of an inferior good, is the increase in demand due to the decrease in purchasing power (B to C). The overall effect in this case is positive because the substitution effect is greater than the income effect.



Inferior giffen good

For a Giffen good, which is a special type of inferior good, when p_1 rises, both the income and substitution effects act in opposite directions, but the income effect is so strong that it outweighs the substitution effect, leading to an overall increase in demand. This can be illustrated in the following graph. The rise in price p_1 rotates the budget line from the black one to the teal one. We then create a hypothetical budget line that allows the agent to achieve the same utility but with a new price relationship (implying a new income). The substitution effect is the reduction in demand caused by the change in relative prices (A to B). The income effect, in the case of a Giffen good, is the increase in demand due to the significant decrease in purchasing power (B to C). The overall effect is an increase in demand because the income effect is greater than the substitution effect.


x_2
$\frac{m'}{p_2}$
$\frac{m}{p_2}$
B
A
C
x_1
$\frac{m}{p_1'}$
$\frac{m'}{p_1'}$
$\frac{m}{p_1}$
S.E.
I.E.
Total Effect