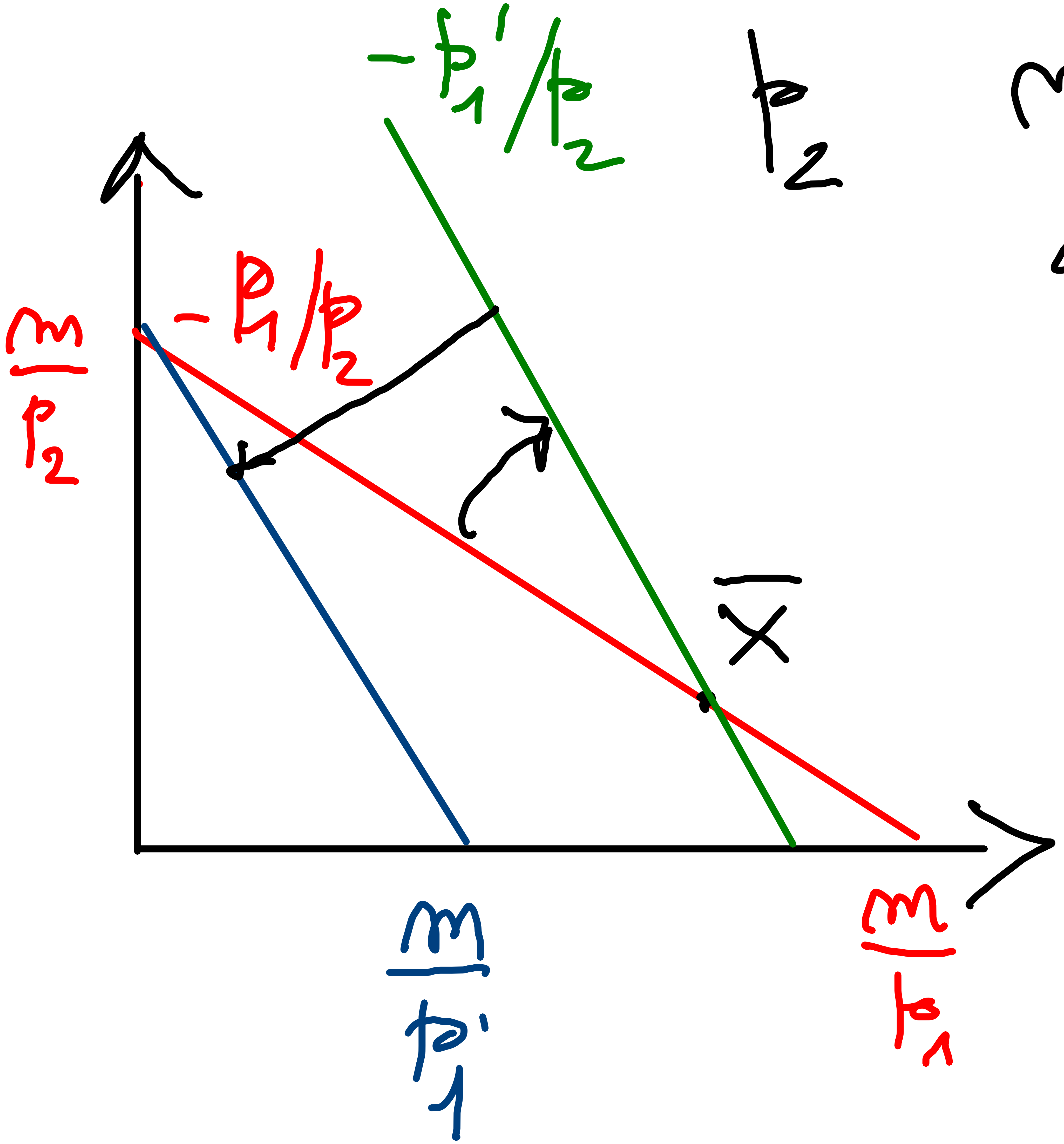


p_2 m are constant

$\Delta p_1 = p_1' - p_1 > 0$

m' = compensated income

$m' = \bar{x}_1 p_1' + \bar{x}_2 p_2$

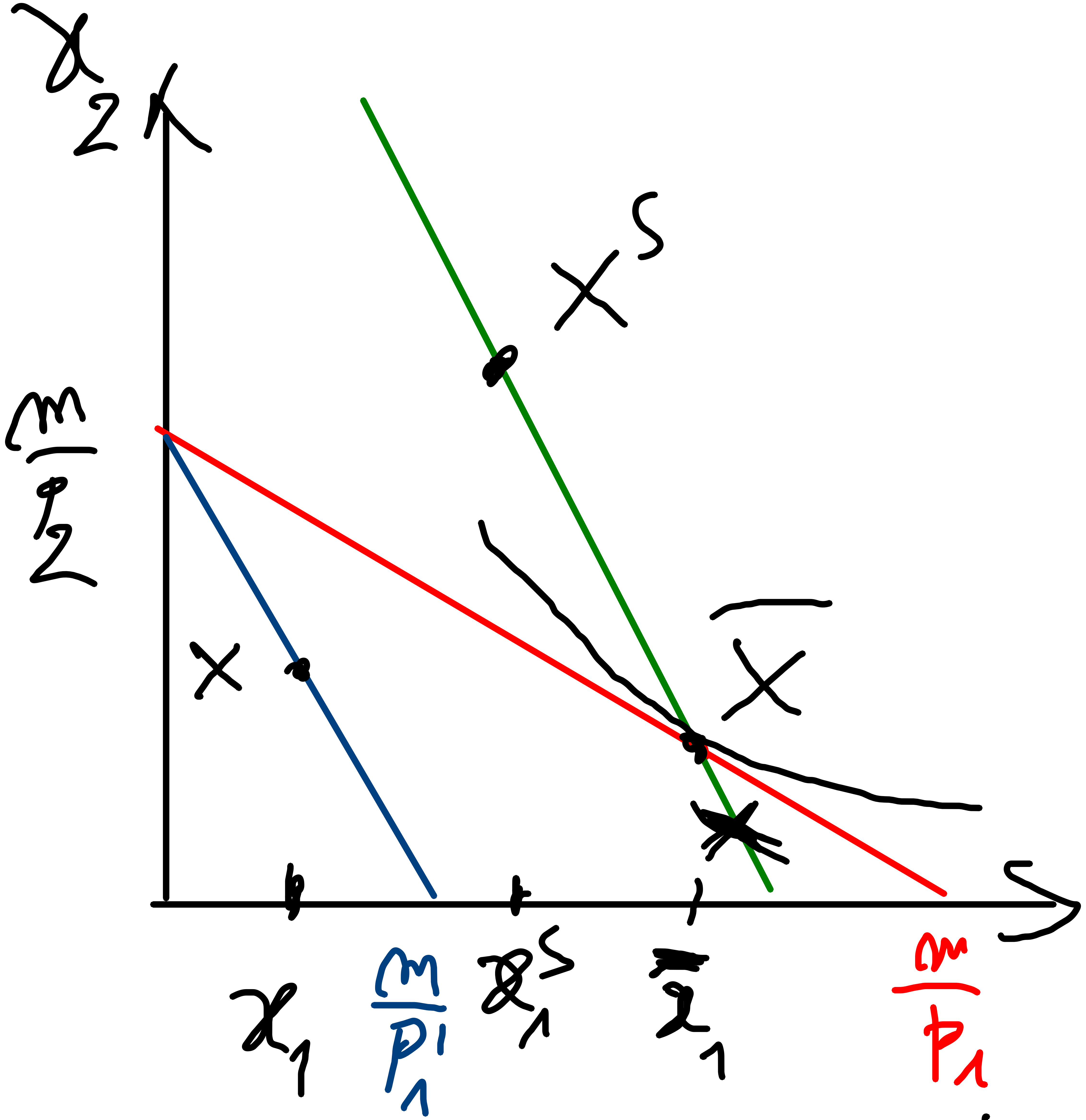
$m = \bar{x}_1 p_1 + \bar{x}_2 p_2$

$m' - m = \bar{x}_1 \cdot \Delta p_1 = \Delta m$

= compensation

$\Delta P.P. = -\Delta m = m - m'$

$$\frac{\Delta m}{\Delta p_1} = \bar{x}_1$$



$\bar{x}$ strictly preferred to every bundle on compensated budget line below $\bar{x}$.

$$|MRS(\bar{x})| = \frac{p_1}{p_2} < \frac{p_1'}{p_2}$$

$\Delta x_1^s = x_1^s - \bar{x}_1$ = substit. effect

$$x_1 - \bar{x}_1 = (x_1 - x_1^s) + (x_1^s - \bar{x}_1)$$

$\Delta x_1^s < 0 \quad \Delta p_1 > 0$

$\Delta x_1^s / \Delta p_1 < 0$ ...

$$\frac{\Delta x_1^s}{\Delta p_1} < 0 \qquad \Delta x_1 =$$

$$x_1 - x_1^s = x_1(p_1', p_2, m) - x_1^s(p_1', p_2, m') = \Delta x_1^n$$

$$\Delta x_1^m = -(x_1^s - x_1) = \Delta x_1^m$$ change in demand due to income compensation

SLUTSKY RATIO

$$\frac{\Delta x_1}{\Delta p_1} = \frac{\Delta x_1^s}{\Delta p_1} + \frac{\Delta x_1^m}{\Delta p_1}$$

$$\frac{\Delta x_1^m}{\Delta p_1} = -\frac{\Delta x_1^m}{\Delta p_1}$$

change in demand due to change in P.P.

↳ $\Delta x_1^m = -\Delta x_1^m$

change in demand due to income compensat.

$$\frac{\Delta x_1}{\Delta p_1} = \frac{\Delta x_1^s}{\Delta p_1} + \frac{\Delta x_1^m}{\Delta p_1} = \frac{\Delta x_1^s}{\Delta p_1} - \frac{\Delta x_1^m}{\Delta p_1}$$

$$\frac{\Delta x_1^m}{\Delta p_1} = \frac{\Delta x_1^m}{\Delta m} \cdot \frac{\Delta m}{\Delta p_1} = \frac{\Delta x_1^m}{\Delta m} \cdot \bar{x}_1$$

if x_1 is normal $+$

$$\frac{\Delta x_1}{\Delta p_1} = \frac{\Delta x_1^s}{\Delta p_1} - \frac{\Delta x_1^m}{\Delta m} \cdot \bar{x}_1$$

SLUTSKY EQUATION

Law of demand

Assume that income m does not depend on prices. If the demand of a good increases with income (normal good) the demand of the good must decrease if the price of the good is rising.

$$\frac{\Delta x_1}{\Delta p_1} = \underset{-}{\frac{\Delta x_1^s}{\Delta p_1}} - \underset{+}{\underset{-}{\frac{\Delta x_1^m}{\Delta m}}} \cdot \bar{x}_1$$

x_1 is inferior good

substitution and income effect have opposite sign

$$\frac{\Delta x_1}{\Delta p_1} \; ??$$

a Giffen good is
necessarily an inferior good
but an inferior good may
not be a Giffen good