Recall: Slutsky Substitution and Income Effect for $u(x_1 x_2) = x_1 x_2$

We assume $p_1 = 2$, $p_2 = 2$ but now, ***m* is no longer given**. Instead, there is now an endowment point of E(8,2) given, and by selling this endowment *m* is generated.

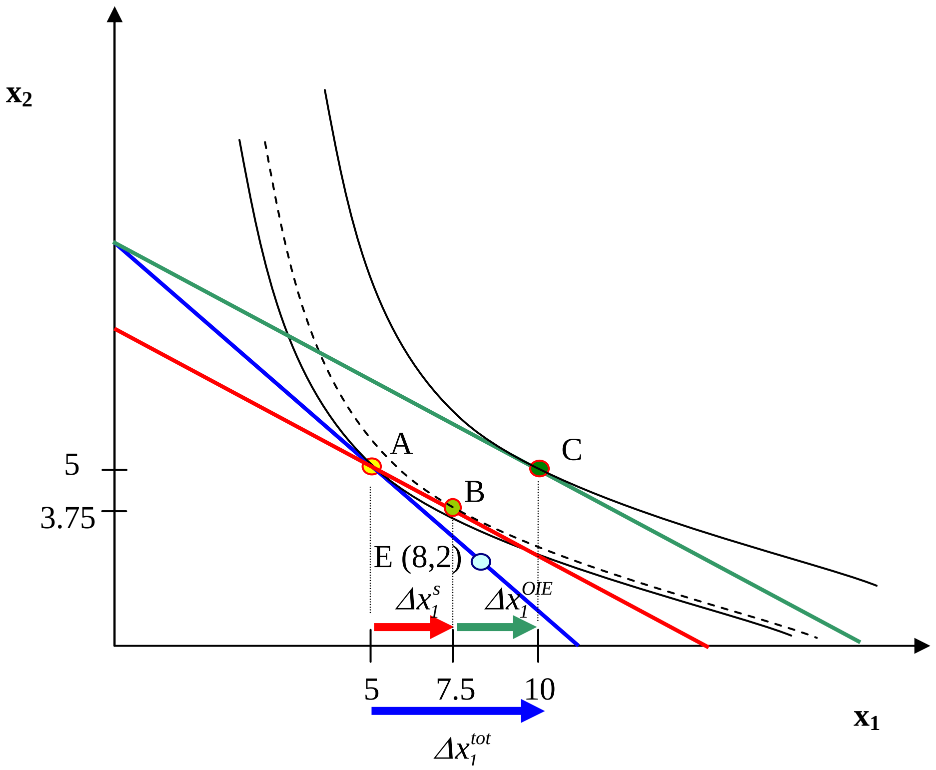
This leads to an in come of $p_1\omega_1 + p_2\omega_2 = m$, or: $2 \cdot 8 + 2 \cdot 2 = 20$.

The demands of

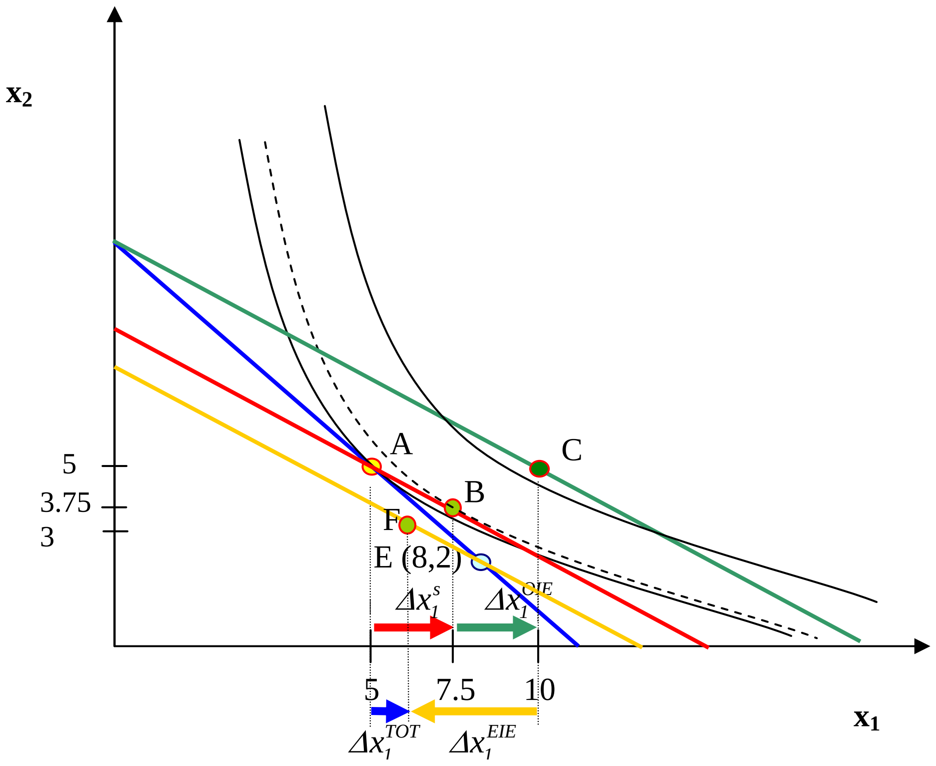
$$x_1 = \frac{m}{2p_1} \text{ and } x_2 = \frac{m}{2p_2}$$

are already known (we use Lagrangian to find individual demands).

We proceed as before (and find B and C as well as the substitution effect and the (now: ordinary) income effect).




What is still left to be done is the computation of the final equilibrium in *F* after a re-evaluation of *m* generated by *E* at new prices. Graphically, we shift the green budget line through *C* back through *E*, which gives the budget line at new prices that *E*, and along this budget line we find the optimal bundle *F:*




At new prices, the value of $E$ is $p_1'\omega_1 + p_2\omega_2 = \tilde{m}$, or: $1\cdot 8 + 2\cdot 2 = 12$.

Knowing this, we compute

$x_1^F = \frac{\tilde{m}}{2p_1'} = \frac{12}{2} = 6$, and $x_2^A = \frac{\tilde{m}}{2p_2} = \frac{12}{4} = 3$.

We reach point F (6,3).

Last, we compute the Endowment Income Effect (which is the demand change from C to F):

$\Delta x_1^{EIE} = x_1^F - x_1^C = 6 - 10 = -4$ .

This is represented through the yellow arrow. Note that

(1) the endowment income effect is always opposed to the ordinary income effect,

(2) since the consumer is a net seller of good 1, he faces a large income decrease due to the decrease in $p_1$. In other words: $E$ contains 8 units of good 1, and the individual loses \$8 through the price decrease when selling $E$ at new prices. In turn, since she is also a consumer, she also benefits from the price decrease in A, which is \$5 in terms of income. The result is a positive total effect (slight increase in demand for good 1). This result is not predictable by just checking the Slutsky equation (buying/selling version of it):

$$\frac{\Delta x_1}{\Delta p_1} = \underbrace{\frac{\Delta x_1^s}{\Delta p_1}}_{(-)} + \underbrace{(\omega_1 - x_1)}_{\substack{(+) \\ \text{if net seller}}} \underbrace{\frac{\Delta x_1^m}{\Delta m}}_{(+)}$$

Note that the two signs are different (we need to know the magnitude of each effect to see the net effect.