Macro II ECON 816 Homework 1

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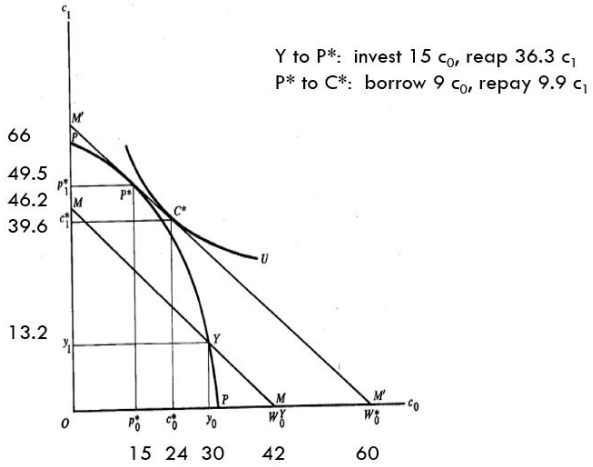
Problem set 1: Numerical example



$p_1^* = 49.5$ since $M' : c_1 = mc_0 + b$

$m = \frac{66-0}{0-W_0^*} = \frac{66-0}{0-60} = -\frac{11}{10}$

$c_1 = -\frac{11}{10}c_0 + b$

Letting $c_1 = 66$ and $c_0 = 0$, $(66) = -\frac{11}{10}(0) + b$

$b = 66$ thus M' **:** $c_1 = -\frac{11}{10}c_0 + 66$

When $p_0^* = 15 = c_0$, $c_1 = -\frac{11}{10}(15) + 66 = 49.5 = p_1^*$

Similarly, letting $c_0 = c_0^* = 24$, $c_1 = \frac{11}{10}(24) + 66 = 39.6 = c_1^*$

M and M' are parallel which means that their slopes are equivalent.

This means that M: $c_1 = -\frac{11}{10}W_0^Y + b$

Using the fact that $W_0^Y = 42$ and $c_1 = 0$, $(0) = -\frac{11}{10}(42) + b$

$b = \frac{231}{5}$ $M : c_1 = -\frac{11}{10}c_0 + \frac{231}{5}$

This means that the c_1 intercept is $-\frac{11}{10}(0) + \frac{231}{5} = 46.2$

When $y_0 = c_0 = 30$, $c_1 = -\frac{11}{10}(30) + \frac{231}{5} = 13.2 = y_1$

We can conclude that from Y to P^*, we invest 15 c_0 and reap 36.3 c_1 beceause

$y_0 - p_0^* = 30 - 15 = 15$ during time c_0

$p_1^* - y_1 = 49.5 - 13.2 = 36.3$ during time c_1

Additionally, from P^* to C^*, we borrow $9c_0$ and repay $9.9c_1$ since

$c_0^* - p_0^* = 24 - 15 = 9$ in time c_0

$p_1^* - c_1^* = 49.5 - 39.6 = 9.9$ in time c_1