

Example: PC Preferences

General intertemporal budget constraint:

$$C_0 + \frac{C_1}{1+r} = PVI$$

Example individual's preferences:

Likes to have 1 unit of consumption in 1 for each unit in 0

$$\frac{C_1}{C_0} = \frac{1}{1}$$

$$C_1 = C_0$$

Income and interest rate:

$$I_0 = 50k$$

$$I_1 = 70k$$

$$r = 10\%$$

Graphing the BC:

X intercept: PVI

$$PVI = I_0 + \frac{I_1}{1+r}$$

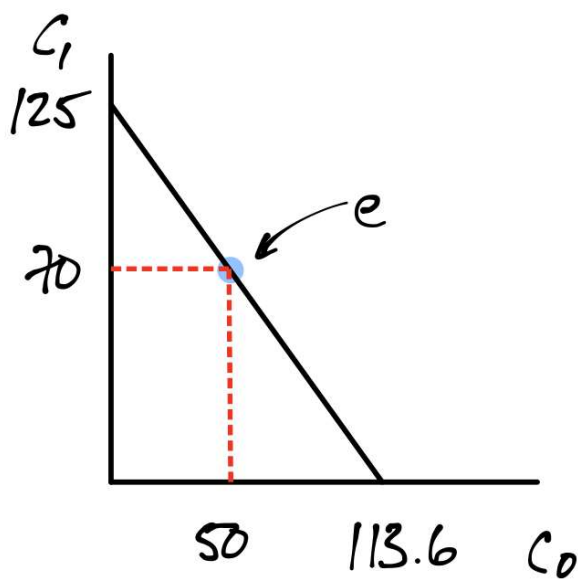
$$PVI = 50k + \frac{70k}{1.1} = 113.6k$$

Y intercept: FVI

$$FVI = I_1 + I_0(1 + r)$$

$$FVI = 70k + 50k(1.1) = 125k$$

Graphing:



Solving for the consumption bundle:

BC:

$$C_0 + \frac{C_1}{1 + r} = PVI$$

Preferences:

$$C_1 = C_0$$

Solving:

$$C_0 + \frac{C_0}{1+r} = PVI$$

$$C_0 + \frac{C_0}{1.1} = 113.6k$$

$$C_0(1 + 0.909) = 113.6k$$

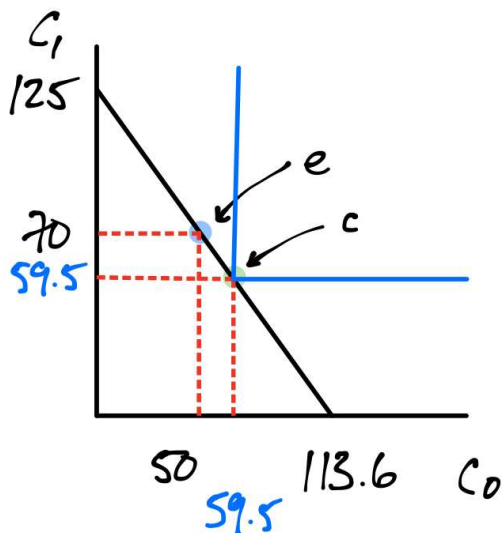
$$C_0 = 59.5k$$

$$C_1 = C_0 = 59.5k$$

Check:

$$59.5 + 59.5/1.1 = 113.6$$

Graphing:



Borrowing at 0 (since $C_0 > I_0$):

$$B = C_0 - I_0 = 59.5k - 50k = 9.5k$$

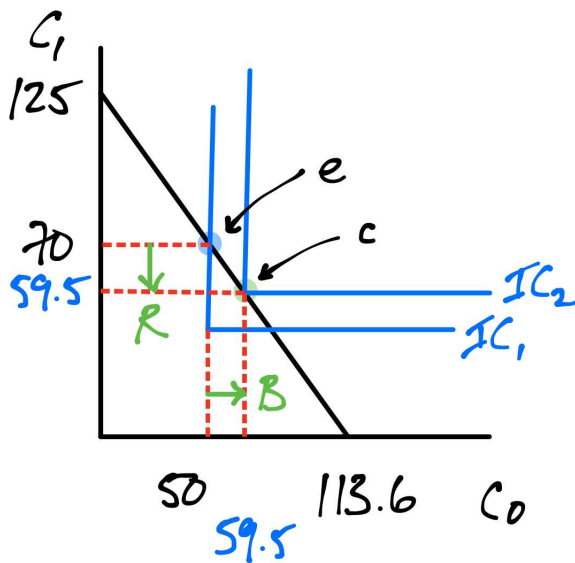
Owe at 1:

$$B(1 + r) = 9.5k * (1.1) = 10.5k$$

Repayment at 1:

$$R = I_1 - C_1 = 70k - 59.5k = 10.5k$$

Full diagram with both ICs:



Daily exercise on Google Classroom