1 Who Pays Attention - basic idea

Consider a simple two-period optimization problem:

$$\max u(C_1) + \beta u(C_2) \tag{1}$$

subject to:

$$C_1 + \frac{1}{R}C_2 \leq Y_1 + \frac{1}{R}Y_2 \tag{2}$$

The Euler equation is:

$$u'(C_1) = \beta R u'(C_2) \tag{3}$$

$$\tag{4}$$

Assuming log utility and linearizing:

$$C_1 = \frac{1}{\beta R}C_2 \tag{5}$$

$$\tag{6}$$

Plugging into budget eq:

$$\frac{1}{R}(\frac{1}{\beta} + 1)C_2 = Y_1 + \frac{1}{R}Y_2 \tag{7}$$

$$C_2 = \frac{RY_1 + Y_2}{\frac{1}{\beta} + 1} \tag{8}$$

$$C_1 = \frac{Y_1 + \frac{1}{R}Y_2}{1 + \beta} \tag{9}$$

$$\frac{1}{R}(\frac{1}{\beta} + 1)C_2 = Y_1 + \frac{1}{R}Y_2 \tag{10}$$

$$\log(C_2) = \log(\frac{RY_1 + Y_2}{\frac{1}{\beta} + 1}) \tag{11}$$

$$C_1 = \frac{Y_1 + \frac{1}{R}Y_2}{1 + \beta} \tag{12}$$

Suppose, for simplicity, $\beta = 1$, $Y = Y_1 = Y_2$, $R = 1 + r$ with r small such that $1/R \approx= 1 - r$, then

$$C_2 = (1 + \frac{r}{2})Y \tag{13}$$

$$C_1 = (1 - \frac{r}{2})Y \tag{14}$$

Suppose you didn't pay attention to the change in R, then you would consume $C_1 = C_2 = Y$. Loss of utility would be second order.

Now assume you start owing a debt of 1, face value 1, in period 2, with an offsetting income of 1 next period. You have the option to refinance.
If R goes up, you will not refinance - problem is identical to the above:

$$C_2 = (1 + \frac{r}{2})Y \tag{15}$$

$$C_1 = (1 - \frac{r}{2})Y \tag{16}$$

However, if R goes down, you can refinance and only pay (1+r) next period

$$C_2 = Y \tag{17}$$

$$C_1 = (1 - r)Y \tag{18}$$

If you didn't notice this, loss to utility would be first order!!!

2 A Two-Period Sticky Price Model