FTPL EXERCISE

In the following model, we generalize the model discussed in class by allowing an arbitrary utility function, while simplifying by eliminating money.

The agent maximizes

$$E\left[\sum_{t=0}^{\infty}\beta^t U(C_t)\right] \tag{1}$$

subject to

$$C_t + \frac{B_t}{P_t} + \tau_t = \frac{R_{t-1}B_{t-1}}{P_t} + Y_t \tag{2}$$

$$B_t \geq 0, \text{ all t .} \tag{3}$$

The government budget constraint is

$$\frac{B_t}{P_t} + \tau_t = \frac{R_{t-1}B_{t-1}}{P_t} . \tag{4}$$

Suppose the government's monetary and fiscal policies are to set $R_t \equiv \bar{R}$ and $\tau_t \equiv \bar{\tau}$.

- Show that there is just one equilibrium, associated with a unique price level, in which the real value of debt does not explode. [Hint: Try multiplying the government budget constraint through by $U'(C_t)$, then applying the E_{t-1} operator to it while using the Euler equation FOC's, more or less as we did in class.]
- Show that solutions to the Euler equations that allow the real value of debt to explode up or down cannot be equilibria.

Note: The first of these is fairly straightforward. The second part will involve some transversality reasoning that may be difficult.