Continuous Time FTPL Exercise, Due 4/16/98

1. Consider a variant of the model in example C in the appendix of "Fiscal Foundations of Price Stability in Open Economies", which differs from that example in that

i) the probability of jumping to the new policy is given by

$$\delta(b^*) = \max\{\gamma_0 + \gamma_1 b^*, 0\}, \tag{1}$$

allowing us to consider the possibility of negative γ_0 (we maintain the assumption $\gamma_1 > 0$) and

ii) instead of jumping to a policy of $r = \beta$, $\tau = \bar{\tau}$, with the distribution of $\bar{\tau}$ fixed, we now suppose that the value of $\bar{\tau}$ after the jump will be the value that makes the new equilibrium real debt level $\bar{b}$ exactly $(1-\psi)b^*$, where $0 < \psi < 1$.

In other words, the jump in the altered model produces a loss of a fixed percentage of the value of outstanding bonds, regardless of their initial level. (In the original model, the expected percentage loss is higher the higher is b^*, and becomes an expected gain for low enough levels of b^*).

Determine how the interest rate, the price level, and real debt behave in this altered model, and discuss how and why the results differ from those in the original model. Note that the qualitative behavior of the model, like that of the original example C model, may differ according to the values of the γ_i and ϕ_i parameters.