Fiscal Macroeconomics
Class Exercise

Consider the model to simulate debt dynamics introduced in the lectures: In practice, the dynamics of the debt to GDP ratio can be found by solving the following system:

$$sfa_t = \epsilon_t \tag{1}$$
$$R_t^{av} = rr_t + \pi_t = \mu_1 \tag{2}$$
$$g_t = \Delta y_t + \pi_t = \mu_2 \tag{3}$$
$$d_t = -f(R^{av}, g_t, b_{t-1}) \tag{4}$$
$$b_t = \frac{1 + R_t^{av}}{1 + g_t} b_{t-1} + d_t + sfa_t \tag{5}$$

Q1

1. in the case $\mu_1 > \mu_2$ simulte the dynamic effects of the fiscal rule $d_t = -\frac{R_t^{av} - g_t}{1 + R_t^{av}} b_{t-1}$ for an initial level of debt equal to 1.4 of GDP

2. will the rule deliver debt stabilization ?

3. will the rule deliver debt sustainability ?

4. what is the relevance of the Stock Flow adjustment term in determining the debt dynamics ?

Q2

1. Design and implement a fiscal rule that will allow the government to reach a target debt to GDP ratio of 60 per cent

2. discuss the feasibility of the empirical implementaton of your proposed rule.

Q3

1. Extend the model to include money financing when the inflation tax shows the Laffer curve properties.

2. In the case where the real interest rate is 0.03 and real growth is 0.01, check if a constant primary surplus of 1.25 per cent of GDP deliver a sustainable debt path.

3. is it possible to achieve debt sustainability via seignorage without any intervention on the primary surplus ?