1. Find data for any country that could qualify as a small open economy (see the map on the main page of the course web site) — IFS could be a simple source — to test if $Z_t$ is AR(1), and estimate $\rho$. Can one reject that $Z_t$ is unit root? Use your favorite statistical package and your favorite unit root test. Hint: remember that we model real, not nominal variables. When choosing a country maximize the number of observations. This is not your econometrics paper, so do not attempt to perform all possible tests.

For this problem you can work in groups. Turn in one print-out with results with all the names on it.

IMPORTANT: I do not want to see pages of computer–generated output. An explanation of procedure and neatly written results of statistical test could take as little as just one page.

2. OR Chapter 2 Exercise 5.

3. Consider a small open infinitely-lived representative consumer endowment economy with government. Government levies lump-sum taxes $T_s$ and spends $G_s$ in each period $s \in (t, \infty)$. Total assets of the economy are equal to the sum of government and private assets:

$$B_t = B_t^p + B_t^g.$$
(a) Write consumers’ PVBC.

(b) Write government’s PVBC.

(c) Define "Ricardian equivalence" and show that it holds in the described economy. How do taxes affect private savings? How do they affect total savings? What is the intuition for the Ricardian equivalence.

(d) Give an example that shows that Ricardian equivalence can fail with lump-sum taxes in the OGM. Intuitively explain why does Ricardian equivalence fail in OGM. What alterations to OGM will ensure that Ricardian equivalence holds?