Bent E. Sørensen

ECONOMICS 8344 – Macroeconomic Theory III, Fall 2005

Homework 1. Wednesday September 7, 2005. Due Monday September 19.

1. Redo the calculations for the reputation model in Romer Chapter 10, but for the type-1 policy maker substitute the period t welfare function

$$w_t = -(y_t - y^*)^2 - \frac{1}{2}a\pi_t^2 ,$$

where y^* is much larger than y_t and $\bar{y}$.
NOTE: I haven't gone through the exercise so I am not quite sure how long it takes. If the calculations get too complicated you should stop doing calculations and write up a discussion of what the remaining steps should be and what is the logic of the model.

2. Redo the Lucas calculation of welfare gains from removing the variance in the situation where the representative agent maximized the utility index
$\Sigma_{t=0}^{\infty} e^{-\delta t} U(C_t)$,
where δ is a discount factor which you can set equal to 0.01 or 0.02 (try both), C_0 is given, and C_t is a random walk: $\Delta C_t = \epsilon_t$, where ϵ_t is white noise.

You can make the Taylor series expansion that is done in Chapter 10.6 of the textbook (write $C_t = C_0 + \Sigma_{s=1}^{t} \epsilon_s$) or you can assume ϵ is log-normal similarly to what is done in my article with Sebnem Kalemli-Ozcan and Oved Yosha:"Economic Integration, Industrial Specialization, and the Asymmetry of Macroeconomic Fluctuations." *Journal of International Economics*, Vol. 55, September 2001, 107–137 (see appendix). (The argument that persistence of shocks matter a lot for the welfare effect of risk sharing seems first to have been made in the paper Maurice Obstfeld (1994): "Evaluating Risky Consumption Paths: The Role of Intertemporal Substitutability," European Economic Review 38, 1471–86; although Obstfeld did not consider the full general equilibrium that is consider in my article mentioned above.)