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ECONOMICS 7344 – MACROECONOMIC THEORY II, Spring 2008

Homework 4. Thursday February 7, due Wednesday February 13.

1. Romer 5.14.

2. Romer, problem 6.1, pp. 339–340, parts (a) and (b). (Note: This demonstrates the workings of Jensen's inequality. Log-linear approximations used to be so common in rational expectations models that macroeconomists sometimes are jokingly referred to as people who believe the "log of the expectation is the expectation of the log." Such approximations are often impossible to avoid without resorting to simulations—simulations are, however, becoming increasingly popular tools.)

3. Romer, problem 6.2, p. 340. You can use a summation instead of the integral if you feel more comfortable doing that way—this is an approximation because you will still take the consumption of other goods and the aggregate price levels as constant. The advantage of the continuous time formulations is that the consumption of each good is infinitesimally small so there is no impact on other goods from changing consumption of an individual good. (Note: This type of Dixit-Stiglitz utility functions and their implied price indices have become standard in macroeconomics, so don't rush trough this exercise, it will be assumed for exams that you know this material well.)

4. Derive the formula for "b" (the slope in the Lucas supply curve) in terms of the deep structural parameters, γ, η, Var(z) and Var(m).