Extra Credit Assignment: Instructions and Background

June 5, 2017

Instructions: Complete the following worksheet titled *Extra Credit Assignment: Exercises*.[1] Submit the worksheet to me via email bcjenkin@uci.edu or physically on or before the date of your final exam.

· Econ 100C: Tuesday, June 13 at 8am.

· Econ 100C: Thursday, June 15 at 8am.

Do not give this assignment to a TA.

Model overview:

1. **Demand.** The demand for real goods and services is given by the following *IS* equation:

$$y \;=\; 2 - r + \epsilon, \tag{1}$$

   where y denotes the output gap, r denotes the real interest rate, and ϵ is an exogenous demand shock with a mean of zero. By assumption, the central bank can set r directly. All interest and inflation rates are expressed in percentages. That is, if the real interest rate is two percent, then $r = 2$.

2. **Supply.** The supply of goods and services is determined by the following *aggregate supply* or *Phillips curve* equation:

$$\pi \;=\; \pi^e + 0.25y, \tag{2}$$

   where π is the inflation rate and π^e is the private sector's expectation of the inflation rate. Note that there are no exogenous shocks to the supply equation.

3. **Monetary policy.** The central bank wishes to stabilize the inflation rate around a target value π^T. The central bank incurs a cost when the inflation rate is different from the target. The cost to the central bank is reflected in the following *loss function*:

$$L(\pi) \;=\; (\pi - \pi^T)^2 \tag{3}$$

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[1]file name: `Spring2017_monetary_policy_game_questions.pdf`