# Take-Home Exam

1. Write an essay (target length: 2 pages of typescript) on one of the following two topics:

   a. The Lucas Critique is Obsolete: There is strong evidence of a Phillips Curve that has persisted through various monetary policy regimes in the US, has the wrong timing for a natural rate Phillips Curve (i.e. shows unemployment changes affecting prices with a substantial lag), and should therefore be an important determinant of monetary policy.

   b. The New Macroeconomic Consensus: Monopolistic competition menu cost models provide an explanation of sticky prices and of the real effects of monetary policy that has micro foundations in optimizing behavior and accords with the facts. Other models of sticky prices are either equivalent in their implications, do not accord as well with the facts, or have weaker micro foundations.

Whichever essay topic you pick, you can argue either in favor, against, or on both sides, of the stated proposition. The purpose of your essay is to show you have thought about the readings, class discussions, and empirical exercises in this course and can show their relevance to the chosen topic.

2. In our last exercise we considered the model in which individuals solve

$$\max_{\{C_t, B_t\}} E\left[\int_0^\infty e^{-\beta t} U(C_t)\, dt\right] \tag{1}$$

subject to

$$dB = (rB - CP + YP - \tau P)dt\,, \quad B_t \geq 0\,. \tag{2}$$

We examined the case where the primary surplus $\tau$ is set according to

$$\tau_t = -\phi_0 + \phi_1 b_t\,, \tag{3}$$

where $b = B/P$, and in which $\delta$, the probability per unit time of a devaluation, was an increasing function of $b$, with a floor of zero. It may be more realistic, at least near times of crisis, to consider the probability of devaluation to be a function of the size of the deficit (conventional, not primary), i.e. to set

$$\delta = \max\left\{0, \theta_0 + \theta_1 \cdot \left(rb^* - \tau\right)\right\}, \tag{4}$$

with $\theta_0$ possibly negative. As in the last exercise, assume that if the devaluation occurs, it will result in a new equilibrium with $r = \beta$ and $\tau$ set at a fixed level that makes the real value of outstanding debt an a priori known fraction $1 - \psi$ of its value before the devaluation.

Discuss the nature of possible equilibria in this setup. Pay particular attention to determining whether there are any parameter settings for which there might be multiple instantaneous equilibria – that is, more than one current ~~P~~ $r$ consistent with equilibrium.

The *P* in the line above should have been an *r*. Only one person seemed to have been slightly misled by this. Since the model is starts in pegged-*P* equilibrium, multiple equilibrium values of *P* could have occurred only after the switch in policy, and does not in fact occur even then.