ECO 318, Winter 2017, Midterm

Instructions: This exam is in two parts. Part 1 consists of relatively (but not totally) non-technical questions. I am generally looking for one or two paragraphs. Part 2 consists of more technical questions. This exam is open note.

Part 1: **Answer 3 of 4 Questions**.

1. Evaluate the following claim: "The use of adaptive learning in Evans, Honkapohja, and Romer (1996) is a a good assumption because it allows an economy to transition between steady states."

2. Suppose that you ran the following regression:

$$fd_t = \alpha + \beta_1 y_{t-1} + \beta_2 y_{t-1}^2 + u_t \tag{0.1}$$

where fd is financial development and y is GDP growth. Provide an economic interpretation of results where $\beta_1 < 0$ and $\beta_2 > 0$.

3. Suppose that in the model of of Acemoglu and Ziljbotti (1997), agents become more risk-averse. How do you expect this would affect the average and variance of the time needed for an economy to fully develop?

4. In the basic New Keynesian Model, as goods markets become more competitive, ϵ increases. As this happens, will output tend to deviate more or less from its flexible price level?

Part 2. **Answer 3 of 5 Questions**.

1. Suppose that, in Chapter 2 of Gali, the monetary authority uses a policy rule that targets deviations in the price level from a target (p^*).

$$i_t = \rho + \psi(p_t - p^*) \tag{0.2}$$

a. Would you expect ψ to be greater than, or less than, zero? Explain.

b. What values of ψ yield a determinate (unique) equilibrium?

2. A household seeks to maximize the present discounted value of lifetime utility the utility function, $u(c_t) = \sqrt{c_t}$. The household lives forever and discounts using the discount factor β. Consumption evolves according to:

$$k_{t+1} = k_t - c_t \tag{0.3}$$

a. Write out a Bellman Equation that depends only on current and future capital.

b. Make one reasonable (not just a constant) guess about the functional form of the value function. Verify that your guess is correct or incorrect. [Note: You can get full credit even if your guess is incorrect. You are not expected to solve for any coefficients in the value function]

3. Consider the Infinite Horizon Model as developed in class. Consider an economy initially at its steady state.

a. Show how the economy responds to an increase in g, the exogenous growth rate of TFP.

b. Show how the economy responds to a one-time doubling of TFP.

4. Consider the Solow Model as developed in class but with two changes. First, capital existing capital grows at the exogenous rate χ (this works like negative depreciation). Second, a fixed amount T (not a fixed fraction) of capital evaporates each period.

a. Represent the model as a single differential equation.

b. Discuss whether the model's steady state(s) are stable.

5. Recall that the Overlapping Generations Model from class. Suppose that labor's share of income increases.

a. Show the effect on the model's steady state.

b. Illustrate how this affects the speed with which the model converges to its steady state.