

Econ 5110 Midterm Exam – Spring 2014

1. IS-LM-AS Model. (40 pts) The recovery from the 2008 financial crisis has been slow and painful. Two prominent macroeconomists, John Taylor and Paul Krugman, have made contrasting arguments to explain the slow recovery. John Taylor has argued that excessively easy monetary policy, the liquidity trap, and the divergence from past interest rate policy rules is the cause. Paul Krugman has argued that fiscal austerity policies and a government spending multiplier bigger than one have contributed to the slow recovery. Use an IS-LM-AS diagram to discuss the short-run and long-run consequences of Taylor's and Krugman's recommendations. In your discussion, focus on inflation and unemployment impacts.
2. Ramsey Growth Model. (30 pts) Consider a Ramsey economy where agents have log utility and technology grows at rate g . The following system of differential equations describe the dynamics of this Ramsey economy

$$\frac{\dot{c}(t)}{c(t)} = f_k(k(t)) - \rho - g \quad (1a)$$

$$\dot{k}(t) = f(k(t)) - c(t) - gk(t), \quad (1b)$$

where $f(k(t)) = k(t)^\alpha$, $k(0)$ is given, and all other notation is the same as in class.

- (a) (10 pts) Draw the phase diagram for the dynamics of c and k . Make sure to carefully label the axes, phase arrows and saddle path.
 - (b) (10 pts) Find the steady-state level of capital, k^* , and the golden-rule level of capital, k_g . Provide some intuition for the difference between k^* and k_g .
 - (c) (10 pts) What are the fundamental differences between the Ramsey and Solow growth models?
3. RBC Model. (30 pts) Write down an RBC model with fixed labor supply. Be careful to clearly define all variables and equations. Derive and interpret the Euler equation for the consumption. How does it compare to equation (1a)? Finally, explain how your RBC model can be used to describe the business cycle.