Assignment 6: Real intertemporal model

Due date: Friday 11th 2018, at the BE office before 3 pm. Late homework will not be accepted.

1. Analyze the impact of an expected *decrease* in the future productivity (news shock) on macroeconomic variables. Use the optimizing-agent equilibrium framework. Discuss about the transmission mechanisms of shock. Supply your analysis with graphs and narrative explanations.

2. Williamson Chapter 11: Real intertemporal model

2.1 What is the effect of an increase in *d*, the depreciation rate, on the representative firm's investment decision, and on its optimal investment schedule? Explain your results carefully. (Hint: you may consider **three cases**. Firstly, when current period "d" increases while future period "d" remains the same. Secondly, when both current period "d" and future period "d" increases at the same time. Lastly, when current period "d" remains the same, but the future period "d" increases.)

2.2 The government wishes to bring about an increase in investment expenditures, and is considering two tax policies that policymakers think could bring this about. Under the first tax policy, firms would receive a subsidy in the current period of *t* per unit of current output produced. Policymakers reason that firms will use this subsidy for investment. The second policy under consideration is an investment tax credit, by which firms would receive a subsidy of *s* per unit of investment in the current period. Determine which tax policy would be more effective in accomplishing the government's goal of increasing current investment expenditures, and carefully explain your results.

2.3 The government decreases current taxes, while holding government spending in the present and the future constant. Using diagrams, determine the equilibrium effects on consumption, investment, the real interest rate, aggregate output, employment, and the real wage. What is the multiplier, and how does it differ from the government expenditure multiplier?

2.4 Suppose that there is a permanent increase in total factor productivity. Determine the implications of this for current macroeconomic variables, and show how

the impact differs from the case where factor productivity total is expected to increase only temporarily. Explain your results.