Quiz IV

I. Multiple Choice (10 points)

In each of the following problems, identify the appropriate response (or responses):

1. Which of the following statements is an example of Ricardian Equivalence?

    (a) An increase in current taxes allows the government to decrease borrowing and decrease future taxes.

    (b) Facing a drop in interest rates, Casey decides to save less out of her paycheck every week.

    (c) Francis uses some of his stimulus check to immediately to buy an additional computer monitor and puts the rest in the bank to save for a new treadmill for Christmas.

    (d) Genevieve puts her entire stimulus check in the bank to save for future tax payments.

2. Which of the following is endogenous to the household's problem in the Real Intertemporal Model with Investment?

    (a) lifetime profits $(\pi + \frac{\pi'}{1+r})$

    (b) wages (w^*)

    (c) labor supply (N^s)

    (d) output demand (Y^d)

3. Which of the following is consistent with the household's optimization problem in the real intertemporal model with investment?

    (a) Higher interest rates encourage households to save more, even without an increase in the market wage.

    (b) Facing an increase in current taxes of ΔT, consumers will decrease consumption by ΔT.

    (c) An exogenous increase in future wages, $w^{*'}$, will not affect an individual's current labor supply.

    (d) Firms choose to hire a number of workers that sets the marginal product of labor below the market wage.

4. Which of the following is exogenous to the labor market in the real intertemporal model of investment?

    (a) The equilibrium labor supply, $N^s(w^*)$

    (b) The Equilibrium employment, N^*

    (c) The equilibrium wage, w^*

    (d) The interest rate, r^*.

5. Which of the following is consistent with the firm's profit maximization problem in the real intertemporal model with investment?

    (a) An increase future productivity, z', shifts the investment demand curve to the right.

    (b) To maximize profits, firms invest at a level that sets $MP_K = r^*$, where r^* is the prevailing interest rate.

    (c) An exogenous increase in future wages, $w^{*'}$, will increase current labor demand.

    (d) Increases in the interest rate directly increase the return to investment.

II. Magic Rain

Consider an economy well-represented by our two-period model of consumption and savings. The government borrows a positive amount: $B = G - T > 0$. Individual income in current and future periods magically rains from the sky (ie., is exogenous). Suppose each person receives magical endowment income of y_1 in the current period and y_1' in the future period, and plans their consumption and savings accordingly. Everyone has the same preferences, and decides to save when facing endowment (y_1, y_1').[1]

You will need three colors of pens/pencils to complete this problem. Color coding will matter here, so read carefully.

(a) In your **first color**, use the graphs on the following page to draw the utility maximization problem of the representative consumer (Figure 1) and this initial equilibrium in the credit market (Figure 2). On Figure 1, be sure to label relevant characteristics of the consumer's budget constraint, optimal consumption bundle (c_1, c_1'), and optimal amount of private savings S_1^P. On Figure 2 label supply and demand curves and identify the equilibrium interest rate and amount of savings.

A magician has discovered a way to manipulate the weather: it's going to rain more income tomorrow! Instead of receive future endowment income of y_1', each consumer will receive future endowment income of $y_2' > y_1'$.

2. First, compare the original savings and consumption bundle to the hypothetical **partial** equilibrium savings and consumption bundle that results facing this higher future income. Using your **second color**, draw the partial equilibrium response to higher future income on Figures 1 and 2 on the following page. Explain these effects in words below:

3. Next, use your **third color** to draw the general equilibrium impacts on consumption and savings in Figures 1 and 2 on the following page. Explain these general equilibrium effects in words below:

4. How does this exercise related to consumption smoothing? To answer this question, please first describe *what* consumption smoothing is.

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[1]Note that this is our two-period consumption model – there is no firm production here.

Figure 1: Utility Maximization of Representative Consumer

C'

C

Figure 2: The Credit Market

r

S/I