ECONOMICS 7344, Spring 2014
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HOMEWORK 5. Monday February 10, due Wednesday February 19.

1. (15% of last year's midterm 1) Assume that output is determined by the "Keynesian Cross"

$$C_t + I_t + G_t = Y_t, \quad t = 1, 2.$$

where $I_t = 0.5 * Y_t$ for $0 < \alpha < 1$, $G_1 = G_2 = 10$. Finally, assume that C is determined by the PIH with Y as the income variable (and no initial assets) with an interest rate of 0.
a) Assume $C_1 = 5$ find Y_2. What is Y_2 if $C_1 = 50$?

b) What does this tell you about the compatibility of the PIH and "Keynesian Cross" [hint, how many equations do you have to determine C and Y, in light of the results from part a)?]

2. (20% of 2010 Final) Assume that an agent's wage income follows the AR(1) process

$$y_t = 300 + 0.5y_{t-1} + e_t \quad (*)$$

where e_t is white noise with variance 3.

Assume the agent's wage was 100$ period 0.
a) What is the agents expected wages in period t (for any $t > 0$)?
b) If the rate of interest is 10 percent and the PIH holds, what is the agent's level of consumption in period 0 assuming that his or her assets at the beginning of period 0 was 1000$.

3. (15% of the January 2014 core exam) Assume that a representative agent's income follows a stationary AR(1) model with mean 0 and assume the PIH holds. Further assume that the agent's consumption satisfies

$$\Delta c_t = 0.2y_t - 0.12y_{t-1} \ .$$

a) What is coefficients in the AR(1) model for income?

b) What is the rate of interest?