Econ 3021 – Urban Economics
Winter 2009
Assignment 4: Housing
The due date for problem 3. is Monday 16 March. Please deposit in course mailbox.

1. A consumer lives for two periods. In the first period, they have initial assets a_1 and must either rent or buy one house. Demand for housing is fixed at one unit. If they rent the cost is p_r. If they buy, the cost is p_1. Remaining resources may be spent on first period consumption c_1 or savings s. In the second period, savings s pays gross return r. In addition, if they purchased a house, they may sell it in the second period for an uncertain value. With probability π_H the second period value is p_H and with probability $1-\pi_H$ it is $p_L < p_H$. Thus, for owners, in the second period in the high house price state, consumption is $c_{2H} = rs + p_H$ while in the low house price state it is $c_{2L} = rs + p_L$. For renters second period consumption is $c_{2H} = c_{2L} = rs$ in both states. Consumers maximise utility. Utility is

$$u(c_1, c_{2H}, c_{2L}) = \ln c_1 + \beta[\pi_H \ln c_{2H} + (1 - \pi_H) \ln c_{2L}].$$

   (a) What are the budget constraints for buyers and for renters?

   (b) What are the demand functions for renters? What are the first order conditions for owners?

   (c) Explain how values of $(a_1, p_1, p_r, p_L, p_H, r)$ affect the decision to rent or buy. (Hint: What is the utility of renters? How do you expect each of these variables will affect utility of renters vs. utility of buyers?)

   (d) If the Bank of England reduces r, how will that affect first and second period consumption choices of buyers and renters? How will it affect the choice to buy or rent? If the information given is insufficient to determine the direction of either effect then explain why.