

Exam 1 – Econ 304 – Chuderewicz – Fall 2010

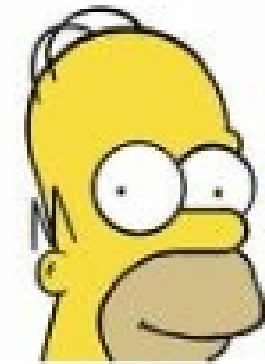
Name \_\_\_\_\_ Last 4 (PSU ID) \_\_\_\_\_

**Section:** Hosler Sparks (please circle one)

**PLEASE PUT THE FIRST TWO LETTERS OF YOUR LAST NAME ON TOP RIGHT HAND CORNER OF THIS COVER SHEET – THANKS AND GOOD LUCK!!!**

Please answer **all** questions. You must show all work or points will be taken off.

1. (60 points total) Homer Simpson, does not abide by the life cycle theory of consumption. Homer has a “let’s live life like it’s our last day” mentality and thus, he prefers to consume more today, relative to the future. In particular, Homer prefers to consume exactly twice as much today ( $c$ ), relative to consumption next period ( $c^f$ ). Homer’s current income = \$250K and his future expected income = \$150K. He has no wealth (neither current nor expected) since he lives like today is his last! Homer faces a real interest rate of 0.10. Please answer the following questions.



a) (5 points) State clearly what the slope of any budget line represents, in general, and then refer to this specific case (i.e., what is the slope of Homers budget constraint and what does this mean exactly? Be specific. (5 points)

$$C^f = [(1 + r)(y + a) + y^f + a^f] - (1 + r) C$$

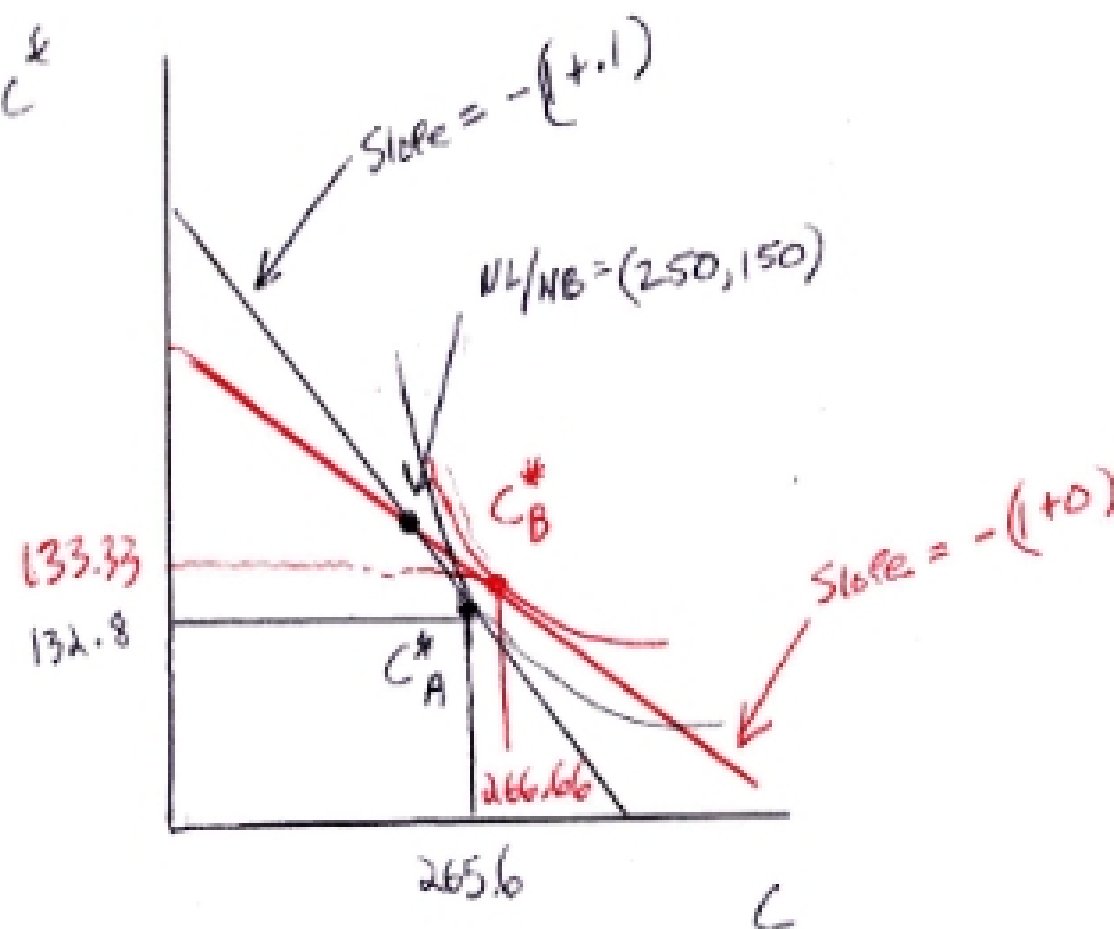
**Intercept**

**Slope**

*Slope represents trade – off or relative price of current consumption in terms of future consumption – in this case, if Homer consumes one more unit of current consumption, he is giving up  $1 + .1$  units of future consumption- so  $1 + r$  units of future consumption is the price of (one unit) current consumption.*

b) (5 points) Solve for Homer’s optimal consumption basket today ( $C^*$ ) and his optimal consumption basket next period ( $C^{f*}$ ). Please provide a completely labeled graph depicting these results and label this initial point as  $C^*_{A}$ .

$$C = 265.6 \quad C^f = 132.8$$



(10 points for a completely labeled graph – be sure to label the no lending / no borrowing point = NL/NB) Use space above.



c) (5 points) Now Ben Bernanke and the Fed is not happy with the state of the economy (i.e., we are not at NAIRU) and therefore conduct massive amounts of open market purchases and some how get the real rate of interest all the way down to 0.00 (that is correct, zero percent!). Resolve for Homer's optimal basket, given the Fed's expansionary policy and label as point  $C^*_B$  on your diagram.

$$C = 266.6 \quad C' = 133.33$$

d) (5 points) Did the Fed policy work as in stimulating the economy? That is, did the Fed policy successfully increase consumption, which represents about 70% of the economy (assume the economy is made up with a bunch of Homers, just like this one!) Be sure to **define** what the income and substitution effects are and how they play a role in determining whether or not the Fed policy is successful (as defined by increasing consumption). Also, comment on whether these income and substitution effects work in the same or opposite direction (i.e., is it a tug of war or do they work in the same direction?) in this particular case.

*Discuss*



e) (5 points) Given the Fed's behavior (i.e.,  $r = 0$ ), Homer becomes more cautious since he is thinking that if interest rates are this low, something must be wrong. He grabs an economic textbook and reads about the 'life cycle theory of consumption' and along with discussions with his wife Marge, he decides to change his preferences to be consistent with perfect consumption smoothing, just like Dagwood was in our HW problem. Resolve for Homers optimal basket and label as point  $C^*_C$  on a **NEW** diagram.

$$C = 200 \quad C' = 200$$