UNIVERSITY OF CALIFORNIA
DEPARTMENT OF ECONOMICS

Economics 202A
Fall 2018
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Problem Set 4
Due in lecture Thursday, September 27

(Note: A "+" next to a problem means that it is related to
material that will be covered in lecture on Sept. 25)

1. Romer, Problem 2.18.

2. Romer, Problem 2.20.

3. (This is different from the usual type of problem.) This problem asks you to "play around" with the model presented at the start of Section 3 of Eggertsson-Mehrotra-Robbins (equations [1]-[11], pp. 7–9). Specifically, choose some simplification, generalization, or variation of the assumptions of the model (or of the slightly simplified version of that model presented in lecture). Explain why you chose the change to the assumptions that you did. Then investigate how, if at all, your change affects the basic analysis and messages of the model, and discuss what you found.

       Obviously, there is no right answer to this question. For example, if a seemingly small variation or generalization makes the model intractable, or if an apparent simplification does not make the model any easier to analyze or more transparent, or if an apparent generalization turns out not to be a generalization at all, that would be interesting to know from the perspective of model-building and of understanding the model.

       Likewise, there is no right or wrong motivation for changing the model. Nonetheless, it is worth spending some time thinking about what change you want to make. Examples of potentially promising motivations are, "Looking at their analysis, it seemed to me that all that assumption xxxx did was to clutter up the presentation without generating any insights; I wanted to see if this was true"; or, "I can argue intuitively that the results would fall apart if I relaxed assumption yyyy; I wanted to see whether this was true."

4. Consider the Diamond overlapping-generations model where k is converging to a balanced-growth-path value from above. Then:
       A. The real interest rate is rising over time.
       B. The real interest rate is falling over time.
       C. The real interest rate is constant over time.
       D. The behavior of the real interest rate is not monotonic.
       E. It is not possible to tell.

EXTRA PROBLEMS (NOT TO BE HANDED IN; COMPLETE ANSWERS MAY NOT BE PROVIDED)

5. Consider an economy described by the Diamond overlapping-generations model where initially k is above its balanced-growth-path level. Now suppose there is an unexpected, permanent rise in agents' discount rate, ρ.

Sketch the resulting paths of k, and what that path would have been if ρ had not changed. Explain your answer.

6. In a Diamond economy, the balanced growth path <u>cannot</u> be dynamically inefficient if:
   A. Utility is logarithmic and production is Cobb-Douglas.
   B. Individuals' discount rate (ρ) exceeds the economy's growth rate ($n + g$).
   C. The initial capital stock is less than the golden rule capital stock.
   D. None of the above.

7. Romer, Problem 2.19.

8. Romer, Problem 2.21.

9. Romer, Problem 2.17.

+10. Romer, Problem 3.1.