

Macroeconomics A

Problem set 6

This problem set will be collected at the beginning of the next class and marked. If you cannot make it to class you are advised to hand your solutions in before the deadline. No solution will be accepted after the deadline.

Please answer question 2.9 on p.94 in Romer. Hints:

1. The question assumes that the rate of capital depreciation is zero.
2. Assume that the number of households is 1.
3. The question says that the government “...returns the revenue it collects through this tax through lump-sum transfers”. It means that disposable labour income is $w_t + S_t$, where S_t is the government transfer. The household takes S_t as given when choosing its consumption path. But when you impose market clearing you need to replace for S_t using the fact that the transfer equals the revenue from capital taxation; i.e. $S_t = \tau f'(k_t)k_t$.
4. For part (e) of the question please refer to Section 2.4 in Romer and my discussion of the welfare properties of the Ramsey model in the lecture notes.