

3. This question asks you to write a “report” which exposits the basic overlapping generations model, and explores some of its implications. Given the number of issues to be covered in your “report”, the emphasis should be on intuition (words and/or diagrams) rather than algebra, with mathematics used most in your basic exposition. Assume there is a constant population growth rate, but depreciation and technical progress are both zero.

Part I of your report should be an exposition of the basic model. Part II of your report should provide an explanation of the following points:

✓ (a) What is meant by ‘dynamic inefficiency’? In reality, observation of the ‘real interest rate’ is difficult because of uncertainty, heterogeneity etc. Briefly explain (either verbally or diagrammatically) how you could develop a criterion for the existence of dynamic inefficiency based on expenditure and factor income shares.

(b) In the context of a closed-economy model explain how a pay-as-you-go social security scheme (whereby the government taxes each young person a lump-sum amount  $T$  and distributes the proceeds to the currently old) could be Pareto improving.

✓ (c) An alternative to the pay-as-you-go scheme is a fully funded scheme where the government invests the tax proceeds by purchasing capital. Individuals born at  $t$  therefore receive  $(1 + r_{t+1})T$  when they are old. How do the welfare effects of such a scheme compare to the effects of the pay-as-you-go scheme? Do you think your results address the main concerns some people have about “privatizing” social security? Why or why not?

(d) Now consider the case of a small open economy, with perfect capital mobility and no adjustment costs for capital. Can dynamic inefficiency arise in this case? If so, could a pay-as-you-go social security scheme be Pareto improving?

Points will be allocated as follows: Part I (Exposition of basic OLG model): 40%; Part II, (a) to (d) — 15% each.