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| **AY 2024-2025** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Surname:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Matricola:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Monetary Economics (basic)****Mock first assignment test (Wednesday 13 November 2024)** *Prof. Nicola Dimitri*  **Available time**: 60 Minutes  |

**1. (16 points)**

Consider the OLG model discussed in class, where all is the same except that

$$U(c\_{1t},c\_{2t+1})=c\_{1t}+\frac{logc\_{2t+1}}{1+θ} $$

Find the optimum level of consumption for the two periods as well as money and equilibrium price behaviour.

Suppose now money supply increases, at each $t$, at rate $h>-1$ (as in the problem assigned) in class. How does the optimal consumption level, in the two periods, and the equilibrium price behaviour change?

**2 (16 points)** Discuss the costs of a single currency area

**Content 1st mid term**

The role of money in OLG models. Chapter 1-4 (included) of the Paul De Grauwe textbook.

No part of the above chapters have to be skipped. However, the topics discussed in class during the lectures and homework discussion are the most important.

**Rules 1° mid term test**

The test is not obligatory. We remind that students can keep the grade of the first mid term until the official exam sessions of September 2023 (included). The second part of the course test could be taken on the second mid term test ( January-February 2023, dates to be announced) or on any official exam session in June, July and September 2023 (included). Those who fail the second part, or pass but reject the grade, will have to re-take the whole test, first part included.

**Additional problems**

1. Consider the Phillips Curve $u=u\_{n}+α(\dot{p}^{e}-\dot{p}) $and suppose the monetary authority has the following Loss functions over $u$ and $\dot{p}$: (1) $L\left(u,\dot{p}\right)=Max(\dot{p},u)$ and (2) The authority wishes to minimize the Loss, with respect to unemployment and inflation. If the Central Bank (CB) announces $\dot{p}^{e}$ as inflation rate, and the economic operators believe it, what is the optimal level of inflation and unemployment for CB. Is it possible to find the level of $u\_{n}$?
2. Consider the OLG model discussed in class, where all is the same except that

$$U(c\_{1t},c\_{2t+1})=logc\_{1t}+\frac{c\_{2t+1}}{1+θ} $$

Find the optimum level of consumption for the two periods as well as money and equilibrium price behaviour.

Suppose now money supply increases, at each $t$, at rate $h>-1$ (as in the problem assigned) in class. How does the optimal consumption level, in the two periods, and the equilibrium price behaviour change?

 Do the same problem now with

$$U(c\_{1t},c\_{2t+1})=(c\_{1t})^{a}+\frac{c\_{2t+1}}{1+θ}$$

 with $0<a<1$.

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$$U(c\_{1t},c\_{2t+1})=c\_{1t}+\frac{c\_{2t+1}}{1+θ}$$

 with $0<a<1$.