Num. Nome:

Macroeconomic Policies

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I (4.5 val)

Define 3 of the following concepts:

(i) Poverty trap

(ii) Conditional convergence

(iii) Growth effect vs level effect

(iv) Learning by doing

(v) No natural gravitation (institutions)

II (3.0 val)

In each of the following questions, choose the right one. Right: 0.5; wrong: -0.125.

1. In light of the Solow model with A=1, a higher population growth rate "*n*" will determine in the steady state: (i) a higher per capita income, y=Y/N; (ii) a faster growth of Y; (iii) a faster growth of per capita income y=Y/N; (iv) all the other.
2. Consider an economy where $Y_i = AK_i^{1/3}N_i^{2/3}$, and A is an exogenous constant. In that case: an increase in the saving rate from s=0.35 to s=0.4 will cause (i) a faster growth rate of Y in the long run; (ii) a higher per capita income in the steady state; (iii) a higher level of per capita consumption in the steady state; (iv) all the other.
3. Consider an economy where, $Y_i = AK_i^{1/3}\left(\lambda N_i\right)^{2/3}$ and $\lambda = K/N$. In that case: (i) the externality is non-rival; (ii) there will be absolute convergence; (iii) there will be endogenous growth; (iv) all the other.
4. According to Alfred Marshal, the advantages for some economic activities to cluster together arise from: (i) localized technological spillovers; (ii) a larger market for specialized suppliers; (iii) labour market pooling; (iv) all the other.
5. In the model with rent seeking: (i) the fraction of time devoted to rent seeking increases when the tax rate increases; (ii) the fraction of time devoted to rent seeking increases when productivity in the formal sector increases; (iii) a benevolent planer will set a tax rate higher than in the case without rent seeking; (iv) all the other.

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6. The natural experiment of colonization of much of the World by the Europeans after the 15th centuries reveals that: (i) geography is the main factor explaining economic growth; (ii) institutions cannot be the main factor explaining why some countries are rich while others are poor; (iii) geography exerted an important indirect effect (iv) all the other.

III (12.5 val)

IIIA. (7.5 val)

You are making a study to understand the prospects of long-term growth in the economy of Scranton, and you decided to use the Augmented Solow Model to model it. After some time analyzing the data, you realize the savings rate is 5%. The production function is $Y_t = A_t\,(K_t)^{\beta}\,(N_t)^{1-\beta} = A_t\,(K_t)^{0.5}\,(N_t)^{0.5}$, and technology is given by $A_t = 2e^{gt} = 2e^{0.01t}$. Population is constant and the depreciation rate is 2%. Consider as efficient labor units $L_t = e^{\gamma t}N_t$.

a) (a1) Find out the per capita income in the steady state. Represent it in a graph. Discuss the stability of the equilibrium.

(This question can be answered on paper, however, do not forget to write here your final answer)

(a2) Is the steady state of this model in accordance with Kaldor stylized facts?

(This question must be answered on Wiseflow)

b) Analyzing the data more closely, you realize that the savings rate in Scranton increased to 20%. What would be the path of income (Y/L) and consumption (C/L) per efficient labor units and of income per capita (Y/N) in the adjustment to the new equilibrium?

(This question can be answered on paper, however, please write a brief description of the graphs you drew here)

c) Continue considering that the savings rate in Scranton is 20%. In your analysis, you come across another economy, Pawnee, which is very similar to Scranton and decide to compare the two economies. Given the available data, you discover that the income per capita in Pawnee is 4x lower than in Scranton.

(c1) If Scranton is in steady-state and all the parameters in the model are the same, how much should be the interest rate in Pawnee? Would the previous case provide a realistic explanation for cross-country income disparities? Why?

(This question must be answered on Wiseflow)

(c3) Assume instead that the interest rates in the two economies is the same. In that case, how much should be the difference in A? In light of the theories studied in class, what could explain these underlying differences in A?

(This question must be answered on Wiseflow)

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IIIB. (5 val)

Consider an economy where the production function of an individual firm is given by: $Y_i = A(K_i)^{0.5}\,(N_i)^{0.5}$. In this economy, the savings rate is equal to 18%, the depreciation rate is 2% and population and technology are constant. Assume that $A = (3G/Y)^{0.5}$, where G refers to productive public expenditure. There is also a tax on production, τ, and a percentage of the tax revenue is used in unproductive expenditure: $\Phi = \varphi\tau Y$. Assume that the government budget is balanced.

a) Explain, briefly, what parameters G and φ intend to capture.
(This question must be answered on Wiseflow)

b) Explain why this economy needs a government.
(This question must be answered on Wiseflow)

c) Find out an expression for A, as a function of τ and φ and indicate the equilibrium values of per capita consumption and of per capita income, as a function of τ and φ.
(This question can be answered on paper)

d) Find the benevolent planner solution.
(This question can be answered on paper, however, do not forget to write here your final answer)

e) Find the kleptocrat solution.
(This question can be answered on paper, however, do not forget to write here your final answer)

f) Compare the two previous solutions in the locus (τ ,c), where c is consumption per capita. Explain.
(This question can be answered on paper, but the explanation must be answered on Wiseflow)