

*Problem Set on Temporal Choice

Question I - Comment, agreeing totally, partially or not. If is the case, justify in three or four lines the following propositions (if possible present a formula or graph in capsular form to illustrate your answer):

- 1) One way of explaining excess of demand for credit in equilibrium is to the existence of stickiness in capital prices, for example in the case of usury laws.
- 2) An increase in the interest rate in the Stiglitz and Weiss model always leads to a reduction in the likelihood that borrowers will honor their commitments.
- 3) In a competitive equilibrium where economic efficiency is affected by distorting taxes, distributive policies can generate an increase in welfare if they increase borrowers' collateral in a context of perfect information.
- 4) Microcredit motto: Credit does not create potential opportunities.
- 5) Credit market imperfections (liquidity constraints) can explain why permanent increases in income that were already part of the economic agents' information set produce significant effects on the level of consumption.
- 6) Friedman's theory of permanent income can explain why families with low current income have higher propensity to consume the current income in comparison with the other families.
- 7) In a country with a high inequality level such as Brazil, heterogeneity in consumer's behavior is not properly incorporated by representative agent models.
- 8) According to the precautionary savings model, falls in the variability of income inherent to the stabilization process have a strong impact on the current level of consumption as they relax consumers budget constraint.
- 9) Irrespective of imperfections in the capital market, a greater smoothing of the individual's income between different moments of time and states of nature results in social welfare gains.
- 10) Consider the model with ex post utility function given by:

$$U_t = \sum_{j=0}^{\infty} \beta^j u(c_{t+j}, v_{t+j}) \text{ where } v_t = [c_{t-1}^D C_{t-1}^{1-D}]^\gamma, \gamma \geq 0, D \geq 0 \text{ and } C_t = \text{aggregate consumption.}$$

This model is always *time-separable* and the greater the parameter D, the greater will be the impact of the demonstration effect exerted by the neighbors ("catching up with the Joneses" effect).

- 11) If we incorporate survival constraints in the stochastic consumption model with a CRRA utility function like

$$U(C_t) = \frac{(C_t - C_{\min})^{1-\gamma}}{1-\gamma}, \text{ the demand for savings will increase.}$$

- 12) Consider the intertemporal consumption model with quadratic and additive utility function, i.e.,

$$\text{Max} E_t \sum_{i=0}^{\infty} (1+\theta)^{-i} \left(a C_{t+i} - \frac{b}{2} C_{t+i}^2 \right) \text{ This model cannot explain the relation between savings and uncertainty.}$$

- 13) Consider the income generation process given by the following equation $Y_t = \phi Y_{t-1} + \varepsilon_t$

Denote $\phi(L) = 1 - \phi L$, where L is the lag operator. We have that the greater is ϕ , the greater will be the sensitivity of consumption to changes in income.

- 14) ***Solow Growth and Life-Cycle models produce same effects of savings rates on GDP growth.
- 15) ***Making bequests imply necessarily being altruistic.

Question II – Discursive questions:

- 1) Discuss the role of the following elements: liquidity constraints; precautionary savings and habit formation. in the explanation why consumption tracks income a. Low income consumers; b. during the life cycle
- 2) **Explain the intuition behind equation (1) derived from the model below. Let's consider the case where absolute risk aversion is constant, so we can solve it explicitly. Suppose that consumer's solve the following problem: $\max E_t [\sum (-1/\alpha) \exp(-\alpha C_t)]$ s.t. $A_{t+1} = (A_t + Y_t - C_t)$; $Y_t = Y_{t-1} + e_t$ Where $e_t \sim N(0, \sigma)$ Optimal consumption satisfies the Euler equation $C_{t+1} = C_t + (\alpha\sigma)/2 + e_t$ (1)
- 3) ***Define the "consumption puzzle" of excess sensitivity presented in the empirical literature and give some economic rationale for this result.