Part IIA Macroeconomics
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Intertemporal Macroeconomics
Supervision 1

Short questions

(1) Consider the two-period model of consumer behaviour. Using a diagram, describe the effect on consumption today and in the future of
   (a) a windfall rise of income in period 1 (temporary income change)
   (b) income rising by the same amount in both period 1 and 2 (change in permanent income). Under which conditions will the change in consumption be identical in both periods?
   (c) income rising in period 2 (anticipated temporary increase).

(2) Do the results in the previous question change if you consider a consumer that is liquidity constrained, i.e. cannot borrow against future income? Explain.

(3) On the context of the same model of the previous questions, what is the effect of an increase in interest rate? Decompose the overall effect into intertemporal income and substitution effect. Would you get different answers if the consumer was a borrower or lender? Explain.

Problems

(4) Consider a two-period model of optimal intertemporal choice. Agents maximize:

$$U(C_1, C_2, L_1, L_2) = \ln C_1 - \frac{L_1^{1+\eta}}{1+\eta} + \frac{1}{1+\rho}\left[\ln C_2 - \frac{L_2^{1+\eta}}{1+\eta}\right]$$

where C_1 and C_2 are first and second period consumption, L_1 and L_2 are first and second period labour supply, ρ is the rate of time preference, and η is a strictly positive constant. Agents face the following intertemporal budget constraint:

$$C_1 + \frac{C_2}{1+r} = w_1 L_1 + \frac{w_2 L_2}{1+r}$$

where r is the real interest rate and w_1 and w_2 are the real wage rates prevailing in period 1 and 2, respectively.
   (a) Set up the Lagrangian associated with this problem.
   (b) Derive and provide a brief interpretation of:
      (i) The equation characterising the optimal intertemporal consumption choice.
      (ii) The equation characterising the optimal static consumption/labour supply choice.
      (iii) The equation characterising the optimal intertemporal labour supply choice.

(5) What are the marginal propensities to consume out of (a) temporary and (b) permanent changes in income in the following models? What factors does your answer depend upon in each of the models?
   (a) Modiglianis Lifecycle Hypothesis (LCH)
   (b) Friedmans Permanent Income Hypothesis (PIH)
   (c) Keynesian Liquidity Constrained consumers (LCC).

Essay (800 words max)

(6) Changes in consumption should be unpredictable. Discuss with reference to the empirical evidence.

Readings

- Barro (1997) Macroeconomics, 5th edition, chapters 2, 3, and 20.
- Doppelhofer (2009), Intertemporal Macroeconomics. Forthcoming in: Cambridge Essays in Applied Economics. Available at:
  `http://www.econ.cam.ac.uk/intranet/faculty/prado/teaching.htm`
- Williamson (2008) Macroeconomics, 3rd edition, chapters 4 and 8.

Further Readings[1]

- Abel, Bernanke and McNabb (1998) Macroeconomics, chapters 4 and 8
- Blanchard (2005) Macroeconomics. 4th edition, chapter 16.
- Campbell and Mankiw (1989) Consumption, Income and Interest Rates: Reinterpreting the Time- Series Evidence. NBER Macroeconomics Annual, 185-216.
- Deaton (1992) Understanding Consumption. Oxford: Clarendon Press.
- Friedman (1957) A Theory of Consumption. Princeton University Press.
- Hall (1978) Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence. Journal of Political Economy 86 (April), 971-87.
- Keynes (1936) The General Theory of Employment, Interest, and Money. MacMillan.
- Mankiw (2002) Macroeconomics, 5th edition, chapter 16.
- Modigliani (1986) Life Cycle, Individual Thrift, and the Wealth of Nations. American Economic Review 76 (June), 297-313.

[1]Some of the listed papers are seminal works and therefore can be a bit dense to read.