

Intertemporal Macroeconomics Supervision 2

Short questions

- (1) Consider the neoclassical model derived in the lecture. Imagine that supply depends positively on the real interest rate, while consumption and investment demands depend negatively. Suppose the economy is initially in an equilibrium position.

Permanent productivity increase

- (a) What are the effects of a permanent increase in the level of productivity A on output, the level of consumption and investment and the interest rate?
(b) Are the results different from the ones when investment was not considered? Why?

Temporary productivity increase

- (c) What are the effects of a temporary increase in the level of productivity A on output, the level of consumption and investment and the interest rate?
(d) Are the results different from the ones when investment was not considered? Why?

Anticipated productivity increase

- (e) What are the effects of an anticipated permanent increase (from the next period on) in the level of productivity A on output, the level of consumption and investment and the interest rate?
(f) Are the results different from the ones when investment was not considered? Why?

Problems

- (2) (Tripos 2013) Consider the following static labour/leisure choice problem

$$\begin{aligned} \max_{c, \ell, L} \{ \ln c + \ln \ell \} \\ \text{s.t.} \quad c = Lw \\ 1 = \ell + L \end{aligned}$$

where c denotes consumption, ℓ leisure, L labour, and w the wage rate.

- (a) Derive the optimal choice of c , ℓ and L . How does the optimal choices depend on the wage rate, w ? Explain intuitively.
(b) Now consider instead the following version of the above problem

$$\begin{aligned} \max_{c, \ell, L} \{ \ln c + \ln \ell \} \\ \text{s.t.} \quad c = L(1 - \tau)w + R \\ 1 = \ell + L \end{aligned}$$

where τ is an income tax, and R is a lump-sum *rebate*. For simplicity, assume that the government rebates all revenue from the income tax. Derive the optimal choice of c , ℓ , and L . Specify your answer in terms of the tax τ . Explain how this answer differs from that of part (a).

- (c) Compute the value of τ that maximises welfare in this setting. Explain the intuition underlying this result.

Essay (800 words max)

- (3) (Question B5 from Sample Exam paper) “Aggregate data do not lend support to neoclassical business cycle models”. Discuss this statement paying particular attention to intertemporal decisions about consumption, labour/leisure and investment.

Readings

- Barro (1997) Macroeconomics, 5th edition, chapters 5, 6, and 9.
- 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, 8, and 9.

Further Readings¹

- Abel, A.B. (1990). Consumption and Investment. In B.M. Friedman and F.H. Hahn (eds.), Handbook of Monetary Economics. Vol. II. North-Holland: Elsevier.
- Abel, Bernanke and McNabb (1998) Macroeconomics, chapters 4.2 and 11.1.
- Baddeley (2003) Investment: Theories and Analysis, London: Palgrave Macmillan.
- Blanchard (2005) Macroeconomics. 4th edition, chapters 16 and 26.
- Burda and Wyplosz (2005) Macroeconomics: A European Text. 4th edition, ch. 6.
- Caballero (1999) Aggregate Investment. In Taylor and Woodford (eds) Handbook of Macroeconomics, Vol I, North Holland: Elsevier.
- Hayashi, F. (1982) Tobins Marginal q and Average q: A Neoclassical Approach. *Econometrica* 50, 213-24.
- Hall and Jorgenson (1967) Tax Policy and Investment Behavior. *American Economic Review* 57, 391-414.
- Mankiw (2002) Macroeconomics, 5th edition, chapter 17.
- Prescott (1986) Theory Ahead of Business-Cycle Measurement. *Carnegie Rochester Conference Series on Public Policy* 25, 11-44.
- Summers (1986) Some sceptical observations on real business cycle theory, *Federal Reserve Bank of Minneapolis Quarterly Review* 10, 23-27.
- Stadler (1994), Real Business Cycles. *Journal of Economic Literature* 32(4), 1750-83.
- Symposium on Business Cycles (1999), *Journal of Economic Perspectives* 13(2).

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