Macroeconomics, Part IIB
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Supervision 6

New Keynesian Macroeconomics

Short questions (250 words max)

1. Briefly explain to what extent the assumptions of imperfect competition and price rigidities are substitutes or complements in generating New Keynesian results. [cf Tripos 2004]

2. Briefly summarize the microfoundations and key implications of the New Keynesian Phillips curve.

Problem

3. Consider the following macroeconomic model of monopolistic competition. The representative, profit-maximizing firm i has the production function

$$Q_i = L_i$$

where Q_i denotes output and L_i labor. The demand for good i equals

$$Q_i^D = Y \left(\frac{P_i}{P} \right)^{-2}$$

where P_i is the price charged by firm i, P the aggregate price level and Y aggregate output. Aggregate demand is given by

$$Y = \frac{M}{P}$$

where M denotes the money supply. Labor supply is given by

$$L^S = \left(\frac{W}{P} \right)^{\gamma}$$

where W is the nominal wage and $\gamma > 0$.

(a) Compute the optimal real price P_i/P charged by firm i as a function of the real wage W/P. Give an economic interpretation of the resulting pricing policy.

(b) Derive the equilibrium real wage W/P in terms of M and P. Use this to compute the optimal pricing policy of the representative firm, P_i^*, as a function of M and P.

(c) Denote $x \equiv \ln X$ for all variables in the model. Compute the (log) aggregate price level under flexible prices, p^*, and (log) output under flexible prices, y^*. Give an economic interpretation of the result.

(d) Assume now that $\gamma = 1$. Suppose that a fraction λ of firms have sticky prices and a fraction $1 - \lambda$ of firms have flexible prices, where $0 \leq \lambda \leq 1$. Flexible-price firms set their price equal to $p_f = p_i^*$, while sticky-price firms have pre-set their price equal to $p_s = \mathrm{E}[p_i^*]$. The (log) aggregate price index is given by:

$$p = \lambda p_s + (1 - \lambda) p_f$$

Derive p and y in terms of m, $\mathrm{E}[m]$ and the model parameters. Explain the effects of unanticipated and anticipated monetary shocks m on the price level p and output y.

Essay question (1000 words max)

4. "The business cycle is an economic phenomenon that is fully understood by economic theory." Discuss by contrasting predictions based on economic theory with empirical observations on the business cycle. [Tripos 2006]

Main readings

- Carlin and Soskice (2006), *Macroeconomics: Imperfections, Institutions and Politics*, chapter 15
- Sørensen and Whitta-Jacobsen (2005), *Introducing Advanced Macroeconomics: Growth and Business Cycles*, chapter 14, 17-19

Supplementary references

- Backus and Kehoe (1992), "International evidence on the historical properties of business cycles", *American Economic Review* 82, September, pp. 864-888.
- Ball and Romer (1990), "Real rigidities and the non-neutrality of money", *Review of Economic Studies* 57, pp. 183-203.
- Ball, Mankiw and Romer (1988), "The New-Keynesian Economics and the output-inflation trade-off", *Brookings Papers on Economic Activity* 1, pp. 1-65.
- Blackburn and Ravn (1992), "Business cycles in the United Kingdom: Facts and fictions", *Economica* 59, pp. 383-401.
- Carlton (1986), "The rigidity of prices", *American Economic Review* 76, September, pp. 637-658.
- Mankiw (1985), "Small menu costs and large business cycle: A Macroeconomic model of monopoly", *Quarterly Journal of Economics* 100, May, pp. 529-539.
- Mankiw (1988), "Imperfect competition and the Keynesian cross", *Economics Letters* 28, pp. 7-14.
- Mankiw (2001), "The inexorable and mysterious trade-off between inflation and unemployment", *Economic Journal* 111(471), May, pp. C45-61.
- Romer (1993), "The New-Keynesian synthesis", *Journal of Economic Perspectives* 7, Winter, pp. 5-22.
- Romer (2006), *Advanced Macroeconomics*, chapter 6.
- Symposium on Business Cycles, *Journal of Economic Perspectives*, Spring 1999.