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 \( \lambda \) 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 \( p_s = E[p_i^*] \). The (log) aggregate price index is given by:

\[
p = \lambda p_s + (1 - \lambda) p_f
\]

Derive \( p \) and \( y \) in terms of \( m \), \( E[m] \) 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**


**Supplementary references**