UNIVERSITY OF OSLO
DEPARTMENT OF ECONOMICS

Postponed exam: ECON4325 – Monetary policy and business fluctuations

Date of exam: Wednesday, August 09, 2006

Time for exam: 9:00 a.m. – 12:00 noon

The problem set covers 2 pages

Resources allowed:
- No resources allowed

The grades given: A-F, with A as the best and E as the weakest passing grade. F is fail.

The exam consists of two parts: A and B. Both parts carry equal weights. You should answer both parts.

Part A consists of four questions, of which you shall answer three. You can choose yourself which question you will leave out. Answer briefly, intuitively and precisely.

Part B consists of one question. Answer in depth and in detail.

PART A) Answer all questions briefly

Question 1

Explain briefly how one can extract trend and business cycles from the data. Describe some important stylized facts of business cycles that are common in most countries.

Question 2

Distinguish between price inertia and inflation inertia. Briefly discuss the effectiveness of policy in stabilizing the real economy if there is inflation inertia.

Question 3

Characterize and contrast a targeting regime and an instrument rule. Give examples of both.

Question 4

Explain why a discretionary monetary policy can be subject to the dynamic inconsistency problem. How can one solve this problem?

PART B) Long question.

Productivity shocks and Real Business Cycles (RBC) models

Consider a Cobb-Douglas production function, where Y_t is output, K_t is capital and N_t is labour. Technology A_t enters the production function as a third factor of production (so-called Hicks-neutral growth):

$$Y_t = A_t K_t^{\alpha} N_t^{1-\alpha}, \qquad 0 < \alpha < 1 \qquad (1)$$

1) *What do we mean by the Solow residual and how can we interpret the residual in terms of equation (1)?*

Assume that the economy consists of many identical firms with production function given by (1). It is a marked economy without money or other financial objects so labour and capital are paid their marginal products. Assume the size of the labour force is *normalised to one*, there is no technological development and capital depreciates fully within one period. Savings will equal a fixed fraction of income:

$$K_{t+1} = sY_t \qquad (2)$$

where (0<s<1).

2) *Find an expression for ln Y_t as a first-order difference equation and interpret the findings.*

3) *Find an expression for the dynamics of output if:*

i) *lnA_t is white noise*

ii) *lnA_t follows a random walk*

In which case can a positive productivity shocks have a permanent effect on output?

4) *Give examples of driving force and persistence in the theory of business cycles and explain what they are in (i) Lucas's imperfect information model, (ii) Real business cycle models. To what extent can these models generate business cycles patterns that are similar to what we observe in real data?*