

UNIVERSITY OF OSLO
DEPARTMENT OF ECONOMICS

Term paper in: **ECON3410/4410 – Introductory dynamic macroeconomics**

Handed out: Monday, March 20, 2006

To be delivered by: Monday, April 3, 2006

1:00-2:00 p.m.

Place of delivery: Next to SV-info-center, ground floor

Further instructions:

- This term paper is **compulsory**. Candidates who have passed the compulsory term paper (or home assignment) in a previous semester, does not have the right to hand in the term paper again. This is so, even if the candidate did not pass the exam.
- You must use a printed front page, which will be found at http://www.oekonomi.uio.no/info/EMNER/Forside_obl_eng.doc
- It is of importance that the term paper is delivered by the deadline (see above). Term papers delivered after the deadline, **will not be corrected**.*)
- All term papers must be delivered to the place given above. You must not deliver your term paper to the course teacher or send it by e-mail.
- If the term paper is not accepted, you will be given a new attempt. If you still not succeed, you will not be permitted to take the exam in this course. You will then be withdrawn from the exam, so that this will not be an attempt.

*) If a student believes that she or he has a good cause not to meet the deadline (e.g. illness) she or he should discuss the matter with the course teacher and seek a formal extension. Normally extension will only be granted when there is a good reason backed by supporting evidence (e.g. medical certificate).

ECON 3410/4410: Introductory Dynamic Macroeconomics. Term paper, spring 2006.

This term paper will be marked as 'passed or 'failed'. To get a 'pass' you must answer question 1 and *some* of question 2-5.

You can write an individual paper, *or* hand in joint work ('gruppebesvarelse'). However we do not allow more than 3 students in each group! You can write in English, Norwegian, Danish or Swedish.

Technical requirements:

Use a Times Roman font, size 12, for all standard text. Mathematical formulae can be handwritten, and graphs may be handdrawn. Note that special requirements apply to question 1 (the number of words, see below).

Full name(s) should be *clearly printed* at the top of the first page of your term paper, together with the name of the course (For example: Home assignment to ECON 3410, by NN and NN.)

Where and when to hand in: Monday 3 April 2006. See cover page for details. If a student believes that she or he has a good cause not to meet the deadline (e.g. illness), she or he should report the matter to the course teacher and seek a formal extension. Normally extension will only be granted when there is a good reason backed by supporting evidence (e.g. medical certificate).

1. Choose *one* of the two titles below and write an essay. The essay should not be more than 2500 words long, and good essays can be considerably shorter. Important: cite the number of words (for example using the word count function in MS-Word) in a footnote. Graphs and formulae do not count as words.

Title 1: *On the role of static and dynamic models in macroeconomics.*

Title 2: *On the role of stabilization policies in modern economies.*

2. Assume a small open economy with a fixed exchange rate, and that one single wage rate applies to all sectors of the economy. The natural logarithm of the wage rate in period t is denoted w_t . Let mc_t denote the main-course variable (as explained in IDM Ch 3.2.), and let U_t denote the rate of unemployment (not in logs)

Assume the following model for the wage rate

$$(1) \quad \Delta w_t = \beta_{w0} + \beta_{w1}U_t + \beta_{w2}\Delta mc_t - (1 - \alpha_w)(w_{t-1} - mc_{t-1}) + \varepsilon_{w,t}$$

where $\varepsilon_{w,t}$ represents an exogenous (and random) disturbance term.

Give signs to the coefficients in (1), and explain your reasoning.

3. Assume that the rate of employment is exogenous, for example determined by government policy (which we need not specify in this model).

- (a) Explain why the formulation in (1) is consistent with the so called *wage-curve*, namely a relationship between the wage rate and the rate of unemployment.
- (b) What are the dynamic multipliers of the wage level with respect to a permanent change in the rate of unemployment?
- (c) What is the response of the wage level if the change in U is not permanent, but instead lasts for two time periods before returning to its initial value.

4. Next, assume that the rate of unemployment is endogenous and given by

$$(2) \quad U_t = \beta_{U0} + \beta_{U1}(w_{t-1} - mc_{t-1}) + \varepsilon_{U,t}$$

The main-course variable and the two disturbances $\varepsilon_{w,t}$, $\varepsilon_{U,t}$, are exogenous variables in the dynamic system made up of (1) and (2). For simplicity set $\beta_{w1} = 1$.

- (a) Give the conditions for the existence of a solution to the system (1) and (2).
- (b) Give the condition (on the coefficients) which ensure that the system has an asymptotically stable solution.
- (c) Assuming that the system has an asymptotically stable solution, give the expressions for the long-run solution of U_t and $w_t - mc_t$.