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Stockholm University

Department of Economics

Course name:	**Intermediate Macroeconomics**
Course code:	**EC2201**
Type of exam:	**Main**
Semester:	**Autumn 2015**
Examiner:	**Lars Calmfors**
Number of credits:	**7,5 credits (hp)**
Date of exam:	**October 27, 2015**
Examination time:	**5 hours (14-19)**

Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).

Use one cover sheet per question. Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. **No aids are allowed.**

All answers must be in English.

The exam consists of 5 tasks. Tasks 1 and 4 are worth 20 points each, tasks 2 and 3 are worth 25 points each and task 5 is worth 10 points – 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

Only students who have NOT received an extra credit from the seminar exercises should do task 5. Students who have received an extra exam credit should not do task 5 (and cannot get any extra points from doing it).

Your results will be made available on your "My Studies" account **(**www.mitt.su.se**)** on Tuesday, November 10, at the latest. The exam review session will take place on Thursday, November 12, at 16-18 in lecture hall B4.

Good luck!

Question 1 (Maximum 20 points)

Give short answers (maximum two pages per question).

(a) Take the simplest version of the Solow model without both population growth and technical progress. Analyse and characterise the steady state. Derive the golden-rule level of capital per worker. (Maximum 5 points)

(b) What is meant by the Balassa-Samuelson effect? Show mathematically how it is derived. (Maximum 5 points)

(c) Write down the interest rate parity condition. What does the condition say about the relation between the domestic and the foreign interest rate if there is a credible fixed exchange rate? What does the condition say about the relation between the domestic and the foreign interest rate if there are expectations of a large devaluation? Why can it be difficult to sustain a fixed exchange rate in such a situation? (Maximum 5 points)

(d) Derive the equation for the intertemporal budget constraint in Fisher's two-period model. (Maximum 5 points)

Question 2 (Maximum 25 points)

Use the AA-DD-model in Krugman-Obstfeld-Melitz to answer the following questions. Make sure that you explain the economic mechanisms in addition to using diagrams and mathematics.

(a) Assume that there is a *temporary* increase in the money supply. How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *short run* under a flexible exchange rate? (Maximum 5 points)

(b) How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *long run* by a *temporary* increase in the money supply under a flexible exchange rate? (Maximum 5 points)

(c) Assume now that there is a *permanent* increase in the money supply. How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *short run* under a flexible exchange rate? How does the short-run equilibrium in this case differ from the one in (a)? (Maximum 7 points)

(d) How are the nominal and real exchange rates, output, the price level and the interest rate affected in the *long run* by a *permanent* increase in the money supply under a flexible exchange rate? Explain how the adjustment path from the short-run to the long-run equilibrium looks. (Maximum 8 points)

Question 3 (Maximum 25 points)

(a) Write out the equation for the Taylor rule for monetary policy. Explain and interpret the equation verbally. What does the rule say about how the real interest rate reacts to a rise in inflation (the Taylor principle)? (Maximum 5 points)

(b) Draw a diagram with the dynamic aggregate supply (DAS) curve and the dynamic aggregate demand (DAD) curve from Mankiw. Write out the equation for the DAS curve and explain its slope. You need not derive and write out the equation for the DAD curve but you should give an intuitive explanation of its slope. (Maximum 5 points)

(c) Assume that the economy starts in a long-run equilibrium with output at its natural (equilibrium) level and inflation equal to the central bank's inflation target. Assume also that the economy is exposed to a supply shock *reducing* inflation during one period (think of falling oil prices) after which the supply shock disappears. Analyse how the economy is affected, that is the adjustment path back to long-run equilibrium. The analysis should be diagrammatical, but you should also explain the economic mechanisms. (Maximum 7 points)

(d) Assume again that the economy starts in a long-run equilibrium with output at its natural (equilibrium) level and inflation equal to the central bank's inflation target. But assume now that the economy is exposed to a positive aggregate demand shock increasing demand at each rate of inflation. Assume that the shock lasts three periods and then disappears. Analyse how the economy is affected, that is the adjustment path back to long-run equilibrium. Again the analysis should be diagrammatical, but you should also explain the economic mechanisms. (Maximum 8 points)

Question 4 (Maximum 20 points)

The pros and cons of being a member of a monetary union can be analysed with the help of the theory of optimal currency areas. Discuss the advantages and disadvantages for a country like Sweden of joining the EU's monetary union. How important do you think various effects are? Give your recommendation on whether Sweden should join now, later or never and motivate it.

Task 5 (Maximum 10 points)
THIS TASK SHOULD BE SOLVED ONLY BY THOSE WHO DO NOT HAVE AN EXTRA CREDIT FROM THE SEMINAR EXERCISES. THOSE WHO HAVE A CREDIT DO NOT OBTAIN ANY POINTS FROM THIS TASK.

Assume that production in the economy is determined by a Cobb-Douglas production function with total factor productivity, labour and capital as arguments. Derive the profit-maximising levels of employment and capital. Show how the income shares of labour and capital are related to parameters in the Cobb-Douglas function.