Department of Economics

Course name: Development Economics
Course code: EC7310

Examiner: Jakob Svensson
Number of credits: 7,5 credits
Date of exam: 25 February, 2018
Examination time: 3 hours [9:00-12:00]

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.

The exam consists of 4 questions. The first two questions are worth 20 points each. Question 3 is worth 35 points, and question 4 is worth 25 points, for 100 points in total.

Your results will be made available on your "My Studies" account (www.mitt.su.se) on March 16 at the latest.

Good luck!
Short essay

About a page (max 2) should be used to answer each question. Worth 20 points each.

1. Discuss the research design and the key empirical findings, including the effect size, in Acemoglu, Johnson, Robinson’s (2001) study on the colonial origins of comparative development.

2. Explain what development accounting is about and what the empirical results from development accounting tell us about income differences across countries.
Problems

Question 3 is worth 35 points. Question 4 is worth 25 points.

3. Consider the following model of debt-financed, or credit rationed, farmers. Farming requires farmers to invest in an indivisible project requiring funds $L = 1$. A farmer’s crop output $y$ is binary. Specifically $y = 1$ (good harvest) with probability $e$ and $y = 0$ (crop failure) with probability $1 - e$, where $e$ is farmer effort and the (monetary) cost of exerting effort is $c(e) = c_1 e^2$, where $c > 1$ is a constant. Assume further that the farmer needs to borrow all project funds, $L = 1$. The farmer has some collateral (transferable wealth) $w$, and we assume $w < L = 1$ (i.e. limited liability). Let $R = (1 + i)L = (1 + i)$, since $L = 1$, denote the amount the farmer needs to pay the lender after harvest when the farmer borrows and can afford to do so, where $i$ is the interest rate. Note that in case of a crop failure, the lender can only claim the collateral.

(a) Determine the farmer’s choice of effort (i.e. solve the farmer’s optimization problem) and interpret your findings.

(b) Assume now that each farmer is served by one lender. Each lender can borrow funds $L = 1$ at a cost $\rho$, where $\rho \geq L = 1$. Assume each lender makes profit $\bar{\pi} > 0$. $\bar{\pi}$ here is assumed fixed. Write down the lender’s profit function and show how $R$ (or $i$) depends on $e$.

(c) Discuss (you do not have to show this mathematically) how a higher collateral affects farmers’ expected income in this model and how these mechanisms can help us understand how poverty can be magnified through credit markets.

4. Consider a Solow model with no population growth or technological progress. Income is $Y = K^a L^{1-a}$, where $L$ is the work force and $K$ is the capital stock. Capital depreciates at a rate $\delta$ and the savings rate is given by $s$.

(a) Assume the country is in a steady-state. A donor commits to give untied aid to the country (the recipient). Specifically the donor commits to give, in each period, a constant fraction of the recipient’s GDP in aid. That is $A/Y = \lambda$, where $\lambda$ is a positive constant and $A$ is the amount of untied aid disbursed to the recipient.
What are the effects of aid on growth, income and consumption in the short and long run? Derive analytical solutions, illustrate graphically, and interpret your findings.