



Stockholm  
University

Department of Economics

**Course name: Development Economics**

**Course code: EC7310**

**Examiner: Jakob Svensson**

**Number of credits: 7,5 credits**

**Date of exam: Sunday 4 December 2017**

**Examination time: 3 hours [09:00-12:00]**

**Write your identification number on each answer sheet. Use the printed answer sheets for all your answers. Do not answer more than one question on each answer sheet.**

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.**

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The exam consists of 8 questions. The first five questions are worth 11 points each. The last three questions are worth 15 points each, for a total of 100 points. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

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Your results will be made available on your "My Studies" account ([www.mitt.su.se](http://www.mitt.su.se)) on December 23th at the latest.

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**Good luck!**

## Short essays

You should not use more than 1 page to answer each question. Worth 11 points each.

1. Briefly discuss the empirical strategy and the main findings in Acemoglu and Johnson's (2007) paper on the effect of life expectancy on economic growth.
2. Ghosh, Mookherjee, and Ray (2000) present a simple model of moral hazard and credit rationing. Briefly explain how an increase in farmers' collateral, in their model, affects loan cost and expected harvests.
3. Dercon (2002) discusses two problems with self insurance using assets (such as livestock) as buffer stocks. Briefly discuss these potential problems.
4. Briefly describe how Miguel and Kremer (2004), in their deworming paper, estimate within school externalities.
5. Kelsey's (2013) review of constraints on the adoption of agricultural technologies in developing countries identifies seven market imperfections that constrain agricultural technology adoption. Briefly discuss two of these market imperfections.

## Problems

Worth between 15 points each.

6. Consider a public official that is paid  $w$  in the public sector and has an outside option (an alternative job) that pays  $v$ , with  $w > v$ . The official can accept a bribe payment  $b$  as public official but there is a probability  $p$  that the official then will be detected and fired (and not get paid in the public sector). Determine the condition under which the official will not accept a bribe and interpret your results.
7. Consider a Solow growth model where output is given by

$$Y = BK^\alpha L^{1-\alpha-\beta} T^\beta$$

and where  $\alpha + \beta < 1$ ,  $B$  is a productivity term (with  $\dot{B}/B = g$ ),  $K$  is capital,  $L$  is labor (with  $\dot{L}/L = n$ ), and  $T$  is fixed amount of land. Capital evolves according to

$$\dot{K} = sY - \delta K$$

- (a) Normalize  $T = 1$ ,  $B = 1$ , and assume no population growth ( $n = 0$ ), or technological progress ( $g = 0$ ). Solve for the steady state income per capita. Explain how  $\beta$  affects the steady state.
  - (b) Assume now instead that  $n > 0$  and  $g > 0$ . Solve for the steady-state growth in income per capita. Explain how  $\beta$  affects the steady state growth rate.
8. Consider the following model with a landlord and a tenant. The tenant's output  $y$  (working on the landlord's land) is  $y = e + \theta$ , where  $\theta$  is a random error term with mean 0 and where  $e$  is effort exerted by the tenant.

The landlord observes only  $y$ . Assume the landlord offers a contract to the tenant of the form

$$y_T = \alpha y - R$$

where  $y_T$  is the tenant's payoff,  $\alpha$  is the sharing rule and  $R$  is the fixed rent the tenant must pay.

Assume the cost of exerting effort (for the tenant) is

$$c(e) = \frac{1}{2}ce^2$$

where  $c > 1$ . Assume further that the tenant have no outside option and that both the tenant and the landlord is risk-neutral.

Solve for the optimal sharecropping contract (that is  $\alpha$  and  $R$ ) and interpret your results.