

Written Exam at the Department of Economics summer 2021

Development Economics

Final Exam

May 31, 2021

(3-hour closed book exam)

Answers only in English.

This exam question consists of 4 pages in total

Falling ill during the exam

If you fall ill during an examination at Peter Bangsvej, you must:
submit a blank exam paper.

leave the examination.

contact your GP and submit a medical report to the Faculty of Social Sciences no later than five (5) days from the date of the exam.

Be careful not to cheat at exams!

You cheat at an exam, if during the exam, you:

Make use of exam aids that are not allowed

Communicate with or otherwise receive help from other people

Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text

Use the ideas or thoughts of others without making use of source referencing, so it may appear to be your own idea or your thoughts

Or if you otherwise violate the rules that apply to the exam

Problem A

Please provide short answers to the following questions and statements:

1. Please provide an argument for why income inequality may affect growth and future income levels negatively.
2. Please explain the difference between gross and the net enrollment rates. How can gross enrollment rates be above 100%?
3. Please explain briefly how poverty is estimated using the Food Energy Intake (FEI) method of estimating poverty lines.
4. Please briefly discuss some disadvantages of the Food Energy Intake (FEI) method.
5. Please describe briefly what a randomized control trial (RCT) is and discuss what the main advantage of using RCTs in development economics is.
6. Please discuss the following claim: In terms of economic growth, there exists an optimal level for the annual average temperature.
7. Please explain how the relationship between wages and nutrition can lead to low-level equilibria in labour markets in very poor countries.

Problem B Human capital

1. A version of The Solow model using standard notation is given by equations (1) and (2). Please explain the economic intuition behind the equations and the variables used. Please be as precise as you can.

$$Y = AK^\alpha(hL)^{1-\alpha} \quad (1)$$

$$\Delta K = \gamma Y - \delta K \quad (2)$$

2. Please derive an expression for the steady-state level of income per capita. How will steady-state income per capita change if human capital increases by 10%?
3. Please discuss how high levels of inequality can affect the accumulation of human capital negatively and reduce efficiency.
4. Human capital accumulates through education. The return to schooling is often measured using a “mincerian wage regression” on a cross section of individuals (i) like the one given in equation (3). β_1 is a measure of the semi-elasticity of wages (E_i) with respect to years schooling (S_i). \exp_i is a measure of experience. Please discuss potential drawbacks to using this method and explain how “Second generation estimates” can be seen as an attempt to address these issues.

$$\ln E_i = \alpha + \beta_1 S_i + \beta_2 \exp_i + \beta_3 \exp_i^2 \quad (3)$$

5. Another part of human capital is health. As figure 1, which is taken from Weil (2013)¹, illustrates, there is a clear correlation between life expectancy and GDP per capita. Please discuss:
 - a. Is life expectancy a satisfactory indicator of health?
 - b. Is it reasonable to infer that the causal mechanism behind the correlation in figure 1 is that high levels of income causes high levels of life expectancy?

Problem C Agriculture

1. An important factor in agricultural production is land. However, ownership of land is unequally distributed. Assume that farm production exhibits constant returns to scale. In this situation, landowners will want to either hire labour or rent out land to increase productivity. Please give examples of circumstances under which:
 - a. Hiring of labour may be preferred to renting of land
 - b. Renting of land may be preferred to hiring of labour
2. Part of the existing literature finds that smaller farms appear to have higher productivity than larger farms, when productivity is measured as output per acre. Please discuss why this situation may arise.

An important connection between the agricultural sector and the rest of the economy works through the labour market. Consider the canonical Lewis two-sector model, with a single change, namely that social norms dictate that the agricultural wage should not be less than the average product of labour in the agricultural sector.

3. What does the labour supply curve of the industrial sector look like? Please illustrate the effects as demand for labour in the modern sector increases and compare with the effects of the same increase in the standard Lewis two-sector model. Please illustrate your answer with relevant graphs.
4. What are the effects of a population increase in this model? Please compare to the effects of the standard Lewis two-sector model. Assume that the modern sector labour demand is such that the agricultural marginal product of labour is zero.

¹ David N. Weil, 2013. "Economic Growth", Pearson International Edition, 3rd Edition

Figure 1. Life Expectancy versus GDP per Capita (from Weil (2013)).

