



AFRICAN ECONOMIC RESEARCH CONSORTIUM

Collaborative Masters Programme in Economics for Anglophone Africa (Except Nigeria)

JOINT FACILITY FOR ELECTIVES (JFE) 2009

PUBLIC SECTOR ECONOMICS I

First Semester: Final Examination

Duration: 3 Hours

Date: Tuesday, August 11, 2009

INSTRUCTIONS:

This examination has **SIX QUESTIONS**.

You are required to attempt **FOUR QUESTIONS**. **QUESTION ONE** is **COMPULSORY**.

Each question carries **TWENTY FIVE (25)** marks.

Question 1 (Compulsory)

Indicate whether you consider the following statements to be True, False or Uncertain and explain your answer. **[3.57 marks each]**

- (i) Since education yields private returns, which are fully captured by the person who makes the investment, the market will provide the optimal level of education and the government should not intervene.
- (ii) Voters elect but they do not influence decisions taken by politicians.
- (iii) In response to increasing episodes of malaria around Nairobi city, government intends to conduct a cost-benefit analysis to determine whether or not to provide anti-mosquito spraying in order to protect its citizens from the sickness. The best way for the government to determine the value of anti-mosquito spraying benefits was to directly ask a random sample of Nairobi residents how much they would be willing to pay for the spraying.
- (iv) In most applications, it would be straight forward to implement a Lindahl equilibrium. However, most politicians are unfamiliar with basic public sector economics and they are reluctant to implement a mechanism for public goods provision that they do not understand
- (v) The minimal state suggests that only 15 percent of a country's GDP should be spent on the public sector activities
- (vi) The 'grandfather' clause suggests that in case of loss of benefits, government should support up two generations after which it should stop.
- (vii) The adverse selection model of market failure is about the actions that agents take in response to certain incentives.



Question 2

- (a) Explain why getting individuals to reveal their true preferences as well as aggregating the resulting preferences poses a significant difficulty in determining the optimum level of public goods. **[5 marks]**
- (b) Consider the following economy with two individuals A and B . The two individuals have the same income: $m = 1$. However, preferences of individual A are given by

$$U_A = 0.6 \ln(G) + z_A.$$

Preferences of individual B are given by:

$$U_B = 0.4 \ln(G) + z_B.$$

Suppose further that one unit of the private good can be transformed into one unit of public good $c = 1$.

- (i) Compute the Pareto efficient level of the public good G . **[5 marks]**
- (ii) Compute the Lindahl equilibrium assuming individuals reveal their preferences truthfully **[7 marks]**
- (iii) Suppose now that individual B truthfully reveals his preferences. However, individual A does not truthfully reveal his preference. Instead, he pretends to be just like individual B . Compute the Lindahl equilibrium associated with this behaviour. **[5 marks]**
- (iv) Which of the two outcomes (b) or (c) does individual A prefer? Explain your answer. **[3 marks]**

Question 3

- (a) Distinguish between X-efficiency and allocative efficiency **[5 marks]**
- (b) Explain how pursuit of personal objectives by bureaucrats leads to government failure. **[8 marks]**
- (c) Present and briefly explain the main categories of public spending that are usually most vulnerable to corruption? Why are African countries often not successful in combating corruption? **[12 marks]**

Question 4

- (a) Briefly explain the main idea of the discounted cash flow analysis. **[4 marks]**
- (b) The government of the republic of Kenya is considering construction of a new highway to ease traffic flow along the Mombasa-Nairobi highway and you have been selected as a consultant to participate in a cost-benefit analysis of the proposed project.
- (i) What are some of the costs and benefits that you would recommend to be considered? **[8 marks]**
- (ii) Why would it not be advisable to include pecuniary benefits in the efficiency calculations? **[4 marks]**



- (c) Explain the main idea of hedonic pricing and suggest how you would use it to attach a value to the following effects of the highway project in (b) above:
- (i) Value of lives saved **[3 marks]**
 - (ii) Value of time saved **[3 marks]**
 - (iii) Costs of pollution **[3 marks]**

Question 5

- (a) What is meant by the term excessive government? **[5 marks]**
- (b) How do development models contrast with the idea of the minimal state? **[13 marks]**
- (c) What is meant by the medium term expenditure framework? Explain the effects that adoption of the medium term expenditure framework has had on government expenditure in any African country of your choice. **[7 marks]**

Question 6

- (a) Consider three consumers who care about the consumption of a private good and their consumption of a public good. Their utility functions are given by

$$U_i = X_i G \quad i = 1, 2, 3$$

where X_i is consumer i 's consumption of the private good and G is the amount of the public good consumed by all. The unit cost of the private good is \$1 and the unit cost of the public good is \$10. Individual wealth levels are $w_1 = 30$, $w_2 = 50$, and $w_3 = 20$.

- (i) Compute the marginal rate of substitution between G and X for each of the three consumers **[4 marks]**
 - (ii) Derive the Samuelson condition for this model. **[5 marks]**
 - (iii) Derive the aggregate resource constraint and compute the optimal level of public good consumption **[8 marks]**
- (b) Briefly discuss the relevance of the Samuelson condition in considerations to provide public goods in your country. **[8 marks]**