

# **AFRICAN ECONOMIC RESEARCH CONSORTIUM**

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

**JOINT FACILITY FOR ELECTIVES (JFE) 2010**

**JUNE - OCTOBER**

## **PUBLIC SECTOR ECONOMICS I**

**First Semester: Final Examination**

**Duration: 3 Hours**

**Date: Tuesday, August 10, 2010**

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### **INSTRUCTIONS:**

1. This examination has **SIX QUESTIONS**.
  2. Each question carries **TWENTY FIVE (25)** marks.
  3. You are required to attempt **FOUR QUESTIONS** in total.
  4. Question 1 is **COMPULSORY**.
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### **Question 1 (Compulsory)**

Indicate whether you consider the following statements to be True, False or Uncertain and explain your answer.

- (i) Pareto optimality in a production economy is synonymous with match efficiency. **(4 marks)**
- (ii) Majority rule always results in over-provision of public goods. **(3 marks)**
- (iii) Pigouvain taxes are rarely used in modern policy analysis because they are fairly out of date. **(3 marks)**
- (iv) Hedonic pricing entails asking a sample of households what value they place on an item, taking care to ensure that the survey does not affect their incentive to misreport. **(3 marks)**
- (v) Cost benefit analysis is a useful investment decision making tool both in the private and public sectors. **(4 marks)**
- (vi) How governments choose to intervene in the economy is not important, what matters is the effect of the intervention. **(4 marks)**
- (vii) Voluntary public good provision is likely to yield better outcomes if there are many agents in the economy. **(4 marks)**

## Question 2

- (a). Define and briefly explain the first theorem of welfare economics and show its relevance to your country's economy. **(6 marks)**
- (b). Consider an economy with two consumers whose preferences are described by

$$U_g = (a_g)^{\frac{1}{3}}(b_g)^{\frac{2}{3}}$$

$$U_h = (a_h)^{\frac{1}{2}}(b_h)^{\frac{1}{2}}$$

Assume that there is one unit of each good which is divided between the two consumers:

$$\bar{a}_g + \bar{a}_h = 1$$

$$\bar{b}_g + \bar{b}_h = 1$$

Suppose further that the value of  $a_g$  is fixed at some level between 0 and 1.

- (i) Characterize the Pareto optimal allocation for this economy. **(9 marks)**
- (ii) Obtain the best attainable commodity bundles for each of the agents when they can trade at arbitrary prices  $P$ . **(10 marks)**

## Question 3

Consider an economy with two types of goods: a public good  $G$  and a private good  $z$ . There are just two individuals and each has an endowment of the private good equal to  $m$  and the marginal cost of producing public goods is given by  $c$ . The preferences are described by the specification:

$$U_i = \alpha_i \ln(G) + (1 - \alpha_i) \ln z_i \quad i = 1, 2. \quad \alpha \text{ represents the utility weight on the public good.}$$

- (a). Obtain the efficient level of public good provision in this economy and show that even when preferences are heterogeneous, the efficient level of public good provision will still be attained when government announces a 'good' sharing rule  $(\theta_1, \theta_2)$ . **(18 marks)**
- (b). Briefly explain why the use of sharing rules would have severe limitations in the provision of public goods in your country's economy. What are the possible ways for overcoming these limitations? **(7 marks)**

## Question 4

Consider a model in which both the government and individuals provide the public good,  $G$ . The economy has two agents, each with income equal to  $y$  and the total cost of producing public goods is given by  $cG$ . Each agent has Cobb-Douglas utility over the public good and the private good that are given by:

$$U_1 = \alpha \ln(G) + (1 - \alpha) \ln(z_1)$$

and

$$U_2 = \alpha \ln(G) + (1 - \alpha) \ln(z_2)$$

Suppose the government makes a public contribution to the public good equal to  $g_p$  and is equally funded by lumpsum contributions from the two agents whereas the two agents contribute the rest  $(g_1, g_2)$ .

- (a). Show that the amount that each individual contributes to the public good provision will vary inversely with their expectations about the other's contribution and government contribution. **(6 marks)**
- (b). Obtain the actual contributions for each of the two agents. **(8 marks)**
- (c). What will be the total level of public good provision in this model and what effect will government contributions have on private contributions? **(5 marks)**
- (d). What policy implications would you draw from this model for the functioning of the public private partnerships? **(6 marks)**

## Question 5

“The fact that the market generated allocation of resources is imperfect does not mean that the government is capable of doing better. In fact turning to government intervention because of market failure has been compared to the famous emperor who was asked to judge a music competition and after listening to the first performance, he gave the prize to the second artiste”.

- (a). Explain the possible reasons why government may fail to achieve efficiency. What are the possible solutions to the problem of government failure? **(10 marks)**
- (b).
  - (i) Explain why corruption can be considered to be a sign of market failure. **(5 marks)**
  - (ii) What are some government policies that can be implemented to reduce corruption? **(5 marks)**
  - (iii) Why are societies often not successful in combating corruption? **(5 marks)**

## **Question 6**

- (a). Briefly explain why it is important to determine a shadow wage rate for labour used in public investment projects and discuss the possible techniques one can employ to determine the shadow wage rate in public projects **(8 marks)**
- (b). Explain the basic idea of logrolling and show it can result in an improvement of welfare. **(6 marks)**
- (c). How do models of bureaucracy contrast with the idea of the minimal state? **(11 marks)**