

**M.Phil./Ph.D. PROGRAMME IN ECONOMICS**

**Term-End Examination**

**December, 2014**

00031

**RECE-010 : PUBLIC ECONOMICS**

*Time : 3 hours*

*Maximum Marks : 100*

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**SECTION A**

*Answer any two questions from this section. 2×20=40*

1. Suppose that India had a tax rate of 10% on the first ₹ 20,000 taxable income, 25% on the next ₹ 30,000 and 50% rate on all income above this. India provides ₹ 4,000 exemption per family member. 20

(a) John's family has five members and earns ₹ 85,000 per year. Calculate the family's marginal and average tax rates.

(b) Suppose that India changed its tax code to a flat tax of 30% with ₹ 8,000 per family member exemption. Would this change in the tax system make the system for these families more progressive, more regressive or neither ?

2. Suppose a monopolist whose cost of production is given by  $10Q + Q^2$  faces demand for its product depicted by  $Q = 200 - 2P$ . 20
- (a) How will the monopolist's price and profits change if a tax of ₹ 15 per unit is imposed on the buyers ?
  - (b) What is the tax incidence of this tax in the monopoly market ?
  - (c) What is the deadweight burden of the tax ?
3. Suppose the government implements a 1% tax on corporate gross sales for all firms in India. 20
- (a) Discuss the general equilibrium implications for the tax incidence given that the scope of this tax is applicable all over the country.
  - (b) Discuss the general equilibrium implications in different markets for the following two types of firms : Firm 1 is a transport service that hires low skilled workers, Firm 2 is a civil engineering consulting firm and demanding these type of workers.

4. Suppose that you estimate the following female labour supply relationship :

$$\text{Labour supply } L_i = - 320 + 85 \cdot W_i + 320 \cdot G_i - 120 \cdot M_i$$

where labour supply is measured in annual hours worked and wages are expressed in hourly wages.

$W_i$  : after-tax wage

$G_i$  : dummy variable (college graduate)

$M_i$  : dummy variable (married)

20

- (a) Interpret the coefficient on after-tax wages. What does this coefficient imply about the effect of increasing wages from ₹ 6 to ₹ 10 per hour on labour supply ?
- (b) What can we learn from this estimate about the income and substitution effects of wages on labour supply ?
- (c) How might this coefficient estimate be biased ? Explain.

## SECTION B

Answer any **five** questions from this section.

5×12=60

5. Why does a lump-sum tax involve no excess burden ? Use a graph in your explanation. If this kind of tax is efficient, why don't governments use it more often ?

12

6. Assume Reema has 2000 hours to allocate each year between leisure and work. Her wage is ₹ 8/hour.

12

(a) Sketch Reema's budget constraint.

(b) Suppose an income support program provides an income guarantee of ₹ 4,000 and a benefit reduction rate of 50%. Sketch Reema's budget constraint under this program.

(c) Suppose a revised program provides ₹ 3,000 and a benefit reduction rate of 25%. What would her budget constraint be under this program ?

(d) Does the reduced income guarantee in part (c) necessarily imply that Reema will increase her labour supply compared to her choice in part (b) ? Support your answer with the help of a graph.

7. Consider the case of a single mother with two children, who is trying to decide how many hours to work each month. Suppose, due to constraints such as child care, she is limited to working a maximum of 40 hours per week, for a total labour supply endowment of 160 hours per month. If she has no other source of labour income, and if she works, would receive a wage of ₹ 6 for each hour worked. Assume that the mother's utility function is defined over money (C) and leisure (L), and takes the following form :

$$U = 3 \log C + 5 \log L$$

Solve for the mother's optimal choice of labour supply. How much money does the mother have for consumption ?

12

8. Researchers often use panel data (multiple of observations over time of the same people) to conduct regression analysis. With these data, researchers are able to compare the same person over time in assessing the impacts of policies on individual behaviour. How could this provide an improvement over cross-sectional analysis of the type described in the text ?

12

9. Discuss the efficiency implications of a progressive income tax system. 12
10. (a) Prove why Optimal Income Tax must satisfy that  $MU_i / MR_i = \lambda$ .
- (b) What is the goal of optimal income tax analysis? 12
11. Discuss the equity implications of the Ramsey rule for optimal commodity taxation. How can these equity issues be addressed, if at all? 12
12. (a) Distinguish between discretionary and non-discretionary fiscal policy.
- (b) Give two examples of how built-in stabilizers help to eliminate recession or inflation.
- (c) Explain when a definition of income tax base would increase vertical equity and horizontal equity. 12
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