

**AUSTRALIAN NATIONAL UNIVERSITY**

**APPLIED TAX POLICY**

**Pass Course: Econ 2040**

**Mid-Semester Exam: September 1998**

*Study Period: Fifteen Minutes*

*Time Allowed: Ninety Minutes*

*Permitted Materials: Non-programmable calculators, English/Foreign Language Dictionaries*

**Instructions:** *Students are required to answer ALL questions. Each question is worth EQUAL marks.*

1. Consider a small open economy which can export or import as much wheat as it wishes at the fixed world price,  $p^*$ . Suppose that wheat is produced by competitive firms. Suppose that the economy is a net exporter of wheat.
  - a. Draw a supply and demand diagram and explain the quantities of wheat supplied and demanded in the absence of any taxes or subsidies. Carefully explain your reasoning.
  - b. Now suppose that consumption of wheat is subsidised at 25 per cent of the consumer price. How would this affect quantities demanded and supplied?
  - c. Now suppose instead that exports are subsidised at a rate of 20 per cent of the world price. Assume that imported wheat can be identified so that the same unit of wheat cannot be imported and then subsequently exported. Given that goods can be imported at the world price, what would be the effect of the subsidy on supply and demand? Identify the cost to the government of the subsidy in a diagram.
  - d. How would your answers to part c change if the government were to ban imports? Explain.
  
2. Suppose that there is a negative income tax in which each individual gains a grant of  $\$X$  per week and where all subsequent income is taxed at rate,  $m$ . This is in effect a negative income tax. Assume that the total amount of hours per week that could possibly be worked is  $T$  and that Anne can work as many of these hours as she wishes at a fixed wage rate of  $\bar{w}$ .
  - a. Draw a diagram with income on the vertical axis and hours of leisure on the horizontal axis showing Anne's budget constraint in the absence of taxes and her budget constraint under the negative income tax.
  - b. Suppose that with the negative income tax in place Anne ends up working sufficient hours for the tax she pays to exactly balance the grant so no net tax is paid. Draw the indifference curve for the level of utility she attains and indicate her labour supply in your diagram.

- c.* Indicate in your diagram the amount that Anne would be prepared to pay to get rid of the negative income tax and the EV measure of the excess burden of the tax.
- d.* Also use a labour supply diagram to explain the EV measure of the excess burden of the tax.
3. A representative individual lives for two periods earning  $e_0$  in period 0 and nothing in period 1. Assume that all tax revenue is collected to finance government spending in *period 0*.
- a.* Initially there is a tax on interest income only at rate  $t$ . Labour income is untaxed. Draw a diagram indicating the individual's consumption in each period, private savings in period 0, tax collected in period 1, the amount of period 0 government spending that can be financed with these tax collections and national savings in period 0. Explain.
- b.* Suppose that the interest income tax were replaced with a tax on labour income only at a rate  $m$  which makes the initial consumption point only just attainable. Explain how this would affect consumption in each period, utility, private savings, the amount of government spending that can be financed in period 0 and national savings.