Name _____   Economics 222, Mike Lovell
Sign the Pledge: May 10, 1999, 2:00-5:00
No Aid, No Violations: _____

Final Examination: Public Finance

Please Note:

- The exam will end at 5:00! Budget your time carefully
- Save time to read over your answers and make corrections at the end of the test.
- Help! I will not remain in the classroom throughout the entire examination, but I will be around to answer any appropriate questions you may have.
- Show your calculations in order that you may receive partial credit even if you make a numerical error.
- If you would like me to mail your exam to your home, leave a stamped addressed envelope in the slot for this course in the Economics/Sociology Alcove. Otherwise, your work will be returned to the alphabetical slots in the Alcove to be picked up at the start of classes in the fall.
- If you want additional feedback on any aspect of your work, please contact me at your convenience for an appointment.
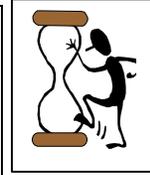
Part I: Answer seven (only 7) of the following 8 questions (1.5 hours)

I.1   It is sometimes said that the corporate profit tax involves "double taxation."
- a.   Explain precisely what is meant by "double taxation"
- b.   Many suggestions have been made for reforming the corporate profit tax structure. Explain your favorite, but be careful to point out any disadvantages as well as the positive points in support of your reform.

I.2   Tax evasion is a serious problem.
- a.   How does tax evasion differ from tax avoidance?
- b.   How does the IRS attempt to estimate the extent of tax evasion.
- c.   Is the IRS likely to be tempted to over or to underestimate the extent of tax evasion? Explain.
- d.   From an efficiency point of view, how much effort should the IRS put into controlling tax evasion?

I.3   In 1999 the Government of Never-Never Land had a debt of $100 billion and the Bureau of Labor Statistics reported that the CPI stood at 200 (1990= 100). In year 2000 the government collected revenue of $10 and had expenditures of $20 (including $15 billion of interest payments on its outstanding debt), and the price index had climbed to 220. The nominal deficit in year 2000 was $20-$10 = $10.
- a.   What happened to the nominal and the real value of the government's debt.
- b.   What was the real deficit?

Explain any complications.

I.4   Its reunion day at Podunk University and members of the class of 1989 are talking about the generous gifts they made to their Alma Mater's scholarship fund. Each had given $1000 to the college! One alum said his gift had cost him only $720 after-tax dollars; another said his gift had cost him $604; a third admitted that his gift had cost the full $1,000.
        a.   What provisions of the Internal Revenue Code explain the discrepancy?
        b.   How might a successful alum reduce the after-tax cost of a gift below $604?

1.5   The Social Security Benefit/Tax ratio (the actuarial value of benefits/present value of social security taxes paid) was estimated in 1995 to be 78% for a high-income single male, 110% for a high-income single female, 110% for a for a high-income two earner couple, 180% for a high-income couple and 290% for a low income one earner couple. What provisions of the Social Security Act explain the discrepancies? Are they justified?

1.6   The Dividend Paradox: It is sometimes said that everyone (except the Internal Revenue Service) would be ahead if firms did not pay dividends.
        a.   Explain how stockholders could conceivably gain from a decision by a corporation's board of directors to not pay dividends.
        b.   Is Wesleyan an exception or would we also gain if a corporation in which we held stock decided not to pay dividends? Explain.

1.7   Congratulations, you are in the 36% tax bracket! You have $10,000 to invest. If you place your funds in U.S. government bonds, you will earn 5% interest. If you place them in Connecticut bonds, you will earn only 4% interest.
        a.   Which investment will yield the highest after-tax return. Explain.
        b.   Because she can borrow at 4% rather than 5%, the State of Connecticut gains $100 on the $10,000 by borrowing at the lower rate. How much does this subsidy cost Uncle Sam?

1.8   In developing his *Impossibility Theorem*, Nobel Laureate Kenneth Arrow included the requirement that the presence or absence of an "irrelevant alternative" should not affect the electoral outcome. Explain the nature and significance of this requirement.

## Part II: Answer three (only 3) of the following four questions (1.5 hours)

II.1   In Never-Never Land the Benevolent Potentate maintains a bridge crossing the river
        separating the two halves of his kingdom. The costs per year of operating the bridge
        are
            $C = \$10,000 + 10q$,
        where q is the number of times the bridge is crossed.
        The inverse demand curve is $p = 50 - 0.015q$

   a.   On the graph label the average cost curve AC, the demand curve D, and the marginal
        revenue curve MR. Draw in the marginal cost curve and label it MC.
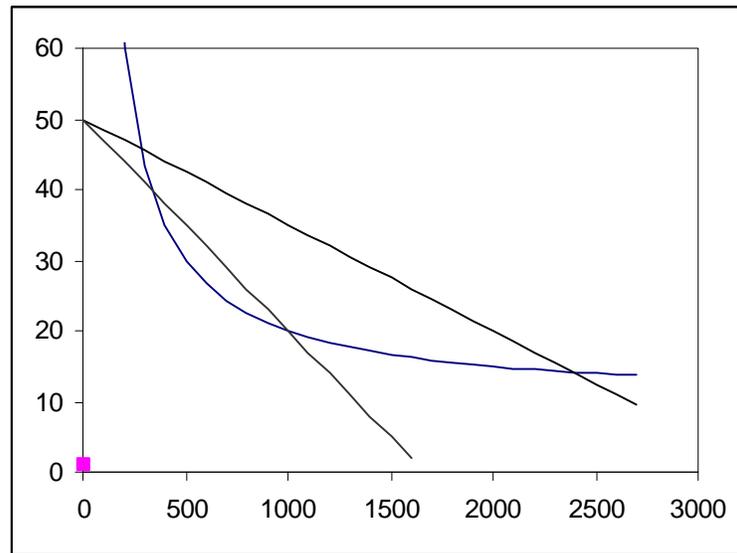
   b.   A monopolist interested in maximizing profits would charge a price of $p_m = $ _____;
        there would be q_m crossings during the year. The monopolist would make profits of
        $R____; the consumer surplus would be $_____; there is a combined gain of $_____
        from operating the bridge.
   c.   If the bridge operated by a profit maximizing monopolist were subject to regulation by
        the Never- Never Land Public Utility Commission, a price of $P_r = $ $_____ should be
        imposed by the regulatory authority, assuming it is unconstitutional to impose losses
        on the monopolist. As a result, consumers would cross the bridge $q_r = $ ____ times;
        they would enjoy a consumer surplus of $_____, although economic profits would be
        zero.
   d.   Suppose the bridge is socialized and the Potentate orders that all resources are to be
        allocated efficiently. Indicate with an e on the graph the efficient solution. Achieving
        this solution would involve a toll of $p_e = $ _____; there will be $q_e = $ _____ crossings of
        the bridge. Consumer surplus will be $_____. Total revenue will be ____ and total
        costs are _____. The "net social gain" that will be realized by operating the bridge at
        this level is _____.
   e.   According to Niskanen's analysis of bureaucracy, none of the above solutions is likely
        to prevail if a government agency is assigned the task of managing the bridge. Instead,
        the bureaucrat will allow ____ crossings of the bridge by charging a toll of _____.
        Explain:

II.2   Figure 2 shows the Utility Possibility Frontier for two individuals. Place an E on the point that would lead to equal satisfaction for the two individuals. Place a B on the point that would maximize the sum of their two utilities (Jeremy Bentham). Place an R on the point that would maximize the position of the least advantaged. (John Rawls)

II.3   Figure 3 shows how the economic profits earned by a monopoly depend upon output.
        a.   Explain how the firm's behavior will be affected if a 25% tax is imposed upon the firm's economic profits.
        b.   In practice, things are much more complicated than the analysis in "a" implies. Explain how in practice the analysis should be modified. Then explain what determines whether the corporate profit tax burden will be shifted to the workers or to the firm's customers or shouldered by the stockholders.

II.4   Figure 4 shows the indifference curve of a citizen with income of $10. Our citizen
consumes only beer and pretzels. Pretzels cost $1.00 but beer costs $1.50 a glass,
including a 50 cent tax. There is no tax on pretzels.
  a.   Show that the government could leave the consumer better off while still raising
         the same amount of revenue by replacing the beer tax with an income tax.
  b.   Explain the limitations of this argument concerning the relative merits of an excise
         versus an income tax.

Honors Option: *Attempt to answer this question only after you have carefully reviewed
your answers to the rest of the examination. No partial credit.*

Excise taxes t_x and t_y are to be imposed on two goods, X and Y, so as to raise R dollars of
revenue. Suppose that η_x^d is the elasticity of demand for good X and η_x^s is the elasticity of
supply. Similarly, η_y^d is the elasticity of demand for good Yy and η_y^s is the elasticity of
supply. Determine the ratio t_x/t_y that will minimize the total excess burden imposed by the
two taxes.