

FE431: PUBLIC FINANCE
Fall 2006
Professor Schmitt
Homework 6 – due October 13th

1. Essay: This assignment should be approximately **1 typed** page in length. After reading Chapter 9, the article by Terence Chea dated Feb 4, 2006 from *The Associated Press* titled "Oakland Leaders Want to Tax Fast-Food Business to Clean up Litter" and the article by John Tierney dated 2000 from the New York Times Magazine titled "A Tale of Two Fisheries" (both found on my webpage <http://www.usna.edu/Users/econ/pschmitt/FE431/2006/readings.html>), please write a commentary that addresses the externalities, efficiency of the market with externalities (under or over production), and address ways to internalize the externality.

2. A large city currently provides free water service to residents. The marginal social cost of making a gallon of water available per month is estimated to be 5 cents no matter how much water is used. Currently, city residents consume 500,000 gallons of water per month. The costs of making the water available are financed by a local tax on city residents.
 - a) Draw this graphically – discuss if this is an efficient or inefficient situation.
 - b) Show the net gains in well-being possible by applying a user charge of 5 cents per gallon to residential users. Assume that monthly consumption declines to 400,000 gallons after the user charge is imposed. Calculate the tax revenues that can be freed for other uses each month after the user charge is imposed.

3. Suppose there are five people – 1, 2, 3, 4, and 5 – who rank projects A, B, C, and D as follows:

	Person 1	Person 2	Person 3	Person 4	Person 5
1 ST	A	A	D	C	B
2 ND	D	C	B	B	C
3 RD	C	B	C	D	D
4 TH	B	D	A	A	A

Assuming the different projects correspond to different levels of a public good (where A is the lowest and D is the highest level), answer the following questions:

- Will any project be chosen by a majority-rule vote? If so, which one?
- Are each individual's preferences "single-peaked"? Which ones, if any, are not single-peaked? What problem potentially arises when preferences are "double-peaked" and majority-rule is the decision-making mechanism?
- Is the **median voter theorem** applicable in this case?

4. Suppose that you currently earn taxable income of \$100,000 per year. You are subject to a marginal tax rate of 50%. Currently your average tax rate is 35%. Calculate your annual tax. Calculate the extra tax you would pay per year if you income increased to \$110,000. What is your average tax rate when you annual income is \$110,000?