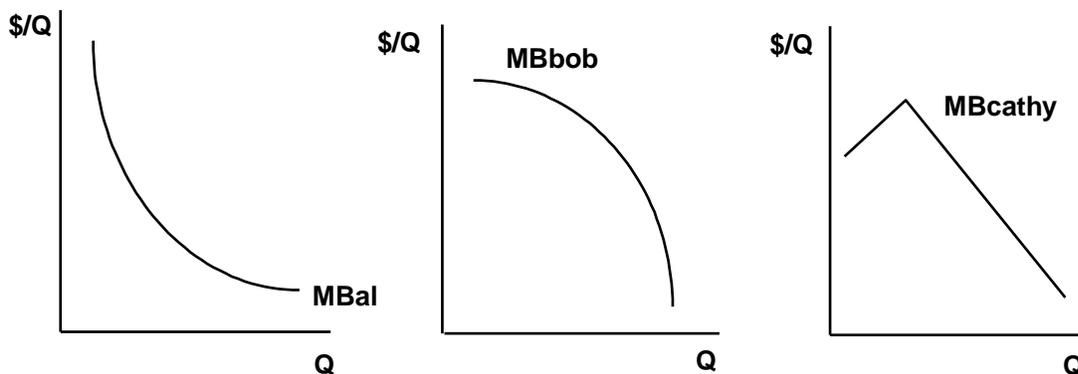


I. Basic Concepts and Tools from Public Finance

0. Identify and/or Define the following:

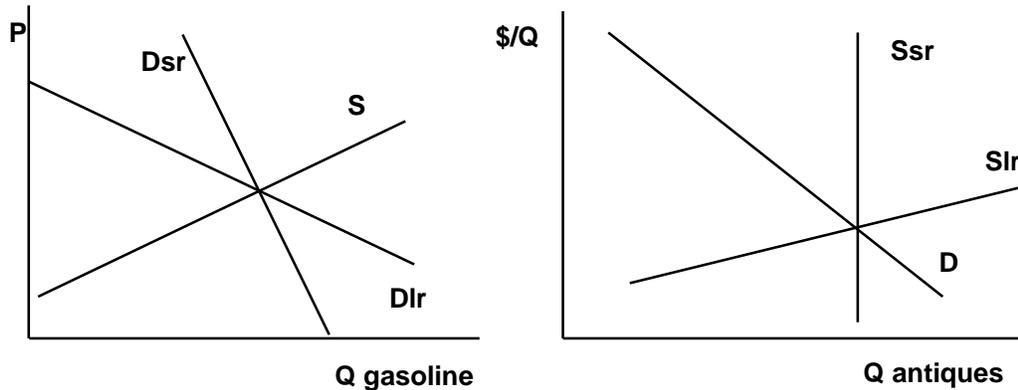
- | | |
|-----------------------|--------------------------|
| a. marginal benefit | q. Lindahl tax |
| b. marginal cost | r. Ramsay tax |
| c. consumer surplus | s. progressive tax |
| d. excess burden | t. VAT |
| e. excise tax | u. conditional grant |
| f. neutral tax | v. lump sum subsidy |
| g. tax base | w. Ricardian Equivalence |
| h. marginal tax rate | x. median voter |
| i. pure public good | y. voting cycle |
| j. externality | z. rational ignorance |
| k. club good | aa. fiscal illusion |
| m. free rider problem | ab. Demo grant |
| n normative statement | ac. Negative income tax |
| o. social net benefit | ad. Fiscal illusion |
| p. Pigovian tax | ae. Rational Ignorance |

1. Use the following individual marginal valuation curves to derive demand curves for each of the following consumers and for the market of three consumers. (Discuss your reasoning and label all important details.



2. Use indifference curves to illustrate the superiority of a lump sum tax over an excise tax that generates the same revenue from an individual tax payer.
- Label all important details and discuss the implication of your diagram.
 - On a separate diagram show the effects of a general sales tax that raises the prices of all goods by 10%.
 - Use indifference curves and budget constraints to show that an income tax has many of the same properties as a general sales or VAT tax.
 - Are any of these taxes neutral? In what sense?

3. Using diagrams for (i) a market, (ii) a typical consumer in that market, and (iii) a typical firm in that market, to show the short run and long run effects of an excise tax. Clearly label all important details, and discuss the logic of your analysis.
4. Show the distribution of tax burden and deadweight losses that would result in the following markets in the short and long run as a consequence of a \$5.00/unit excise tax. (Discuss your reasoning and label all important details.)



5. Repeat problems 2-4, above, for a targeted subsidy.
 - a. Show, for example, that a conditional subsidy (matching grant) that affects relative prices always costs more than a lump sum subsidy when it attempts to achieve a particular increase in consumer welfare (given continuous and monotone increasing utility functions).
 - b. Discuss why economists often prefer a negative income tax to subsidies for housing and food.
6. Discuss why, in spite of your answers to #3 above, lump sum taxes are rarely used although other neutral taxes such as sales taxes and VATs are widely used.
 - a. Why might voters prefer a tax that one can potentially avoid to one that is unavoidable (100 words).
 - b. Are there other reasons favor an income rather than a lump sum tax? (100 words)
 - c. Are there any reasons for using a VAT rather than an income tax as the principle source of revenue? (100 words)
7. It is sometimes claimed that firms and their employees "share" the social security tax. That is to say, by law half of the money is deducted from employee salaries and the other half is paid by the firm.
 - a. Use the tools developed in class to analyze this assessment of the tax burden of the social security tax.
 - b. Is there any case in which the distribution of the tax burden of social security is shared equally?
 - c. How would the burden of the social security tax vary among labor markets?
8. During the early 1980s, the Reagan administration proposed a radical "flattening" of the tax schedule faced by ordinary US income taxpayers. A variation of his proposal was adopted by Congress and a very finely graded progressive tax schedule was replaced with one that included just three marginal tax rates 0, 15 and 28%, but generated essentially the same revenue as the previous more steeply progressive tax schedule that had included many more deductions and tax preferences.
 - a. Analyze the effects of this tax reform on the labor market using the tools developed in class.

- b. (Hint: use supply and demand for labor to show what happens to employment levels, dead weight loss, and tax payments for low, middle, and high income earners as marginal tax rates decline.)
- c. Discuss why reductions in marginal tax rates rather than average tax rates tend to reduce excess burden.

9. Determine marginal and average tax rates for the following income, Y , tax schedule:

$$T = C + .20Y$$

- a. Is this tax progressive, regressive, or proportional? Explain.
- b. Suppose that instead of -1000, the intercept of the tax schedule is C .
- c. Determine the values of C that makes the tax schedule (i) regressive, (ii) proportional, and (iii) progressive.
- d. What values of C can be interpreted as a demogrant?

II. Somewhat More Advanced Public Finance Questions and Analytics

10. Use the neutrality, Ramsay, and benefit tax principles to assess the relative merits of a high excise tax on gasoline, a flat (proportional) corporate income tax, and a flat consumption tax.
- a. To simplify, first assume that the same revenue is generated by each tax, and that all the revenue generated will be spent on general government services.
 - b. Next, suppose that the gasoline tax is "earmarked" so that it is entirely spent on transportation services (roads, bicycle paths, and mass transit) and that the others are used to finance general government programs as before. How does this earmark affect your analysis of the merits of gasoline taxes?
 - c. Explain how positive analysis played a role in your normative analysis of the relative merits of these tax instruments.
11. Create three diagrams to illustrate (i) the normative problems associated with positive and negative externalities, and (ii) cases in which externalities exist but the result is Pareto optimal.
- a. Label all important details.
 - b. Illustrate how a Pigovian tax or subsidy can be used to solve the problems in part (i).
 - c. In what sense can it be argued that Pigovian taxes are the perfect Ramsay tax? Explain.
 - d. Buchanan and Stubblebine argue that Pigovian taxes may fail to achieve Pareto efficient results in cases in which transactions costs are "low." Explain their reasoning and explain why transactions costs are relevant for analyses of externality problems.
12. Use a two by two game matrix to illustrate the logic of the free rider problem associated with the provision of pure public goods. Suppose that the public good of interest provides benefits of \$5.00 to each "player" and costs a total of \$6.00 to produce. The cost is shared if both contribute, but must be paid entirely by one person if that person provides the service while the other free rides.
- a. Label all payoffs, and explain the logic of the game.
 - b. Now suppose that provision of the good is subsidized. How much would the cost of the public good have to fall to eliminate the free rider problem?
 - c. Now suppose that the provision of the good is mandated and failure to comply is punished with a fine. How large would a "shirking fine" have to be to solve the problem?

13. Use labor supply and demand functions to analyze the effect of a proportional tax on labor income.
- Show the effects of the tax on taxpayers and firms, and note any deadweight losses that exist.
 - Show how reducing this tax affects the magnitude of the tax burden and tax revenue.
 - What tax rate maximizes tax revenue in your model? (Show this in a diagram.)
 - How is this income tax revenue maximizing tax affected by the price sensitivities of particular demand and supply curves for labor?
14. Use linear supply and demand functions to analyze the distribution of the tax burden generated by the social security program (e.g. $LD = a - bW + cK$; $LS = d + eW$, where W is the wage rate in the market of interest, and K is the average capital stock of a typical firm in the industry).
- Develop a case in which the burden is equally shared.
 - Develop a case in which the burden falls entirely on firms (employers).
 - Develop a case in which the burden falls entirely on workers (employees).
 - According to law, the tax used to pay for social security is paid half by employees and half by employers. Discuss the two meanings of "pay" for the tax implicit in this law and in your models.
15. More Income Taxation Exercises
- Use labor supply curves of varying slopes (and/or elasticities) to show how the effects of the same tax schedule can have quite different effects on people with steeper and flatter individual labor supply curves.
 - How would a Ramsay income tax assign tax rates to specific labor markets?
 - Given differences in demand and supply elasticities for different types of labor, what would a neutral tax on labor income look like?
 - In what sense can a Pigovian tax or Henry George land tax be considered an ideal Ramsay tax?
16. Use indifference curves and a budget constraint defined over current consumption and savings to illustrate how a value added tax might reduce consumption and increase savings for a typical tax payer.
- Use indifference curves and a budget constraint defined over work (earned income or consumption) and leisure to show how a flat income tax may increase unemployment by changing relative prices.
 - Now, show that a progressive tax tends to have a larger effect--other things being equal.
 - Can there be a completely neutral income tax or neutral value added tax? Explain.
 - Which of these tax systems will tend to generate the least fiscal illusion? Explain your reasoning.
17. Suppose that 10 individuals have the same underlying utility function for private and public goods, $U = V^{.5} + G^{.5}$, where V is a pure private good, and G is a pure public good. Let $1000 = V^{.5} G^{.5}$ be the production possibility frontier faced by this community.
- Derive the Samuelsonian (1954) conditions for the Pareto optimal provision of this pure public good using a Benthamite social welfare function. (Hint: the substitution method works very well for finding the solution in this case.)
 - What is the total output of the pure private good at the Benthamite ideal?
 - What happens to the ideal level of the public and private goods if technological progress occurs (if τ increases)?

18. Barro argues that variation in the level of national debt can be explained as a method of smoothing intertemporal tax burdens in the context of an overlapping generations model.
- Explain why taxpayers might have an interest in smoothing their intertemporal tax burdens via government borrowing rather than through their own private borrowing.
 - Explain why taxpayer-voters may tend to “over” utilize debt as a method of public finance.
 - To what extent can the current generation shift the burden of taxation to future generations using debt finance rather than tax finance?
 - Suppose that the real interest rate equals the long run growth rate of RGNP. Would a permanent increase in the real interest rate imply larger or smaller deficit levels?
 - For a variety of reasons, Eisner argues that the governments public debt numbers are inaccurate and over-estimate the extent of the national debt. Summarize his argument. Others argue that debt numbers are inaccurate and under estimate the extent of national debt. Summarize their arguments.
19. Many economists (and conservative commentators) argue that a consumption tax would increase savings rates of the average person in the U.S. which would increase long term growth rates. Use indifference curves and a choice setting defined over consumption in the present (C_1) and consumption in the future (C_2) to analyze the effects of (i) a temporary consumption tax that affects only consumption in the current period and a permanent one that is in effect for both periods. (To simplify a bit, assume that all lifetime income or wealth will be consumed, which implies that the two-period budget constraint is $W = C_1 + C_2/(1+r)$, where r is the interest rate.)
- Does a temporary consumption tax increase savings? (Why?)
 - Does a permanent consumption tax increase savings? (Why?)
 - Is there a deadweight loss from a temporary consumption tax?
 - Is a sales tax or a VAT (value added tax) a tax that only affects current consumption? (Why or why not?)
 - Is a sales tax normally progressive, proportional, or regressive? (In what sense?)

III. Political Economy of Public Finance

20. Illustrate and discuss the logic of the median voter theorem using the spatial voting model and a normal distribution of voter preferences. Assume two pragmatic candidates compete for their votes.
- First, show a disequilibrium case in which two candidates (or parties) take positions to the left and right of the median voter.
 - Second, note incentives for one or both candidates to revise their strategies (campaign promises or platforms) in this case.
 - Third, show that after complete convergence takes place, neither candidate has an incentive to change his or her election strategy.
 - How does your model change if voter turnout is affected by the closeness of the two candidates?
 - What other considerations beyond the platforms of the candidates are likely to influence voter choices if candidates converge to fairly similar platforms? Are there conditions under which there will not be an electoral equilibrium?
 - Repeat with a skewed distribution of voter preferences.

21. Develop a calculus-based characterization of the median voters demand for a public service that is a pure public good and will be funded through a proportional tax on income. Let $U=u(X, G)$ where X is private consumption which equals after tax income, and G is the service level of a pure public good, and $C=c(G)$ is the production cost of the public service.
- Characterize the ideal level of services and taxes for the median voter when there are N voter taxpayers and the median voter's income is approximately average income.
 - What happens to the demand for this service if population (N) increases.
 - What happens to the demand for this service if the median voter's income (Y^v) increases?
 - Explain your reasoning and demonstrate mathematically if possible. (Hint: apply the implicit function differentiation rule.)
22. Develop a calculus-based characterization of the median voters demand for a public service that is a pure private good that will be funded through a proportional tax on income and provided uniformly to all voter-taxpayers. Let $U=u(X, G)$ where X is private consumption which equals after tax income, G is the service level of the private service and $C=Nc(G)$ is the production cost of the service.
- Characterize the ideal level of services and taxes for the median voter when there are N voter taxpayers and the median voter's income is approximately average income.
 - What happens to the demand for this service if population (N) increases.
 - What happens to the demand for this service if the median voter's income (Y^v) increases?
 - Explain your reasoning and demonstrate mathematically if possible. (Hint: apply the implicit function differentiation rule.)
23. Develop a calculus-based characterization of the median voters demand for the stringency of a regulation that produces a pure public good such as environmental quality. Assume that the regulations reduce private consumption by raising prices or reducing pretax income or some combination of the two. Let $U=u(X, E)$ where $X = x(R, N)$ is private consumption, R is regulatory stringency and $E = e(R, Y^v)$ is the effect of the regulation on the desired outcome.
- Characterize the ideal level of regulation for the median voter when there are N voter-taxpayers and the median voter's income is approximately average income.
 - What happens to the demand for this service if population (N) increases.
 - What happens to the demand for this service if the median voter's income (Y^v) increases?
 - Explain your reasoning and demonstrate mathematically if possible. (Hint: apply the implicit function differentiation rule.)
24. We reviewed two theories of the origin of government in class, Olson's extractive state model, and Buchanan's social contract-based model of a productive state.
- Discuss differences in the sorts of public policies that one would expect from these two types of governments. (For convenience assume that there is a single ruler in the Olson state and democratic government in the Buchanan state.)
 - Discuss reasons why the policies of an Olsonian state might be worse than his model suggests.
 - Discuss reasons why the policies of a Buchanan state might be worse than the median voter model implies.
 - Develop a simple model of each type of rule-maker and demonstrate that in each case, taxes and government services are simultaneously determined.

25. Suppose there are 21 voters, including yourself. You are narrowly self-interested, risk-neutral, and it costs you \$30 worth of time to vote. Candidate A is \$1200 better for you than Candidate B, and all voters other than yourself vote for A with probability $p=.5$.
- Using the standard probability of decisiveness formula, calculate *your expected net benefit of voting*.
 - Now use a similar calculation to determine the net benefits of being informed about candidate policy positions.
 - Are these direct (narrow) non-electoral benefits that only individuals participating in elections receive? Explain.
 - Are there any non-election-based reasons to invest in acquiring information about the policy preferences of candidates for high office? Explain.
26. Use a median voter model to demonstrate how a “matching grant” from the central government can affect a local government's provision of local services through effects on the median voter's tax price for local government services.
- Use the median voter's government budget set and indifference curves to show the effects of matching grant on the median voter's preferred local government's output of a service such as public education.
 - Show that a block grant can often improve the median voter's welfare relative to an equally costly matching grant. (Hint, this looks like the difference between lump sum and marginal subsidies developed reviewed in lecture.)
 - Does your analysis suggest a “fly paper effect?” (e.g. that grants “stick” to the services subsidized). Why or why not?
 - In what case, if any, will a conditional lump sum grant (on targeted to a specific service) have a larger effect on local government expenditures than a block grant?
 - Repeat using calculus and a utility function-based median voter model that determines policies under the assumption of a balanced budget.
27. Erik Lindahl argued that inefficiencies of taxation can be eliminated by taxing persons so that each person faces a marginal tax rate equal to their marginal benefit from the goods financed through taxation (at the quantity provided).
- In what sense is efficiency increased through the use of a Lindahl tax system for funding public goods?
 - Is Lindahl taxation consistent with any of the usual theories of optimal taxation?
 - In what sense, could Lindahl's tax scheme be said to minimize the coercive element of taxation?
 - Describe the preference revelation problem associated with Lindahl taxation and explain possible solutions.
 - Are there any economic or normative arguments against using Lindahl taxes to finance all public services?
 - Can a Lindahl tax be used to finance redistribution? Social Insurance? Explain.
28. Use a diagrams to analyze a three-person public goods problems.
- First, illustrate the "high demander provides" equilibrium, in which one person provides all of the public good.
 - Next, determine whether this output level is Pareto efficient, which in these diagrams requires maximizing social net benefits.
 - Finally, consider the politics of public goods provision. Assume that the costs of this public good is shared equally and that the median voter determines the output level.

- d. Determine whether the new result is Pareto efficient.
- e. Would the median voter prefer the political solution or the initial free rider solution? Use your diagram(s) to explain why.
- f. Would your voters prefer a Lindahl tax (and output) over the initial free rider (high demander) outcome? Illustrate and explain?
- g. Use marginal benefit curves and marginal cost curves to illustrate how a progressive tax system can cause "rich" taxpayers to prefer fewer government services, even if government services are a normal good.
- h. Is there a tax scheme (cost sharing arrangement) that will cause the median voter to prefer government supply to the initial free rider solution? Show this, and explain the logic of your diagram.

29. Voters have fairly weak incentives to be well informed about candidates or public policy issues.

- a. Illustrate what happens to the service level of a government services if voters systematically underestimate their tax costs.
- b. Illustrate what happens to the service level of a government services if voters systematically underestimate their service benefits.
- c. Discuss the sense in which fiscal illusion can be said "to cause" voters to make mistakes in such cases. In what sense(s) can fiscal illusion be said to be rational?

30. For many years, social security has collected more in tax revenue than it has paid out in benefits. This surplus has been "borrowed" by the treasury for use in rest of the Federal budget. In exchange, the treasury issued IOUs to the trust fund (e.g. sells bonds to the Social Security Administration).

- a. Explain why the government will have to raise taxes, borrow, or print money in order meet its future obligations to retired persons as these IOUs are redeemed to fund social security benefits.
- b. Explain why "a" is true regardless of whether the trust fund is accumulated as government bonds or treasury IOUs—and moreover would have been true even if no trust fund had been accumulated!
- c. Explain why the Social Security Program will have a cash flow problem from now on if taxes and benefits follow their present course (as set in current laws describing future benefits Applied Examples and Puzzles

31. Suppose that an environmental externality is known to impose external costs of 20 billion dollars per year. A variety of clean up and/or regulatory methods are possible. Determine the present value of the cost and benefits of each of the following programs. Assume that the interest rate is 5% and that each program continues forever.

- a. Program one imposes fixed regulatory standard (as in auto emissions) which is expected to increase industry operating costs by 18 billion per year and cost 1.5 billion to administer.
- b. Program two uses a Pigovian tax on pollution to induce companies to use cleaner technologies. It is expected to increase operating costs by only 15 billion dollars per year, but have administrative costs of 6 billion dollars per year. There will also be an initial 10 billion dollar cost to set up the program. The Pigovian tax will generate tax revenues of 5 billion dollars per year.
- c. Program three establishes a general target for this particular form of pollution and creates a tradable "effluent licenses" which entitle the owner to release effluents at some fixed rate (say K pounds per year). One expects low cost polluters to sell their licenses to high cost polluters. This program will increase operating costs by 14 billion dollars per year, and have administrative costs of 7 billion dollars per year. There will also be an initial 12 billion dollar cost to set up the program. (Initially, pollution licenses are given away and so the program generates no revenues.)
- d. Which program would a median voter prefer? Explain your reasoning.

32. Within democracies, the median voter model can be used as a first approximation of government expenditures and taxation.
- Explain the growth of government from the perspective of that model. Are there any conditions under which the government sector would stop growing or even decrease in size?
 - In what sense can majority rule decision making be regarded as a technique for aggregating information?
 - What kinds of political failures on average grow less severe as the number of voters increases? More severe? Carefully explain your reasoning.
 - Given the incentives of the simple representative election model (and the more complex stochastic voting model), why don't the presidential platforms of the Democrats and Republicans fully converge?
33. The Laffer Curve expresses the idea that there are low and high tax rates that will raise the same revenue, along with one rate that will yield the maximum revenue. Some economists claim that at least some tax rates are above their revenue maximization rates.
- Is this claim analytically coherent? In what sense?
 - Under what circumstances would a median voter favor tax rates that are higher than the one that maximizes short (or long) run government revenues?
 - Explain why tax complexity could generate this result if it induces fiscal illusion.
34. In the nineteenth century, it was often argued that “voters are always poorly informed about public policies, consequently public policies in a democracy always tend to be inferior to those adopted by a king or queen.” Evaluate the strengths and weaknesses of this position.

IV. Applied Public Economic Problems and Extensions

35. The president's tax commission recommends that the deductibility of home mortgages be capped at about 80% the value of the median house in the region where a taxpayer's home is located. It also suggests that the interest tax “deduction” be replaced with a tax “credit.” The plan (as a whole) is “revenue neutral” and is said to reduce the deadweight loss of the income tax.
- In what sense can the tax deductibility of mortgages be said to be inefficient? (Use a diagram and/or simple mathematics to illustrate your point.)
 - Explain how this plan redistributes the burden of income taxation among taxpayers with mortgages. Who wins and who loses under this proposed reform?
 - Given your answer to parts “a” and “b,” should firms be able to deduct the interest cost of loans used to make capital investments? Explain your reasoning.
36. Use the present value formula to calculate the net benefit that Al receives from the social security program.
- Assume first that Al will retire in 30 years and live 25 years after retiring. Suppose that Al's tax is 10,000 per year and that his benefits are 15,000/year in real terms. Assume that the real interest rate is 3%/year.
 - Calculate the present value of Al's tax payments.
 - Calculate the present value of Al's benefits. (Hint: don't forget that the benefits are not received until 30 years in the future.)
 - Is Al better or worse off under social security if his “opportunity cost rate of return” is 3%/year.
 - Now repeat a-d but assume that the real interest rate is 2%/year, 1%/year.
 - Suppose that Al were planning to retire in only 10 years. How would this affect the present value of his/her participation in the social security program? (Use some numbers to support your conclusion.)

- g. Use a spreadsheet program or other computer program to find Al's rate or return in both a and c.
37. Nominal social security benefits averaged \$43.45 per month in 1946, \$118 per month in 1970, \$567 per month in 1989, and approximately \$1150/month in 2007.
- What is the average annual percentage rate of growth of nominal social security benefits in each sub-period and overall?
 - The CPI was 18.2 in 1946, 37.8 in 1970, 121.1 in 1989, and 202 in 2007; what was the real benefit at each date.
 - What was the rate of growth in (real-inflation adjusted) average social security benefits overall and in each sub period?
 - If the real growth rate continued until 2050, what would real monthly social security benefits be?
 - If the nominal rate of growth found above continued until 2050, what would nominal monthly benefits be?
38. Analyze the partial or total privatization of Social Security—that is, the replacement of the current paygo system with a system of forced saving.
- First, contrast the behavior of pre-retired persons under a system in which a person is required to purchase private annuities (as in Chile) with the current paygo system in the US.
 - Second, analyze whether requiring purchases of private annuities tends to generate greater economic growth than a paygo system.
 - Third, discuss how a transition to a forced savings program can be managed without significantly reducing benefits for those close to retirement.
 - Discuss why this tends to be a normative and political problem for many privatization proposals.
39. One common property of the public pension and health policies of Western democracies, is that they all promise larger benefits to future generations than can be paid for under current tax laws.
- Many public pension programs are financed with an earmarked flat tax on labor income. Is this efficient from an economic perspective? Why or why not?
 - To what extent should the promised payments to future retirees be regarded as part of the national debt?
 - Is the excess of future benefit levels relative to future taxes under existing laws consistent with either electoral or interest group models of fiscal policies? (Explain using a three generation overlapping generations model.)

40. Suppose that there are two regional governments in a given country. Both regional governments can invest in a local public good that improves the welfare of their residents. However, there are spillovers from their investment decisions. If region 1 provides the public good region 2 obtains some spillover benefits, and vice-versa. More precisely, let G_1 be the local public good levels in region 1 and that in region 2 be G_2 . Their respective welfare levels are assumed to be:

$$W_1 = 2(a G_1^{0.5} - b G_1^{.10} G_2^{.10}) - c$$

$$W_2 = 2(a G_2^{0.5} - b G_1^{.05} G_2^{.05}) - c \quad \text{where } a > 0 \text{ and } 0 < b < c.$$

- Find the Nash equilibrium levels of G_1 and G_2 when public investment decisions are taken simultaneously.
- What is the equilibrium welfare level in each region?

- c. Suppose that public investment decisions are centralized. What levels of G_1 and G_2 maximize total welfare? Compare with parts (a) and (b), and explain.
 - d. Assume that the central government can impose a interregional Pigovian transfer scheme based on the public investment of each region. Find the optimal scheme. Compare with b and a.
 - e. Now find the solution for the case in which $b < 0$. Explain why the results in this case are so strange!
41. Suppose that two adjacent community provide a similar public service to their own residents, and finance that service from local tax receipts generated by taxing “their base,” B_i . The tax base of Community 1 is $B_1 = (G_1 - G^*) - 100(t_1 - t_2)$ and the tax base of Community 2 is $B_2 = (G_2 - G^*) - 100(t_2 - t_1)$. Neither community can borrow, so $t_1 B_1 \leq cG_1$ and $t_2 B_2 \leq cG_2$. The residents of each community each want the same ideal service level, G^* , but do not like paying for them. Assume that both community’s have town managers that attempt to maximize their tax base.
- a. Characterize the best reply function for each government's tax and service levels.
 - b. Characterize the equilibrium tax and expenditure levels in the two communities, both mathematically and graphically. Explain your result. (If you find the math difficult try setting up a PD game between the two town managers.)
 - c. How would the result have differed if there were two types of residents with different ideal service levels?
 - d. How would this equilibrium have been different if both governments had been net revenue maximizers rather than tax base maximizers?
42. Some economists (and politicians) have suggested switching from income taxation to a national sales tax or consumption tax.
- a. Analyze the merits of this proposal with reference to economic theory.
 - b. Now consider the political economy of such tax choices. Are there circumstances under which there would be unanimous agreement for such a change occur? Majority agreement? Explain.
43. Consider one regression among many that have been run of the following general form: The dependent variable is some such variable as the per capita cost of providing some particular service or per capita property value; the independent variables include the usual assortment of candidates, plus some kind of organizational variable that is the item of interest. This variable could denote whether the service is provided by a public bureau or a profit-seeking firm, it could denote alternative electoral systems, or any of a number of other possibilities. The central claim is that organizational form matters significantly in the provision of services.
- a. Is such a finding plausible?
 - b. If you think it is, explain how you can account for the existence of a variety of organizational forms.
 - c. Summarize some of the existing empirical public finance literature on this point.
44. Construct a two-person three-strategy game that illustrates the fiscal commons problem (pork barrel dilemma) experienced in federal systems of taxation. Briefly explain all relevant details.
- d. Explain why taxation in a federal system can be excessive even if each level of government adopts the Pareto efficient level of public services for its residents.
 - e. Explain why such problems might be tolerated as a necessary cost of competitive governance in a federal system of governance.
 - f. Discuss how a revenue sharing program of block grants can reduce this problem, while preserving fiscal competition. Are their political risks associated with such programs?

45. **True or False.** “The existence of multiple taxing units always tends to reduce total government revenue.” Explain or critique the above using one or more clearly specified theoretical frameworks.
46. If you compare tax rates on gasoline in such states as California, Connecticut and New York, you will see that they are about twice as high as tax rates in such states as Alaska Wyoming and New Jersey. What is the most likely explanation for the variation in gasoline tax rates?