14.41 Final Exam
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<u>True/False/Uncertain</u> (95% of credit based on explanation; 5 minutes each)

1) The definition of property rights will eliminate the problem of externalities.

Uncertain. Also have to worry about costless bargaining, assignment problem, public goods aspects, etc.

2) An increase in the government expenditure on public goods such as homeless shelters, financed by a rise in the marginal tax rate, will increase the amount of the public good available.

Uncertain. This depends on the extent of crowd-out, warm glow model, income effects (higher tax), price effects (higher mtr), etc.

3) Risk-averse individuals like to smooth their consumption across possible states of the world. Therefore, there is no need for the government to provide disability insurance, because the private market will provide this insurance.

False. Adverse selection/missing markets.

4) Social security reduces private savings, since individuals retire earlier so that they have less money to save.

False. SS probably does reduce private savings, but this is due to the wealth substitution effect (government is saving for you, so you save less). The retirement effect actually goes the other way: you are retiring earlier, so you save more for your extended retirement–this increases savings!

5) The average replacement rate of unemployment insurance benefits is only about 45% of wages, so it would be a good idea to raise the replacement rate to provide workers with more insurance against the event of unemployment.

False. A higher benefit would provide more insurance against unemployment, but it would weaken workers' incentives to search for new jobs. Evidence suggests workers are fairly responsive to benefit levels, so a higher replacement rate could lead to much longer durations of unemployment.

6) Relative to the old, fee-for-service type of health care, prospective reimbursement gives doctors better incentives to provide patients with the right amount of medical care.

Uncertain. With FFS plans, doctors had an incentive to do too many procedures, since they were paid per procedure. With prospective reimbursement, they may have an

incentive to provide too little care, since they are paid the same regardless of how much care you receive. Evidence suggests that prospective reimbursement

7) Assume that food stamps cannot be traded for cash, but must be used for food. Under this assumption, an increase in the provision of food stamps will not increase consumption of alcohol (for which the stamps cannot be used).

False. Income effect.

8) If the money spent from payroll taxes is spent on health care or other benefits, then there will be no dead weight loss from the tax.

Uncertain. If workers value benefits at their cost, get no DWL. If workers value benefits, but not fully, get some DWL but less than under normal analysis. Also, if benefits go to non-workers, then this set-up doesn't work.

9) The theory of optimal commodity taxation argues that tax rates should be set equal across all commodities, in order to maximize efficiency through "tax smoothing"

False. Tax rates should be proportional to inverse elasticities.

10) Consider a labor market where labor supply is totally inelastic, and labor demand is somewhat elastic. There is a minimum wage which is set equal to the equilibrium wage. Now, impose a labor tax on firms (ie. firms pay some share of their payroll in tax). This tax will be borne entirely by firms.

True. Minimum wage means workers can't bear tax (except perhaps through benefits).

Problems:

1) <u>Welfare Programs</u> (30 minutes)

Contrast three different approaches to raising the standard of living of the poor:

- Wage subsidies: for each dollar of earnings up to some level, the government gives you a refundable tax credit for each dollar you earn; this is then phased out after reaching a maximum, so that the credit reaches zero for middle class taxpayers

- Negative income tax: all individuals are guaranteed a minimum standard of living, and that minimum grant is reduced as their earnings rise (but not one for one)

- Categorical welfare: all individuals who have certain characteristics are guaranteed a minimum standard of living, and that minimum grant is reduced one-for-one as incomes rise

a) Contrast the work incentives of the negative income tax and the wage subsidy, both diagramatically and intuitively. Be clear about the impacts throughout the income distribution.

Wage subsidy: strong incentive for LFP, ambiguous LS effect before kink (pos. subst. effect, neg. income effect), and negative effect on LS in phase-out range (neg subs & income effects), no effect on person with high earnings.

NIT: negative effect on LS at all points (neg income and subst effects) except person with high earnings.

b) Describe two advantages and two disadvantages of categorical welfare relative to a negative income tax.   How should the government go about choosing the right categories for targeting categorical welfare programs?

Advantages: less labor supply distortion, can have more generous redistribution
Disadvantages: category may be mutable (i.e. single mothers) and a little bit of category change can be really bad, admin costs from verifying eligibility

Right categories: immutable and correlated with underlying earnings capacity.

c) Does it make sense that the reduction rate of the minimum grant would be higher under categorical welfare? How does your answer vary with the ability of the government to target its categorical welfare?

No. Reduction rate of minimum grant can be lower, because aren't as worried about moral hazard with tagging. Can allow welfare further up the income distribution without worrying about high w* types moving onto welfare. As government less able to target, need to have higher reduction rate.

d) Suppose that the poverty line is $15,000. Design a negative income tax program to combat poverty. That is, choose a basic grant level, and an implicit tax rate at which this grant will be taken away as incomes rise. What are the tradeoffs in choosing the grant level and tax rate? What are the efficiency and equity implications of choosing different grant levels and tax rates? How will your program affect people in different income ranges?

Higher grant: larger income effect, but more redistribution
Lower tax: smaller substitution effect, expand welfare higher in income distribution

Equity: more progressive with high grant, low tax

Efficiency: better with low rates on broad bases

Low income: higher income, lower labor supply
Middle income (around kink): lower labor supply to get on welfare
High income: no effect

2) Auto Insurance (40 minutes)
The state of California is considering reforming its auto insurance program. Currently, individuals can purchase insurance from one of a large number of auto insurance companies. Buying insurance is voluntary, so a large number of drivers do not buy it, and remain uninsured. When two insured drivers are in an accident, the insurer of the driver who is at fault pays the costs (assume that when "blame" is unclear, then cases go to court). When an insured driver is in an accident with an uninsured driver, the insured driver's insurance policy must pick up the cost. When two uninsured drivers are in an accident, their medical costs are passed on to all insured drivers through higher insurance premiums.

Under the proposed plan (this was a recent proposal in California), there would be universal auto insurance. The cost of this universal coverage would be financed by a tax on gasoline. Assume that this tax would raise the price of gas by 20%. This would be no-fault insurance; in any accident, the state would pay the full cost, regardless of who caused the accident.

Assume in your answer that the tax causes people to buy more small cars, which are less safe and less damaging to the environment (e.g. they release fewer emissions).

a) What are the advantages of having universal auto insurance over the current private system? (Focus only on the coverage part of the plan, not on the gas tax or the no-fault structure).

No financial externalities from uninsured drivers.
Don't have to worry as much about adverse selection in insurance market.

b) What are the advantages of no-fault insurance? What are the disadvantages?

(Once again, ignore financing issues for this part.)

Pro: Less resources wasted on legal battles.
Con: Moral hazard.

c) Contrast the efficiency and equity consequences of the proposed method of financing insurance with the method of financing insurance implicit in the existing system.

Equity: regressive tax (but I guess insurance costs are probably "regressive", too)
Efficiency: Ramsey Rule, more small cars is bad b/c of safety, but good b/c of environment, broad base for gas tax.

d) Consider an alternative means of financing universal auto insurance: having a fixed fee which varies with your driving record (bad drivers pay more), along with a smaller gas tax of 10%. Contrast the <u>efficiency</u> and <u>equity</u> of this alternative with the efficiency and equity of the 20% gas tax.

Equity: less regressive, if enough of the bad drivers are rich guys.
Efficiency: lower tax rates have smaller DWL, less environmental benefits, lower moral hazard

3) <u>Individual Retirement Accounts</u> (15 minutes)
Suppose that the government is interested in increasing savings in the US and is considering expanding the current system of IRAs as a means to do this. As evidence that IRAs increase savings, policy-makers point to the fact that IRA holders have higher total savings than non-IRA holders.

a) Discuss the theory of how IRAS affect savings.

Income effects, substitution effects, substituting IRAs for saving that you were already doing, etc.

b) Based on the evidence presented by the policy-makers, is the conclusion that IRAs increase savings necessarily valid? Why or why not? How does the distinction between private and national savings affect the analysis?

No, b/c people who like to save will choose to invest in IRAs and people who don't won't. National savings makes policy look worse, because counts tax costs of the policy.

c) Suppose that the government of Quebec decided to allow households with less than $75,000 in income to contribute up to $3000 per person per year to an IRA. The rest of the Canadian provinces do not allow IRAs. How would you use this policy change to better answer the question of how IRAs affect savings? What concerns would you have about the validity of your results?

diffs-in-diffs. Need to worry about legislative endogeneity, differential trends.

4) <u>Education Spending and Finance</u> (45 minutes)
State and local governments currently fund 90% of public education spending in the
United States. Local governments rely on property taxes for about 75% of the revenue
that is spent on education and other local spending.

a) Explain the economic rationales for a government role in the provision of education.
Why are local governments, rather than the federal government, predominantly involved
in the education sector?

*positive externalities, parental misrepresentation of kids' preferences, liquidity
constraints.*

*Tiebout allows people to sort into communities that provide their preferred level of
education.*

b) In order to finance education and other spending, local governments levy taxes on
property. Assume that, for tax purposes, "property" includes your land and your house.
Suppose that you are a land-owner, who is deciding how large of a house to build. Your
utility depends on the size of your house, H, and your non-housing consumption, C, but
doesn't depend on the local education system: $U=\log(H)+\log(C)$.

The pre-tax price of a unit of H is 1 and the price of a unit of C is 1. The property tax
rate is 20%. Your land is valued at 100, so your property tax is calculated as
$0.2*(100+H)$. Your income is 200. Use this information to determine your optimal H and
C with and without property taxation.

How has the property tax affected the market for housing and what does this imply
about the efficiency of a property tax?

Without taxation:
Max $\log(H)+\log(C)$ s.t. $H + C =200$
Max $\log(H)+\log(200-H)$
$2H=200$
$==>H=100, C=100$

With taxation:
Max $\log(H)+\log(C)$ s.t $1.2H + C = 180$
Max $\log(H)+\log(180-1.2H)$
$2.4H=180$
$==>H=75, C=90$

The tax has distorted the housing market, resulting in DWL.

c) Now suppose that your utility function is a positive function of education (E), instead
of consumption (C): $U=\log(H)+\log(E)$. Your total education consumption is equal to
your tax-financed education consumption (20 from the tax on your land and 0.2*H from

the tax on your property) plus any education that you purchase privately (P). The pre-tax price of a unit of H is still 1 and the price of P is 1.

What happens to your choice of house size and why? Contrast the efficiency of the property tax, in this setting, to the efficiency of the property tax in part (b). Explain the intuition for your answer.

Max log(H)+log(E) s.t. 1.2H + P = 180
Max log(H)+log(20+0.2H+P) s.t. 1.2H + P = 180
Max log(H)+log(200-H)
==>H=100, P=60, E=100
No more inefficiency from the tax! Due to Tiebout-style benefit-tax linkage.

d) A judge has recently decided that school finance in your state must be more equal across communities. As a result, only half of your taxes are returned to you in the form of public education. That is, E=10+(0.1*H)+P, although the property tax is still 20%.

How does the equalization of school finance affect your choice of house size? Contrast the efficiency of the property tax, in this setting, to the efficiency of the property taxes in part (b) and part (c). Explain the intuition for your answer.

Max log(H)+log(10+0.1H+P) s.t. 1.2H + P = 180
Max log(H)+log(190-1.1H)
2.2H=190
==>H=86.36, P=76.37, E=95

More efficient than in part (b), less efficient than in part (c). Now we have broken the tax-benefit linkage.

e) Return to the example in part (c). How does school finance differ in reality from this example? What are the implications for the efficiency of property tax financing of education?

Can't top up your education using private purchases. If I build a larger house, it doesn't directly translate into a better educational system. Tax is likely to be more distortionary in the housing market than in part (c), because there isn't really a tax-benefit linkage. Won't necessarily mean that I buy more education, in reality, since can't privately purchase education and real utility function includes other goods.

f) What are the arguments for and against including the value of your house in the value of your property when assessing taxes?

--Land is inelastic so, if don't include house, there's no inefficiency from the tax.
--Including house makes the tax more regressive
--need to worry about people who hold all of wealth in property, b/c they'll have liquidity constraints when it comes time to pay property tax. Including the value of the house makes us even more worried about these people.

–Including house gives us larger tax base.