

**Final Exam**

**Closed notes exam, calculators or any electronic device are not allowed**

**Short Answers: (5 points each)** Please indicate whether the following statements are True, False, or Uncertain. Credit will be given based on the explanation. Please use bullet points and cite academic work where possible.

1. Disability insurance in the United States discourages labor supply because applicants assigned to stringent DI examiners are more likely to work subsequently than applicants assigned to lenient DI examiners.
2. The strong correlation between the drop in top tax rates and the increase in top 1% pre-tax income shares in OECD countries since 1960 implies that low to moderate top tax rates are desirable.
3. In the basic labor supply theory model we used in class, increasing the linear tax rate on earnings reduces labor supply.
4. The government observes that health insurance companies charge much higher premiums to those who have previously suffered a stroke. Explain what would happen if the government decided that this is unfair and bans this form of price discrimination.
5. There is compelling evidence that unemployment insurance creates moral hazard effects.
6. Empirical evidence shows that Medicare Part D prescription drug benefits creates moral hazard effects.
7. The efficiency costs of the EITC are increasing overtime as more and more individuals figure out how to game the EITC.
8. The US social security retirement program discourages work of the elderly.
9. The preferred outcome of the median voter wins in majority voting against any other alternative.
10. There is compelling empirical evidence that access to guaranteed loans increases college enrollment.

## Problems

### 1. Community college funding (25 points)

A major component in post-secondary education in the United States is the community college sector. These institutions provide vocational training as well as lower-division academic coursework for those intending to transfer to 4-year institutions. The following questions apply a variety of public economics tools to the topic of community college funding.

(a) [2 points] Provide two economic motives justifying government involvement in education. Explain each.

(b) [1 point] Provide at least one economic motive justifying government NON-involvement in education. Explain.

Let's focus on the market for 2-year college education in Oakland. Assume the local demand for community college degrees is described by the demand function  $Q_d = 10000 - P$ , while the supply is given by  $Q_s = P$ , where  $P$  is the price of attending community college. The additional marginal benefit to the community for each degree is \$2000.

(c) [3 points] Graph the market for community college degrees. Clearly label all points and axes. Determine the private market equilibrium price and quantity.

(d) [4 points] Determine the socially optimal equilibrium price and quantity. On the graph, indicate the change(s) to the curves and mark the new price and quantity. Explain how the social optimum can be met in the market.

Now assume Oakland's city government must choose between community college degrees ( $C$ ) and all other goods ( $X$ ). Its preferences between both goods is given by  $U(C, X) = (1/3) \cdot \log(C) + (2/3) \cdot \log(X)$ . For simplicity, let the price for  $C$  and  $X$  both equal \$1, and let the city budget equal \$9,000.

(e) [3 points] Under these conditions, graph the budget constraint for the city, and determine Oakland's optimal provision of  $C$  and  $X$ .

(f) [4 points] If the city is given a \$6,000 conditional block grant to be used for community college degrees, what is Oakland's optimal provision of  $C$ ? Explain your result. Also, draw the new budget constraint.

(g) [2 points] Economic theory predicts the result in (f). What does the empirical evidence tell us about how  $C$  will change with the conditional block grant? Is there a difference in the short-run versus the long-run?

**(Problem 1 continued on next page)**

### 1. Community college funding (continued)

At the California state legislature in Sacramento, lawmakers are debating policy proposals to increase per-student expenditures for community colleges. The three proposals are as follows:

- No change in funding;
- a \$1,000 increase in funding per student; and
- a \$2,000 increase in funding per student.

In addition, there are three voting blocs:

- Group A: Prefers more community college funding to less.
- Group B: Prefers best the \$1,000 increase in funding, but then would prefer no new funding to the \$2,000 funding request.
- Group C: Prefers best no new funds, but would go with the largest funding proposal if any new spending occurs. (This is the “go big or go home” caucus.)

(h) [3 points] Which groups’ preferences are single-peaked? Explain or demonstrate why. You may use a graph.

(i) [2 points] Assuming equal proportions of voters in each group, will majority voting generate consistent outcomes? Explain why or why not.

## 2. Unemployment Insurance (25 points)

Individuals have utility function given by  $U(C) = \sqrt{C}$ .

Individuals earn a wage  $w$  when employed and have no earnings when unemployed.

The probability of being unemployed is  $p$ .

- (a) [2 points] Write down the individuals' expected utility
- (b) [2 points] How much insurance at an actuarially fair price would individuals buy (No need for calculation)
- (c) [2 points] Present the previous result graphically, making sure to label the axes and to show the risk premium.
- (d) [3 points] When individuals have their own, unobservable to private insurers and to the government, probability of being unemployed  $p_i$ , the government might need to intervene in the insurance market. Explain why.

Let's now assume that the government intervenes and provides unemployment insurance benefits  $b$  to the unemployed. This is financed by a payroll tax  $t$  paid by the employed.

- (e) [3 points] Write down the government's constraint for a balanced budget and individuals expected utility as a function of  $p$ ,  $w$  and  $b$ .
- (f) [3 points] When the likelihood of being unemployed depends positively on the generosity of UI benefits  $b$ , should the government provide full or partial insurance? Explain.

Arkansas, California, and New York are considering reforms of their unemployment insurance programs and have invited you to give your expert opinion on the optimal policy. They have estimated two parameters that they think will be useful in guiding your advice: The change in consumption while unemployed for a \$1 increase in the UI benefit rate ( $\frac{\partial c}{\partial b}$ ) and the elasticity of unemployment durations with respect to the benefit rate ( $\varepsilon_{dur,b}$ ). The estimates are as follows:

	Arkansas	California	New York
$\frac{\partial c}{\partial b}$	0.2	0.3	0.3
$\varepsilon_{dur,b}$	0.8	0.8	0.5

- (g) [2 points] Explain why  $\frac{\partial c}{\partial b}$  is relevant in determining the optimal UI benefit rate. Based on this parameter only, which state(s) should have higher UI benefits?
- (h) [2 points] Explain why  $\varepsilon_{dur,b}$  is relevant in determining the optimal UI benefit rate. Based on this parameter only, which state(s) should have higher UI benefits?
- (i) [1 point] Assuming the states are identical in all other dimensions, which state would you recommend should have the highest UI benefit rate? Which should have the lowest?
- (j) [3 points] How would you expect the parameters  $\frac{\partial c}{\partial b}$  and  $\varepsilon_{dur,b}$  to change during a recession? What does this imply for the optimal benefit level?
- (k) [2 points] In the context of unemployment insurance, explain what experience rating is. Provide an argument for perfect experience rating.