

Econ 131
Spring 2020
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Final Exam

May 15

Exam Instructions are printed on the Answer Booklets.

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1. True/False/Uncertain (questions 1a-j) (20 points, 2 points per question.)

Explain your answer fully based on what was discussed in class, since all the credit is based on the explanation. Your grade depends entirely on the substance of your justification, not on whether you are correct in writing “True” or “False”. Note that it is possible to answer each question for full credit with three sentences or fewer, and answers longer than ten lines long will not be graded.

- (a) Labor supply theory and changes in incentives do a pretty good job at explaining the labor force participation of single mothers in the US over the last four decades.
- (b) Data series on pre-tax top income shares are affected by tax evasion and avoidance so it is impossible to say much about the evolution of inequality.
- (c) The Earned Income Tax Credit program in the United States is likely to discourage labor supply on average because most of the recipients are in the plateau or phasing out range of the program.
- (d) After Obamacare, any family or person who wants health insurance can get it at affordable price. Therefore, it is fair to say that the US has universal Health Insurance for all who want it.
- (e) Denmark has a very progressive tax system but can still attract top talent from abroad by offering tax discounts for highly skilled immigrants. Therefore, mobility of top talent does not threaten tax progressivity.
- (f) In contrast to social insurance, private insurance can provide perfect insurance because customers pay the full cost of expected insurance claims through the premiums.
- (g) If social security did not exist, individuals would save on their own because nobody wants to starve in retirement. Therefore, social security just crowds out private individual savings.
- (h) The replacement rate provided by Unemployment Insurance should never exceed 100%. Therefore, the CARES act that provides an extra \$600/week in unemployment benefit is sub-optimal policy.
- (i) Individuals benefit from higher education in the form of higher career earnings. Therefore, individuals should pay for their higher education themselves and the most the government should do is make loans available to students.

- (j) Tax competition is particularly severe between sub-national governments. Therefore it is impossible for local governments to tax corporate profits.

2. Community college funding

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) Provide two economic motives justifying government involvement in education. Explain each.
- (b) 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 inverse demand function $P = 8,000 - 3Q_d$, while the inverse supply function is given by $P = 4Q_s$, where P is the price of attending community college. The additional marginal benefit to the community for each degree is \$2,000.

- (c) Determine the private market equilibrium price and quantity.
- (d) What is the socially optimal demand function?
- (e) Find the socially optimal equilibrium price and quantity.
- (f) Find the DWL associated with the private market equilibrium.
- (g) Graph the market for community college in Oakland. Be sure to label 8 things: PMC, SMC, PMB, SMB curves, the Marginal Benefit, the DWL, the private market equilibrium and the socially optimal equilibrium.
- (h) What would be the Pigouvian solution to the externality problem introduced above.

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: The \$1,000 increase in funding is the most preferred option, followed by no change in funding, with the \$2,000 increase as the least preferred option.
- Group C: No change in funding is the most preferred option, followed by the \$1,000 increase, with the \$2,000 increase as the least preferred option.

- (i) Which groups' preferences are single-peaked? Explain or demonstrate why. You may use a graph.
- (j) Assuming equal proportions of voters in each group, will majority voting generate consistent outcomes? Explain why or why not.
- (k) If 2 of the 3 proposals are selected to compete in an election, would the median voter most preferred alternative win? Explain

3. Workers Compensation

Consider an economy of identical individuals who earn a wage of 200 while working and nothing when they don't. With probability q , the individuals get injured and cannot work. When injured, the individuals get a worker's compensation benefit of b from the government. When working, individuals pay a tax of $(200 * \tau)$ to finance the workers compensation system. Assume that the agents have no other source of consumption in either state. Let $u(c) = c^{1/3}$ denote the individual's utility from consuming c in a given state.

- (a) Write the individual's expected utility as a function of b , q and τ .
- (b) Write the government's budget constraint for an actuarially fair insurance program and find the balanced budget tax τ in terms of q and b .
- (c) Assuming a balanced budget government, find the value of the benefit b that maximizes individuals expected utility.
- (d) Find the tax rate τ that a government with balanced budget would have to charge workers to finance a benefit of the size found in (c), and discuss the intuition behind your result.

Assume now that the probability of getting injured is $q = 5\%$.

- (e) Find the expected utility of an individual with no Workers Compensation system (Uninsured)
- (f) Find the expected utility of an individual under a Worker Compensation system with the full insurance benefit you found in (c) and a balanced budget tax rate τ .
- (g) Present the previous results graphically, making sure to label (1) the axes, (2) the high and low consumption outcomes, (3) $EU^{uninsured}$, (4) EU under workers compensation, and (5) the risk premium.

(h) Now suppose that q is a function of b . Under the presence of moral hazard would you expect $\frac{dq}{db}$ to be positive/negative?, explain.