

Econ 230B
Spring 2023

FINAL EXAM: 2 Hours

Closed notes exam. No computer, calculator, or any other electronic device allowed.

Questions: 40 points

Answer briefly all 10 true/false questions (4 pts each). Explain your answer fully, since all the credit is based on the explanation.

1. The generosity of disability insurance monthly cash benefits in the United States has a positive impact on the survival of disability insurance recipients.

2. The spike of retirement hazard at age 62 in the United States is driven by the US social security system.

3. Social security privatization is desirable if the rate of return on savings r is larger than the economy's rate of growth g .

4. Longer unemployment benefits lead to longer unemployment spells.

5. Larger unemployment benefits lead to longer unemployment spells.

6. The strong effects of auto-enrollment in 401(k) pension plans contradict the standard life-cycle model of savings.

7. Progressive wealth taxes are inefficient because the rich move out to avoid the tax.

8. The progressive wealth tax in France was unsuccessful at taxing significantly the ultra-rich. Therefore, Lawrence Summers was right to question the rosy revenue estimates from the Elizabeth Warren wealth tax proposal.

9. Disability insurance has negative effects on labor supply because applicants assigned to tough examiners are more likely to work than applicants assigned to lenient examiners.

10. The US time series of top 1% income shares estimated using income reported on tax returns since 1913 shows that top incomes are very sensitive to the top tax rate of the individual income tax.

PROBLEM (30 points):

Let us consider a simple model of tax evasion with risk-neutral taxpayers. Assume that there is a linear tax with uniform rate t . Let us denote by z real income and by y reported income, so that under-reporting is $z - y$. Let us always assume that $z \geq 0$ and $y \geq 0$ and also that $z - y \geq 0$ (i.e., no over-reporting is allowed). Assume that if the taxpayer is caught cheating, the government can force the individual to repay evaded taxes with a surcharge at rate $\theta > 0$ per dollar of evaded tax. We denote by p the probability of being caught cheating.

a. (3 pts) Show that each individual chooses y to maximize $z \cdot (1 - p \cdot (1 + \theta)t) + t \cdot y \cdot (p \cdot (1 + \theta) - 1)$.

b. (5 points) Assume that the probability of being caught is given by a fixed parameter p with $0 < p < 1$ independent of reported income y . How much does the individual report in income y ? Express this as a function of p and θ . Based on your findings, why have many studies concluded that individuals evade too little relative to the standard rational model of tax evasion?

c. (5 points) Assume now that the probability of being caught is a decreasing function of y , $p(y)$ with $p'(y) < 0$. Solve for the reporting level y chosen by the individual in that case [Note: you cannot get a closed form solution in this case, only an implicit formula.] Show that this solution can be expressed in the form $1 = p \cdot (1 + \theta) \cdot (1 + \varepsilon)$ where ε is the elasticity of the probability of being caught with respect to under-reported income $z - y$. In practice, do we expect ε to be positive or negative? Explain why.

d. (4 points) Assume further that income $z = z_T + z_S$ where z_T is income that is third-party reported to the government by the payer (e.g., wage earnings from a formal employer), while z_S is income that is not third-party reported (e.g., earnings from informal self-employment). What do we know from empirical studies about the evasion rates for z_T vs. z_S income?

e. (4 points) Explain what shape for $p(y)$ we should expect (as a function of y) given the decomposition of z into z_S and z_T from question d. What is then the best reporting strategy for the individual?

f. (5 points) Suppose the government takes seriously the lesson from d. and e. and wants to improve enforcement by expanding third-party reporting for self-employed workers and implements the following reform: Before 2022, gig-work platforms (such as Uber or Lyft) were required to send third-party 1099 forms to their (self-employed) workers and to the IRS only when aggregate annual payments to the worker exceeded \$20,000. Thanks to the American Rescue Plan Act of 2021 and starting in 2022, this threshold is lowered down \$600. Explain how you could use micro-tax data before and after the reform to analyze whether the reform is effective in improving tax compliance with gig workers. Be sure to state clearly what are the identification assumptions you would need and what are the potential threats to identification.

g. (4 points) (Continuing from f.) Actually, before 2022, some states (such as Maryland, Massachusetts, New Jersey, or Vermont) had already imposed 1099-K filing requirements much lower than \$20,000. For simplicity, let's assume that a group of states (denoted by C) had already in place the \$600 filing requirement for 1099s before 2022 while other states (denoted by T) just followed the federal government threshold. Explain how you could use this to improve your empirical analysis of the 2021 federal reform in f.

Use this page for calculations, scratch work, etc..

Use this page for calculations, scratch work, etc..

Use this page for calculations, scratch work, etc..

Use this page for calculations, scratch work, etc..