

Econ 230B
Spring 2024

FINAL EXAM: 2 Hours

Closed notes exam (no computer or electronic device allowed). Write answers in spaces provided. Use dark pen as exams will be scanned for grading.

True/False Questions: 40 points

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

1. The main reason behind the surge in labor force participation of single mothers in the US in the 1990s is the expansion of the Earned Income Tax Credit.

2. If the elasticity of taxable income of upper income taxpayers with respect to the net-of-tax rate is high, the government should not impose a high top marginal income tax rate.

3. The spikes in retirement at the regulatory ages of the German social security retirement system is evidence that many individuals do not follow the rational model of labor supply over the life-cycle.

4. Realized capital gains are very sensitive to tax rates. Hence, they should face a low tax rate.

5. If individuals with no earnings are considered as less deserving than average by society, then an EITC with negative marginal tax rates at the bottom of the income distribution would be optimal even in the traditional Mirrlees model of optimal taxation.

6. Having information on tax returns is sufficient to measure income and wealth inequalities.

7. U.S. states cannot increase tax revenues by raising the estate tax because all billionaires will move to states with no estate taxation.

8. Observing a large number of missing taxpayers at the wealth tax exemption threshold implies that the deadweight loss of wealth taxation is too high and that we should not have a wealth tax.

9. International tax competition generally leads countries to cut their income tax rate below what would maximize welfare.

10. Preferential tax systems for highly skilled foreign immigrants or football players have a large positive effect on immigration, hence decreasing current tax rates on income would increase total tax revenues by attracting more highly paid workers in the destination country.

PROBLEM (30 pts), divided in 10 questions, 3 pts each:

We consider an economy made up of individuals who have identical preferences defined over consumption c and labor l , but different wage rates. The utility function takes the simple form: $u(c, l) = c - l^{1+k}/(k + 1)$ where $k > 0$ is a given fixed parameter. An individual with wage rate w supplying labor l , earns $z = wl$ and consumes $c = z - T(z)$ where $T(\cdot)$ is the (possibly nonlinear) income tax.

Suppose there is a distribution of skills w with density $f(w) > 0$ over $[0, \infty)$. The total population is normalized to one so that $\int_0^\infty f(w)dw = 1$

1. (3 pts) Consider a linear income tax system $T(z) = -R + \tau \cdot z$ where $R > 0$ is the demogrant and τ is a flat tax rate. Solve for the utility maximizing labor supply choice l as a function of R and the net-of-tax wage rate $w \cdot (1 - \tau)$. Derive the uncompensated elasticity of labor supply as a function of k . Solve also for the income effect parameter on labor supply. Deduce from this the compensated elasticity.

2. (3 pts) Suppose taxes collected are all rebated through the demogrant so that $R = \tau \cdot Z$ where Z is average earnings. Express R as a function of τ and draw it with τ going from 0 to 1.

3. (3pts) In the population with heterogeneous skills $w \geq 0$, who is the worst-off in terms of utility and what is the utility of the worst-off person? Solve for the Rawlsian optimal tax rate τ (i.e., the tax rate that maximizes the utility of the worst-off individual).

We now assume that the government imposes the following income tax: $T(z) = -R$ if $z \leq \bar{z}$ and $T(z) = -R + \tau \cdot (z - \bar{z})$ if $z > \bar{z}$. $R > 0$ is the demogrant and $\bar{z} > 0$ is the exemption level for the income tax.

4. (3 pts) Plot the budget constraint on a diagram (l, c) .

5. (3 pts) Solve for the utility maximizing labor l and earnings $z = wl$ choice for an individual with wage w . Show that there are three cases depending on whether the individual has earnings below \bar{z} , above \bar{z} , or exactly at \bar{z} .

6. (3 pts) In this model, explain how the amount of bunching observed at \bar{z} is related to the level of the compensated elasticity of labor supply.

7. (3pts) Explain briefly how you would estimate the elasticity with empirical cross-sectional data on earnings using this bunching evidence (and without knowing the underlying distribution of skills $f(w)$).

8. (3 pts) Suppose the government increases the tax rate τ by $d\tau > 0$ while keeping \bar{z} constant. What is the impact of the reform on earnings of people above \bar{z} ? Does the reform increase or decrease bunching from question 6.

9. (3 pts) Suppose the extra-revenue of the reform is used to increase R . Is the tax rate τ^* that maximizes R higher or lower than the one found in question 3?

10. (3 pts) Find an expression for τ^* as a function of k , \bar{z} , and the average earnings of individuals above \bar{z} .

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