Econ 230B
Spring 2021
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Problem Set 2

DUE DATE: March 29

1. Mobility of High Income US Taxpayers across States

The goal of this exercise is to estimate the mobility of high income US taxpayers across US states due to variation in state income top tax rates across states and over time. High income US taxpayers are defined as tax filers reporting Adjusted Gross Income (AGI) above $1m.

a) Find online information on the state top income tax rates across all states for **2017** incomes. List the five states with the highest top tax rates (group T) and the five states with the lowest top rates (group C) along with the top tax rates in those 5 states. (NOTE: do not exclude zero tax states, if you have ties, keep the largest states in terms of population to have exactly five states in each group).

b) Use IRS state level data in excel format for tax year 2017 at (link here) to compare the fraction of high income earners in states in group C and states in group T. Fraction high earners is defined as the ratio of number of tax returns with AGI above $1m to all tax returns in group.

Under what assumption does this comparison identify the effects of state income tax rates on mobility? Is this assumption realistic (how could it be tested)?

If this assumption holds, what is the elasticity of the number of high earners with respect to the net-of-tax rate at the state level?

c) TCJA (the Trump tax cut) imposed a cap of $10K on state and local income taxes that taxpayers can deduct in their itemized deductions. This implies for high earners, state income taxes are no longer deductible. Explain how this magnifies the impact of state income taxes on the net-of-tax (one minus the marginal tax rate) when combining both federal and state income taxes.

d) Use IRS state level data in excel format for tax years 2017 and 2018 at (link here) to compare the changes in the fraction of high income earners in states in group T and states in group C from 2017 to 2018. Fraction high earners is again defined as the ratio of tax returns with AGI above $1m to all tax returns.

Construct the DD estimate using the variation created by TCJA that was discussed in c). What is the elasticity of the number of high earners with respect to the net-of-tax rate at the state level that you obtain?

Do you find this estimate more compelling that the one obtained in question a)? Why or why not?

2. Bunching at kink points

a) Consider a utility function based on consumption c and hours of work h of the form:

$$u(c, h) = c - \frac{h^{1+k}}{1+k}$$

Individuals have a pre-tax wage rate w, supply hours of work h, and earn $z = w \cdot h$.

The tax schedule depends on earnings $z = w \cdot h$ and takes the following form:

$T(z) = 0$ if $z \leq \bar{z}$

$T(z) = \tau \cdot (z - \bar{z})$ if $z > \bar{z}$,

where τ is the constant marginal tax rate in the top bracket. Draw the budget set for a given individual and solve for the optimal (c^*, z^*) choice as a function of w. Make sure to distinguish cases where the individual is on the first bracket, bunches at the kink, or is on the second bracket.

b) Derive the compensated elasticity of hours of work with respect to net of tax wages for this utility function.

Suppose that wages are distributed according to a density function $f(w)$ (with population normalized to one). Give a formula for the fraction of individuals bunching at the kink point.

c) I have created a data-set of 5,000 observations displaying earnings outcomes for a such a population of individuals assuming that $\tau = 0.3$, and that w is distributed according to some distribution $f(w)$. I have then graphed a histogram of earnings by $250 bands ($0-$249, $250-$499, $500-$749, ..., $19,750-$19,999). What is $\bar{z}$ and why?

d) Using the histogram from c) and your answers to a) and b), try to give an estimate of the compensated elasticity of hours of work with respect to net of tax wages. You do not need to provide standard errors, just a point estimate.