Econ 230B
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Problem Set 2 Solution

2. 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 **2020** 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 10 states. (NOTE: do not exclude zero tax states, if you have ties, keep the largest states in terms of population to have exactly ten states in each group).

Table 1: Tax rates

Group C	Top tax rate (%)	Fraction (%) (High Earners)	Group T	Top tax rate (%)	Fraction (%) (High Earners)
Texas	0	0.36	California	13.30	0.56
Florida	0	0.47	Hawaii	11.00	0.20
Washington	0	0.50	New Jersey	10.75	0.51
Nevada	0	0.40	Oregon	9.90	0.26
South Dakota	0	0.31	Minnesota	9.85	0.31
Average	**0**	**0.41**	**Average**	**10.96**	**0.37**
Federal	37				

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?

See Table 1. Assumption: Exogenous state tax rates. Unlikely to be realistic

If the assumption holds then the elasticity is equal to $e = \frac{dh}{d(1-\tau)}\frac{1-\tau}{h} = \frac{\frac{0.41-0.37}{0.41}}{\frac{100-89.05}{100}} = 0.89$, with h being the share of high earners by state and τ is the top marginal tax rate.

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.

Before TCJA: with deductibility, the net-of-tax rate is $(1-\tau_{fed})(1-\tau_{state}) = 1-\tau_{fed}-\tau_{state}\cdot(1-\tau_{fed})$

After TCJA: with no deductibility, the net-of-tax rate is $1-\tau_{fed}-\tau_{state}$

So the net-of-tax rate falls by $\tau_{state}\cdot\tau_{fed}$ due to TCJA

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?

Table 2: 2017

Group C	Top tax rate (%)	Fraction (%) (High Earners)	Group T	Top tax rate (%)	Fraction (%) (High Earners)
Texas	0	0.35	California	13.30	0.46
Florida	0	0.42	Hawaii	8.25	0.16
Washington	0	0.35	New Jersey	8.97	0.48
Nevada	0	0.31	Oregon	9.90	0.31
South Dakota	0	0.22	Minnesota	9.85	0.22
Average	**0**	**0.33**	**Average**	**10.05**	**0.32**
Federal	39.6				

Changes in the fraction of high earners in groups T and C are 0.053% and 0.078%, respectively. Using the net-of-tax rate variation calculated in c) we find the elasticity $e_{DD} = 0.77$ This approach is more reliable because it partials out time trends.

$$e_{DD} = \frac{\%\Delta S_T - \%\Delta S_C}{\%\Delta(1-\tau_T) - \%\Delta(1-\tau_C)} = \frac{\frac{0.37-0.32}{0.32} - \frac{0.41-0.33}{0.33}}{\frac{(1-.1096-.37)-(1-.1005)*(1-.396)}{(1-.1005)*(1-.396)} - \frac{(1-.37)-(1-.396)}{1-.396}} = .77$$