Base Mobility and State Personal Income Taxes

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Motivation

• The empirical literature has shifted toward a focus on the elasticity of taxable income (ETI)
  – Focus on federal taxes; individual data

• Personal income tax (PIT) is the most important state tax

• Policy decisions often made without good behavioral response elasticities
State Personal Income Taxes

• 41 states
  – TN and NH tax only certain forms of income
• Largest state tax (35.7% in 2008)
  – 5 states get more than 50% from PIT
  – Importance has increased over time
• 34 states use progressive rate structures
  – Top rates range from 3% in IL to 9.5% in VT
  – Minimum income for top bracket varies
  – Lots of rate changes over time
Other Areas of Variation

• Starting point
  – Federal AGI: 27 states
  – Federal Taxable Income: 9 states
  – Federal Tax Liability: 1 state

• Deductions

• Taxation of pension income

• Taxation of non-residents or part-year residents
  – Reciprocity agreements

Avenues for Base Mobility
Welcome to Idaho

Enter:
Pacific Standard Time Zone

Welcome to Washington
The Evergreen State

Wyoming Welcomes You

Welcome to Nevada
Mobility Issues

- Degree of mobility depends on level and types of income
  - High-income filers more mobile?
  - Capital income more mobile?
  - Retirees more mobile?
- Micro-data research suggests a small elasticity of (federal) taxable income
  - Elasticities vary within the cross-section and over time; no “structural parameter”

Mobility and State PITs

- Might state tax base elasticities exceed federal estimates due to state variability?
  - Long (1999): slightly higher elasticities
    - 1991 cross section
- State taxes and migration
  - Fox, Herzog, and Schlottman (1989): higher state/local taxes reduce migration into MSAs
  - Knapp, White, and Clark (2001): higher state PIT burdens encourage people to stay
- Level and location effects at state level
  (mainly level effects at federal level)
Estimation Strategy

\[ TB_{it} = a_i + b_t + cT_{it} + dX_{it} + e_{it} \]

- \( TB_{it} \) = Tax Base in state \( i \) for year \( t \)
- \( a_i \) = State fixed effects
- \( b_t \) = Year fixed effects
- \( T_{it} \) = Vector of tax rates
- \( X_{it} \) = Other control variables
- \( e_{it} \) = disturbance
- \( c, d \) = estimated coefficients

Measuring State PIT Bases

- Micro-data not available
  - Not able to harness individual variation
  - Not directly parallel to ETI literature

- Three aggregate options:
  1. **State AGI**: actual total state AGI, gathered directly on a state-by-state basis
  2. **Calculated Base**: collections divided by the top rate (a measure of taxable income)
  3. **Federal AGI**: total AGI on all returns filed from each state
1. State AGI

• Best of the three
  – Actual base in the eyes of state revenue authorities

• Incomplete data collection
  – 23 states provided some data – THANKS!
    • Varying number of years
    • Varying treatment of non-resident income
  – We focus on 14 states with better data:
    CT, HI, IA, KS, NE, NJ, NY, ND, OH, OR, UT, VT, VA, WI

• Not clear whether this state-year subset is a random subset (more later)

2. Calculated Base

• Collections / Maximum PIT rate
  – Available for all PIT states and years
    • Must fill in data for non-PIT states
      – we use federal taxable income

• Better proxy for actual tax base than most other widely-available measures
  – State personal income

• Possibly subject to error given progressive rate structures
  – Many states have essentially flat-rate PITs
3. Federal AGI

- Available for all states and years

- Presumes that people work and receive all income within a single state
  - Masks substantial cross-state income-earning and tax-filing
    - Actual state base data: residents contribute 67-95% of state tax bases (mean=77.2%)
    - State AGI exceeds federal AGI by 16%

- Provides upper-bound estimates of changes in level of economic activity

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Tax Variables

- Average marginal tax rates on wage, capital, and pension income (NBER)
  - Representative 1995 sample
    - Removes effects of income/deductions changes
    - Allows for comparison of law changes
  - Top marginal rate used in separate models

- Capital income as a % of total income
  - Index: relative to national average
More Tax Variables

• Indicator for change in starting point (federal AGI or taxable income)
• Top corporate tax rate
• Reciprocity index
• Average wage tax rate in neighbor states
• Personal exemption for married/joint
• Share of revenue from PIT and CIT (measure of progressivity)

Other Variables

• Population
• Unemployment Rate
• Per-pupil Education Spending
• Public Health Care Spending
• Non-PIT revenue share
• Local PIT collections as a percentage of state PIT collections
• Majority political party of state House and Senate
Results – Combined Elasticities

<table>
<thead>
<tr>
<th>Elasticity with respect to:</th>
<th>State AGI</th>
<th>Calculated Base</th>
<th>Federal AGI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax rate on wage income</td>
<td>-0.232</td>
<td>-0.046</td>
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</tr>
<tr>
<td>(interacted w/ reciprocity)</td>
<td></td>
<td></td>
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<tr>
<td>Tax rate on capital income</td>
<td>-0.072</td>
<td>-0.043</td>
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<td>(interacted w/ K income index)</td>
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<tr>
<td>Tax rate on pension income</td>
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<tr>
<td>Capital income index</td>
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<td>0.028</td>
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<td>(interacted w/ K tax rate)</td>
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<tr>
<td>Reciprocity</td>
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<tr>
<td>(interacted w/ wage tax rate)</td>
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</tr>
</tbody>
</table>

Note: Entries are mean elasticities, calculated using the mean values of interacted variables.

Wage Tax Rate Results

- No significant impact on state AGI
  - Small sample issue?

- Negative effect on the calculated base
  - no interaction effect with reciprocity

- Increasingly negative effect on federal AGI as reciprocity index grows
  - Reciprocity makes workers more responsive to tax differences
Capital Tax Rate Results

• Direct effect is positive on calculated base and federal AGI
  – No effect on state AGI

• Becomes less positive (more negative) as capital share of income rises relative to the national average
  – Combined effect is negative on average
  – Larger for calculated base than federal AGI

Other Results

• Tax rate on pension income:
  – No effect on any base measure!
• Top CIT rate
  – Small negative effect on calculated base
• Reciprocity index
  – Small negative effect (on average) on federal AGI
• Education and health expenditures
  – Positive effect on all PIT base measures
• Average wage tax rate in neighboring states
  – Negative effect on calculated base
• Non-PIT revenue shares
  – Negative effect on calculated base and federal AGI
Sensitivity Analysis

- Are differences across models driven by sample sizes or tax base definitions?
  - Run calculated base and federal AGI models on same sample of states
    - Samples and definitions both matter
- Are tax rates collinear or inappropriate?
  - Replace separate rates with top marginal rate
    - Results broadly similar to baseline
    - Effects similar to capital income tax rate results
- Are tax rates endogenous?
  - Experiment with first and second lags
    - Second lags never important
    - First lag results unchanged

Evidence of Tax Planning?

- Combined elasticities are higher for the calculated base measure than for the federal AGI measure
  - Tax rate increase causes a larger change in the calculated base than in federal AGI

- Taxpayers might be responding by moving mobile income sources across state lines but continuing to file their federal tax return from the same state
  - More of a location effect than a level effect?