

Tax and Transfer Progressivity at the US State Level

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Views are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis, the Federal Reserve Board or the Federal Reserve System

Federal vs. State & Local Redistribution

- Federal income tax and transfer system is progressive
(Guner et al. 2014, Heathcote et al. 2017, Ferriere and Navarro 2020, ...)
- Less research on progressivity at state & local level
(Suits 1977, Chernick 2005, Cooper et al 2015, Fajgelbaum et al 2019, Fleck and Simpson-Bell 2019; ITEP: "Who pays?")
- State & local tax revenue is large: 7% of GDP
 - Federal income taxes: 8%
 - Social security taxes: 6%
- State & local taxes include sales and property taxes
 - Standard claim: sales and property taxes are *regressive*

This Paper

Questions:

- How do state & local taxes and transfers contribute to redistribution across US households?
- How much does progressivity vary across states?
- What accounts for this heterogeneity?
- Has state & local progressivity changed over time?

Methodology:

- Measure progressivity of state & local taxes + transfers
- Combine household surveys, augment with gov't statistics

Data Sources and Sample Selection

- Main data source: ASEC ("CPS March Supplement")
 - Unit of observation: household
 - Focus on labor force:
 1. Age of household head between 25-60
 2. One spouse has earned income > part-time * min. wage
(Share of hhs dropped by income requirement: 4.1%)
 - Years: 2005/06, **2010/11**, 2015/16
 - **Pre-government income:** wages & salaries + business & professional practice + farming + interest + dividends + rents & royalties + private transfers + realized capital gains
 - **Post-government income:** Pre-government income + Transfers - Taxes
 - Supplement high income households with IRS SOI data

Data Sources for Taxes and Transfers

- Income taxes: Census Bureau tax model + SOI for the top
- Transfers:
 - Self-reported in ASEC, except Medicaid (impute using modified algorithm of CBO)
 - Split Medicaid and TANF into state vs. federal part
- Construct two transfer measures:
 - **Narrow:** state: UI, TANF, WC, APFD; federal: SNAP, School lunch, VB, SI, DI & SI (SS, other)
 - **Broad:** Narrow + Medicaid, future value of old-age pensions (impute as in HSV 2017)
- Property taxes: American Community Survey (ACS), Zillow
- Sales, excise taxes: Consumer Expenditure Survey (CEX), Book of States, Census of State & Local Gov'ts, ...

Measuring Property Taxes of Home-Owners

- ASEC provides property taxes for owners but imputation does not use location information (since 2011)
- ACS has self-reported data on house values, property taxes and rents (Harris and Moore, 2013; Scarborough, 2018)
- Solution: match each ASEC household with her $k = 9$ nearest neighbor homeowners in ACS
 - Match on county (state), demographics, income, number of housing units in structure
 - Impute property taxes using mean property taxes of ACS nearest neighbors

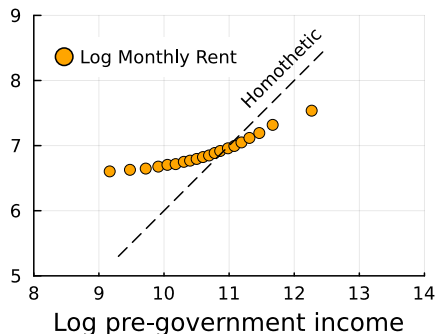
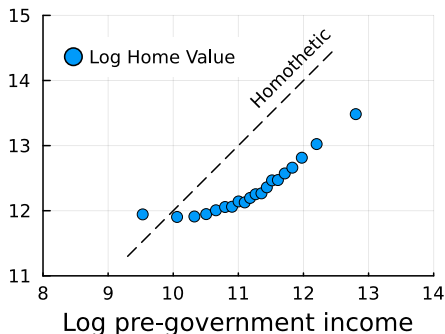
Measuring Property Taxes of Renters

- Two assumptions:
 1. Rent is proportional to house value within a state
 2. Property taxes have full pass-through to rents
 - In line with empirical evidence (Tsoodle and Turner, 2008)
- Our imputation procedure:
 - Construct state price-to-rent ratios $(P/RENT)_s$ from Zillow
 - Combine to impute value of house rented by ACS renters i
$$P_i = (P/RENT)_s * RENT_i$$
 - Impute property taxes as $T_i^P = P_i * t_{c,y}^P$
($t_{c,y}^P$ reported by ACS owners in same county & similar income)
 - Impute property taxes paid by ASEC renter using mean property taxes of $k = 9$ nearest neighbor renters in ACS

Why Are Property Taxes So Regressive?

Because housing consumption is strongly non-homothetic:

Housing Engel Curves (ACS, 2010/11)



Measuring Sales and Excise Taxes

- Use CE to derive expenditure shares on categories j :
 - **sales-taxable** goods and services
 - **excise-taxable** goods and services: tobacco, alcohol, gasoline, utilities (electricity, sewage, etc)
 - obtain $expenditure_k^j$ for households **in income group** k
- Impute taxes paid by households with income k in state s

$$\sum_j T_{s,k}^j \times \tau_s^j \times expenditure_k^j$$

- j : different sales, excise taxable goods and services
- τ_s^j : (linearized) tax rate for category j

Estimating Progressivity Following Benabou / HSV

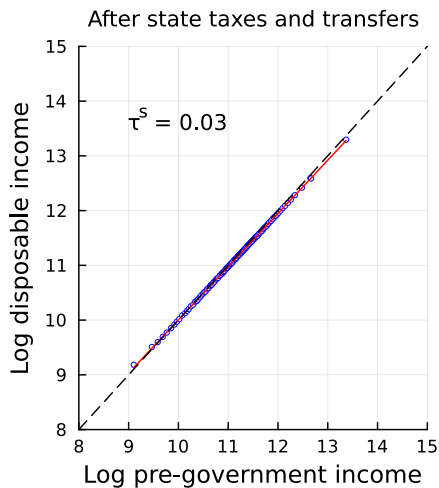
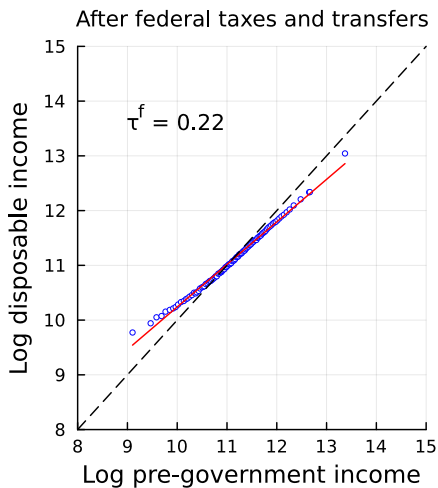
- y_i : pre-government income of household i
- T_i : tax liability net of transfers

$$y_i - T_i = \lambda y_i^{(1-\tau)}$$

$$\log(y_i - T_i) = \lambda + (1 - \tau) \log(y_i)$$

- τ is index of progressivity
- We estimate this equation in three ways:
 1. T_i federal taxes-transfers only \Rightarrow federal progressivity τ^f
 2. T_i state & local taxes-transfers \Rightarrow state progressivity τ^s
 3. T_i federal + S&L \Rightarrow federal + state progressivity τ
- For 2 & 3, re-weight households at state level so pre-govt income dist. resembles national dist.
 - τ estimates reflect differences in state tax systems only

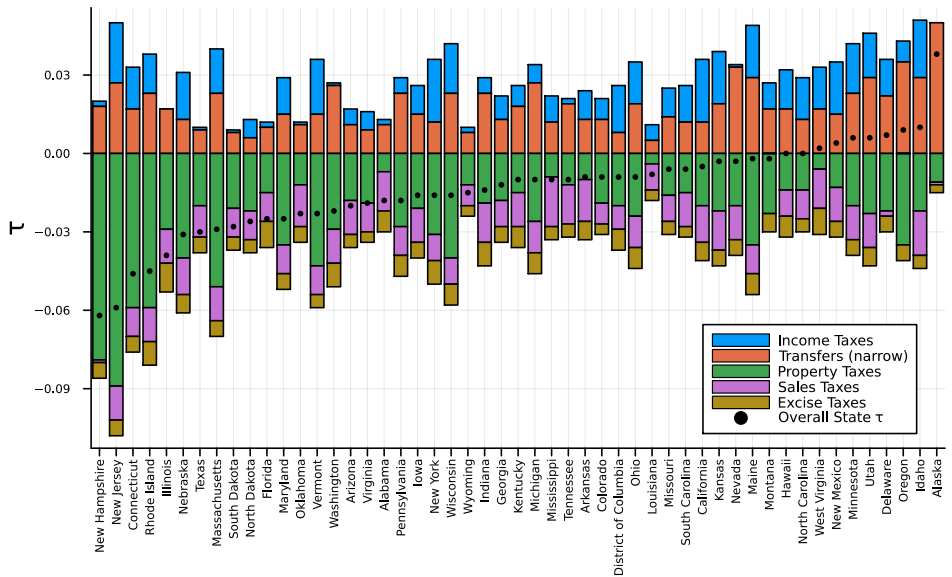
Progressivity: Federal vs. State & Local for 2010



Progressivity estimates τ for 2010

	<i>Narrow</i>	<i>Broad</i>
Federal		
Income Taxes		0.117
+ Transfers	0.164	0.226
+ Excise Tax (τ^f)	0.162	0.224
State		
Income taxes		0.013
+ Transfers	0.035	0.071
+ Property taxes	0.007	0.047
+ Sales taxes	-0.006	0.036
+ Excise taxes (τ^s)	-0.015	0.028
State + Federal (τ)	0.147	0.243

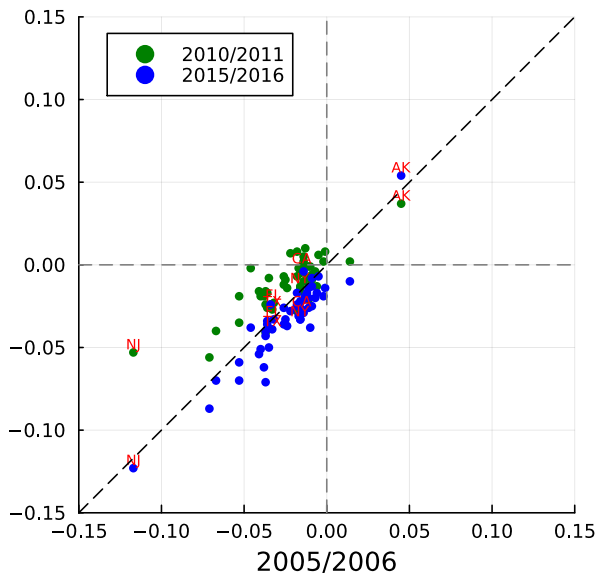
Decomposition of τ^S across States



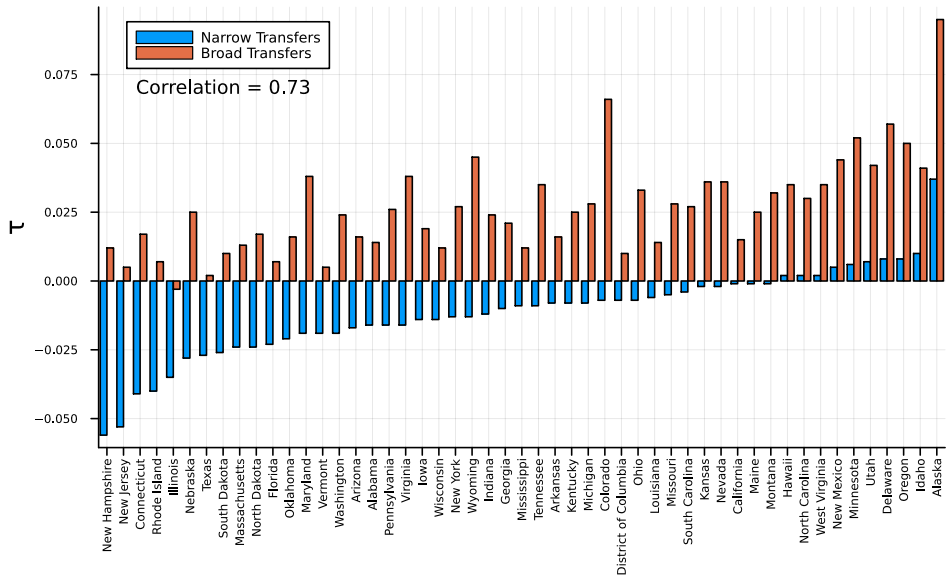
Conclusions

1. Federal income taxes and transfers are progressive
2. On average, state & local tax-transfer systems are close to proportional
 - But there is substantial heterogeneity
3. State tax base impacts progressivity
 - Mostly property & consumption taxes \Rightarrow typically regressive
 - Mostly income taxes \Rightarrow typically progressive
4. State progressivity estimates (ranking) are time persistent

State Progressivity (Narrow Transfers) Over Time



Dispersion in τ^S : Narrow vs. Broad Transfers



Dispersion in τ^S across States

**State Progressivity, Broad Transfers
(2010/2011, sample: baseline)**

