

# Fiscal Progressivity of the U.S. Federal and State Governments

Johannes Fleck  
Federal Reserve Board

Jonathan Heathcote  
Minneapolis Fed

Kjetil Storesletten  
University of Minnesota

Gianluca Violante  
Princeton University

University of Oxford, January 28 2025

*The views herein are those of the authors and not necessarily those of the Federal Reserve Bank 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?")
- But state & local tax revenue is large: 8.9% of GDP (2010-2023)
  - Federal personal income taxes: 8.0%
  - Federal payroll taxes: 6.4%
- State & local taxes include sales and property taxes
  - Standard claim: sales and property taxes are *regressive*

# This Paper

## Goals:

- Estimate how **total net tax burden varies with income**:
  - income and payroll taxes + sales and excise taxes + property taxes + corporate and business taxes + transfers
- Explore how much redistribution / progressivity is delivered by **federal** versus **state and local** taxes and transfers
- Explore extent to which **tax rates** & **tax progressivity** vary across U.S. states

## Methodology:

- Combine household surveys, augmented with gov't statistics and IRS SOI data (for the rich)

## Main findings

1. Federal income taxes and transfers are progressive
2. On average, state & local tax-transfer systems proportional
3. But substantial heterogeneity
4. Positive correlation between state net tax take & progressivity
5. State tax base impacts progressivity
  - Mostly property & consumption taxes  $\Rightarrow$  typically regressive
  - Mostly income taxes  $\Rightarrow$  typically progressive
6. Inter-state migrants move to less progressive states, especially those with the highest incomes

## Data Sources and Sample Selection

- Main data source: ASEC ("CPS March Supplement")
  - Unit of observation: household
  - Primary sample:
    1. Age of household head between 25-60
    2. One spouse has earned income > part-time \* min. wage
  - Years: 2005/06, 2010/11, **2015/16**
- Supplement ASEC with IRS SOI data (based on 1040 tax returns) for high-income households
- **Pre-government income:** wages & salaries, incl. FICA employer share + business & professional practice + farming + interest + dividends + rents & royalties + private transfers + realized capital gains
- **Post-government income:** Pre-government income + Transfers - Taxes

# Taxes and Transfers Included

Federal Taxes and Transfers			State & Local Taxes and Transfers			
		Sample	All		Sample	All
<b>Taxes</b>	Income	15.15	15.48	Income	3.89	3.89
	FICA (employee+employer)	10.39	10.31	Property	2.27	2.89
	Excise	0.37	0.46	Sales	1.54	1.76
				Excise	0.81	1.00
	Corporate Income	2.80	3.09	Corporate Income	0.48	0.54
			Business	2.84	2.92	
<b>Transfers</b>	Medicaid* (cash value)	0.61	1.03	Medicaid* (cash value)	0.47	0.78
	Medicare (cash value)	0.56	4.77	Unemployment Benefits	0.16	0.19
	Social Security Disability and Survivors Benefits	0.40	0.95	Worker's Compensation Benefits	0.07	0.11
	Social Security Old Age Benefits	0.35	6.39	TANF*	0.01	0.03
	SNAP	0.34	0.65	Alaska Permanent Fund Dividend	0.01	0.01
	Veteran's Benefits	0.22	0.56			
	Disability Benefits	0.18	0.35			
	SSI	0.17	0.53			
	Survivor's Benefits	0.16	0.49			
	School Lunch	0.11	0.12			
	Housing Assistance	0.09	0.36			
	TANF*	0.01	0.03			
	Public Spending	3.12	4.40	Public Spending	7.45	8.30

Taxes and transfers as shares of pre-government household income. 2015/2016.

## Data Sources for Taxes

- **Income taxes:** Census Bureau tax model (federal + state)  
+ Census of State and Local Governments (local)
- **Property taxes:** ACS, partial pass-through for renters
- **Sales and excise taxes:** CEX, CSLG, BEA Book of States
- **(extension) Corporate income and business taxes:** CSLG

## Data Sources for Transfers

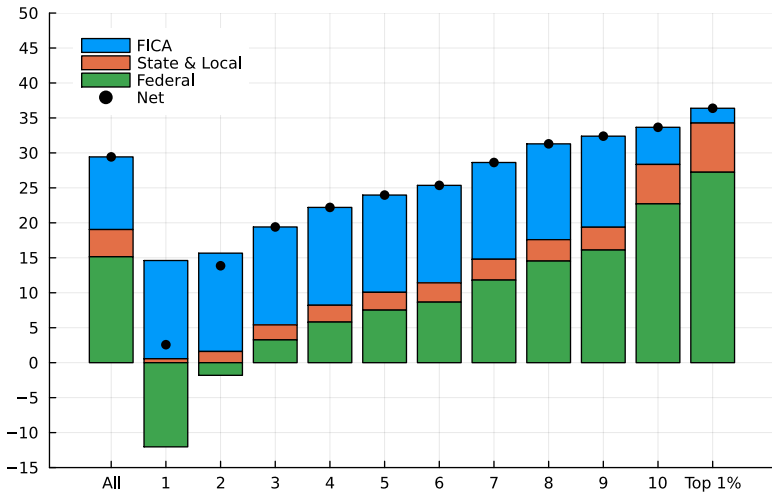
- Transfers mostly self-reported in ASEC
- For Medicaid, SSI, SNAP, Housing Assistance use CBO imputation procedure
  - for Medicaid, adapt to match state level admin. enrollment & spending data
- Value Medicaid per enrollee at 40% of amount spent, Medicare at 82%
- (extension) include all other govt. spending as an extra transfer



## High Income Households

- Important to measure income & taxes accurately at the top
- Income and taxes top-coded in ASEC ⇒ turn to IRS SOI
- Replace income & taxes for ASEC households with income over \$200,000 with state-specific values from SOI tables
- SOI records actual federal income taxes paid
- High income households mostly itemize prior to TCJA ⇒ also know property taxes and state income taxes paid

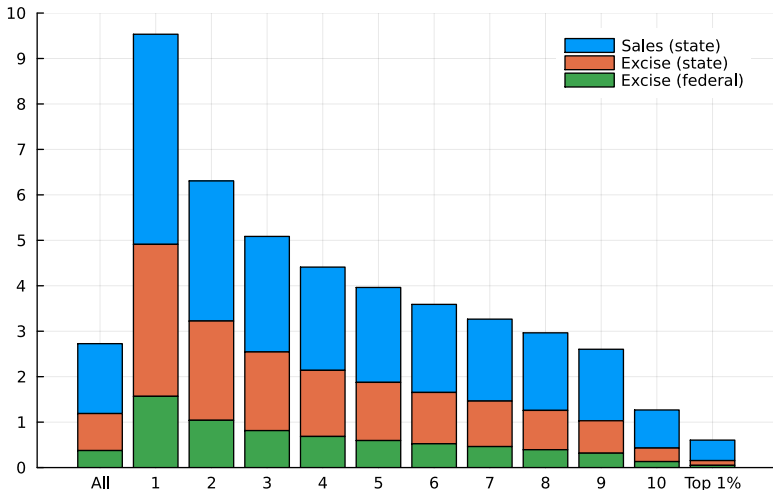
# Income Taxes are Progressive



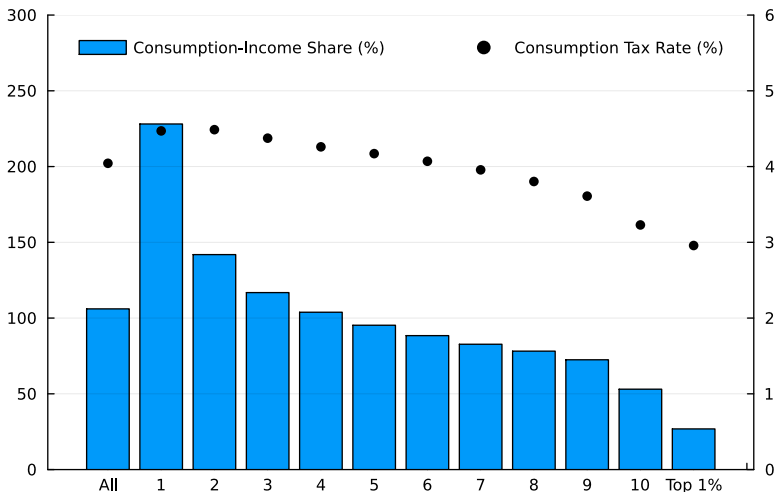
## Sales and Excise Taxes

- Record state and local sales tax rates for different consumption categories:
  - Some categories taxed at standard rate, some categories tax exempt, special rates for food at home, range of different services
- Target state and federal revenue from excise taxes
  - Alcohol, tobacco, motor fuel, utilities, insurance, and amusements
- Use CEX spending-by-income tables to apportion taxes across households for each of these consumption categories

# Sales and Excise Taxes are Regressive



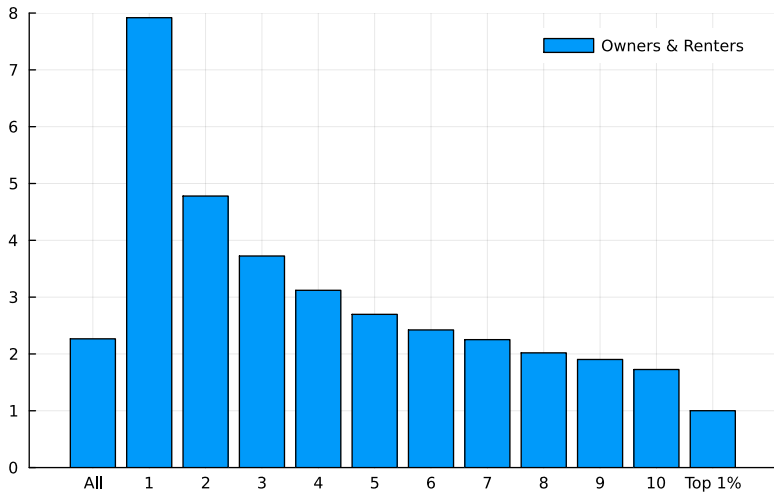
# Sources of Regressivity



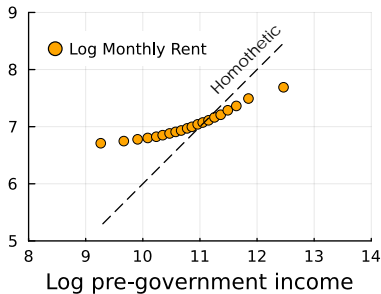
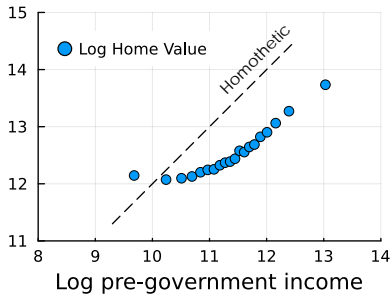
## Property Taxes

- ASEC estimates unreliable  $\Rightarrow$  match ASEC homeowners to ACS homeowners and use ACS self-reported taxes
  - nearest-neighbor matching on county, household income, head education, housing units in structure
- Model of partial pass-through of taxes into rents for renters
  - Match ASEC renters to ACS renters  $\Rightarrow$  rent paid
  - County-level Zillow price-rent ratios  $\Rightarrow$  estimates of home values  $\Rightarrow$  estimates of property taxes payable
  - Assume share of property taxes paid by renter proportional to county level share of structures in home value

# Property Taxes are Regressive



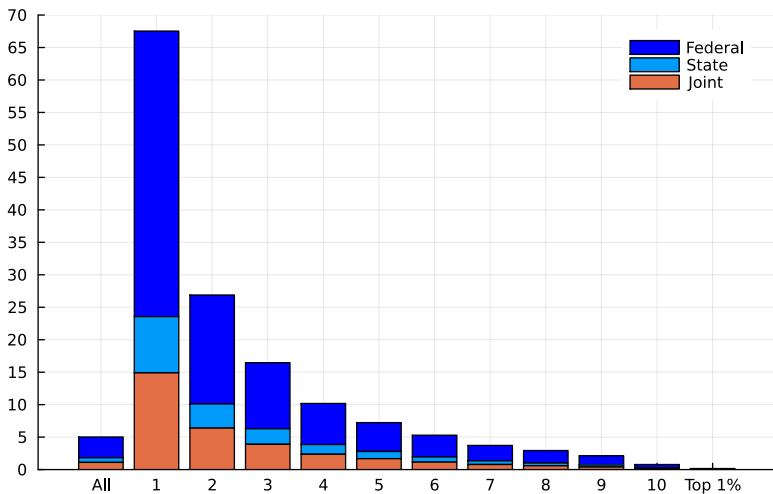
## ... Because Housing is a Necessity



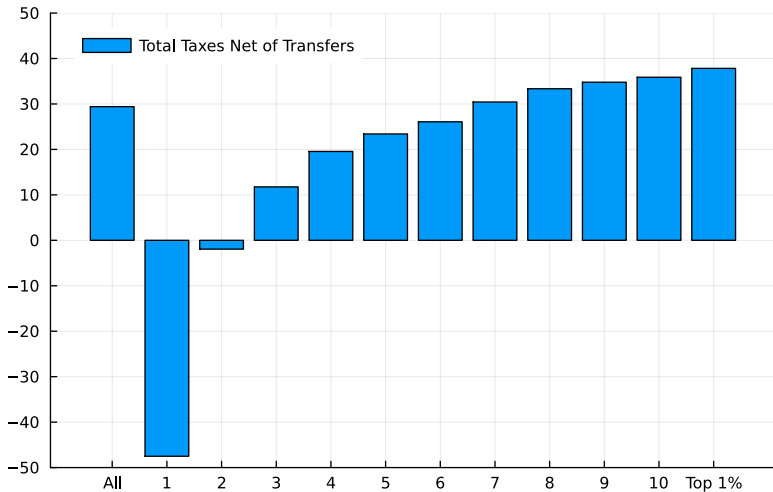
- Box-scatter plot of log home values (for owners) and rents (for renters) against log pre-government income



# Transfers are Progressive



# Net Tax Rates



## Estimating Progressivity Following Benabou / HSV

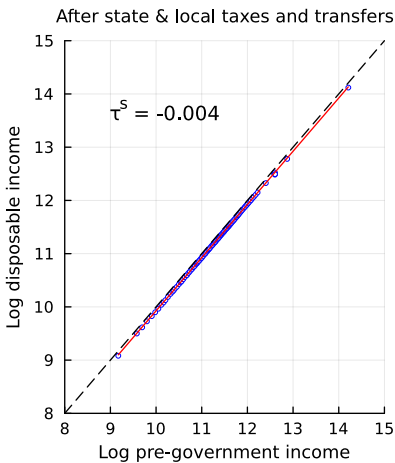
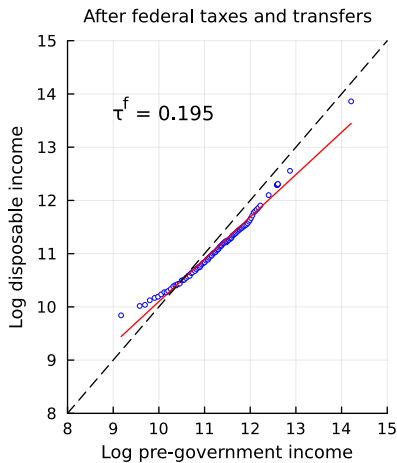
- $y_i$ : pre-government income of household  $i$
- $T_i$ : tax liability net of transfers

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

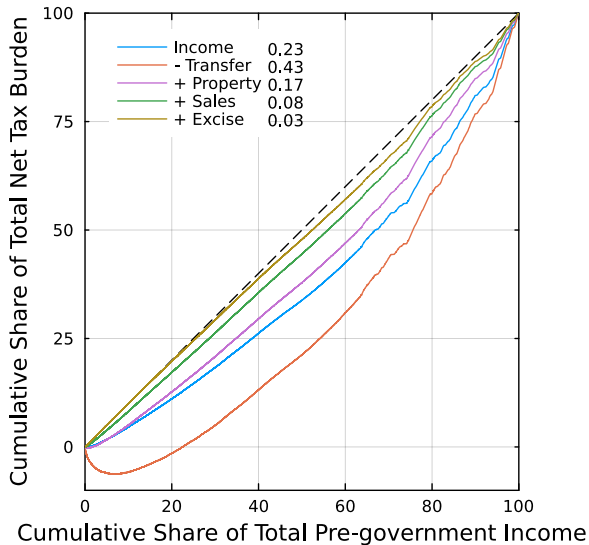
$$\log(y_i - T_i) = \lambda + (1 - \tau) \log(y_i)$$

- $\tau$  is index of progressivity
- We estimate this equation in different ways:
  1.  $T_i$  federal taxes-transfers only  $\Rightarrow$  federal progressivity  $\tau^f$
  2.  $T_i$  state & local taxes-transfers  $\Rightarrow$  state progressivity  $\tau^s$
- For state level statistics, re-weight households state by state so pre-govt income dist. resembles national dist.
  - $\tau$  estimates reflect difference in state tax systems only

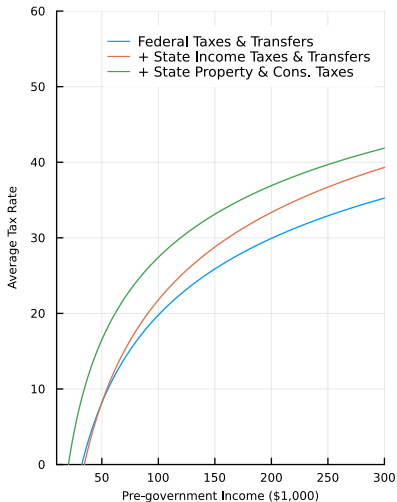
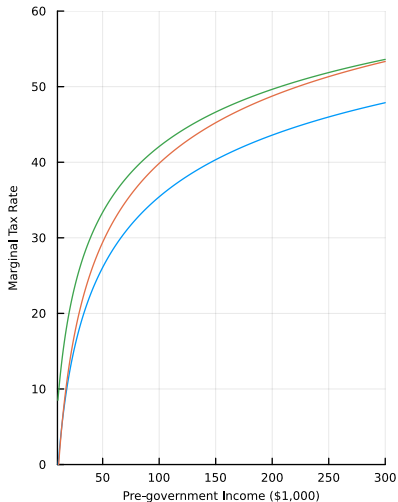
# Progressivity: Federal vs. State & Local for 2015/16



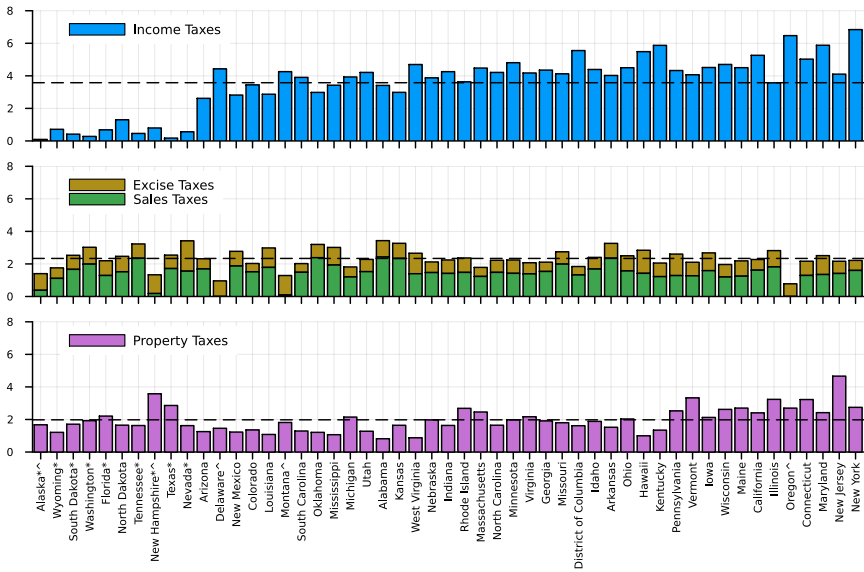
# Suits Indexes for State Taxes and Transfers



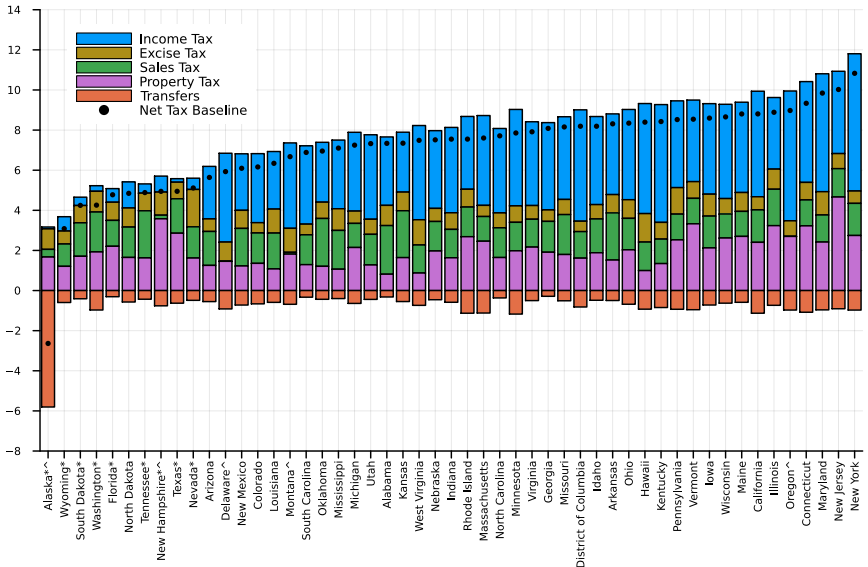
# Tax Rates for 2015/16



# State Average Tax Rates



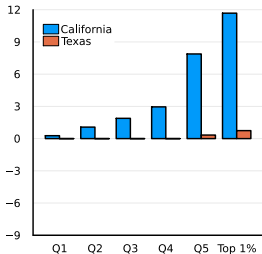
# State Average Tax and Transfer Rates



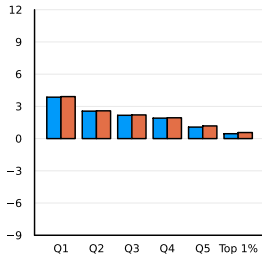


# Tax Rates by Income: California vs Texas

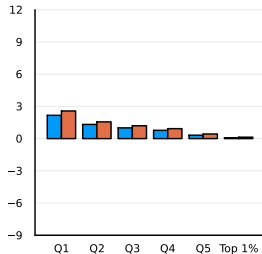
State Income Tax



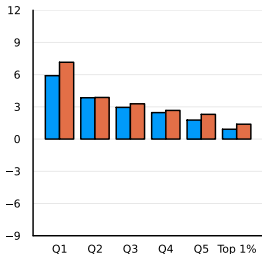
State Sales Tax



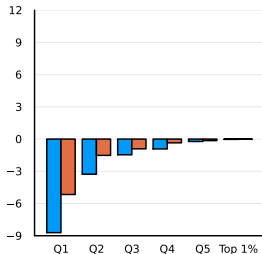
State Excise Tax



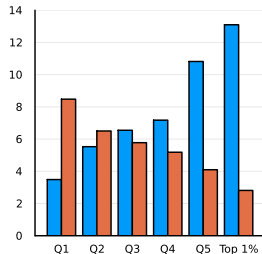
State Property Tax



State Transfers

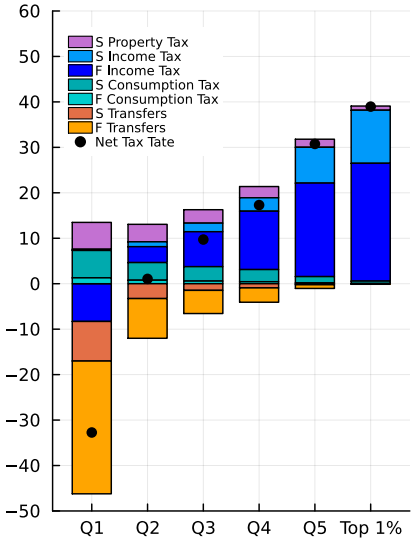


State Total Net Taxes

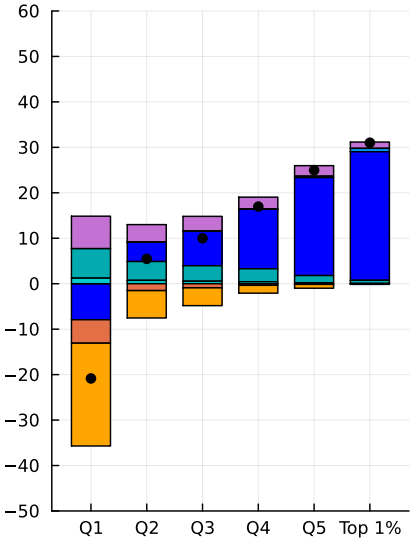


# Tax Rates by Income: California vs Texas

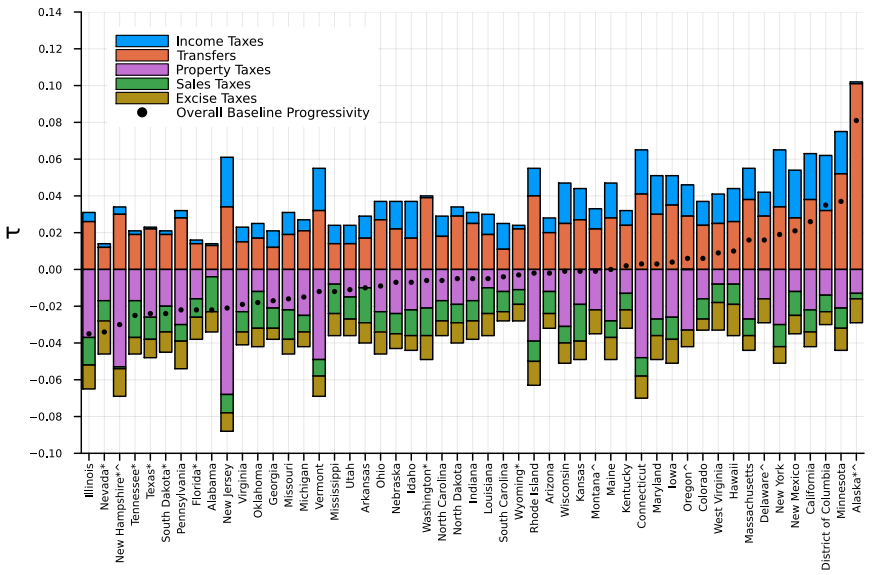
## California



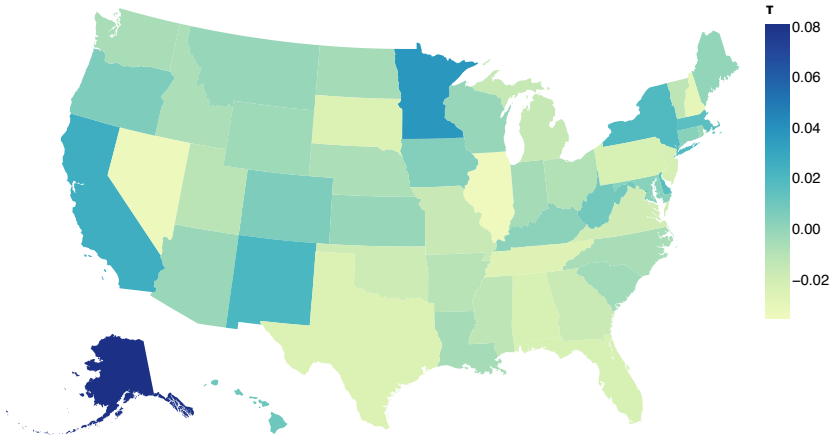
## Texas



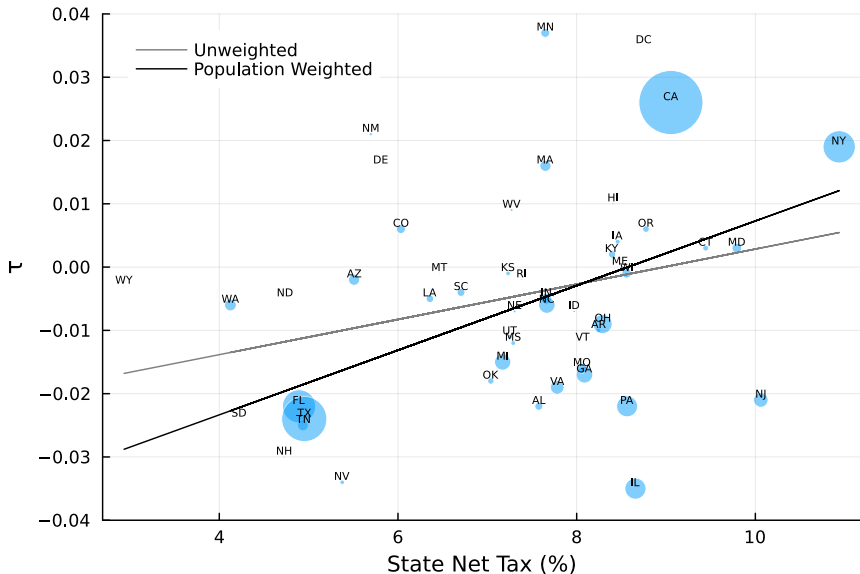
# Decomposition of $\tau^S$ across States



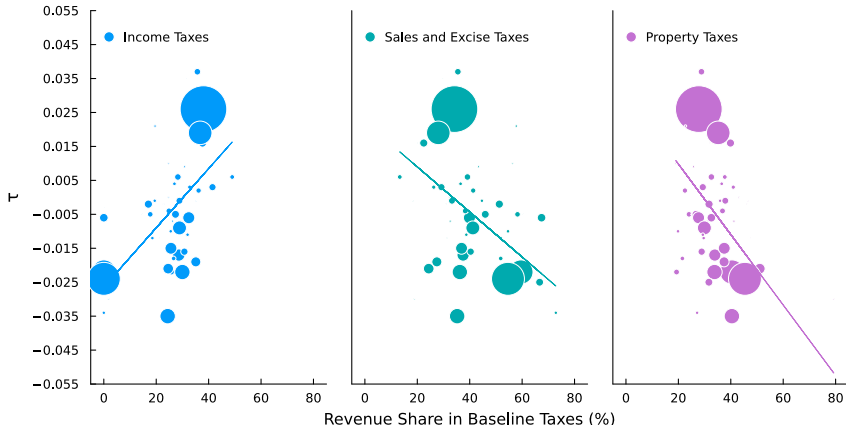
# Map



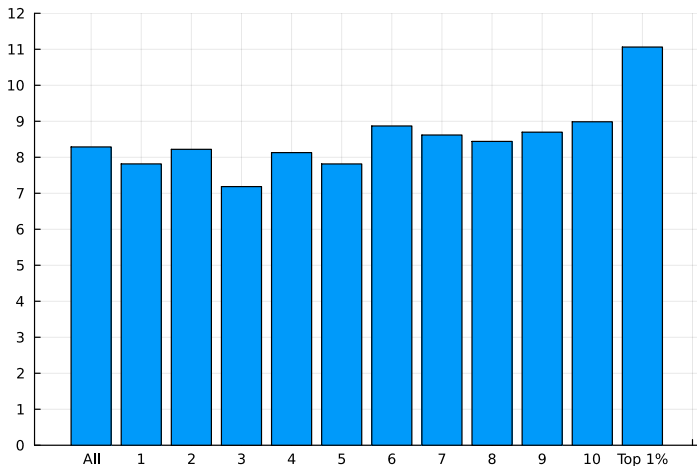
# Correlation between Tax Rates and Progressivity



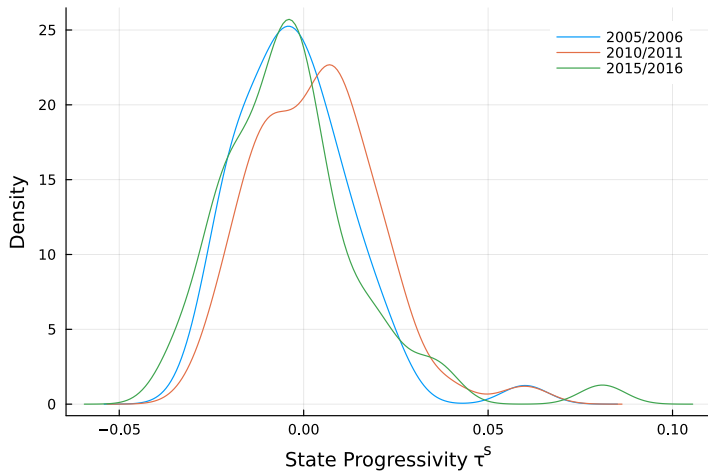
# Correlation between Tax Base and Progressivity



# Migration: Change in Progressivity Ranking for Interstate Movers, ACS



# Changes in Progressivity Over Time

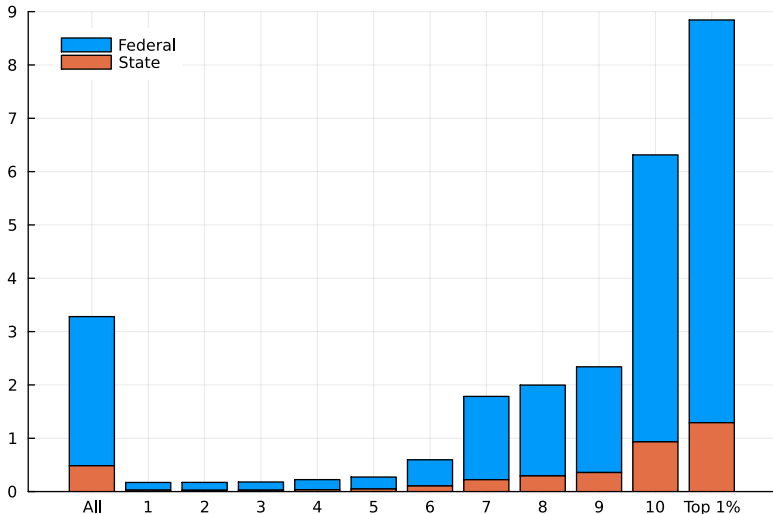




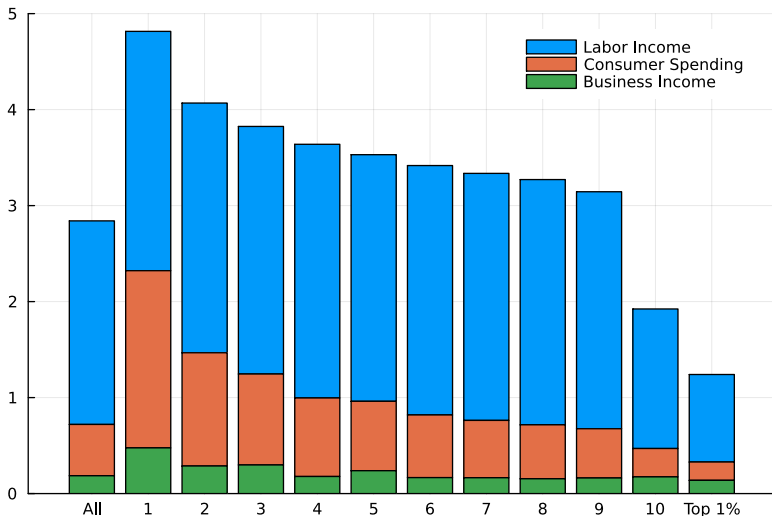
## Extensions 1: Taxes on Businesses

- Corporate income taxes:
  - 60% of incidence on capital (prop. to dividend income)
  - 40% on top quartile of labor earnings distribution
- Sales + excise taxes on business inputs
  - Incidence on consumption for non-tradable sector
  - Incidence on wage income for tradable sector
- Business property taxes
  - Land's share of incidence on business income
  - Rest split between consumption and wage income as for sales taxes

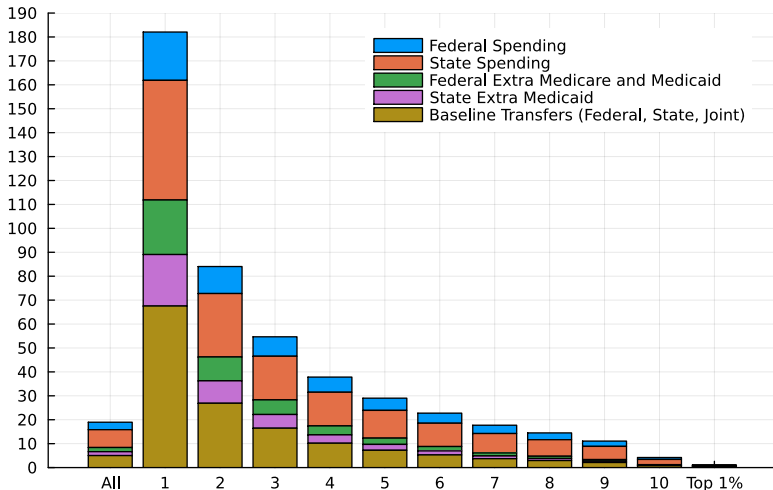
# Corporate Income Taxes are Progressive



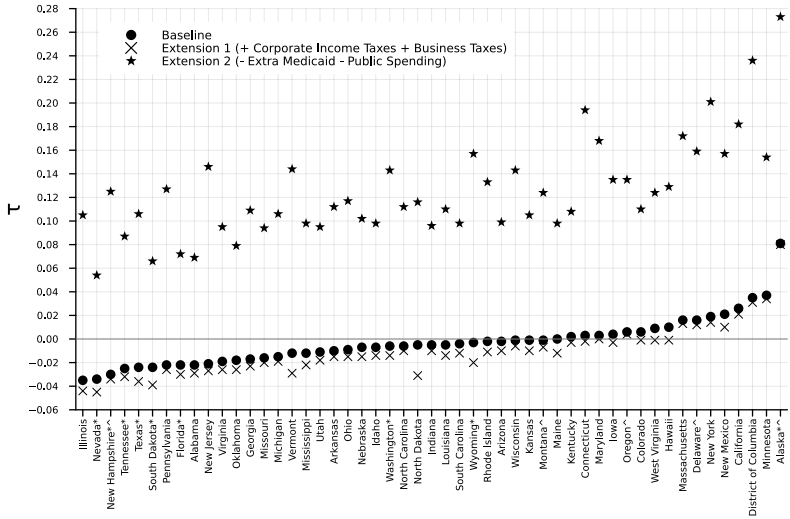
# Other Business Taxes are Regressive



## Extension 2: Broader Measure of Transfers



# Progressivity Under Extensions



## Conclusions

1. Federal income taxes and transfers are progressive
2. On average, state & local tax-transfer systems are close to proportional
  - But substantial heterogeneity
3. State tax base impacts progressivity
  - Mostly property & consumption taxes  $\Rightarrow$  typically regressive
  - Mostly income taxes  $\Rightarrow$  typically progressive
4. Low tax progressivity appears attractive for movers, especially high income movers
5. Measured progressivity sensitive to choices regarding how to measure transfers