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Revenue Implications of Alternative Personal Income Tax Structures in Illinois

Report is available at https://igpa.uillinois.edu/report/revenue-implications-tax-structure

By

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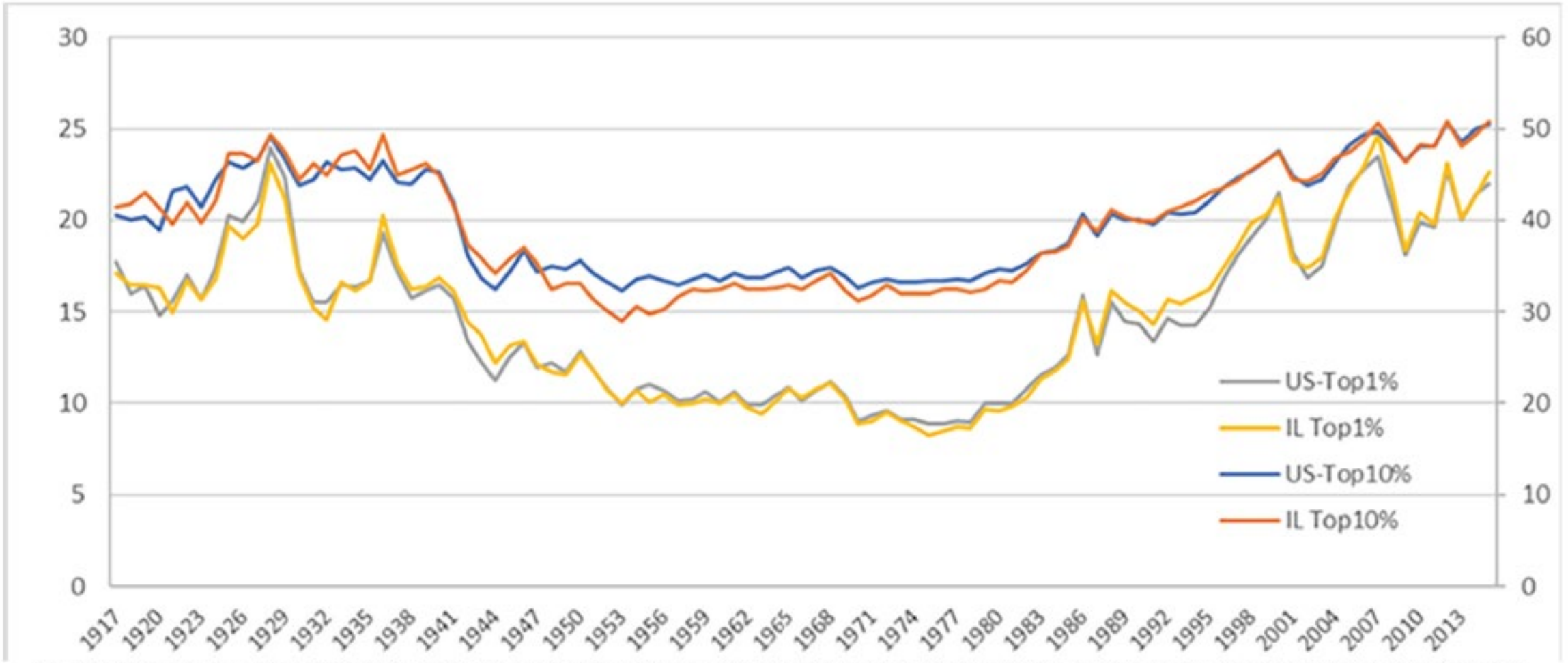
Research Questions

Questions posed by Senator Manar

1. Can you describe the income distribution in Illinois and how this has evolved over the recent past?
2. Can you project out the income distribution in Illinois for the next 5 years and project personal income tax revenue with:
    a. Illinois' current personal income tax system?
    b. A graduated-rate personal income tax system comparable to other Midwest states (e.g. Wisconsin, Minnesota, Iowa or Missouri?
3. What personal income tax revenue would Illinois ' economy generate if it adopted the personal income tax structure of Wisconsin, Minnesota, Iowa or Missouri?
4. How are tax burdens distributed in the current tax system and how would they be different under alternative tax systems in #3 above?

Evolution of Illinois' income distribution

Figure 1: Income shares of the top 10 percent and top 1 percent of incomes, 1917-2015

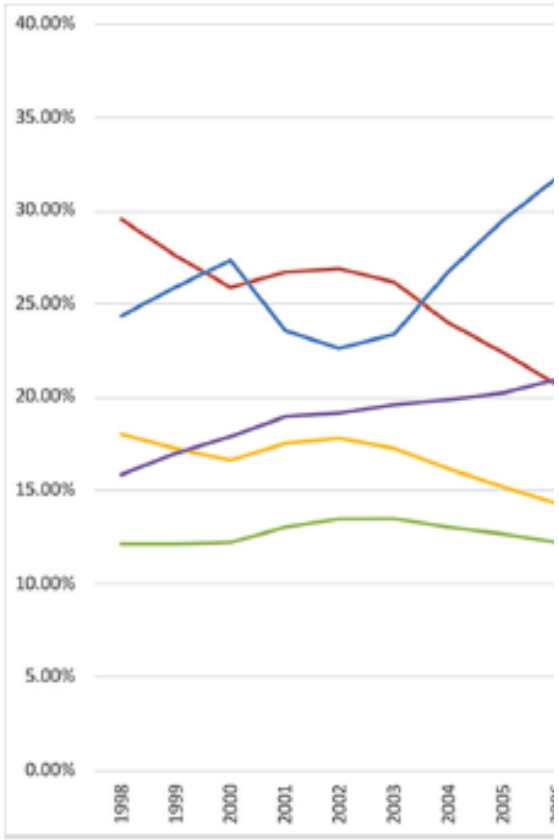


Note: Left axis is income share of Top 1 percent; Right axis is income share of top 10 percent. Source: Frank (2009) and author's calculations.

Answering Question 1 (continued)

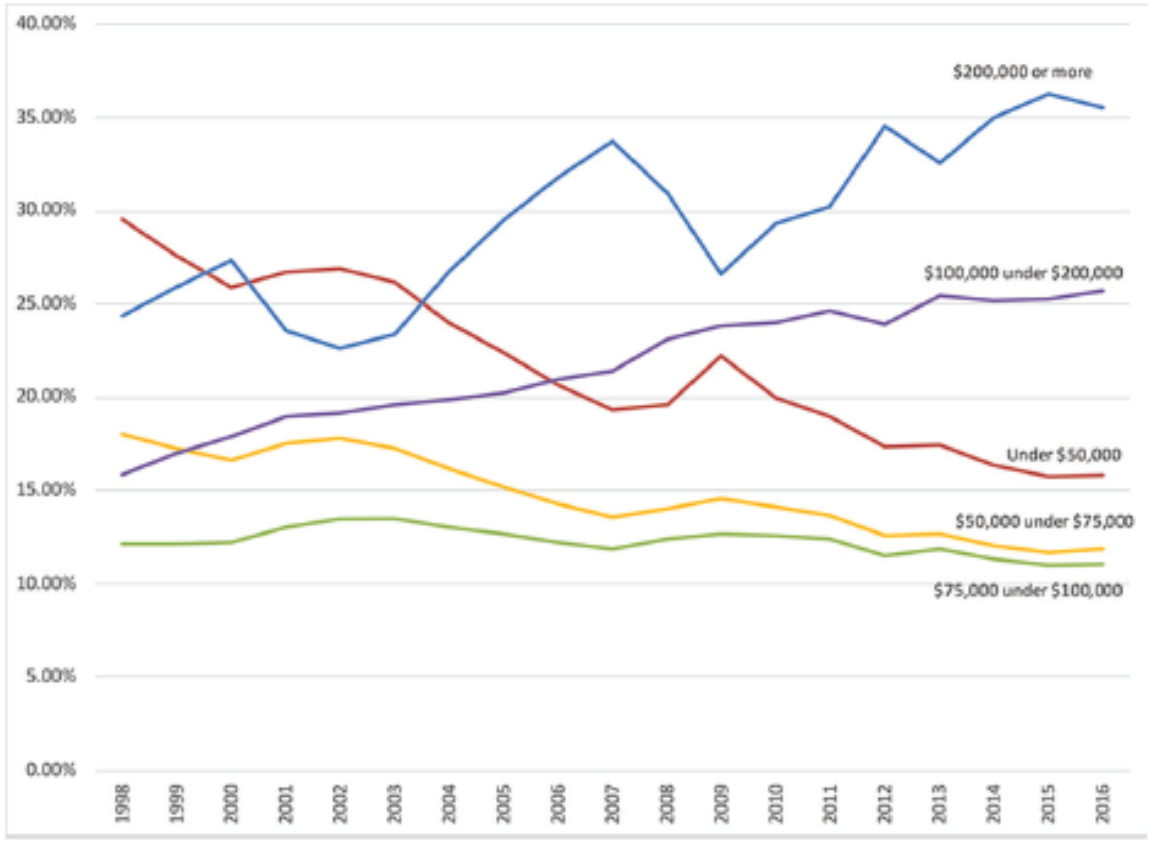
More income groups

Figure 2: Distribution of income
Summary Data, 1998-2016



Source: Internal Revenue Service, St
calculations

Figure 2: Distribution of income shares, IRS Statistics of Income
Summary Data, 1998-2016



Source: Internal Revenue Service, Statistics of Income and author's calculations

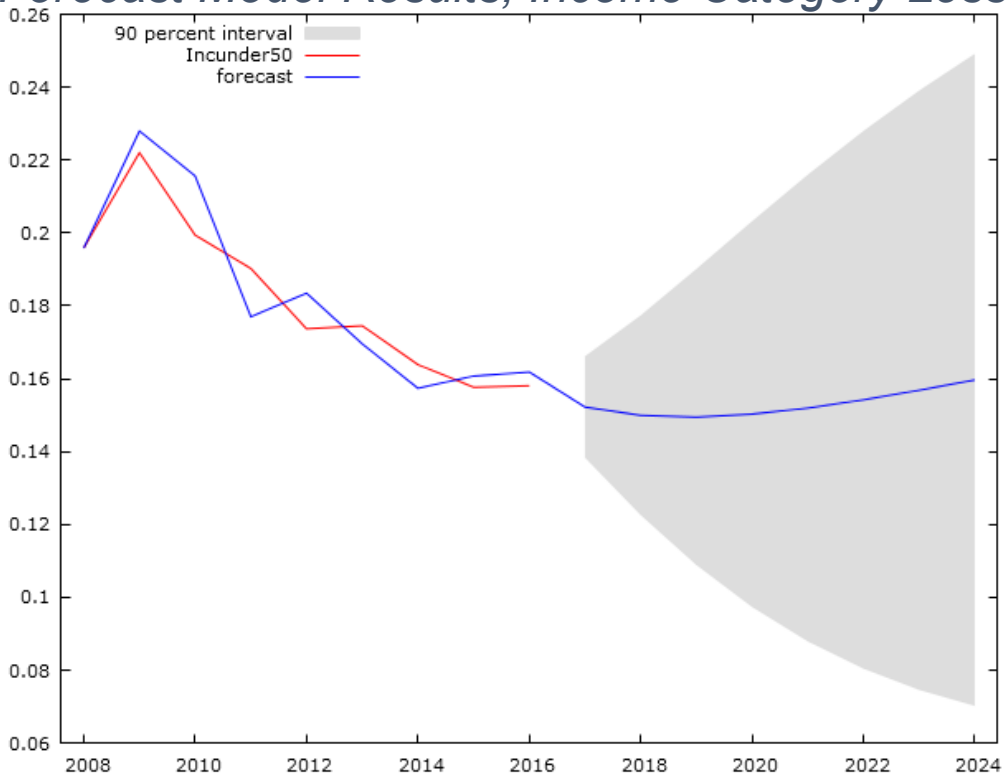
of $200K to $50K

Answering question 2:

Can you project out the income distribution in Illinois for the next 5 years and project personal income tax revenue with:

a. Illinois' current personal income tax system?
b. A graduated rate personal income tax system comparable to other Midwestern states (e.g. Wisconsin, Minnesota, Iowa or Missouri)?

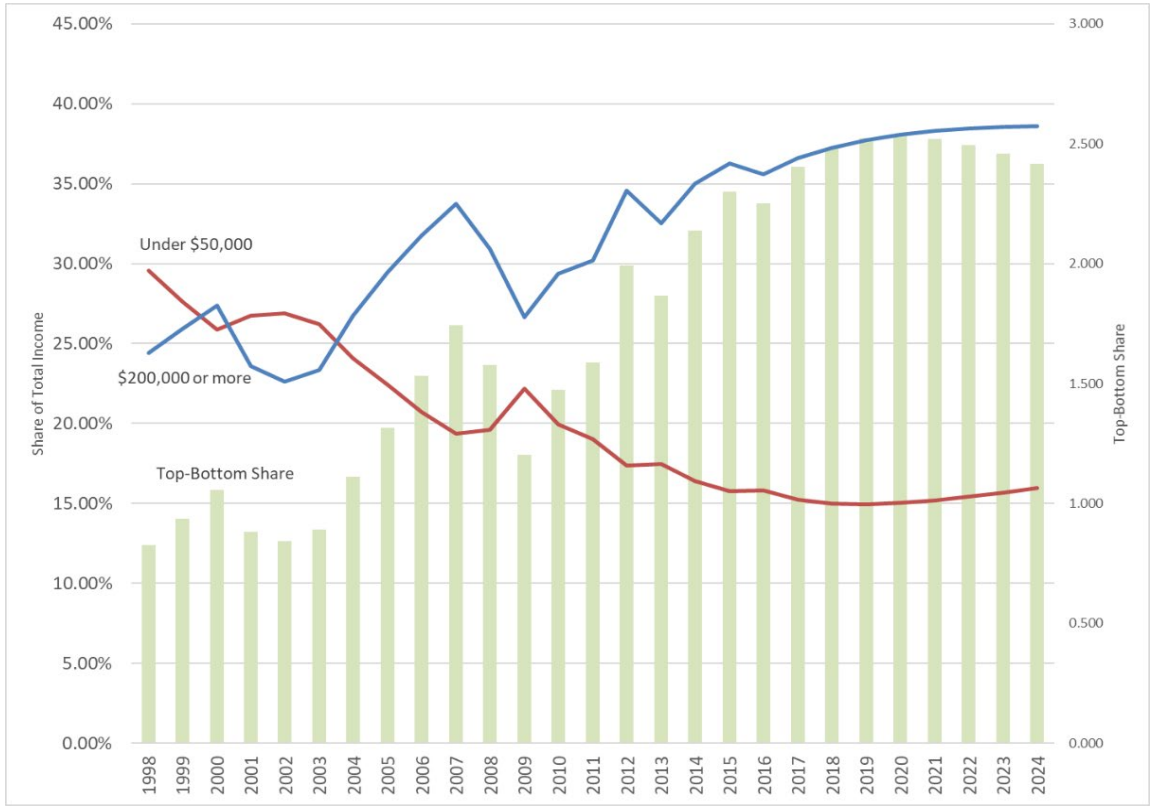
Figure 3. Forecast Model Results, Income Category Less than $50,000.



Source: Authors' calculations from IRS Statistics of Income data and US Bureau of Labor Statistics (unemployment rate).

Answering question 2: Continued

Figure 5. Income Shares for Top and Bottom Income Categories and Top-Bottom Share Ratio, Illinois, 1998- 2024.



"Based on these analyses, we do not expect inequality to change dramatically over the next few years. In the near future, we expect changes in the distribution of tax burden by income class to be driven more by policy changes than by changes in the underlying distribution of income."

Basic terminology and theory

- **Determinants of tax revenue**
  - The amount of revenue that is raised by a tax system is determined by the product of the tax rate and the tax base.
- **Relationship between tax revenue and elasticity of taxable income (ETI)**
  - ETI is the percentage change in the tax base—taxable income—as a result of a 1 percent change in after-tax earnings from an additional dollar of income.
  - In math

$$ETI = \eta = \frac{\frac{\Delta tax\ base}{\text{tax base}}}{\frac{\Delta(1-\tau)}{(1-\tau)}}$$

  - Imagine trying to explain this to your average state senator

  - Consider a simple example with
    - a tax base of $100 and a tax rate of 5 percent, so that prior to a change in the tax rate, total revenue is $100*.05=$5.
    - Suppose that the tax rate is increased by 5 percent to 5.25 percent and that,
    - because of this increase, the tax base falls by 1 percent (from 100 to 99, implying an ETI of 0.2).
    - After the tax increase, revenue will be $99*.0525=$5.20 for an increase of 20 cents.

Basic terminology and theory (continued)

- But there is an additional wrinkle when looking at the problem from the perspective of a state government.
- When the income tax base declines, both federal and state governments may lose revenue because there is substantial overlap between federal and state income tax bases.
- Because of this, it is perfectly possible that even if the elasticity of taxable income is greater than one—even much greater than one—total state income tax revenue will increase when state income tax rates are increased (the report contains a numerical example showing this)

Recent estimates of ETI

- There is a lot of uncertainty (*From review by* Saez, Slemrod and Giertz (2012)

  While there are no truly convincing estimates of the long-run elasticity, the best available estimates range from 0.12 to 0.40…[e]ven at the top of this range the US marginal top rate is far from the top of the Laffer curve [i.e. the rate at which increases in the rate would cause revenue to fall.] However…[t]here is much evidence to suggest that the ETI is higher for high-income individuals…[research] findings highlight the importance of the fact that the ETI is not an immutable parameter but can be influenced by government policies. For this reason, it is likely to vary across countries and within countries over time.

- Fortunately there is a lot of recent experience in Illinois
  - Crosby and Merriman (2016) found that Illinois' economy underperformed compared to its Midwest peers after the 2011 increase in the personal and corporate income tax rates

  - Spreen (2018) finds that

    Illinois taxpayers responded to the 2011 income tax rate increase by reducing their reported incomes. The response estimated…translates to a state taxable income elasticity of 0.72…Analysis of the response across the income distribution shows that the aggregate income response is driven almost entirely by high-income households…I estimate an [ETI] of 0.78 for tax units in the top decile of the income distribution…The results also show significant reversion following the sunset of the elevated tax rate in 2015.

Recent estimates of ETI
(very high income households)

- Young and Varner (2011) New Jersey tax return data:
  - compare net-out migration of very high income (over $500,000) to households with slightly less income ($200,000 to $500,000).
  - households with income over $500,000 experienced a substantial tax increase—those with slightly lower income did not.
  - the tax increase had **no impact** on the relative migration patterns
- Cohen, Lai, and Steindel (2015) replication of Young and Varner
  - **results are sensitive** to several relatively arbitrary assumptions
- Young and Varner (2015) response to replication:
  - the **replicated results are substantively quite similar** to their original paper and show very small (or zero) increases in out-migration from New Jersey's tax increase on very high-income households
- Young et. al (2016) National data from federal data returns
  - State-to-state millionaire migration flows give **positive but limited evidence of tax migration** among top income-earners in the United States
- Moretti and Wilson (2017)
  - a 1 percent increase in after-tax income in a state **increases the migration of "star" scientists** by 1.8 percent in the long run
  - Note that other studies find similar results with other elite populations such as star soccer players

Revenue and Burden Estimates: Answering Questions 3 and 4

Methodology

1. What personal income tax revenue would Illinois' economy generate if it adopted the personal income tax structure of Wisconsin, Minnesota, Iowa or Missouri?
2. How are tax burdens distributed in the current tax system and how would they be different under alternative tax systems in #3 above?

- generate estimates of tax liability for each tax-filing unit in the data set using the National Bureau of Economic Research's (NBER) Taxsim27 program (see http://users.nber.org/~taxsim/taxsim27/).

- Gathered the most recent (March 2016 supplement) data available from the US Bureau of the Census Current Population Survey (CPS) from the IPUMs website (https://www.ipums.org/).
  - 2,365 Illinois tax-filing units
  - Imputed family rent and mortgage payments from American Community Survey
  - Calibrated the CPS data to match the income distribution of the 2016 Illinois resident personal income tax system reported by the Illinois Department of Revenue (see next slide)

Calibration results

Table 1

ILLINOIS DEPARTMENT OF REVENUE										
INDIVIDUAL INCOME TAX RETURNS FILED BY ADJUSTED GROSS INCOME - TAX YEAR: 2016 - FINAL										
Source: Final 1040 IIT Return File Dated Aug. 2018										
(A)	(B)	(C)	(D)	(E)	(F)	(G)		(H)	(I)	(J)
				IDOR Data (Illinois returns)				Calibrared CPS data (Illinois returns)		
AGI Range	Returns	AGI	Total Tax	Number of returns share	AGI share	Tax share		Number of returns share	AGI share	Tax share generated by Taxsim27
Less than-$25,000	1,958,801	$18,731,001,750	$569,297,624	34.6%	4.4%	4.4%		34.3%	4.4%	2.5%
$25,001-$50,000	1,277,434	$46,453,800,341	$1,308,244,341	22.5%	11.0%	10.1%		22.3%	11.0%	9.9%
$50,001-$100,000	1,327,647	$95,246,848,295	$2,677,381,369	23.4%	22.6%	20.6%		24.0%	22.6%	22.0%
$100,001-$500,000	1,044,338	$177,808,787,236	$5,473,347,007	18.4%	42.2%	42.1%		18.4%	42.2%	43.7%
$500,001 OR MORE	56,934	$83,262,811,491	$2,964,066,939	1.0%	19.8%	22.8%		1.0%	19.8%	21.9%
Illinois Totals	5,665,154	$421,503,249,113	$12,992,337,280	100.0%	100.0%	100.0%		100.0%	100.0%	100.0%
Non-Illinois Totals*	560,388	$243,199,800,816	$1,126,346,092							
Totals	6,225,542	$664,703,049,929	$14,118,683,372							
*Returns with Non-Illinois Zip Codes (Non-Residents) or Invalid Illinois Zip Codes										
Report ID: TDWR-IITEOY-018										
Report Date: 9/20/2018 11:02:47 AM										
Data Source: 2016_FNL2018										

Sketch of tax systems of relevant states

Table 2
Illinois, Iowa, Minnesota, Missouri, and Wisconsin

2016	Single Filer		Married Filing Jointly		Personal Exemption			Standard Deduction	
	Rates	Brackets	Rates	Brackets	Single	Married	Dependent	Single	Couple
Illinois	**3.75% of federal taxable income**		**3.75% of federal taxable income**		**$2,125**	**$4,250**	**$2,125**	**n.a.**	**n.a.**
Iowa	**0.36% >**	**$0**	**0.36% >**	**$0**	**$40**	**$40**	**$40**	**$1,970**	**$4,860**
	0.72% >	$1,554	0.72% >	$1,554					
	2.43% >	$3,108	2.43% >	$3,108					
	4,50% >	$6,216	4,50% >	$6,216					
	6.12% >	$13,896	6.12% >	$13,896					
	6.48% >	$23,310	6.48% >	$23,310					
	6.80% >	$31,080	6.80% >	$31,080					
	7.92% >	$46,620	7.92% >	$46,620					
	8.98% >	$69,930	8.98% >	$69,930					
Minnesota	**5.35% >**	**$0**	**5.35% >**	**$0**	**$4,000**	**$8,000**	**$4,000**	**$6,300**	**$12,600**
	7.05% >	$25,180	7.05% >	$36,820					
	7.85% >	$82,740	7.85% >	$146,270					
	9.85% >	$155,650	9.85% >	$259,420					
Missouri	**1.50% >**	**$0**	**1.50% >**	**$0**	**$2,100**	**$ 4,200**	**$1,200**	**$6,300**	**$12,600**
	2.00% >	$1,000	2.00% >	$1,000					
	2.50% >	$2,000	2.50% >	$2,000					
	3.00%>	$3,000	3.00%>	$3,000					
	3.50%>	$4,000	3.50%>	$4,000					
	4.00%>	$5,000	4.00%>	$5,000					
	4.50%>	$6,000	4.50%>	$6,000					
	5.00%>	$7,000	5.00%>	$7,000					
	5.50%>	$8,000	5.50%>	$8,000					
	6.00%>	$9,000	6.00%>	$9,000					
Wisconsin	**4.00% >**	**$0**	**4.00% >**	**$0**	**$700**	**$1,400**	**$700**	**$10,270**	**$19,010**
	5.84% >	$11,150	5.84% >	$14,820					
	6.27% >	$22,230	6.27% >	$29,640					
	7.65% >	$244,750	7.65% >	$326,330					

Sources: Kaeding (2016)

Results

Table 3a

	Median state effective tax rates for identical taxpayers (by selected state tax systems and AGI stratification)				
AGI range	Illinnois	Wisconsin	Minnesota	Iowa	Missouri
Less than-$25,000	0.90%	0.00%	-4.18%	0.00%	0.00%
25,001-$50,000	4.04%	3.09%	1.48%	3.43%	2.58%
$50,001-$100,000	4.33%	4.36%	3.39%	4.26%	3.50%
$100,001-$500,000	4.54%	5.14%	5.44%	5.08%	4.34%
$500,001 OR MORE	4.88%	6.70%	9.20%	5.66%	5.74%

The table reports estimated effective state income tax rates for each state and AGI grouping. The effective tax rate is calculated as tax liability/AGI. These estimates are based on 2016 state income tax systems except that Illinois revenues are scaled up to account for the fact that its flat tax rate increased from 3.75% in 2016 to 4.95% in 2018.

Sources: Weighted 2016 CPS data from Illinois, Taxsim27 estimates of tax liabilities and authors' calculations. See text for details.

Bottom line: Illinois' personal income tax is less progressive than other states

Results
(continued)

Table 3b

	State income tax revenue relative to Illinois for identical taxpayers (by selected state tax systems and AGI stratification)			
AGI range	Wisconsin	Minnesota	Iowa	Missouri
Less than-$25,000	53%	-221%	151%	101%
25,001-$50,000	83%	33%	90%	74%
$50,001-$100,000	105%	85%	102%	90%
$100,001-$500,000	119%	129%	115%	101%
$500,001 OR MORE	141%	191%	115%	118%
Total	115%	115%	111%	99%

The table reports estimated income tax revenue relative to Illinois for each state and AGI grouping. These estimates are based on 2016 state income tax systems except that Illinois revenues are scaled up to account for the fact that its flat tax rate increased from 3.75% in 2016 to 4.95% in 2018.

Sources: Weighted 2016 CPS data from Illinois, Taxsim27 estimates of tax liabilities and authors' calculations. See text for details.

Bottom line: Illinois' personal income tax collects less revenue than comparison states and generally collects a greater share of it from lower income tax filers.

Results
(continued)

Table 4

	State income tax revenue relative to Illinois for identical taxpayers (by selected state tax systems and AGI stratification)			
	(assuming elasticity of taxable income of 0.72 for all AGI groups)			
AGI range	Wisconsin	Minnesota	Iowa	Missouri
Less than-$25,000	98%	-84%	152%	108%
25,001-$50,000	81%	34%	90%	74%
$50,001-$100,000	103%	82%	101%	90%
$100,001-$500,000	117%	124%	114%	100%
$500,001 OR MORE	137%	179%	115%	116%
Total	114%	113%	110%	99%

The table reports estimated income tax revenue relative to Illinois for each state and AGI grouping. These estimates are based on 2016 state income tax systems except that Illinois revenues are scaled up to account for the fact that its flat tax rate increased from 3.75% in 2016 to 4.95% in 2018.

Sources: Weighted 2016 CPS data from Illinois, Taxsim27 estimates of tax liabilities and authors' calculations. See text for details.

Bottom line: incorporating behavioral change does not change the fundamental results

Summary

In summary, our empirical analyses suggest that,

- compared to the four neighboring states, Illinois' tax system collects less revenue and

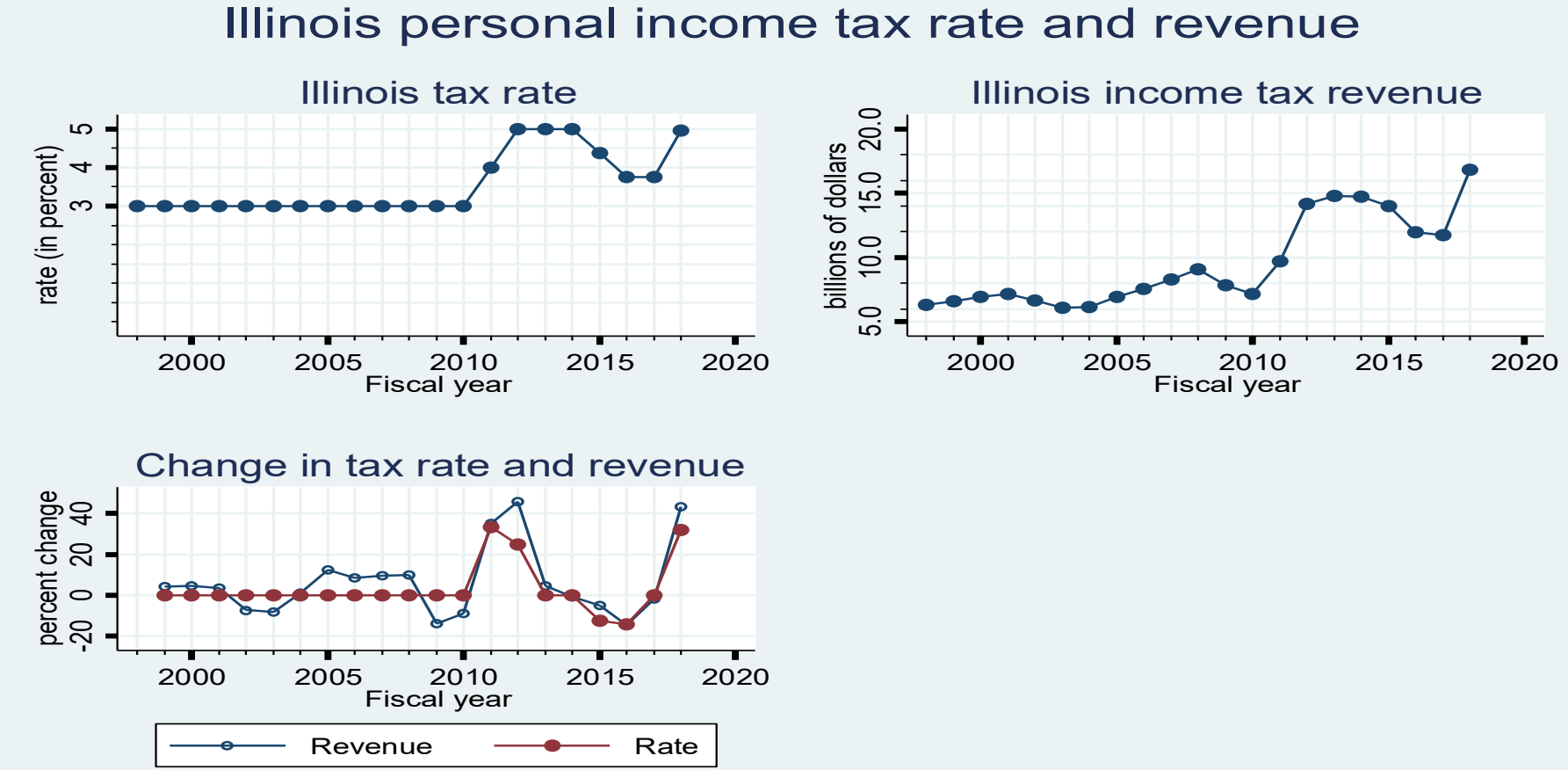
- the revenue that Illinois does collect comes disproportionately from the lowest income categories compared to the other states.

- Allowing for behavioral change in response to tax-policy changes does not alter, and under some assumptions reinforces, this conclusion.

Extra slides if time

Recent estimates of ETI (Illinois)

Figure 6



Source: U. of Illinois Fiscal Futures Project and Illinois Department of Revenue

Results (continued)

Table 5

	State income tax revenue relative to Illinois for identical taxpayers (by selected state tax systems and AGI stratification)			
	(assuming elasticity of taxable income of 0 for botton 90% of AGI distribution and elasticity of taxable income of 0.78 for top decile of AGI distribution.)			
AGI range	Wisconsin	Minnesota	Iowa	Missouri
Less than-$25,000	53%	-221%	151%	101%
25,001-$50,000	83%	33%	90%	74%
$50,001-$100,000	105%	85%	102%	90%
$100,001-$500,000	117%	125%	114%	100%
$500,001 OR MORE	136%	178%	115%	116%
Total	114%	110%	110%	99%

The table reports estimated income tax revenue relative to Illinois for each state and AGI grouping. These estimates are based on 2016 state income tax systems except that Illinois revenues are scaled up to account for the fact that its flat tax rate increased from 3.75% in 2016 to 4.95% in 2018.

Sources: Weighted 2016 CPS data from Illinois, Taxsim27 estimates of tax liabilities and authors' calculations. See text for details.