Unemployment Insurance Financing As A Uniform Payroll Tax

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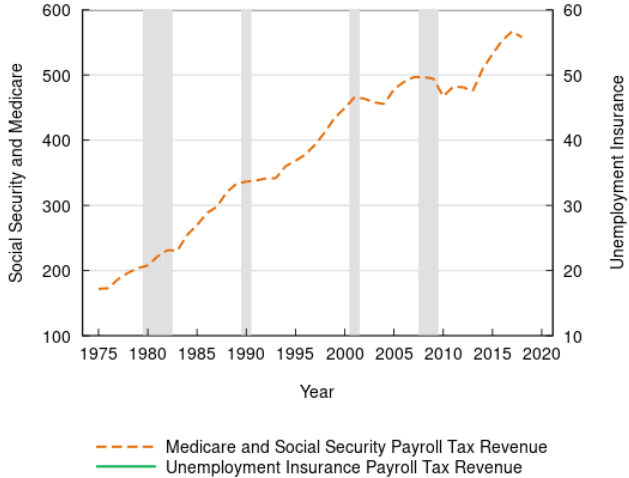
UI Tax Revenues Rise Sharply After Recessions



All values are reported in billions of 2018 dollars. Unemployment Insurance Payroll revenues are calculated from the QCEW. Social Security and Medicare tax revenues are from the OMB.

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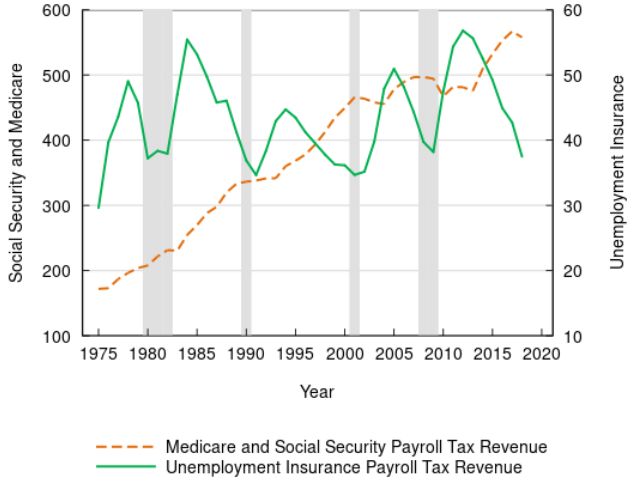

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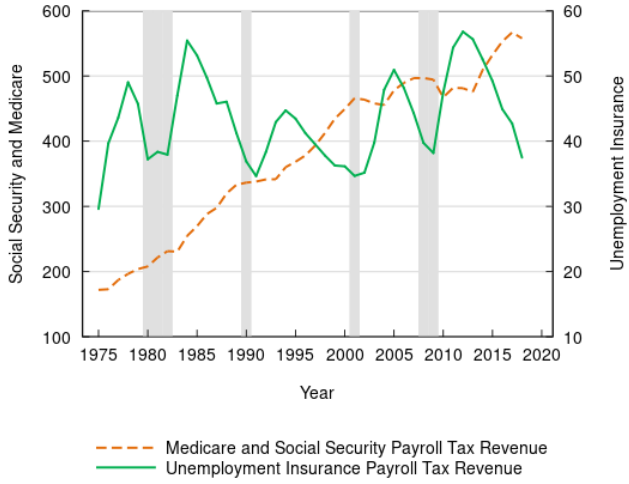

- A significant fraction of this is due to a rise in uniform payroll taxes

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3. Three Facts About the Uniform Payroll Tax Component
   - Large: just under half of UI tax revenues
   - Rises after recessions: as much as the firing tax component
   - Does so by more if UI is poorly funded

Two-Period Model

In period 2, a firm's payroll tax rate, τ, is a function of their "benefit ratio":

$$\tau\left(\frac{B'}{wn}\right) = \begin{cases} \tau_0 & \text{if } \frac{B'}{wn} = 0 \\ \tau_0 + \tau_1 \frac{B'}{wn} & \text{if } 0 < \frac{B'}{wn} \leq \bar{B} \\ \tau_0 + \tau_1 \bar{B} & \text{if } \frac{B'}{wn} \geq \bar{B} \end{cases}$$

- B' = Unemployment benefits associated with the firm
- wn = wage $\times$ period 1 employment = payroll

Two-Period Model

Unemployment benefits attributed to the firm evolves as follows:

$$B' = u'\phi w$$

Unemployed workers is given by:

$$u' = (1 - f)(n - n')\mathbb{1}\left(n' < n\right)$$

Two-Period Model

Combining these equations, the firm's payroll tax rate can be written as a function of their employment choice:

$$\tau(n') = \begin{cases} \tau_0 & \text{if } n' \geq n \\ \tau_0 + \tau_1(1-f)\phi\frac{(n-n')}{n} & \text{if } \underline{n} \leq n' < n \\ \tau_0 + \tau_1(1-f)\phi\frac{(n-\underline{n})}{n} & \text{if } n' \leq \underline{n} \end{cases}$$

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Two Components:

- Uniform Payroll Tax Component
- Firing Tax Component

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- We introduce a new method using data from the Quarterly Census of Employment and Wages (QCEW)

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- We introduce a new method using data from the Quarterly Census of Employment and Wages (QCEW)
  1. Compute overall UI tax rate: τ_t^s
  2. Estimate the uniform payroll tax component: $\tau_{0,t}^s$
  3. Recover the firing tax component: $\tau_t^s - \tau_{0,t}^s$

How to Measure the Uniform Payroll Tax Component

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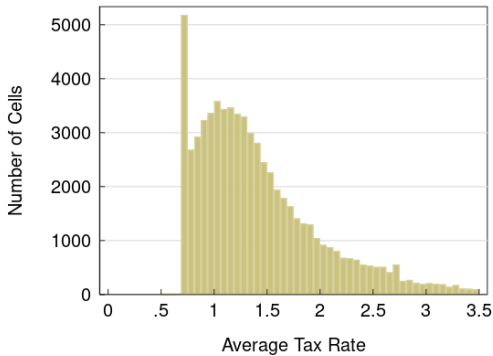
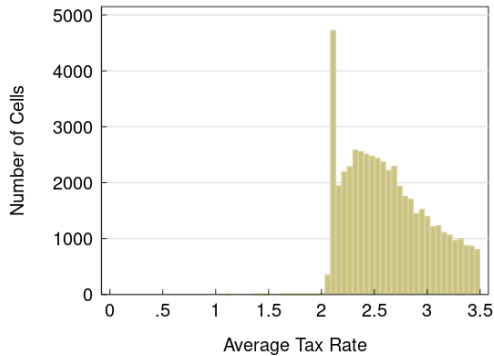
1. Construct a UI tax rate for every county-industry cell: $\tau_t^{c,i}$
2. Assume: $\tau_{0,t}^{s} = \min \tau_t^{c,i}$
   - True as long as there exist cells where all firms face the minimum UI tax rate
   - Works in practice as $30 - 60\%$ of firms pay the minimum rate

Case Study: Alabama





The UI tax is the ratio of quarterly UI contributions paid by firms in the cell, to the sum of quarterly UI-taxable wages in the cell, measured in percent. The sample is all industry by county cells, measured separately for each quarter of 2009 (left panel) or 2010 (right panel) in Alabama. Industry-by-county cells include industries at the NAICS 2 through 6 digit level.

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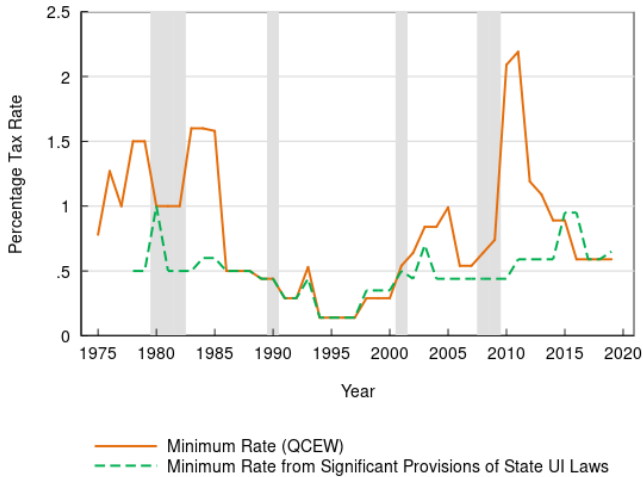
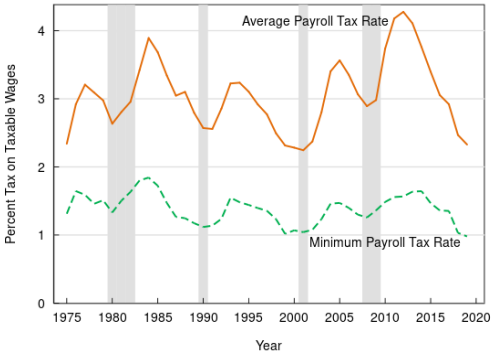
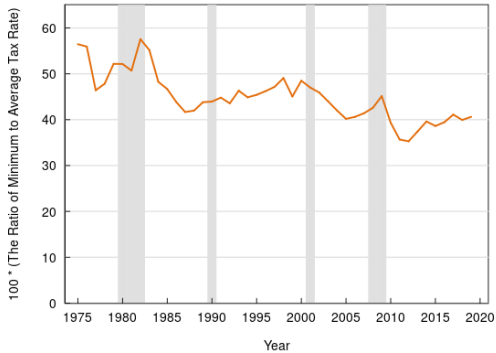


Facts 1 & 2: The Uniform Payroll Tax is Large and Cyclical





Weighted by state employment. Both the average and minimum tax rates include state and federal UI tax contributions.

Fact 3: Uniform Payroll Tax is More Cyclical where UI is Poorly Funded

- We run regressions of the form:

$$\tau^s_{0,t} = \alpha + \beta_0 U^s_{t-1} + \beta_1 X^s_t + \beta_2 U^s_{t-1} \times X^s_t + \epsilon^s_t$$

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	Outcome: Minimum Tax Rate (τ_0)				
	(1)	(2)	(3)	(4)	(5)
Unemployment Rate	0.187				
	(0.025)				
Percent of Wages Taxable					
Unemp. Rate $\times$ Percent Taxable					
Benefit Duration					
Unemp. Rate $\times$ Duration					
Observations	1617				
R^2	0.180				

Robust standard errors in parentheses.

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Unemployment Rate	0.187				
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Percent of Wages Taxable		−0.359			
		(0.051)			
Unemp. Rate × Percent Taxable					
Benefit Duration					
Unemp. Rate × Duration					
Observations	1617	1617			
R^2	0.180	0.152			

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	Outcome: Minimum Tax Rate (τ_0)				
	(1)	(2)	(3)	(4)	(5)
Unemployment Rate	0.187		0.147		
	(0.025)		(0.012)		
Percent of Wages Taxable		−0.359	−0.061		
		(0.051)	(0.113)		
Unemp. Rate × Percent Taxable			−0.044		
			(0.020)		
Benefit Duration					
Unemp. Rate × Duration					
Observations	1617	1617	1617		
R^2	0.180	0.152	0.313		

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Benefit Duration				0.311	
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Unemp. Rate × Duration					
Observations	1617	1617	1617	1617	
R^2	0.180	0.152	0.313	0.127	

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	Outcome: Minimum Tax Rate (τ_0)				
	(1)	(2)	(3)	(4)	(5)
Unemployment Rate	0.187		0.147		0.167
	(0.025)		(0.012)		(0.023)
Percent of Wages Taxable		−0.359	−0.061		
		(0.051)	(0.113)		
Unemp. Rate × Percent Taxable			−0.044		
			(0.020)		
Benefit Duration				0.311	0.077
				(0.020)	(0.072)
Unemp. Rate × Duration					0.034
					(0.013)
Observations	1617	1617	1617	1617	1617
R^2	0.180	0.152	0.313	0.127	0.278

Robust standard errors in parentheses.

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2. Both can be measured using publicly-available data
3. The Uniform Payroll Tax is large, rises after recessions, and does so by more the lower is the taxable base or the more generous are benefits
4. Open Question: How much does a higher uniform payroll tax after recessions weigh on aggregate employment?