Would Broadening the Unemployment Insurance Tax Base Benefit Low-Wage Workers?

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PRELIMINARY AND INCOMPLETE

Abstract:

The tax base for state unemployment insurance (UI) programs varies significantly in the U.S., from a low of $7,000 annually in California to a high of $52,700 in Washington. Previous research has provided surprisingly little guidance to policy makers regarding the consequences of this variation for either workers or for employers. In this paper we use 37 years of data for all 50 states and Washington, D.C. to estimate the impact of the UI tax base on labor-market outcomes. We find that the low tax base that exists in California and many other states (and the necessarily higher tax rates that accompany these) negatively affects labor market outcomes for part-time and other low-earning workers.

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Introduction

There is a voluminous literature investigating the impact of unemployment insurance (UI) benefits on the labor market (Schmieder, von Wachter, and Bender 2016; Johnston and Mas 2018). However, very few studies have investigated the effect of variation in UI financing. This is surprising given the arguably larger variation across states in UI financing compared to UI benefits. For example, employers in the state of Washington pay experience-rated UI taxes on the first $52,700 in each worker's earnings. In contrast, employers in California pay UI taxes on only the first $7,000 in earnings, and the other 48 states and Washington, D.C. lie between these two extremes. Academic research has provided little guidance to policymakers regarding the tradeoffs associated with this and other financing choices. In this paper, we aim to raise awareness of and begin to fill this gap in the literature.[1]

The Social Security Act of 1935 gave states a powerful incentive to create their own UI programs. It imposed a uniform payroll tax of 1 percent in 1936, 2 percent in 1937, and 3 percent in 1938 (and thereafter) on each worker's wages up to $3,000 annually, which was substantially greater than average annual earnings at that time. Employers in states with approved UI laws could offset one-for-one up to 90 percent of their federal UI tax burden with state UI taxes. This federal mandate mitigated the concerns of many states that instituting a UI program would discourage employers from locating there. In 1938, 98 percent of all earnings were subject to UI taxes and all states had operational UI programs, which accumulated program surpluses in trust funds that could then be drawn upon in recessions.[2]

[1] A small literature has examined the consequences of experience-rating in UI financing. See for example Feldstein (1976), Topel (1983), Anderson and Meyer (2000), Guo (2021), and Johnston (2021).
[2] https://www.ssa.gov/policy/docs/ssb/v23n8/v23n8p50.pdf

Through 1954, every state kept its annual UI taxable wage base at $3,000, consistent with the federal minimum.[3] In the subsequent six years a handful of states increased their UI tax bases to $3,600 or more, though by 1960 the UI tax base in 44 states and in Washington, D.C. remained at $3,000. Ten years later in 1970, most state UI programs still had an annual tax base of only $3,000, until the federal government increased its base to $4,200 in 1972. In that year and as a result of this change in federal policy, just five states had tax bases that exceeded the federal minimum of $4,200.

In the subsequent 50 years, the federal government increased its minimum annual UI tax base just twice—to $6,000 in 1978 and then to $7,000 in 1983. But whereas in 1972 only five state UI programs exceeded the federal minimum, by 2020 only five states were still at the minimum. As shown in Appendix Table 1, which also shows state-specific tax bases in 1983, the current variation in annual UI tax bases is substantial, ranging from a low of just $7,000 in California and four other states to a high of $52,700 in Washington. This variation is the product of many "one-off" policy changes like the ones described above from the 1950s and of policies that index the growth rate of the UI tax base (typically to average wage growth) by about one-third of states.

Since the tax base has grown more slowly than average earnings in most states, the share of earnings subject to UI taxes has steadily fallen, from 98 percent in 1940 to 61 percent in 1960 and then to 44 percent in 1980. This decline continued to 32 percent in 2000 and today is at 25 percent (Figure 1). The magnitude of this change has varied substantially across states, with (for example) 53 percent of all workers' earnings subject to unemployment insurance taxes in the state of Washington in 2020 versus just 13 percent in California.

[3] This was identical to the tax base for the Social Security program from 1937-50, which federal policy changes increased to $3600 for 1951-54, $4200 for 1955-58, and $4800 for 1959-65. This was followed by several more one-off changes before it was indexed to average earnings in the early 1980s and by 2021 it stood at $142,800.

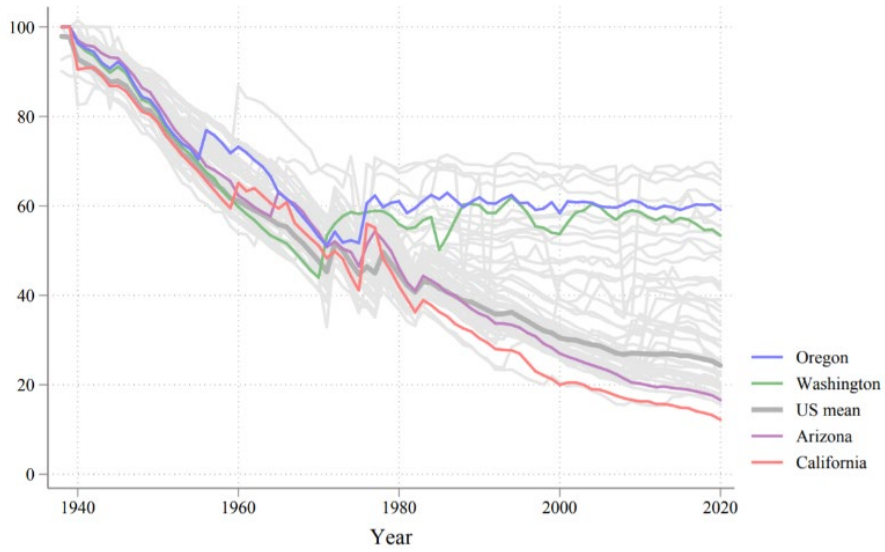

Figure 1: Percent of Total Wages Subject to UI Taxation

Source: Unemployment Insurance Financial Data Handbook found at https://oui.doleta.gov/unemploy/hb394.asp.

It is important to note that this variation across states in the tax base is not the same as the variation in insured earnings. California has a maximum weekly UI benefit of $450 and a replacement rate of approximately 50%. A laid-off worker who earned $46,800 or more annually would qualify for the maximum weekly benefit of $450, while a worker earning just $7,000 annually could end up with $67 per week. Yet the employer's UI contributions for these two workers would be *identical*. In California and virtually every other state, earnings insured by UI are substantially greater than the UI tax base, which naturally spends down UI trust funds and leads to insolvency during economic downturns.[4]

One would expect a smaller tax base to—all else equal—require higher tax rates to finance UI benefits. Higher rates mechanically raise employers' cost of hiring workers with low annual earnings while reducing the cost of high-income workers. For example, low-earning workers would be much less costly to employers in California if the state's annual UI tax base was $50,000

[4] This directly contrasts with Social Security. For this program, only earnings on which Social Security taxes are paid "count" in the calculation of Social Security benefits.

instead of just $7,000. To the extent that workers do not absorb the full cost of this higher tax burden, labor demand could fall as a result. These effects might be especially acute for workers with low annual earnings, such as part-time workers, young workers, and workers in low-wage occupations like retail and fast food.

In this paper, we utilize data for all 50 state UI programs and Washington, D.C. from 1983 to 2019 to investigate this issue.[5] More specifically, we estimate the impact of a state's unemployment insurance taxable wage base and focus our attention on part-time employment. Reliably estimating a causal effect in this setting is inherently challenging for at least three reasons. First, a state's UI tax base is not randomly assigned and may partly be changed as a function of current or projected labor market conditions. This "legislative endogeneity" would tend to bias any estimates of this causal impact. Second, there are other features of UI financing that vary across and within states including the minimum and maximum employer tax rate along with the degree of experience rating. Third, UI benefit generosity may affect (or be affected by) the state's UI tax base, which also may affect labor market outcomes. To the extent that any such bundled changes influence labor market outcomes, this could bias the estimates as well.

We take multiple steps to address these possible sources of bias. Since our goal is to estimate the impact of the UI tax bases on low-income workers, we estimate differential treatment effects for workers by occupation group, and use high and middle-income occupations as a within-state control group. Additionally, we control for the generosity of a state's UI benefits in each year. For our outcome measure, we focus on part-time employment since the combination of a lower tax base with the necessarily higher tax rates would raise employer costs for this group by a much larger percentage than for full-time workers.

[5] We end our sample in 2019 to exclude the Covid-19 pandemic which began in early 2020.

Our findings suggest that from 1983-2019, an increase in a state's tax base is associated with an increase in the share of part-time employment among low-wage occupations. Importantly, this effect is concentrated in the first half of our sample period, when taxable wage bases represented a larger share of average earnings.

I. Data and Empirical Approach

UI taxes are assessed for earnings up to the state's taxable wage base, and in most states this tax base is well below the annual earnings of most workers. To examine the impact of taxable wage bases on workers at the lower end of the earnings distribution, we focus on part-time work as representative of low-income workers. To observe part-time status and occupation data at the state level over a long period of time, we use the IPUMS-harmonized monthly Current Population Survey (Flood et al. (2020)). In the CPS, part-time employment is currently defined as fewer than 35 hours worked per week, although an hours-based definition was not specified prior to 1994.

Our analysis sample is comprised of individuals in the labor force who are between the ages of 25 and 64. To allow for differential impacts across the occupational earnings distribution, we create a stable classification of occupational earnings by matching CPS occupations to earnings data from the 2000 Occupational Employment and Wage Statistics (OEWS), which falls in the middle of our sample period. We divide occupations into terciles by median annual earnings (for reference, the bottom third had median annual earnings of $25,310 or less in 2000, and the top third had earnings of $37,220 or more), and aggregate the monthly person-level observations up to state-tercile-year-quarter cells.

Table 1: Summary Statistics - March CPS

	(1) 1983		(2) 2000		(3) 2019	
	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
	mean	mean	mean	mean	mean	mean
age 25-39	0.52	0.52	0.45	0.44	0.41	0.41
age 40-54	0.34	0.32	0.44	0.41	0.38	0.34
age 55-64	0.14	0.16	0.12	0.16	0.20	0.25
male	0.62	0.27	0.58	0.32	0.57	0.37
white	0.88	0.89	0.83	0.85	0.77	0.79
black	0.10	0.09	0.12	0.10	0.13	0.12
hispanic	0.07	0.07	0.12	0.11	0.17	0.20
HS	0.84	0.80	0.91	0.89	0.93	0.91
college	0.30	0.21	0.41	0.37	0.54	0.48
bottom tercile occ	0.29	0.55	0.29	0.45	0.29	0.46
retail	0.11	0.21	0.12	0.17	0.12	0.19
food	0.02	0.09	0.03	0.06	0.03	0.07
production	0.13	0.07	0.09	0.05	0.06	0.04
belowpov	0.05	0.12	0.04	0.09	0.03	0.10
HH inc:pov ratio	4.04	3.20	5.25	4.48	5.97	4.69
usual hours	41.65	23.47	43.51	28.93	42.62	28.66
weekly earnings	380	146	730	426	1175	652
share taxable UI	0.48	0.87	0.35	0.62	0.30	0.56
N	41398	7584	38628	8823	36413	8171

Basic monthly CPS matched to March ASEC, restricted to currently employed. Poverty status based on income last year. Weekly earnings only available for outgoing rotation groups. Share taxable = UI tax base divided by weekly earn*52.

Table 1 reports summary statistics for our analytic sample in the beginning, middle, and end of our sample period (1983, 2000, and 2019). Each column compares average measures for full-time versus part-time workers who were currently employed as of the March CPS survey. Part-time workers are more likely to be female and less likely to have a high school or college education, although these gaps have decreased over time. The part-time workforce has also aged faster than the full-time workforce, with a quarter of part-time workers in 2019 being in the 55-64 age range. Additionally, part-time workers are more likely to be below the poverty line; while absolute poverty rates have dropped over time, the share of part-time workers in poverty has increased relative to full-time workers. Finally, if we impute the share of weekly earnings that would face UI taxation, part-time workers consistently face a larger relative UI tax burden.

In our baseline specification, we estimate the main effect of the logged state taxable wage base, and two additive interaction terms for the middle and top occupation terciles. The higher

terciles also act as within-state control groups that help account for potentially confounding state-year variation.

$$PT_{sjt} = \alpha_s + \delta_{jt} + \beta_0 TaxBase_{st} + \beta_1 Mid_j * TaxBase_{st} + \beta_2 Top_j * TaxBase_{st} + \epsilon_{sjt}$$

Here *s* indexes state, *j* indexes occupational earnings tercile, and *t* indexes year-quarter. We include state and tercile-by-year fixed effects to account for differences in the labor market across states and variation over time in the labor market. The outcome variables of interest are defined as either the share of the labor force reporting part-time work status, or the share of those currently employed. β_0 is the coefficient of interest, and the identifying assumption is that absent differential changes to the UI taxable wage base, the share of part-time workers would have evolved similarly across states over time. To the extent that other unobserved factors influence both this policy lever along with the labor market, it would bias our estimates.

II. Results

Our baseline results are reported in Table 2, with the results in the first two columns showing that after controlling for maximum weekly UI benefits, tax base increases appear to have no overall employment effects on the lowest-earning occupations. Turning to part-time shares as the outcome, Column 4 estimates that a 10 percent increase in the taxable wage base increases the labor force share of PT employment by 0.06 percentage points for the lowest-earning occupations (or 0.4% relative to the sample mean). The estimates are similar across the two part-time outcomes (with the second equal to part-time as a share of employment), with slightly higher effects conditional on employment; a 10 percent increase in the taxable wage base increases the employed share who are part-time by 0.07 percentage points or 0.4% relative to the mean. In contrast, the negative interaction coefficients with the middle and top tercile of occupations shows that the

impact on part-time work is largely limited to low-earning occupations where tax base increases are the most binding.

Table 2: OLS Regressions of Part-Time Share, Age 25-64 (1983-2019)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Employed		Share of LF		Share of Employed		PT Econ Reason	
ln(base)	-0.267***	-0.0818	0.742***	0.588***	0.929***	0.702***	0.379	-0.859***
	(0.0925)	(0.0971)	(0.115)	(0.120)	(0.131)	(0.137)	(0.322)	(0.328)
ln(base)*Middle	-0.309***	-0.309***	-0.665***	-0.665***	-0.700***	-0.700***	0.412*	0.412*
	(0.0752)	(0.0751)	(0.0997)	(0.1000)	(0.114)	(0.114)	(0.240)	(0.237)
ln(base)*Top	-0.247***	-0.247***	-0.664***	-0.664***	-0.739***	-0.739***	2.376***	2.376***
	(0.0682)	(0.0683)	(0.0954)	(0.0956)	(0.108)	(0.108)	(0.220)	(0.220)
Max Benefit (100s)		-0.186***		0.154***		0.228***		1.243***
		(0.0301)		(0.0386)		(0.0435)		(0.0981)
R^2	0.797	0.798	0.911	0.911	0.917	0.917	0.787	0.789
ymean	91.14	91.14	16.75	16.75	18.23	18.23	20.15	20.15
N	22644	22644	22644	22644	22644	22644	22644	22644

Observations are at the wage tercile x state x year x quarter level. Regressions include state and year-quarter-tercile fixed effects, and are weighted by state population. PT Econ Reason denotes the share of PT workers reporting part-time hours for economic reasons. Robust standard errors in parentheses. ** $p < 0.05$, *** $p < 0.01$

To explore the mechanism behind increases in part-time work, columns 7 and 8 estimate regressions using a proxy for labor demand-driven part-time work as an outcome. Specifically, we measure the share of part-time workers who report working part-time due to economic reasons (such as a cut in hours necessitated by economic conditions). The negative magnitude in column 8 suggests that the main channel through which part-time work increases is through increased availability of part-time positions, rather than through cutting hours for full-time workers.

A. Indexing vs Other Base Increases

The variation in state taxable wage base increases over time can be broken down into two types of policy changes: automatic indexing and one-off base increases. The majority of states legislate temporary or permanent taxable wage base increases in response to inflation and trust fund finances in a relatively *ad hoc* way. On the other hand, a subset of states have indexed their

taxable wage base to automatically increase with average annual wages. A total of 17 states adopted an indexing policy, mostly in the 1970s and 80s.

Table 3: OLS Regressions dropping Indexed States (1983-2019)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Employed		Share of LF		Share of Employed		PT Econ Reason	
ln(base)	-0.297*	-0.191	2.092***	1.922***	2.467***	2.247***	0.0620	-0.518
	(0.175)	(0.175)	(0.230)	(0.228)	(0.264)	(0.261)	(0.567)	(0.562)
ln(base)*Middle	0.297	0.297	-2.477***	-2.477***	-2.859***	-2.859***	2.546***	2.546***
	(0.203)	(0.203)	(0.266)	(0.263)	(0.305)	(0.301)	(0.631)	(0.628)
ln(base)*Top	0.143	0.143	-1.964***	-1.964***	-2.279***	-2.279***	6.373***	6.373***
	(0.186)	(0.187)	(0.256)	(0.254)	(0.289)	(0.287)	(0.573)	(0.571)
Max Benefit (100s)		-0.192***		0.307***		0.398***		1.049***
		(0.0359)		(0.0436)		(0.0494)		(0.115)
R^2	0.809	0.809	0.918	0.919	0.923	0.924	0.802	0.804
ymean	91.10	91.10	16.52	16.52	17.98	17.98	20.40	20.40
N	15096	15096	15096	15096	15096	15096	15096	15096

Observations are at the wage tercile x state x year x quarter level. Regressions include state and year-quarter-tercile fixed effects, and are weighted by state population. PT Econ Reason denotes the share of PT workers reporting part-time hours for economic reasons. Robust standard errors in parentheses. ** $p < 0.05$, *** $p < 0.01$

While these two categories of base increases were similar in magnitude at the start of our sample period, over time the effect of automatic indexing has dwarfed the increases of states that use periodic one-off base increases. States that index their taxable wage bases collect significantly higher average UI tax contributions per worker. Since the purpose of indexing was to maintain tax bases as a constant share of earnings, forward-looking employers may be less likely to respond to these automatic base increases, or more able to pass tax increases through to wages. In line with this expectation, dropping indexed states from our analysis strengthens the effects on part-time shares. As shown in Table 3, a 10 percent increase in the state tax base is associated with a 0.23 percentage point increase in part-time work as a share of employment (1.3% relative to the mean).

III. Extensions and Future Work

In addition to studying part-time work, we also investigate the impact of taxable wage bases on two subgroups in which low-income workers are over-represented: workers with a high school education or less, and workers who are younger than 25. Table 4 shows that during the first half of our sample period, higher tax bases were associated with greater employment rates within these two groups, suggesting that broader tax bases may have benefited low-income workers.

Table 4: OLS Regressions of Low Education and Young (1983-2000)

	HS or Less (Ages 25-64)				Ages 16-24			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Employed		PT		Employed		PT	
ln(base)	-0.281	0.567**	2.095***	1.075***	0.334	1.375***	2.466***	1.070
	(0.272)	(0.281)	(0.320)	(0.327)	(0.386)	(0.397)	(0.663)	(0.677)
ln(base)*Middle	-0.744***	-0.744***	-1.664***	-1.664***	-1.126***	-1.126***	0.0510	0.0510
	(0.204)	(0.203)	(0.263)	(0.259)	(0.293)	(0.292)	(0.523)	(0.521)
ln(base)*Top	-0.287	-0.287	-1.630***	-1.630***	-1.496***	-1.496***	-0.831	-0.831
	(0.207)	(0.205)	(0.294)	(0.291)	(0.333)	(0.332)	(0.613)	(0.613)
Max Benefit (100s)		-1.168***		1.406***		-1.435***		1.924***
		(0.118)		(0.141)		(0.177)		(0.295)
R^2	0.706	0.711	0.894	0.896	0.530	0.534	0.881	0.882
ymean	89.94	89.94	15.79	15.79	89.12	89.12	32.24	32.24
N	11016	11016	11016	11016	11016	11016	11016	11016

Observations are at the wage tercile x state x year x quarter level. Regressions include state and year-quarter-tercile fixed effects, and are weighted by state population. PT measured as a share of employment. Robust standard errors in parentheses. ** $p < 0.05$, *** $p < 0.01$

In recent years, the gap between states with the highest and lowest UI tax bases has steadily grown. At the two extremes lie the states of California (and four other states at $7,000 annually) and Washington ($52,700 annually). Surprisingly little is known about the consequences of this variation for workers or for employers. The low tax bases as found in California and many other states likely raise the cost of hiring part-time and lower-paid workers due to the necessarily higher tax rates than in states like Washington. The results in this paper suggest this largely unexplored variation in UI financing may have important consequences for lower-wage workers.

Additionally the shrinking of the UI tax base relative to average earnings appears to have contributed to problems with UI financing in many states. Just prior to the pandemic, the three states with the least solvent UI trust funds (California, Texas, and New York) had tax bases of just $7000, $9000, and $11,400 respectively.[6] Meanwhile, all 17 states with indexed tax regimes ranked within the top half of trust fund solvency. Improving the current state of UI financing in the U.S. will require a better understanding of the tradeoffs associated with potential policy changes (Guo and Johnston (2021) reviews the existing literature and highlights open questions). In the meantime, it seems likely that a significant increase in the federal UI tax base of $7,000 is warranted, since this has been unchanged in 39 years during which time average annual earnings in the U.S. have increased by 265 percent.

[6] See Chart 1 in: https://oui.doleta.gov/unemploy/docs/trustFundSolvReport2020.pdf

References:

Anderson, Patricia. M. and Meyer, Bruce. D. (2000) "The Effects of the Unemployment Insurance Payroll Tax on Wages, Employment, Claims and Denials." *Journal of Public Economics*, 78(1), 81–106.

Feldstein, Martin. (1976) "Temporary Layoffs in the Theory of Unemployment." *Journal of Political Economy*, 84(5), 937–957.

Flood, Sarah, Miriam King, Renae Rodgers, Steven Ruggles, and J. Robert Warren. (2020) "Integrated Public Use Microdata Series, Current Population Survey: Version 8.0." https://doi.org/10.18128/D030.V8.0.

Guo, Audrey. (2021) "The Effects of Unemployment Insurance Taxation on Multi-Establishment Firms." Forthcoming at *Review of Economics and Statistics*.

Guo, Audrey, and Andrew C. Johnston. (2021) "The Finance of Unemployment Compensation and its Consequence." *Public Finance Review*, 49(3): 392–434.

Johnston, Andrew C. (2021) "Unemployment Insurance Taxes and Labor Demand: Quasi-Experimental Evidence from Administrative Data." *American Economic Journal: Economic Policy*, 13(1): 266–93.

Johnston, Andrew C. and Alexandre Mas. (2018) "Potential Unemployment Insurance Duration and Labor Supply: The Individual and Market-Level Response to a Benefit Cut." *Journal of Political Economy*, 126(6): 2480-2522

Schmieder, Johannes F., Till von Wachter, and Stefan Bender. (2016) "The Effect of Unemployment Benefits and Nonemployment Durations on Wages." *American Economic Review*, 106 (3): 739-77.

Topel, Robert. (1983) "On Layoffs and Unemployment Insurance." *American Economic Review,* 73(4), 541–559.

App Table 1: Taxable Wage Base for State UI Programs in 1983 and 2020

State Name	1983	2020	State Name	1983	2020
Alabama	8,000	8,000	Montana	8,000	34,100
Alaska	20,200	41,500	Nebraska	7,000	9,000
Arizona	7,000	7,000	Nevada	10,200	32,500
Arkansas	7,500	7,000	New Hampshire	7,000	14,000
California	7,000	7,000	New Jersey	8,800	35,300
Colorado	7,000	13,600	New Mexico	8,800	25,800
Connecticut	7,000	15,000	New York	7,000	11,600
Delaware	7,200	16,500	North Carolina	7,000	25,200
D.C.	8,000	9,000	North Dakota	10,150	37,900
Florida	7,000	7,000	Ohio	7,000	9,000
Georgia	7,000	9,500	Oklahoma	7,000	18,700
Hawaii	13,800	48,100	Oregon	12,000	42,100
Idaho	14,400	41,600	Pennsylvania	7,000	10,000
Illinois	8,000	12,740	Rhode Island	9,200	25,500
Indiana	7,000	9,500	South Carolina	7,000	14,000
Iowa	7,000	31,600	South Dakota	7,000	15,000
Kansas	7,000	14,000	Tennessee	7,000	7,000
Kentucky	8,000	10,800	Texas	7,000	9,000
Louisiana	7,000	7,700	Utah	12,000	36,600
Maine	7,000	12,000	Vermont	7,000	16,100
Maryland	7,000	8,500	Virginia	8,000	8,000
Massachusetts	7,000	15,000	Washington	11,400	52,700
Michigan	8,000	9,000	West Virginia	8,000	12,000
Minnesota	9,000	35,000	Wisconsin	8,000	14,000
Mississippi	7,000	14,000	Wyoming	7,000	26,400
Missouri	7,000	11,500	U.S. Federal	7,000	7,000