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The cost of layoffs in Unemployment Insurance taxes

To date, there have been several theoretical attempts at measuring the marginal cost of layoffs in Unemployment Insurance (UI) taxes. This article discusses the development of a new measure, which shows, in the most practical terms, the impact of making a given number of layoffs on an employer's UI tax rate. In addition, the article derives a measure for the maximum number of layoffs that an employer can make before it is assigned the maximum tax rate. Through these derivations, and the discovery of relatively small tax impacts of layoffs, the analysis provides a more thorough understanding of the methods used in UI experience rating.

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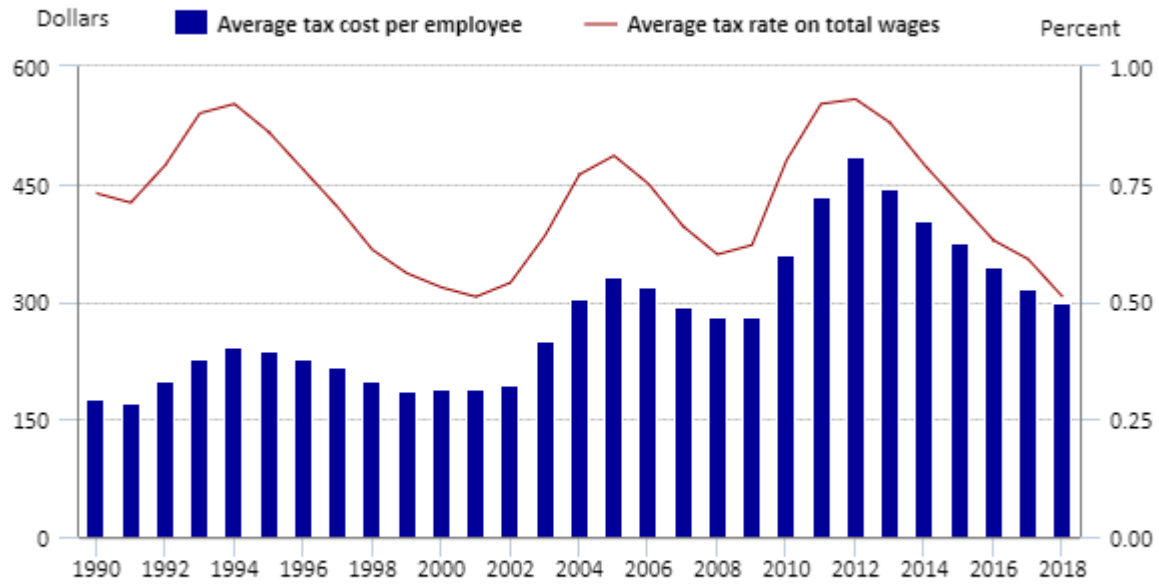
After making a layoff, many employers ask the following question: "What will happen to my Unemployment Insurance (UI) tax rate?" Rarely can a satisfying answer be provided. The tax impact of a layoff depends on several additional factors, all of which interact with one another at the same time. Among these are the number of layoffs previously made by the employer, the period for which each laid-off employee will collect UI benefits, the amount of money in the UI trust fund of the employer's state, and even the number of layoffs made by other employers.

Using information on state UI tax laws and making certain assumptions about the aforementioned factors, this article derives a practical measure for the impact of layoffs on the 1-year marginal tax cost of a single employer. Further, it derives a measure for the number of layoffs this same employer would have to make in order to reach the maximum tax rate in its state's tax schedule. The results from these formulations are used to draw conclusions about the relative impacts, across states, of the UI tax and layoff limit.

Before describing how these measures are derived, it is important to understand the unique U.S. system of UI tax variation. The United States has a public sector UI program that varies an individual employer's tax rate on the basis of that employer's own experience with layoffs.[1] This system of tax-rate assignment, called experience rating, was developed when the nationwide UI program was established in 1935.

In each U.S. state and jurisdiction, UI tax rates are assigned to employers on a yearly basis, although the tax is paid quarterly. Each employer is classified as a “new” (or nonrated) employer for a period of 1 to 3 years. After this period, the employer becomes UI eligible, and its tax rate is calculated on the basis of its individual layoff experience.[2] In the past 15 years, the average UI tax rate on total payroll across the United States has been close to 0.75 percent, and the average tax cost per employee has been around $350. (See figure 1.)

Figure 1. Average Unemployment Insurance tax rate on total wages and average tax cost per employee, 1990–2018



Click legend items to change data display. Hover over chart to view data.
Note: The average tax rate on total wages equals the total U.S. Unemployment Insurance (UI) tax revenue received divided by the total wages paid in the calendar year. The average tax cost per employee equals the total UI tax revenue received divided by the total covered employment for the year.
Source: U.S. Department of Labor.

State Unemployment Insurance taxes

States use two primary methods for determining an employer’s UI tax rate.[3] In both methods, when an employer lays off a worker, all of the UI benefits received by that worker are assigned back,[4] on the basis of specific rules for assigning benefits, to the employer’s experience-rating formulation. The first method, called the reserve-ratio method, is used by 30 states, Puerto Rico, and the District of Columbia; the second method, called the benefit-ratio method, is used by 16 states.

In reserve-ratio systems, an employer’s “experience rate” is a decreasing function, whereby the difference between all taxes paid and all benefits assigned (from laid-off employees) is divided by the employer’s average covered payroll. Taxes paid and benefits assigned are usually summed over all past years of the employer’s existence, and average payroll is typically the average for the last 3 years. Each year, the previous year’s amounts of benefits assigned and taxes paid are incorporated into the employer’s “reserve balance,” and a new reserve ratio is derived. When the amount of benefits assigned exceeds the amount of taxes paid, the employer’s reserve

balance decreases and its UI tax rate goes up. Conversely, when the benefits assigned are lower than the taxes paid, the employer's reserve balance increases and its tax rate goes down.

In benefit-ratio systems, an employer's experience rate depends only on the ratio of the benefits collected by laid-off employees to the level of the employer's taxable wages (both benefits and taxable wages are calculated for the last 3 years). When the benefits assigned to the employer increase, the employer's benefit ratio goes up, and so does the corresponding tax rate.

Every state and jurisdiction has a prespecified tax schedule that shows the experience-rating intervals and corresponding tax rates that will be effective for a calendar year. A typical state tax table contains anywhere from 10 to 40 intervals, which always go from a specified minimum experience level to a maximum. For states using reserve-ratio experience rating, the difference between intervals is usually 1 percent of reserve-ratio balances. For benefit-ratio states, the measured benefit-ratio experience levels range from 0.0 percent to 7.0 percent.

Every year, on a specified computation date, the UI office of each state calculates the experience rate of each taxable employer, to determine its assigned tax rate for the following year. Tables 1 and 2 provide examples of state UI tax schedules for California and Maryland.

Table 1. California Unemployment Insurance tax schedule, 2018

Reserve-ratio experience-rating interval (percent)	Tax rate (percent)
20 or more	1.5
19 to 20	1.6
18 to 19	1.7
17 to 18	2.0
16 to 17	2.2
15 to 16	2.4
14 to 15	2.6
13 to 14	2.9
12 to 13	3.1
11 to 12	3.3
10 to 11	3.6
9 to 10	3.8
8 to 9	4.0
7 to 8	4.3
6 to 7	4.5
5 to 6	4.7
4 to 5	4.9
3 to 4	5.2
2 to 3	5.4
1 to 2	5.6
0 to 1	5.9
-1 to 0	6.2
-2 to -1	6.2
-3 to -2	6.2
-4 to -3	6.2
-5 to -4	6.2
-6 to -5	6.2

See footnotes at end of table.

Table 1. California Unemployment Insurance tax schedule, 2018

Reserve-ratio experience-rating interval (percent)	Tax rate (percent)
-7 to -6	6.2
-8 to -7	6.2
-9 to -8	6.2
-10 to -9	6.2
-12 to -10	6.2
-14 to -12	6.2
-16 to -14	6.2
-18 to -16	6.2
-20 to -18	6.2
Less than -20	6.2

Source: State of California Employment Development Department.

Table 2. Maryland Unemployment Insurance tax schedule, 2018

Benefit-ratio experience-rating interval (percent)	Tax rate (percent)
0.00 to 0.01	0.3
0.01 to 0.27	0.6
0.28 to 0.54	0.9
0.55 to 0.81	1.2
0.82 to 1.08	1.5
1.09 to 1.35	1.8
1.36 to 1.62	2.1
1.63 to 1.89	2.4
1.90 to 2.16	2.7
2.17 to 2.43	3.0
2.44 to 2.70	3.3
2.71 to 2.97	3.6
2.98 to 3.24	3.9
3.25 to 3.51	4.2
3.52 to 3.78	4.5
3.79 to 4.05	4.8
4.06 to 4.32	5.1
4.33 to 4.59	5.4
4.60 to 4.86	5.7
4.87 to 5.13	6.0
5.14 to 5.40	6.3
5.41 to 5.67	6.6
5.68 to 5.94	6.9
5.95 to 6.21	7.2
6.22 and over	7.5

Source: Maryland Department of Labor.

An employer is assigned one of the tax rates in the state tax schedule on the basis of its measured experience rate. To arrive at the amount of UI taxes owed to the state, the employer multiplies its assigned tax rate by the level of taxable wages paid during the previous quarter. The assigned tax rate is typically effective for 1 year.

Previous measures of Unemployment Insurance marginal tax cost

There have been several theoretical attempts at measuring a UI marginal tax cost (MTC). These efforts have focused on creating either an industry-based or a statewide measure, rather than a measure for an individual employer. In these efforts, the MTC is defined as a measure of the impact of a dollar of benefits paid on the future payment of UI taxes.

Studies that calculate an industry-based MTC construct either a simple partial-adjustment model or a general equilibrium model of employer behavior.[5] These models include a firm's labor demand function and marginal product of labor, along with assumptions about the firm's employment growth, wage levels, and unemployment rate. The models also incorporate a UI layoff cost, derived from the employer's state's UI tax schedule, as a proxy for the state's experience-rating formulation (either the benefit-ratio or the reserve-ratio method).[6]

On the basis of these assumptions and data on the portion of total UI benefits and taxes paid within each industry, researchers arrive at industry-specific MTC estimates. Any MTC changes are then correlated with the level of industry employment, hiring, and layoffs, to gauge their impact on layoff decisions. For example, Patricia M. Anderson and Bruce D. Meyer, using data from Washington State, arrive at an MTC estimate of 1.1 for the construction industry.[7] This estimate indicates that, for each dollar in benefits paid to a claimant laid off from a company in this industry, the company will pay $1.10 in UI taxes as a result of this dollar being assigned to the company's experience-rating formulation. Anderson and Meyer conclude, as do other authors, that the higher the MTC, the lower the amount of temporary layoffs made by employers.[8]

For many years since 1988, the U.S. Department of Labor published a slightly different marginal tax rate. This rate, called Experience Rating Index (ERI), was calculated by state. Rather than capturing the tax impact of additional UI benefits paid to employees, the ERI derived the portion of an employer's tax that was attributable just to the layoffs made by the employer. The index was calculated on a statewide basis, as an average across all taxable employers, by taking the portion of benefits assigned to employers' experience-rating "accounts" and assuming that the remainder was not attributable to any individual employer. If a state's ERI was, for instance, 63 percent, the presumption was that, on average, an employer in that state was paying $0.63 in tax for each dollar paid in UI benefits to its ex-employees. The remaining portion of the tax was considered a socialized tax. Because of many issues with this presumption, the Department stopped publishing this statistic in 2004.[9]

These previous efforts to measure an MTC have established the UI tax rate as an important incentive in reducing the number of layoffs. However, with no significant research being done in more than 20 years, there is a lack of understanding of how a layoff would affect the UI tax rate of an individual employer.

Calculation of an Employer Marginal Tax Cost

This article introduces a new, more practical measure of a marginal tax cost. The measure, called Employer Marginal Tax Cost (EMTC) and defined for an individual employer, shows the monetary impact of making a single layoff in the current year on the employer's UI tax rate in the following year. This calculation is much easier for the

UI program than for other insurance programs, because the UI tax schedule in effect for a given year is specified in law. With the underlying structure of tax-rate changes clearly specified, the only difficulty in deriving the measure lies in establishing the impact of a layoff on the existing experience-rating formula for an employer.

The formulation of an EMTC requires both state and employer information. The former includes a state's tax schedule, average benefit payment, and taxable wage base. Data for individual employers include number of employees, total wages paid, number of employees whose wages are below the state taxable wage base, and number of layoffs an employer is expected to make in the current year. These data, together with several assumptions (detailed below), can be used to estimate the dollar increase in the UI taxes an employer will pay next year, as well as the number of layoffs the employer can make before reaching the maximum tax rate in the state's tax schedule. The EMTC captures only next year's tax impact, because a longer period would require more tenuous assumptions about changes in state tax schedules and an employer's reserve-ratio experience-rating balance. However, all else held constant, the tax impact of a layoff can be expected to remain steady for 3 years in states using benefit-ratio experience rating and for a longer period (albeit with slightly diminishing yearly amounts) in states using reserve-ratio experience rating.

The EMTC is derived by determining how much a layoff will change an employer's experience-rate formulation and how this change will affect the employer's assigned UI tax rate. First, the number of specified layoffs is converted to an amount of total benefits assigned back to an employer.[10] This amount is then used to determine the number of intervals that would, at this level of benefits, cause the employer to move on the state tax schedule.[11] Finally, by applying an average tax amount per experience-rating interval to the number of intervals estimated in the previous step, an estimate of the EMTC is established.[12]

Completing this series of formulations requires several assumptions. First, it is assumed that each laid-off employee is eligible for the UI program.[13] In 2018, about 30 percent of U.S. workers defined as unemployed received UI benefits.[14] Also, it is assumed that each beneficiary would receive the average benefit paid in the state. Of those who collected UI benefits in 2018, the average duration of receiving benefits was 15 weeks and the average total benefit payment was $5,244.[15]

The calculation's most important assumption, however, involves determining an appropriate amount for an employer's existing experience-rating level. In states using reserve-ratio experience rating,[16] each employer has an existing balance in its experience-rating "account," which represents the difference between the accumulated amount of UI taxes paid by the employer and the accumulated benefits (paid to laid-off employees) assigned back to that employer.[17] Tax practitioners and economists have faced significant theoretical and practical difficulties in deriving a valid value for this balance, which is crucial to arriving at a reasonable measure of changing tax rates. Employers with large positive reserve-ratio balances (a result of taxes paid exceeding benefits assigned) may see little tax impact from a single layoff. Employers with large negative reserve-ratio balances (a result of benefits assigned exceeding taxes paid) may be close to or beyond the point at which any further benefit will affect their UI tax rate.[18]

To derive a reasonable value for an employer's existing reserve balance, this article uses a dataset consisting of the experience-rating distributions of state employers, from 2001 to 2017, including information on wages, number of accounts, and reserve-ratio intervals.[19] For each available reserve-ratio state, computing an average reserve

balance over several similar years provides a reliable measure that can be used as a proxy for an employer's actual balance in the EMTC calculation.[20]

Here, an example of such calculation is given for a hypothetical employer in Maryland, a state using benefit-ratio experience rating. The hypothetical employer has 10 employees, pays total wages of $450,000, and makes one layoff of a UI claimant. First, it is assumed that the claimant receives the state's average level of total benefits paid per recipient ($6,474 in 2018).[21] Then, using the state's taxable wage base and the employer's number of employees, the employer's taxable wages are derived (wage base of $8,500 × 10 employees = $85,000).[22] Next, these two amounts (benefits paid per recipient and employer's taxable wages) are used to derive the change in experience-rating (benefit-ratio) level ($6,474 ÷ $85,000 = 7.62 percent), and this percentage is divided by the number of benefit-ratio intervals by which the employer would move on the Maryland tax schedule, yielding a value of 2.32.[23] Finally, this value is multiplied by the tax amount per percentage-point benefit-ratio interval ($93) in the Maryland tax schedule, to arrive at an EMTC of $216.[24] This EMTC value means that, in the following year, the hypothetical employer will pay an estimated additional UI tax of $216 per employee as a result of the layoff.

In California, a state using reserve-ratio experience rating, a single layoff by the same hypothetical employer would result in an assumed benefit payment of $5,771. The total taxable wages for this employer are $70,000 (wage base of $7,000 × 10 employees),[25] and the resulting change in the employer's reserve ratio is 8.24 percent. This percentage is divided by the average change in the experience rate per interval in the California tax schedule (0.46 percent), and the resulting quotient is multiplied by the average change in the tax rate per reserve-ratio interval ($9), yielding an EMTC of $156.[26] This EMTC value means that, in the following year, the hypothetical employer will pay an estimated additional UI tax of $156 per employee because of the layoff.[27] Making this calculation for the same hypothetical employer under each state's UI tax laws reveals considerable differences across states. (See table 3.)

Table 3. Employer Marginal Tax Cost (EMTC) calculation for a hypothetical employer, by state, 2018

State	Experience-rating method	Average total benefits per first payment	EMTC	Ratio of total taxes to benefits paid (percent)
	A	B	C	D
Alaska	Payroll decline	$4,989	$166	33
Alabama	Benefit ratio	3,026	101	33
Arkansas	Reserve ratio	3,228	85	26
Arizona	Reserve ratio	3,543	93	26
California	Reserve ratio	5,771	156	27
Colorado	Reserve ratio	6,139	164	27
Connecticut	Benefit ratio	6,755	225	33
District of Columbia	Reserve ratio	6,330	167	26
Delaware	Benefit wage	4,601	153	33
Florida	Benefit ratio	2,263	75	33
Georgia	Reserve ratio	2,406	64	27
Hawaii	Reserve ratio	7,724	205	26
Iowa	Benefit ratio	5,271	105	20
Idaho	Reserve ratio	3,505	95	27

See footnotes at end of table.

Table 3. Employer Marginal Tax Cost (EMTC) calculation for a hypothetical employer, by state, 2018

State	Experience-rating method	Average total benefits per first payment	EMTC	Ratio of total taxes to benefits paid (percent)
	A	B	C	D
Illinois	Benefit ratio	6,488	216	33
Indiana	Reserve ratio	3,720	101	27
Kansas	Reserve ratio	4,254	112	26
Kentucky	Reserve ratio	6,093	163	27
Louisiana	Reserve ratio	3,607	98	27
Massachusetts	Reserve ratio	8,735	234	27
Maryland	Benefit ratio	6,474	216	33
Maine	Reserve ratio	4,292	112	26
Michigan	Benefit ratio	3,679	123	33
Minnesota	Benefit ratio	7,357	184	25
Missouri	Reserve ratio	3,144	83	26
Mississippi	Benefit ratio	2,897	97	33
Montana	Reserve ratio	5,340	142	27
North Carolina	Reserve ratio	2,391	65	27
North Dakota	Reserve ratio	6,465	174	27
Nebraska	Reserve ratio	3,988	105	26
New Hampshire	Reserve ratio	4,129	110	27
New Jersey	Reserve ratio	8,084	216	27
New Mexico	Benefit ratio	5,914	197	33
Nevada	Reserve ratio	5,021	134	27
New York	Reserve ratio	5,714	151	27
Ohio	Reserve ratio	5,305	141	27
Oklahoma	Benefit wage	6,226	208	33
Oregon	Benefit ratio	5,771	192	33
Pennsylvania	Benefit ratio	6,031	201	33
Puerto Rico	Reserve ratio	1,810	49	27
Rhode Island	Reserve ratio	5,379	143	27
South Carolina	Benefit ratio	3,021	101	33
South Dakota	Reserve ratio	4,693	127	27
Tennessee	Reserve ratio	3,100	82	26
Texas	Benefit ratio	6,059	202	33
Utah	Benefit ratio	4,944	124	25
Virginia	Benefit ratio	4,790	120	25
Virgin Islands	Reserve ratio	3,646	99	27
Vermont	Benefit ratio	4,765	159	33
Washington	Benefit ratio	7,419	185	25
Wisconsin	Reserve ratio	4,114	109	27
West Virginia	Reserve ratio	4,303	112	26
Wyoming	Benefit ratio	5,954	198	33

Note: Calculations are based on a hypothetical employer with 10 employees, $450,000 total payroll, and one layoff. The District of Columbia, Puerto Rico, and the U.S. Virgin Islands are considered states for all Unemployment Insurance purposes.

Sources: U.S. Department of Labor and author's calculations.

While table 3 reveals several notable results (such as reserve-ratio states having smaller EMTC values than benefit-ratio states), the result that stands out the most is that the EMTC dollar values in column C are relatively small. This result is even more apparent in column D, which gives the ratio of total taxes (EMTC × number of employees) to assumed benefits paid (total benefits received by claimant). This ratio, which ranges from a low of 20 percent in Iowa to a high of 33 percent in several other states, has a mean of around 29 percent. This mean suggests that, in the following year, an employer's total marginal cost from a single layoff will be, on average, only about 29 percent of the benefits paid to the laid-off claimant.

Given that most state tax schedules are linear, the EMTC for each additional layoff will be the same, as will be the proportion of benefits that an employer will pay in taxes. This is true until the employer reaches the number of layoffs corresponding to the maximum tax rate in the state experience-rating schedule (the experience level at which the tax rate stops going up). At this point, the EMTC becomes zero, and the proportion of benefits paid in UI taxes drops sharply with each additional layoff. Table 4 illustrates this situation for both California and Maryland, using calculations for the hypothetical employer described earlier.

Table 4. Employer Marginal Tax Cost (EMTC) over a varying number of layoffs for a hypothetical employer, California and Maryland, 2018

Number of layoffs	California			Maryland		
	EMTC	Total tax cost	Total tax increase as a percentage of benefits	EMTC	Total tax cost	Total tax increase as a percentage of benefits
1	$156	$156	27	$216	$216	33
2	156	311	27	216	432	33
3	156	467	27	216	559	33
4	156	622	27	0	559	22
5	156	778	27	0	559	17
6	0	835	24	0	559	14
7	0	835	21	0	559	12
8	0	835	18	0	559	11
9	0	835	16	0	559	10

Note: Calculations are based on a hypothetical employer with 10 employees and $450,000 total payroll.

Sources: State of California Employment Development Department, Maryland Department of Labor, and author's calculations.

In California, the hypothetical employer would pay, in the following year, an additional UI tax of $156 per employee for each layoff—or about 27 percent of the benefits paid to the laid-off UI recipients. This value would be the same up to the sixth layoff, at which point the EMTC would go down to zero and the proportion of benefits paid would start to drop with each successive layoff. In Maryland, the hypothetical employer would reach the maximum tax rate after three layoffs, at which point the EMTC would again go down to zero. This pattern occurs in every state, albeit with a changing point at which the employer reaches the maximum tax rate.

Two additional features of the EMTC results are of special note. First, EMTC values would be similar regardless of employer size. For example, any employer having the same proportionate level of wages in the same state—and laying off the same proportionate number of employees in that state—would have the same EMTC value. Second,

because EMTC values are sensitive to the tax schedule in effect, as well as the level of benefits paid, they would vary from year to year with changes in a state's minimum and maximum tax rates and level of benefits paid.

Maximum number of layoffs before reaching a state's maximum tax rate

As just discussed, each state's UI tax schedule has a maximum experience-rating limit at which the maximum tax rate is reached. Layoffs beyond this limit, at which the EMTC goes down to zero, would lead to no further change in an employer's UI tax rate.

Calculating the number of layoffs an employer can make before reaching a state's maximum tax rate proceeds as follows. First, the maximum experience rate in the state table (benefit ratio or reserve ratio) is multiplied by the employer's taxable wages, yielding the maximum experience-rating value this employer would have to attain in order to reach the maximum tax rate. This product is then divided by the state's average benefits per claimant, to arrive at the number of layoffs needed before the employer reaches the maximum experience level. In reality, this value would represent the number of layoffs needed if an employer was at the minimum tax rate in one year and then incurred the maximum tax rate in the next year. In states with higher layoff limits, employers would continue to be taxed for each successive layoff, whereas in states with lower layoff limits, employers would reach the limit with much fewer layoffs.

Focusing on Maryland and the hypothetical employer introduced earlier, this calculation would start by computing the total benefits needed to reach the maximum experience-rating (benefit-ratio) level. This involves multiplying the maximum experience-rating level for Maryland (19.74 percent) by the employer's taxable wages ($85,000), which yields a required benefit amount of $16,779.[28] Dividing this amount by the average benefit paid per claimant in Maryland ($5,254) results in just over three layoffs. This value suggests that the hypothetical employer would have to lay off four employees, or 40 percent of its workforce, in order to reach the maximum tax rate in next year's tax schedule. Table 5 presents the results of this calculation for each state.

Table 5. Number of layoffs needed to reach maximum tax rate, hypothetical employer, by state, 2018

State	Layoffs needed to reach maximum tax rate	Maximum total tax cost per employee
Alabama	6	$576
Arkansas	3	303
Arizona	6	521
California	6	835
Colorado	10	1,564
Connecticut	5	810
District of Columbia	4	485
Delaware	9	1,353
Florida	5	378
Georgia	10	643
Hawaii	10	2,047
Iowa	10	1,054
Idaho	10	947
Illinois	6	1,089

See footnotes at end of table.

Table 5. Number of layoffs needed to reach maximum tax rate, hypothetical employer, by state, 2018

State	Layoffs needed to reach maximum tax rate	Maximum total tax cost per employee
Indiana	3	277
Kansas	10	1,117
Kentucky	4	493
Louisiana	9	793
Massachusetts	7	1,363
Maryland	4	559
Maine	7	683
Michigan	4	405
Minnesota	10	1,839
Missouri	10	829
Mississippi	9	756
Montana	10	1,418
North Carolina	9	559
North Dakota	10	1,738
Nebraska	6	494
New Hampshire	10	1,099
New Jersey	10	2,158
New Mexico	9	1,549
Nevada	10	1,341
New York	8	1,045
Ohio	8	919
Oklahoma	10	1,760
Oregon	10	1,924
Pennsylvania	6	1,080
Puerto Rico	8	438
Rhode Island	10	1,427
South Carolina	10	1,007
South Dakota	4	371
Tennessee	7	464
Texas	4	743
Utah	10	1,236
Virginia	3	400
Virgin Islands	6	700
Vermont	10	1,355
Washington	10	1,855
Wisconsin	9	846
West Virginia	6	657
Wyoming	10	1,985

Note: Calculations are based on a hypothetical employer with 10 employees and $450,000 total payroll. The District of Columbia, Puerto Rico, and the U.S. Virgin Islands are considered states for all Unemployment Insurance purposes.

Sources: U.S. Department of Labor and author's calculations.

The table shows that, for many states, the number of layoffs the hypothetical employer would have to make in order to reach the maximum tax rate is quite large. In fact, for 21 states, reaching that maximum would require that the employer lay off all of its workers. On average, across the United States, the employer would have to lay off just over seven of its employees (70 percent) in order to reach the maximum. Therefore, in most states, it is quite

difficult for an employer to move from the low to high end of a state's tax schedule in just 1 year. Even for employers that do reach the maximum tax rate, the amount of added tax (last column in table 5) is considerably smaller than the amount of benefits that would have been paid to the number of laid-off employees needed to reach the maximum tax rate.

The results of this calculation hold up for employers of different sizes. This means that, for each state, the proportion of layoffs that would subject an employer to the maximum tax rate is the same regardless of firm size.

Conclusion

The methodology presented here can help individual employers estimate their marginal and maximum UI tax costs. In addition, it can be used to evaluate differences in the responsiveness of state UI tax rates to employer layoffs. Most interestingly, the present analysis suggests that the application of experience-rating formulas to UI taxes, while commonly seen as providing a significant tax incentive for limiting the number of layoffs, is actually structured to limit the impact of layoffs on an employer's tax rate (both in terms of marginal tax costs and with respect to the number of layoffs needed to reach the maximum tax rate in a state's tax schedule). This conclusion appears borne out in the results of the analysis and in the experience-rating formulas themselves. Because the benefits assigned to employer experience-rating formulas in any given year are averaged either over the previous 3 years (in the benefit-ratio formula) or over all other years (in the reserve-ratio formula), the impact of changing experience levels is considerably mitigated.

It is now possible to reasonably respond to the question of what will happen to an employer's UI tax rate after a layoff. For 2018, the employer's total tax amount in the next year would most likely go up by about 29 percent of the benefits paid to the laid-off employee.

SUGGESTED CITATION

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NOTES

1 The Unemployment Insurance (UI) program was established by the Social Security Act of 1935 and the Federal Unemployment Tax Act of 1939.

2 Federal Unemployment Tax Act, 26 U.S.C. § 3303(a)(1). Eligible employers in a state are those subject to the state's UI tax laws, except "reimbursable" employers, which include local, state, and federal government employers and nonprofit employers.

3 *Comparison of state Unemployment Insurance laws: 2018* (U.S. Department of Labor, 2018), https://oui.doleta.gov/unemploy/comparison/2010-2019/comparison2018.asp. Two other experience-rating methods exist, but only in three states: the payroll-decline method (Alaska) and the benefit-wage method (Delaware and Oklahoma). See also *Tax measures report: 2018* (U.S. Department of Labor, March 2019), https://oui.doleta.gov/unemploy/pdf/sigmeasures/sigmeasuitaxsys18.pdf.

4 The term "assigned back" refers to the process of adding benefits paid to laid-off claimants to the experience-rating formulations of "responsible" employers.

5 Martin S. Feldstein, "The effects of Unemployment Insurance on temporary layoff unemployment," *American Economic Review*, vol. 68, no. 5, December 1978, pp. 834–846; Robert H. Topel, "Experience rating of Unemployment Insurance and the incidence of unemployment," *Journal of Law and Economics*, vol. 27, no. 1, April 1984, pp. 61–90; David Card and Phillip B. Levine, "Unemployment Insurance taxes and the cyclical and seasonal properties of unemployment," *Journal of Public Economics*, vol. 53,

no. 1, January 1994, pp. 1–29; and Patricia M. Anderson and Bruce D. Meyer, "The effects of Unemployment Insurance taxes and benefits on layoffs using firm and individual data," Working Paper 4960 (Cambridge, MA: National Bureau of Economic Research, December 1994).

6 Topel, "Experience rating of Unemployment Insurance and the incidence of unemployment"; Card and Levine, "Unemployment Insurance taxes and the cyclical and seasonal properties of unemployment"; and Anderson and Meyer, "The effects of Unemployment Insurance taxes and benefits on layoffs using firm and individual data."

7 Anderson and Meyer, "The effects of Unemployment Insurance taxes and benefits on layoffs using firm and individual data."

8 The results are considered applicable to "temporary" layoffs because employers may rehire a UI claimant, which would affect their UI tax rate.

9 The ERI did not account for the fact that a number of states actually experience-rated their social costs, either by including these costs back into the experience-rating formulation of each employer or by assigning a varying percentage of the total annualized social costs on the basis of experience rating. See "Advisory: Unemployment Insurance program letter no. 4-06" (U.S. Department of Labor, November 8, 2005), https://wdr.doleta.gov/directives/attach/UIPL04-06.pdf.

10 Total benefits are derived by multiplying the number of layoffs by the average benefits paid per layoff in a state. See "UI data summary report," *Unemployment Insurance Data* (U.S. Department of Labor), https://oui.doleta.gov/unemploy/content/data.asp.

11 The "slope" of each state's tax schedule is derived by dividing the difference between the maximum and minimum experience-rating intervals by the number of intervals.

12 The average tax amount is estimated by dividing the difference between the maximum and minimum tax rates by the number of intervals.

13 It is assumed that all benefits will be assigned to the employer's experience-rating formulation and that layoffs will be assigned the average benefit amount for a layoff in the state.

14 "UI data summary report."

15 Ibid.

16 A reserve balance is not included in the benefit-ratio experience-rating methodology.

17 "UI data summary report."

18 The calculated EMTC is not considered valid for employers at the minimum tax rate in states using reserve-ratio experience rating, because these employers may have large reserve balances in their existing reserve-ratio formulations.

19 Information for this dataset is collected from the ES-204 report (section C) submitted to the U.S. Department of Labor from 2001 to 2017. The data consist of groups of employers. (See ETA-204 report, https://oui.doleta.gov/unemploy/DataDownloads.asp.)

20 A value (between 0 and 8 percent) was derived for each reserve-ratio state from the average reserve balance over the 2015–17 period.

21 U.S. Department of Labor ETA-5159 report for calendar year 2018.

22 *Comparison of state Unemployment Insurance laws: 2018*.

23 Calculated by dividing 7.62 percent by the change per interval (1.09 percent) multiplied by 3 (7.62 percent ÷ (1.09 × 3) = 2.32). The multiplication by 3 accounts for the inclusion of 3 years of benefits in the Maryland benefit-ratio experience-rating formula.

24 The tax amount per percentage-point benefit-ratio interval is calculated as the difference between the maximum tax amount per employee (7.5 percent × wage base of $8,500) and the minimum tax amount per employee (0.3 percent × wage base of $8,500) divided by the maximum experience-rating interval (6.58 percent).

25 *Comparison of state Unemployment Insurance laws: 2018*.

26 The average percent change per interval is adjusted by the calculated value of the average reserve ratio found in the state distribution. The average dollar change in the tax rate per interval is calculated as the difference between the maximum tax amount per employee (6.2 percent × wage base of $7,000) and the minimum tax amount per employee (1.5 percent × wage base of $7,000) divided by the number of experience rating intervals (38).

27 Formally, it would be expected that the EMTC would remain steady for 3 years in benefit-ratio states and for a longer period (albeit with slightly diminishing yearly amounts) in reserve-ratio states. A total EMTC amount is not calculated because of assumptions made primarily for the reserve-ratio formula.

28 The maximum experience-rating level is calculated by multiplying the maximum experience rate by 3 (6.58 percent × 3 = 19.74 percent). The multiplication accounts for the inclusion of 3 years of benefits in the benefit-ratio experience-rating formula.

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