The Revenue and Distributional Impacts of Unemployment Insurance Reform: Evidence from California

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May 2026

Abstract

In the United States, unemployment insurance (UI) is funded through employer-side payroll taxes that are experience-rated based on previous UI benefits paid. States differ significantly with respect to the financing of their programs, and a majority of state programs do not currently meet minimum UI trust fund solvency standards. A common culprit in the least solvent states is a very low tax base of earnings on which UI taxes are levied. We focus on California, the least solvent of the 50 state UI programs, and which has the lowest base of taxable earnings at $7000 per year. We use matched employer-employee administrative data to estimate the impact of financing reforms to California's UI system. We find that raising the taxable earnings base would replenish the state's UI trust fund and would increase experience rating by reducing the number of systematically subsidized firms. While this improves the worker-level equity of the UI tax system, it would worsen employer-level equity by imposing much larger percentage increases in tax costs on the firms with the fewest layoffs. Alternatively, matching the higher tax base with both higher maximum and lower minimum rates could improve both experience rating and employer equity: such a system would for example reduce the share of UI benefits systematically not experience-rated by 80 percent.

Acknowledgements: We thank Mia Stockton and Wendy Yin for outstanding research assistance, and Preeti Hehmeyer, Trang Le, and Geoff Schnorr for help accessing the California EDD data. All errors are our own.

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1 Introduction

Unemployment insurance (UI), which provides weekly benefits for unemployed workers, plays an important role in the safety net as one of the largest social insurance programs in the United States. The importance of UI was highlighted during the Covid-19 recession, with more than 21 million workers receiving benefits at the height of the recession in May 2020. In the United States, UI is funded by a dedicated payroll tax that is paid by employers. Since its inception by the Social Security Act of 1935, it has been a federally mandated benefit that has been administered at the state level. All employers with at least one stable employee or with an annual payroll of $1500 or more must contribute payroll taxes towards UI.

There is a large and influential literature exploring the effects of UI benefit generosity on worker behavior (Feldstein and Poterba, 1984; Meyer, 1990; Katz and Meyer, 1990; Card et al, 2015). This literature highlights a clear protection-distortion tradeoff – more generous UI cushions the effects of job loss on consumption (Gruber, 1997) but reduces the worker's incentive to find a job (Marinescu and Skandalis, 2021). Optimal policy strives to balance the two, yet there is substantial variation across states with respect to the generosity of UI benefits.

UI payroll taxes are partially experience-rated, such that employers whose workers claim more UI benefits have higher future taxes than otherwise similar employers.[1] Experience rating creates an analogous protection-distortion tradeoff in a world of imperfect capital markets. Increasing taxes on firms that are viable in the long run but are suffering short run shocks can lead to excessive firm closures, but protecting firms from the consequences of their layoffs can lead to

[1]Note that we define perfect experience rating as a system where each layoff translates in the next period into equivalent tax increases. Existing systems are only partially experience rated both because payback is delayed, and because the link between layoffs and taxes is not one-to-one.

persistent subsidies to inefficient firms and excessive layoffs (Feldstein, 1976; Topel, 1983). Interestingly, the U.S. is the only industrialized country that experience rates employers' UI taxes.

A prevailing issue with the UI financing system is revenue shortfalls, particularly when benefit outlays increase during recessionary times. Perhaps the best example of this problem is the state of California. Figure 1 shows the UI trust fund balance for the state of California over the past few decades. Balances are cyclical, typically falling during and immediately after each recession and replenishing during the recovery. While the state was previously able to slowly replenish its reserves after recessions, in the two most recent recessions the state's UI trust fund became insolvent and required substantial loans from the federal government. And even a few years after the most recent recession, California's UI program remains in deficit, and the outstanding debt has increased despite improving economic conditions, from $17.7 billion at the end of 2020 to $21.4 billion at the end of 2025.[2]

California is an extreme example, as it is the only state in the nation whose trust fund is still in debt to the federal government, but the problem of insufficient funding is widespread. As of January 1, 2026, 32 states plus Washington, D.C. do not meet the standard for trust fund solvency defined by the U.S. Department of Labor.[3] This is partly because of the large system deficits that arose out of the Covid crisis, but even back in 2019 – nearly a decade after the Great Recession – 23 states did not meet that standard. In 2020, a total of 22 states depleted their UI trust funds and needed to borrow from the federal government in order to pay out unemployment

[2] Because Covid-related claims were forgiven during the pandemic, even surviving firms are no longer "on the hook" for repaying the incurred debt. To collect on this debt, the federal government imposes increasing surcharges on California employers until the outstanding debt is repaid. California's surcharge in 2026 is equal to 1.5% on the first $7000 of earnings per worker and will grow by 0.3% each year the debt remains outstanding.

[3] The Department of Labor uses the Average High Cost Multiple (AHCM) as a benchmark for trust fund solvency, which compares the state's current trust fund balance (divided by total annual wages), to the average of the three highest benefit cost rates in the last twenty years. Minimum solvency standards require an AHCM ratio greater than or equal to 1 (U.S. Department of Labor, 2026).

benefits (U.S. Department of Labor, 2021). In subsequent years, most of these states have paid off their loans using a combination of CARES (Coronavirus Aid, Relief, and Economic Security) Act and ARPA (American Rescue Plan Act) funding, general appropriations, and bonds, such that currently only California still has outstanding UI debt to the federal government.

The states that are furthest from this fiscal standard share a common feature: relatively low UI tax bases, that are not automatically indexed to match wage growth.[4] As of 2024 four states – Arkansas, California, Florida, and Tennessee – only tax the first $7000 of each worker's annual earnings, which is the minimum federally allowable UI tax base, while an additional 14 states have maximum annual taxable earnings at or below $10,000 annually. In contrast, UI tax bases are significantly higher in indexing states such as Washington ($68,500), Hawaii ($59,100), and Idaho ($53,500). In recent work, Lachowska et al (2020) show that states that indexed their UI tax bases had much higher UI trust fund reserves going into the Covid-19 pandemic.

While it is obvious that all else equal a higher UI tax base would help to address trust fund shortfalls and finance UI benefit increases by increasing revenues, raising the base also has a broad and complex set of implications for the nature of UI financing; it changes the degree of experience rating, vertical equity across employees, and horizontal equity across firms. These impacts may or may not be desirable either economically or politically. To our knowledge, no previous analysis has used large-scale administrative data to rigorously explore the impact of changing the UI tax base on the nature of system financing and the distribution of UI costs. In this paper we do so for California – the nation's most populous state and the one with the most insolvent UI program.

To carry out a full distributional analysis of the effect of changing UI financing parameters, we develop a simulation model for California's UI program. We use data from 2014 to 2019, a

[4] There are 32 states (plus Washington, D.C.) that do not index their taxable earnings base.

period of declining unemployment prior to the pandemic-induced recession, to model firm UI benefit charges. We then apply our simulation model to the distribution of firms in 2019, the last full year before the Covid-19 pandemic, when firms' pandemic-related layoffs were no longer experience rated. While our model will focus only on California, there are important lessons for other states with systematically low tax bases and that do not meet minimum solvency standards such as New York ($12,500) and Texas ($9,000).

We document several important and policy-relevant findings. First, simulating the status quo shows that California's UI system is not even solvent under non-recessionary conditions, and therefore cannot build up reserves to weather another recession. To prevent further insolvency would require raising the base of taxable earnings. Under our simulation model, doubling the tax base from $7,000 to $14,000 per worker raises an incremental $26 billion over the next decade; gradually tripling it to $21,000 raises an additional $17 billion.

Second, a reform that solely raises the tax base increases experience rating significantly in the near term, but by much less in the long run. A tax base increase lowers the number of firms persistently at California's maximum UI tax rate of 6.2 percent, as they pay back their past accumulated UI benefit charges at a faster rate. Eventually, however, firms begin to bunch at California's minimum UI tax rate of 1.5 percent as they build up larger and larger UI reserves. These firms also face imperfect experience rating; with enough reserves built up that they face no marginal tax increase from additional UI benefit charges unless they experience a mass layoff.

Third, raising the tax base will increase worker-level equity by raising effective tax rates on workers higher up the income distribution, as workers earning below the new taxable threshold are partially shielded from such tax increases. This has the additional desirable property of strengthening the connection between UI taxes paid and UI benefits received. Presently, an employer in California pays the same UI tax for a worker earning $8,000 annually as for a worker earning $40,000 annually. But if both of those workers are laid off, the latter worker will receive a UI benefit that is five times greater, while costing the employer five times as much in terms of future UI taxes. Of course, the ultimate impact of an increase in the taxable wage base on worker equity will partially depend on how firms react to tax base increases in terms of wage setting and employment decisions, along with any corresponding effect on UI claiming. While this paper does not fully estimate such behavioral responses, we use our administrative data and leverage a kink in the UI tax schedule to provide empirical evidence regarding the impact of employer-specific UI taxes on employment, taxable earnings, and firm exit.

Fourth, there is a decrease in employer-level equity in the revenues raised from a base increase. The firms with the lowest benefit charges would see the largest proportional rise in their taxes following an increase in the tax base, because California's nonzero minimum UI tax rate prevents these firms from receiving a further tax rate decrease even after UI charges have been paid off.

To address these issues, we consider alternative reforms that pair a tax base increase with additional changes to the UI tax schedule. We find that a financing system that pairs a base increase with both a simultaneous rise in the maximum rate along with a decline in the minimum rate further promotes experience rating and equity across firms, while having minimal impact on the worker-level equity benefits of raising the base.

Our paper proceeds as follows. Section 2 provides a background discussion of UI financing and discusses the relevant previous literature. Section 3 describes our novel employer-employee matched data, while Section 4 discusses our simulation model. Section 5 presents our baseline results on the implications of UI tax reforms. Section 6 estimates the potential for behavioral responses, and Section 7 concludes.

2 Institutional Background and Literature Review

Unemployment insurance in the United States is administered at the state level and funded through employer-side payroll taxes that are updated annually. States are free to determine their own experience-rated tax formulas and taxable wage bases, as long as they meet federal requirements. One such federal mandate, the minimum size of the annual taxable wage base, is currently set at only $7,000, which has not been updated since 1982. As a result, there is even greater variation in state tax bases than the current variation in state UI benefit generosity. In 2024, taxable wage bases ranged from a minimum of $7,000 annually (in California, Florida, and Tennessee), to a maximum of $68,500 in Washington. In contrast, the highest weekly maximum UI benefit of $1,079 in Washington is only 4.6 times the lowest maximum of $235 in Mississippi (U.S. Department of Labor, 2024).

All states assign experience-rated employer-specific tax rates that are an increasing function of previous UI benefits charged to the employer. In California, as well as 28 other states, tax rates in the next calendar year are determined by the employer's Reserve Ratio (RR), which is calculated by dividing each employer's current UI reserves by their average taxable payroll over the past three years (EDD, 2024). The numerator, past UI tax contributions minus past UI benefit charges, is essentially equivalent to keeping employer-specific UI savings accounts. However, employers that currently have equal reserves and payroll may still be subject to different tax rates because the denominator factors in recent changes in taxable payroll. For example, a firm that was much larger three years ago than it is today would have a larger denominator, and thus a lower reserve ratio, than a similarly sized firm whose employment has been stable.

The Reserve Ratio (RR) formula is as shown in the following equation:

$$ReserveRatio_{it} = \frac{Reserves_{i,t-1} + Contributions_{it} - Charges_{it}}{\frac{TaxablePay_{i,t-2} + TaxablePay_{i,t-1} + TaxablePay_{it}}{3}}$$

An employer *i*'s reserves in year *t-1* are simply equal to the difference between the sum of all the previous UI tax contributions and all the previous UI benefits charged to them up until year *t*.

Reserve ratios are converted into employer-specific UI tax rates according to a preset schedule. As a firm's reserves increase relative to taxable payroll, its UI tax rate decreases. Figure 2 depicts the tax schedule California uses to convert employer reserve ratios into UI tax rates. The minimum tax rate of 1.5% is assigned to employers with ratios of more than 20%, while the maximum tax rate of 6.2% is assigned to employers with ratios below zero. The rate declines almost linearly between these two extremes, so that (for example) an employer with a ratio of 10% has a tax rate of 3.85%. To prevent employers from accumulating an insurmountably negative balance, the lowest possible reserve ratio is -21%. Any accumulated benefit charges beyond this point are ignored.

In terms of UI financing, the main levers of adjustment are: taxable earnings (called the taxable wage base), the minimum tax rate, the maximum tax rate, and the slope of the tax schedule. An additional important factor is whether states choose to use a RR or Benefit Ratio (BR) formula to calculate experience rating. While not within the scope of this paper, a BR formula would allow "forgiveness" of past UI benefit charges since a firm that paid back only a portion of the cost of its recent UI charges by the end of the state's payback period (typically 3 or 5 years) would be forgiven from its remaining debt. Forgiveness is not typically a possibility in RR states unless the employer goes out of business or reaches the lowest allowable reserve ratio, although California and many other states forgave employers for UI benefits paid to their past workers during and for many months after the pandemic-induced recession.

The current structure of the UI system leads to imperfect experience rating, whereby a firm's UI contributions do not correspond dollar-for-dollar to their UI benefit charges, through three mechanisms. The first is a taxable wage base that is small relative to the typical benefits that workers receive when unemployed. With a low taxable wage base, it takes significantly longer for firms to repay the system for the benefits paid to their workers. The second is a maximum rate that protects firms – at least in the short term – from the financial consequences of additional layoffs once at the maximum. Furthermore, an employer with a reserve ratio near -21% is completely shielded from the consequences of additional layoffs. The third is a minimum rate which does not impose marginal costs of layoff for firms without much past layoff history once they achieve a reserve ratio that is beyond the kink point in the tax schedule where experience rating begins.

A large branch of the previous literature emphasizes that the structure of unemployment insurance financing, rather than benefit generosity alone, impacts program solvency and equity. Topel (1990), Levine (1997), and Baicker et al. (1998) document the historical implementation of experience rating, and the ways that financing rules shape employer incentives. Miller et al. (1997) shows that when taxable wages are not indexed to actual wages, the taxable share of payroll erodes, weakening funding of the UI system; Duggan et al (2022) revisits this argument with more recent data. Lachowska et al (2020) and Guo and Johnston (2021) provide more recent summaries, while a series of earlier academic papers and government reports showed that longstanding choices, especially low or non-indexed tax bases, have heightened insolvency risk (Becker, 1972, 1981; Barnow and Vroman, 1987; U.S. GAO, 1988; U.S. GAO, 2010; Vroman, 1998; Smith and Wenger, 2003).

Another branch of literature quantifies the effects of experience rating on firms and their workers.[5] Feldstein (1978), Topel (1983), and Card and Levine (1994) show that higher implicit UI subsidies lead to systematically higher layoff rates. Anderson and Meyer (1993a, 1993b, 1997) document that experience rating is highly imperfect and that certain industries persistently pay much less in UI taxes than their laid-off workers receive in benefits. And Lachowska et al (2025) shows that employer behavior in response to experience rating shapes which workers eventually receive benefits. Determining the optimal degree of experience rating is challenging and beyond the scope of this paper, but we provide evidence on how changes to the UI taxable wage base influence experience rating itself.

3 Data and Descriptives

In this paper, we combine de-identified employer- and worker-level data from California's Employment Development Department (EDD). For the universe of private-sector employers, we observe quarterly employment in the state of California from 2014:Q1 to 2023:Q2, as well as each employer's California UI tax contributions, employer-specific reserve ratios (which determine employer-level UI tax rates), and NAICS industry code. The data only includes information about an employer's California-based workforce. To the extent that a firm employs workers in other states or outside the U.S., this is not captured by our data. We match this employer-level data to quarterly job-level earnings for all workers covered by the UI system.[6] We do not, however, have any data on individual UI claims nor any worker demographic information.

[5] Additional studies include: Tannenwald et al., (1999), Ratner (2013), Miller and Pavosevich (2019), Spaziani (2026).

[6] Because the employer-level and worker-level datasets are sourced from two different reporting forms, there is some degree of misreporting. In any given year approximately 97% of firms' total wages match within 1% of the sum of worker-level wages (and 99% match within 10%). Thus, we always use worker-level earnings to calculate measures of earnings and tax contributions.

Table 1 provides summary statistics for the employer-level (Panel A) and job-level datasets (Panel B) in 2019. We exclude single-employee firms and any employers that are not eligible for regular experience-rating.[7] Table 1 also provides a comparison of firms operating in 2019 that are included in our simulation sample versus firms operating in that year that are excluded. The two main groups of excluded firms are: firms who entered later than 2018:Q2, and firms who exited before 2020:Q1. This is because new firms do not have observable benefit charges that we can use in our simulation, and exiting firms would no longer have positive employment. Existing firms that did not report employment in the first two quarters of 2019 are also excluded. We discuss the limitations arising from excluding new entrants and exiters in Section 5.6.

As Panel A shows, California had approximately 800,000 experience-rated employers in 2019, with their maximum monthly employment averaging 20 workers.[8] Due to excluding new entrants and exiters, employers in our simulation sample are larger on average. Because of the low UI tax base of $7,000, average taxable earnings are substantially lower than average total earnings. On average, only 13% of workers' earnings are taxable under UI. Additionally, more than half of all jobs were held by a worker with more than one experience-rated job during 2019, illustrating an important benefit of our data that allows us to link workers who either switch employers or who work for multiple employers simultaneously.

The fact that taxable wages are calculated at the employer rather than worker level implies that, conditional on total earnings, multiple job holders often face larger tax costs than single job holders with the same total earnings. For example, as a result of California's low $7,000 annual

[7] These include federal/state/local government employers, as well as some hospitals and nonprofit organizations. Single-employee firms are flagged as employers that are never observed to have employment greater than 1. Taken together, these excluded categories make up 9% of reported employment in the state.

[8] Because employment is separately reported for each month in the quarter, we take the maximum over the three months in each quarter as our measure of firm employment.

tax base, UI taxes would be twice as high for someone earning $10,000 annually from employer A and $10,000 annually from employer B versus a similar worker earning $20,000 annually from just one of these two employers. Appendix Figure A.3 summarizes the distribution of worker-level earnings in 2019, distinguishing between single and multiple job holders. Among single and multiple job holders the share earning less than $21,000 is roughly 36 and 42 percent, respectively, and the respective shares earning less than $7,000 are 19 and 14.5 percent.

Before proceeding to our analyses, we compare California's labor force statistics to those from the rest of the nation using data from the American Community Survey (Table 2). In terms of demographics, California has a lower White share, lower Black share, and higher Hispanic and Asian shares than the rest of the United States. Weekly earnings are also about 20 percent higher in California, though this is partially offset by the substantially higher price level in California relative to the rest of the U.S.[9] In terms of industry composition, California has a larger share of employment in Agriculture, which is also the industry that utilizes the highest rates of UI benefits within California. California also has higher shares of white-collar sectors such as Information (this includes both technology firms such as those in Silicon Valley and the Film/Music industry) and Professional/Scientific/Technical Services, and relatively less in Manufacturing.

Even though average weekly earnings are 20 percent higher in California than in the U.S. overall, its $450 maximum weekly benefit in 2019 is just below the average across all 50 states and Washington, D.C. at $452. On the financing side, California's UI taxable wage base is equal to the minimum allowable $7,000, which is only 38 percent of the national average of $18,500. Appendix Figure A.1 illustrates that with an annual tax base of just $7,000, the industry sectors with the highest effective tax rates (relative to total wages) are not always the ones with the highest

[9] The average price level in California was 12.5 percent higher in 2022 than in the U.S. overall (BEA, 2023)

statutory tax rates (relative to taxable wages). A variety of industries with many low-income workers, such as agriculture and food/hospitality, have effective rates that are only 20-30 percent below their statutory rates. In contrast, higher earning industries have a much larger gap. For example, in the information sector, the statutory rate of 4.4% is more than four times the effective rate of 1.0% given that industry's much higher average earnings.

Figure 3 shows the distribution of employer tax rates in each year over the 2014-2022 period, weighted by employment. Due to low taxable earnings and a maximum tax rate of only 6.2%, a significant share of California's employers are persistently stuck at the maximum tax rate. From 2014 to 2019, as California's unemployment rate fell from 8 percent to 4 percent, the share of employees working for employers at the maximum tax rate declined by almost half. However, of the employers that survived from 2014-2019, 10 percent of them (19% of employment) were at the maximum rate every one of these six years. As a result, these firms face zero marginal tax costs for additional layoffs, as they continue to pay the same maximum tax of $434 per worker (6.2% * $7000), regardless of their layoff trajectory. Layoffs do, however, further reduce the reserve ratio for these firms, meaning that it would take them longer to pay back their accumulated UI debt and achieve a positive reserve ratio (although firms cannot fall below a reserve ratio of -21%).

4 Simulation Model

In the fourth quarter of every year, California uses the RR formula to calculate employer tax rates for the following year. Simulating a significant policy change such as a tax base increase requires dynamic modeling, because an increase in the taxable wage base will mechanically increase the denominator of each firm's reserve ratio, with this effect growing over the subsequent three years. In other words, each firm with a positive reserve ratio will see their reserve ratio gradually fall (and their tax rate rise as a result) in the three years following a base increase, because an employer's taxable payroll automatically increases even if there is no change in its actual payroll. This leads to a mechanical *increase* in tax rates (among employers with a positive reserve ratio) following a base increase, even if both payroll and employment are held fixed.

Therefore, to simulate the steady-state employer tax distribution after a base increase, it is necessary to model how firm reserve ratios evolve for multiple years after the initial change. To do so, we need to make assumptions about how both taxable wages and UI benefits evolve over time. For simplicity, we fix each employer's payroll at its 2019 levels. This is the most crucial assumption in our model, since after assuming a fixed level of payroll, we no longer need to model employment growth or decline. Taxable earnings in every year can then be directly calculated from observed 2019 payroll and the statutory base increase.

To the extent that employers hire fewer workers or reduce wages in response to the tax change, this would lead to less tax revenue than our model predicts. The impact of any such response would, however, be modest. Consider our proposal to double the tax base from $7,000 to $14,000, which would mechanically raise annual taxable earnings from $121b to $214b, and raise an additional $3.9b in the first year of our simulation model (average tax rate of 4.2%). If there was full pass-through to workers in the form of lower wages, we would expect total payroll to fall by $3.9 billion, but this would not perfectly translate into lower UI tax revenue, because taxable payroll is significantly less than total payroll. Even if we assume taxable payroll also declined by the full $3.9 billion, this would only cause UI revenues to be 2 percent (3.9/214) lower than our simulation model predicts.

Our simulation approach also does not model any entry of new employers or exit of existing employers. This assumption is not very binding for firm entry: a revision in the tax base could be bundled with a corresponding reduction in the new employer tax rate such that average per-worker UI taxes are unchanged. But for the exit margin, it is possible that greater front-loading of UI taxes for high-layoff firms would cause more of them to exit. This would lead our model to overstate the incremental revenues from a tax base increase, which we recognize is a limitation of our model that we discuss further below. We do, however, model the possibility of large exogenous shocks, by randomly assigning one percent of the firm population the maximum benefit charge ratio in every year. Because of the temporary nature, employers are actually able to pay back the benefits they utilized and these shocks do not have a significant impact on net revenues.

Although we fix payroll in our simulation, we do allow for a stochastic evolution of UI benefit charges, discussed in greater detail in Appendix A.II. First, we infer employer-level benefit charges using the panel aspect of our data, by "backing out" UI charges using the formula above along with observable UI taxes paid. We then use our inferred UI benefit charges to predict charges in the following year. This is done by fitting a nonlinear prediction model for each employer's 2019 UI benefit charge ratio, as a function of their 2018 ratio, deciles of the ratio (bin_i), and firm characteristics (fixed effects for industry, county, and firm size) as specified in the following equation:

$$ratio_{i,2019} = \sum_{n=1}^{10} \beta_n \, [bin_i = n] + \gamma \, ratio_{i,2018} + \mu_{i,2018} + \varepsilon_i$$

Once estimated, this model is used to predict Year 2 charges from 2019 benefit charges. Then the predicted Year 2 charges are used to predict Year 3 charges, and so on and so forth. The predicted UI charges are then substituted into the RR formula to calculate employer-specific tax rates in years 2-10 of our simulation. Additionally, we identify firms with very negative reserve ratios (about 3 percent of employers) and magnify their charge ratios to build in some persistence in layoff behavior.[10]

One final limitation of our model that is worth noting is that by freezing 2019 payroll, we assume no change to the overall macroeconomic environment or to relative economic performance by industry, firm size, and so forth. Of course, all of these are likely to change and thus our model's predictions about the effects of changes in the tax base and other UI policy levers will inevitably be either too optimistic or too conservative. But the virtue of our model is that it allows us to more accurately isolate the effect of UI policy levers on UI financing from the effects of other important drivers of the economic environment that are also changing over time.

In the wake of the Covid-19 pandemic, California forgave pandemic-related UI claims, such that UI benefits claimed by a firm's workers were no longer subtracted from their firm-specific reserve balance. This moved even more firms away from and strictly below the maximum rate, so that by 2022 only about 10 percent of employment faced the maximum tax. This stands in sharp contrast with previous recessions, when average employer UI tax rates tend to rise as many firms' reserve ratios decline (due to UI benefits exceeding UI taxes paid during the recession). We simulate the implications of this claim forgiveness policy by presenting results using the 2022 distribution in Appendix section A.III.

5 Results

5.1 Effect of Raising the Tax Base on Revenues and Tax Rates

[10] For firms that are far beyond the maximum tax rate (ie: are observed to have reserve ratios below -0.2 in 2019 and 2020), we shift their predicted benefit charge ratios up by an additional 0.05 each year (while still winsorizing at the maximum value of 0.15).

Net UI tax revenues under each policy simulation are summarized in Table 3. The first row of the table shows our projected net revenues (contributions minus benefit charges) with no policy change. Note that despite removing economic fluctuations by fixing the distribution of employment and UI charges at 2019 levels, our simulation of the baseline $7,000 tax base results in negative net revenues by Year 4. This is due primarily to firms persistently at the maximum tax rate, as the maximum caps the amount of taxes these firms pay (at $434 per worker) despite their accumulating benefit charges.

The second row of Table 3 shows the implications of doubling the tax base to $14,000; note that while this is a major change, it would only move California from being tied for last in the nation to about the median (24th) in the nation in terms of tax base size. Such a change raises UI tax revenues immediately and significantly. In the first year, net revenues rise from $1.3 billion to $5.2 billion. But the revenue gain that results from a larger tax base declines substantially over time because with the larger base, firms would shift down the tax rate schedule (to progressively lower tax rates) as they pay back their UI tax obligations more rapidly.

Figure 4 illustrates the evolution of tax rates in our simulation model, and is employment weighted so we refer to effects per employee and not per firm.[11] We begin in year 2 (the first year that tax rates adjust) with a distribution that features 18 percent of employment at that maximum rate, and 2.3 percent at the minimum, with a median rate of 3.1%. In the first few years after a base increase, the share of employees at the maximum rate declines quickly, and these firms are shifted towards the middle of the rate distribution. Likewise, the share of employees near the minimum also declines because expanding the tax base mechanically increases the denominator of the reserve ratio (and thus lowers the reserve ratio for positive balance firms). Over time, however, the

[11] The corresponding simulation for the baseline scenario (no base increase) is illustrated by Appendix Figure A.2. Under business as usual the distribution of tax rates barely falls over time, despite the absence of a recession.

distribution of employer tax rates shifts downwards. The share of employment at the minimum is falling until year 6, at which point it begins to grow rapidly, such that in year 8 and onwards the minimum rate becomes the modal rate. By the 10th year after the base increase, net revenues are only $0.5 billion, which is 90 percent lower than the net revenues in year 1 of the increase.

That said, along the way, the state would have made $26 billion in incremental revenues, which would move California's UI program much closer to achieving trust fund solvency. In terms of the Department of Labor's solvency benchmark, California would need to raise UI revenues equal to 1.83 percent of total payroll in order to achieve solvency. In our simulation sample this corresponds to a revenue target of $21.3 billion, which is achievable only if we ignore California's existing UI debt of $21.4 billion as of Dec 2025. We argue that it is not feasible for California to both achieve solvency and repay its current debt through an experience-rated UI tax system.[12] Instead the debt should be repaid using general revenues, as many other states such as Texas and New York have done.[13]

In the third row of Table 3, we show the impact of gradually tripling the tax base to $21,000 (from 10k in year 1, to 13k in year 2, to 17k in year 3, and to 21k in year 4 and beyond), which would still only place California 20th in the nation in the size of its tax base. Due to the gradual implementation of the base increase, net revenues in the first two years are actually lower than under the immediate 14k base increase. Therefore, gradually increasing the tax base over several years can help to smooth out the front-loaded tax burden on employers. Nevertheless, revenues

[12] We estimate that under the current FUTA surcharges that CA employers face, it will take until 2033 for the $21b UI debt to be repaid (accounting for 7% interest). However, funneling UI tax revenues from a base increase into debt repayment would prevent California from being able to build up enough reserves to weather a future recession.

[13] An additional tax that could help to repay the existing UI debt would be a flat surcharge on all employers to cover the forgiven pandemic-related claims. Unlike regular UI taxes, the contributions collected from a surcharge would not be counted towards a firm's UI reserves, and to reduce regressivity the tax base could be significantly greater than 7k. Given total annual payroll of $1.4 trillion in 2025, an uncapped one-time surcharge of 1.5% on all earnings would raise nearly enough revenue to cover the $21b debt.

will still begin to decline once the new base is fully phased in. Over a ten-year period, our model suggests that California would raise a total of $41 billion in net revenue, an additional $17 billion in incremental revenues beyond the $26 billion raised by the 14k base (since simulated net revenues are -$2b under the status quo). In Appendix Figure A.4, we once again show the evolution of the tax rate distribution, which is very similar in pattern with the increase to a 14k base. Due to the gradual transition and the larger steady state base increase, it takes slightly longer for employers to bunch at the minimum tax rate in this scenario than in the previous one.

5.2 Worker-level Equity

A key impact of expanding the taxable earnings base is an improvement in worker-level equity. Here we measure worker-level equity by the mean effective tax rate throughout the income distribution. A more equitable system for workers is one where, relative to the current system, the effective tax rates end up higher for higher earning workers relative to lower earning workers. As should be clear, by collecting revenues further up the distribution of earnings, a larger tax base will reduce the burden of tax payments borne by firms employing the lowest earning workers. Out of all California-based jobs in 2019 with earnings of $500 or more, 30 percent paid less than $7,000 in wages for the year, while 43 percent paid less than $14,000.

An additional impact stems from the fact that UI taxes are job-specific rather than worker-specific. Out of the 11.5 million jobs earning less than $14,000, three-quarters were held by workers with more than one job during the year. When a worker holds two low-earning jobs, they are subject to twice the amount of taxable earnings relative to a worker holding a single job. Figure 5 illustrates the impact of base increases on average UI taxes paid by total annual earnings, separately for single job holders and multiple job holders. For workers earnings less than $7,000 a year, there is virtually no change in tax cost from a base increase. This is because low-paying jobs are distributed relatively evenly along the tax schedule, as evidenced by the wide range of statutory rates for low-paying sectors depicted in Appendix Figure A.1.

As we progress up the earnings distribution this gap widens, and moreso for single job holders than multiple job holders. Single job holders earning between 14k and 21k per year face 2.5 times greater tax costs under a 21k base versus a 7k base ($606 versus $239), workers earning between 21k and 50k face almost 3 times greater tax costs ($741 versus $252), and those earning 50k or more face a 280 percent increase ($773 versus $278). Meanwhile, the relative increases are smaller for multiple job holders, because they were already facing higher taxes to begin with. Relative to single job holders, multiple job holders earning between 14k and 21k would pay $438 on average under a 7k base, and $651 under a 21k base (less than a 50 percent increase).

Thus, larger tax bases shift the tax burden further up in the income distribution.[14] This also meaningfully improves equity because the distribution of multiple job holders is skewed towards lower incomes. In our simulation sample, 36 percent of workers earning between 7k and 21k annually are multiple job holders, whereas the share of multiple job holders is only 19 percent for workers earning above 50k. These findings are consistent with Anderson and Meyer (2006), which simulates the revenue-neutral impact of raising the UI tax base to match the OASDI tax base.

5.3 Employer-level Equity

Another important consideration in changing the UI financing system is the impact on employer-level equity. There are many dimensions of employer-level equity one might consider,

[14] Note that we are measuring worker-level equity in terms of gross earnings, not the income net of benefits. Given that a tax base increase alone would not affect the benefit formula, potential UI benefits should be unaffected across the income distribution.

so here we focus on particular definition: the relationship between taxes paid and UI benefits paid out. A system where taxes rise proportionally with benefits is one that is equitable along this measure; a system where, for example, taxes remain flat as benefits increase would be inequitable. In a sense, if experience rating measures the marginal cost of the next layoff, employer-level equity measures the average cost of all layoffs.

Figure 6 ranks firms on the x-axis by their three-year average benefit charge ratios in years 1-3, to compare higher versus lower layoff firms. On the y-axis, we show the change in steady-state (year 5) tax revenues from raising the taxable earnings base from 7k to either 14k or 21k. The panels on the left graph the change in dollars per worker, while the panels on the right graph the change in proportional terms (a value of one represents a doubling of tax revenues, and a value of two represents a tripling). While firms with higher UI charges face larger tax increases in dollar terms, this is not the case in proportional terms. Doubling the tax base to 14k roughly doubles the taxes collected from firms with low charges, but as charges rise the proportional tax increase falls, before rising again somewhat for the highest layoff firms. Even for the highest layoff firms, the proportional increase in tax costs is lower than for the lowest layoff firms. This result is even more striking when increasing the tax base to 21k. In that case, revenues increase by almost 200% for low-layoff firms, but fall dramatically with layoff rates such that high-layoff firms see their tax costs rise by closer to 140%.

This is a striking finding, driven by the fact that a tax base increase compresses the distribution of employer tax rates towards the middle (as illustrated in Figure 4), such that firms with low levels of benefit charges will actually face a mechanical tax increase as they are forced to build up a larger reserve ratio. Meanwhile, the low maximum tax rate of 6.2% shields high-layoff firms from paying the full cost of their UI benefit charges.

5.4 Experience Rating

Another important implication of raising the tax base is what it does to the level of experience rating in the California UI system. While deriving optimal experience rating is beyond the scope of this paper, many have emphasized the particular problem of firms consistently subsidized by imperfect experience rating (e.g. Anderson and Meyer, 1993b). Simply comparing the mean employer-specific tax rate across policies does not reflect the degree of experience rating at the extremes of the UI tax schedule, where employers face zero marginal tax costs from layoffs (in the short run). Thus, we focus on two subgroups of employers – the firms "stuck" at either the maximum or minimum tax rate for 3 consecutive years or more – and we calculate the corresponding share of UI benefit charges these firms represent. As noted earlier, an imperfectly experience-rated system will subsidize firms that are systematically high-layoff while taxing firms that are systematically low-layoff. When firms that are persistently at the maximum tax rate generate a disproportionate share of UI benefit claims for the state, their layoffs are systematically being subsidized.

The first two columns of Table 4 report, for our baseline policy scenarios, the share of UI benefit charges generated by employers who were consecutively at the maximum or minimum tax rate in years 5-7 of our simulation (steady state). Under the baseline scenario with no base increase, 43% of UI benefit charges are generated by firms at the maximum rate (relative to only 17% of taxable payroll), while 1% of benefit charges are generated by firms at the minimum rate (3% of taxable payroll). That is, only 56% of benefits are charged to firms on the experience-rated "sloped" part of the tax schedule.

Doubling the tax base to 14k causes the proportion of UI benefits at the maximum rate to fall by more than one-third (from 43% to 28%), and induces a modest increase in the share of benefits that are experience-rated, from 56% to 73%. The low maximum tax rate of 6.2% still allows more than a quarter of UI benefit charges to be shielded from experience rating. This pattern is also robust to simulating UI benefits under the firm distribution from 2022, reported in Appendix Table A.3. Due to the forgiveness of claims during the pandemic, the baseline scenario results in a smaller share of benefits charged to firms at the maximum tax rate, and a larger share of benefits charged to those at the minimum. Nevertheless, doubling the tax base from 7k to 14k still increases the share of experience-rated benefit charges by a similar amount as in our 2019 simulation (from 68% to 85%).

In summary, raising the taxable wage base has the effect of reducing the share of firms that are persistently subsidized by the UI system, although without further adjustments to the tax schedule the changes are relatively modest.

5.5 Additional Reform: Adjust the Minimum & Maximum Rate

The limitations of the impact on experience rating, as well as the employer-level inequities, suggest that states such as California may want to consider complementary reforms to increasing the base of taxable earnings. We consider two additional adjustments to the tax schedule: raising the maximum tax rate and lowering the minimum tax rate.

The maximum rate of 6.2% in California is approximately the median (27^{th} out of 50 states); a 50% increase in the maximum rate to 9.3% would move California to the 9th highest state in terms of the maximum rate. Likewise, California currently has the highest minimum rate among all 50 states (only Washington, D.C.'s is higher), and a total of 13 states have a minimum rate of zero. When we model lowering the minimum tax rate, we also flatten the slope of the tax schedule itself in order for the policy to bind. This is because in the absence of a slope change, the mechanical increase in tax rates caused by the base increase would result in less than half a percent of employment being able to reach a tax rate of zero. The impact of alternative policy scenarios on total net revenues is summarized in Table A.1, which shows that lowering the minimum rate to zero has minimal effect on revenues without a simultaneous slope change.

By changing both the maximum and minimum tax rates, we can both increase experience rating in the system – since fewer firms will bunch at the maximum and minimum rates – and employer-level equity – since firms with low claim rates will experience drops in their tax burdens from a larger base. As the bottom panel of Table 3 shows, adding these tax schedule changes on top of a base increase will lower total revenues collected by the UI system. This is because a base increase alone would have increased the rate at which firms with low layoffs are forced to subsidize high layoff firms. Once we allow tax rates to fall for firms at or near the minimum, total contributions will also fall accordingly.

Figure 7 illustrates the evolution of tax rates in our simulation model when doubling the tax base *and* changing the minimum and maximum rates. This policy has the added benefit of "easing" the transition to a higher tax base by allowing firms' tax rates to fall while the tax bases increase. And unlike the dynamics shown in Figure 4, firms no longer end up bunching at the minimum tax rate over time.

Such a change also appreciably increases both the employer-level equity and experience rating of the UI system. As the top half of Figure 8 shows, this combined change causes taxes to go up by less than 50% (under the 14k base) for firms in the lower half of the benefits distribution, and taxes now rise proportionally more for the highest layoff firms. This is a much more equitable distribution than what is shown in Figure 8. In terms of experience rating, the increase in the maximum tax rate also rapidly reduces the share of firms consecutively stuck at the maximum and minimum rates (Table 4). Just changing the maximum and minimum tax rate while keeping the base fixed at $7,000 already reduces the share of benefits at the maximum or minimum rates from 44 percent to 28 percent. If we combine the move to a 14k base with the new maximum and minimum rates, we end up with only 8 percent of benefit charges generated by firms persistently at the extremes of the tax rate distribution. That is, a higher base along with a change to the minimum and maximum tax rates reduces the share of benefits systematically not experience-rated by 80 percent (from 44% to 8%).

5.6 Impact of Firm Entry and Exits

To simulate the impact of reforming California's UI tax schedule, we needed to make simplifying assumptions. Most notably, we fix the firm distribution as of 2019, such that there is no new entry or exit. From 2015-2022, 5.4 percent of employers (2% of employment) are new entrants and 4.4 percent of employers (1.5% of employment) are exiting, so these two margins roughly cancel each other out in terms of payroll. If we sum total reserves across exiting firms in 2019, exiters actually had a positive balance of $38 million on net, that would be credited back to the system.

However, it is likely that exiting firms make up a much larger share of UI benefit claims relative to new entrants. We are unable to observe the UI benefits charged to exiting firms in their final year, and exit rates are not monotonically changing with employer reserve ratios.[15] However,

[15] Appendix Figure A.4 shows that in 2014-2016, exit rates were roughly constant across the reserve ratio distribution. Since then, however, exit rates have become highest for firms just under the maximum tax rate, and for firms with very large or very small reserve ratios. This latter phenomenon illustrates that fact that firms shrink before they exit, and a shrinking payroll will mechanically increase the magnitude of reserve ratios, both positive and negative.

the Department of Labor reports that in 2019 roughly 6% of total benefits were charged to inactive employers (U.S. Department of Labor, 2019). While this would reduce our estimated net revenues collected by the state of California, it does not directly change our results on experience rating or worker- and employer-level equity. Furthermore, even if the increase in the taxable wage base to either 14k or 21k were to double exit rates (generating a 12% increase in benefit charges), the reduction in incremental revenue ($0.5b) would be small relative to the revenue raised from those employers that remain.

6 Behavioral Responses to Changes in UI Financing

An additional limitation of our simulation model is that it does not consider the endogenous response of employer wage setting and employment to changes in financing. The existing literature estimating the incidence of UI payroll taxes on wages has shown evidence of responses on both the employment (Johnston, 2021; Guo, 2024; Huang, 2024) and earnings margins (Anderson and Meyer, 2000), although employment effects are strongest for temporary tax increases that affect a subset of employers rather than market-wide impacts.

To investigate the possibility of behavioral responses, we exploit the kink in the tax rate schedule that occurs once firms hit California's maximum tax rate of 6.2%. Once a firm's UI charges cause them to hit a reserve ratio of zero or lower, the maximum tax rate prevents them from facing any additional UI tax increases. Using data from 2015 to 2019, we estimate a regression kink design (RKD) around this threshold (reserve ratios between -0.05 and 0.05) to test for a change in slope in outcome variables of interest. Our analysis sample covers 172,035 unique employers (292,770 employer-year observations, as not every employer falls within the RKD threshold each year) that ever employed 3 or more workers from 2015-2019, and with taxable wages of at least 10k in the prior year.

Appendix Figure A.5 shows no evidence of bunching around the kink in the tax schedule, which provides support for a key identifying assumption of the RKD model that the number and average characteristics of firms are not changing systematically at the kink. Figure 9, which plots the raw data, shows a clear change in slope to the left and right of the threshold when plotting UI contributions on the y-axis. However, there is no statistically significant effect on taxable wages, the outcome that is most relevant for our simulation model. This is confirmed by the RKD estimates reported in column 2 of Table 5, and suggests that our assumption that total taxable earnings would not change substantially in response to UI tax base changes is reasonable.

In terms of employment growth and exit, Figure 9 shows no change in slope but suggestive evidence of a level change for firms that hit the kink. This is further confirmed by the RKD estimates in Table 5, which show that firms that hit the flat portion of the tax schedule increase their employment growth by 0.9 percentage points, and are 0.3 percentage points less likely to exit, relative to a scenario in which the tax rate continues to increase beyond 6.2 percent to the left of the kink point. Without the kink in the tax schedule, average tax rates for the interval from -0.05 to 0 would equal 6.85 percent (or a 0.65 percentage point increase on average). Dividing our coefficient estimate of 0.009 by 0.65 implies that a one percentage point increase in UI tax rates (on a 7k base) would reduce employment growth by 1.4 percentage points. Likewise, a one percentage point increase in UI tax rates would increase exit by 0.46 percentage points. This suggests that the revenue gains we estimate from expanding the taxable wage base or raising the maximum UI tax would be partially offset by an increase in firm exits and a reduction in employment. A caveat, however, is that these employment responses are estimated using annual changes in firm-specific UI tax rates, which may be less pronounced than the response to a permanent tax base increase.

Nevertheless, if we were to take the employment growth estimate at face value, a doubling of the tax base from 7k to 14k would translate to almost a doubling of the statutory UI tax rate (almost, because not all workers have earnings above 14k). This implies that in year 1, an upper bound on the potential behavioral response would be a 5 percentage point drop in employment growth on average (multiplying 1.4 by 3.6, the mean tax rate in our sample). Such a response would cause our simulation model to overstate the additional revenues generated by a tax base increase, although the effect would decline over time as employer tax rates gradually adjust downward as a result of the base increase.

7 Conclusion

We document the impact of the unemployment insurance taxable wage base on potential revenues, worker- and employer-level equity, and experience rating using a unique data set of matched employer-employee administrative data from California. We find that raising the tax base can help California meet its financing shortfalls, raise worker-level equity, and improve experience rating. But such a change worsens employer-level equity, raising taxes much more proportionally for the lowest layoff firms. We show that an alternative reform that pairs a higher tax base with a broader tax schedule can improve employer equity and experience rating, though at some revenue cost.

Although our results use California data, we believe these lessons are also relevant for many other states in the U.S. A majority of states use the reserve ratio method of assigning employer-specific tax rates, and in 2019 half of states had tax bases less than $14,000. Due to the pandemic-induced recession in 2020, 22 states were forced to borrow from the federal government in order to continue to pay UI benefits. As of 2025 all states except for California have now paid back these loans, with most relying on ARPA funds and general revenues rather than through UI financing alone. Most recently, New York's governor authorized an $8 billion payment from general funds to repay their outstanding UI debt.[16]

Nevertheless, a majority of states do not currently meet solvency standards for their UI programs, and are at risk in the event of another recession. These states will need financing reforms that thoughtfully balance equity and efficiency considerations. We show that raising the taxable wage base in conjunction with an adjustment in the minimum and maximum tax rates can be a powerful tool to both raise revenues and simultaneously improve both program equity and experience rating. This is because expanding the tax base primarily reduces tax regressivity for low-earning workers and those holding multiple jobs (worker-level equity). Meanwhile, expanding the tax rate schedule primarily helps to increase experience rating by reducing the share of firms bunching at either the minimum or maximum rates (employer-level equity). While we do not take a stance on the optimal degree of experience rating, such a schedule will ensure that all firms and workers are similarly exposed to experience rating. In fact, our proposed solution is very similar to recent reforms undertaken in the state of Connecticut.[17]

Another motivation for California or any other state to increase revenues to its UI system through tax base increases is that it could finance raising the generosity of UI benefits. Since 2005, the maximum weekly benefit in California's UI system has stood at $450 (thereby declining

[16] https://www.governor.ny.gov/news/governor-hochul-signs-landmark-legislation-strengthen-and-protect-our-workforce-part-fy-2026

[17] To improve UI trust fund solvency, Public Acts 21-200 and 22-67 raised the taxable wage base from $15k to $25k starting in January 2024, and reduced the minimum tax rate from 0.5% to 0.1% while raising the maximum tax rate from 5.4% to 10%.

substantially in inflation-adjusted terms) while the average weekly benefit among all other states increased by 56 percent. During that period, California fell from the 7th most generous state on this metric of benefit generosity to the 27th most generous by 2019. In supplementary analysis in Appendix A.IV, we use two-way state fixed effects models to show that there is a strong correlation between rising tax bases and rising benefits; a within-state increase of 10 percent in a state's taxable wage base is associated with approximately a 2.1 percent increase in its maximum weekly UI benefit. This suggests that reforms along the lines explored here could both increase program solvency and help to facilitate future increases in the generosity of California's UI benefits.

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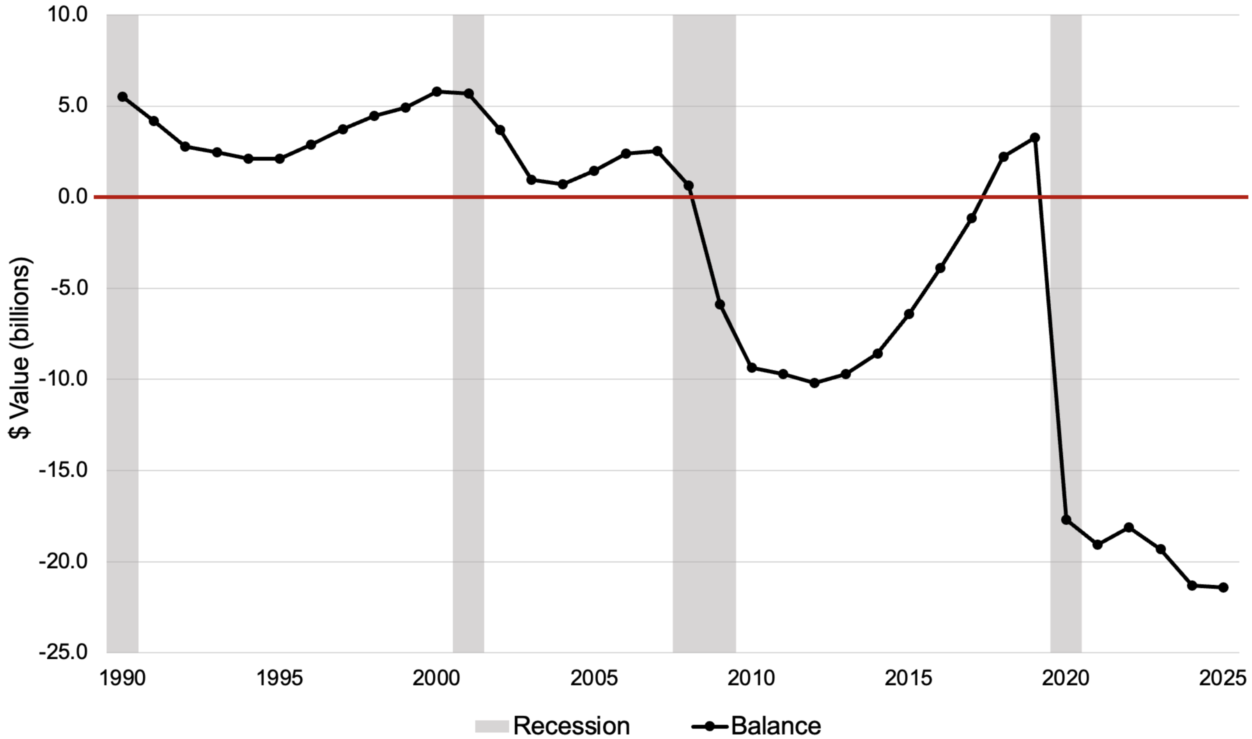
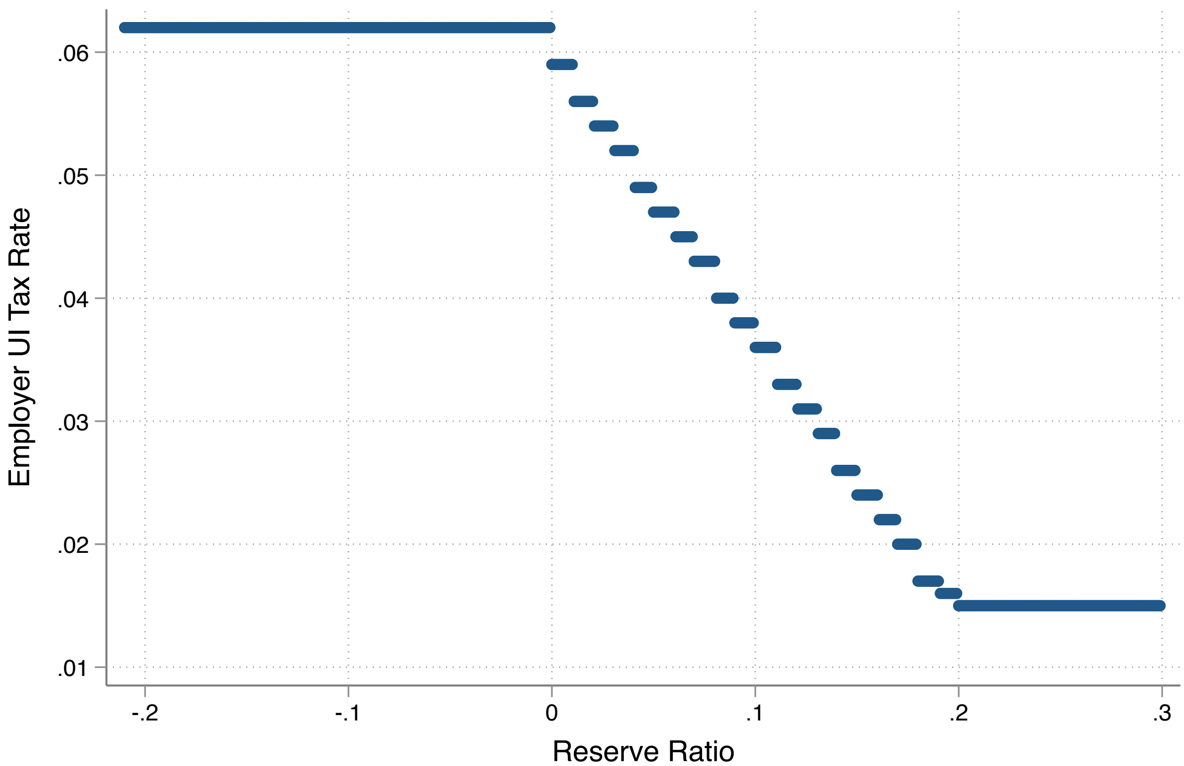
Figure 1: California UI Trust Fund Balance (1990-2025)



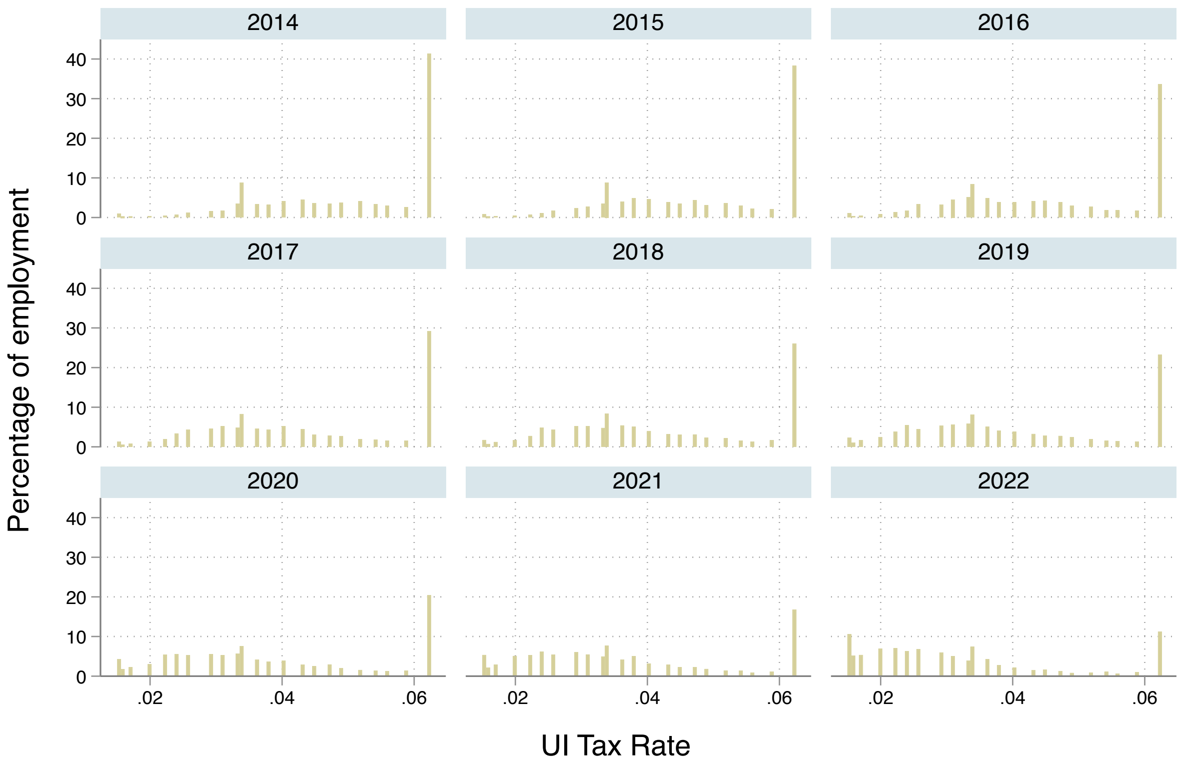
Source: U.S. Department of Labor, UI Data: `https://oui.doleta.gov/unemploy/data_summary/DataSum.asp`

Figure 2: California Tax Rate Schedule



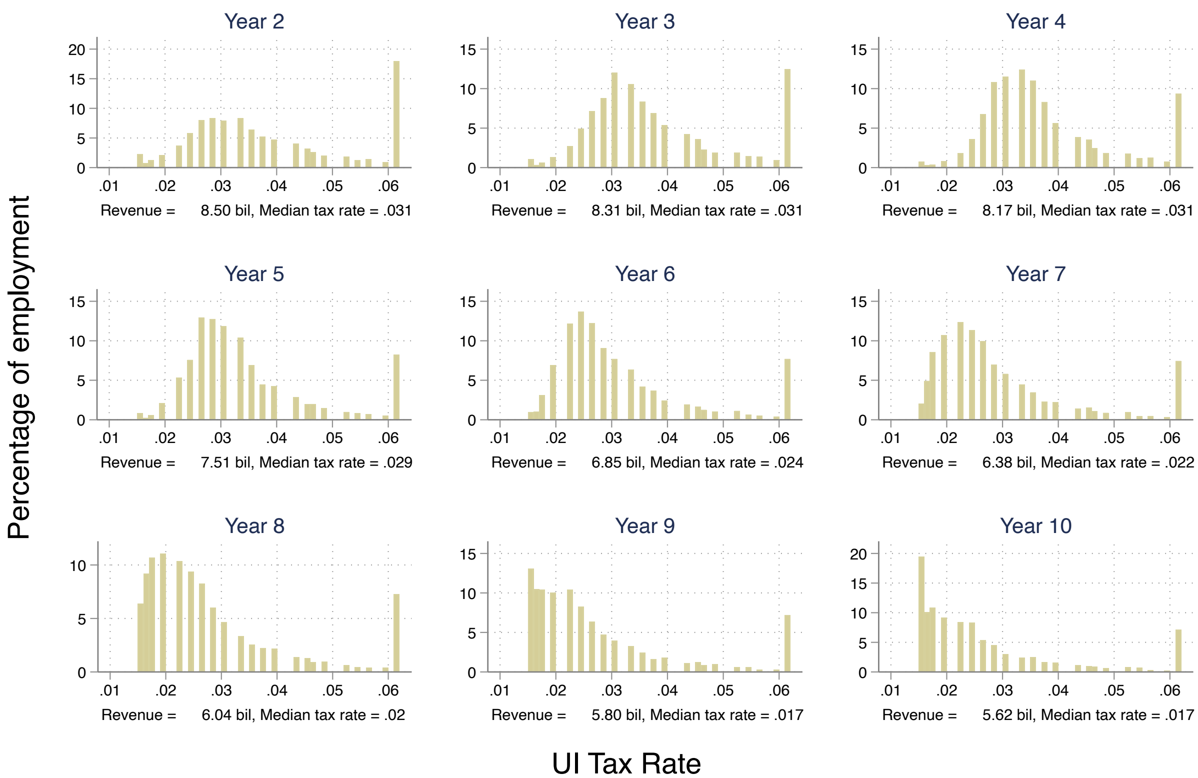
Source: CA Contribution Rate Schedule: `https://edd.ca.gov/siteassets/files/pdf_pub_ctr/de231z.pdf`. UI tax rates range from a maximum of 6.2% (RR below 0) to a minimum of 1.5% (RR above 0.2), and California's taxable wage base is $7000.

Figure 3: Employer Tax Rates, by Year



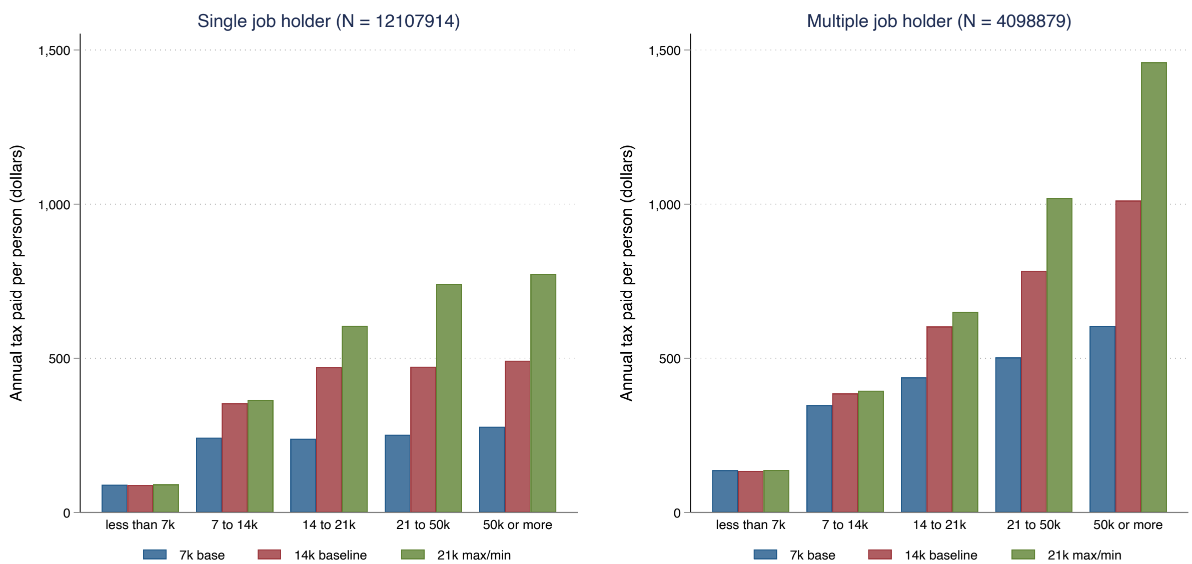
Note: Histograms are weighted by employment. UI tax rates range from a minimum of 1.5% to a maximum of 6.2%, and new employers are assigned a rate of 3.4%.

Figure 4: 10-Year Simulation of Doubling Tax Base to 14k



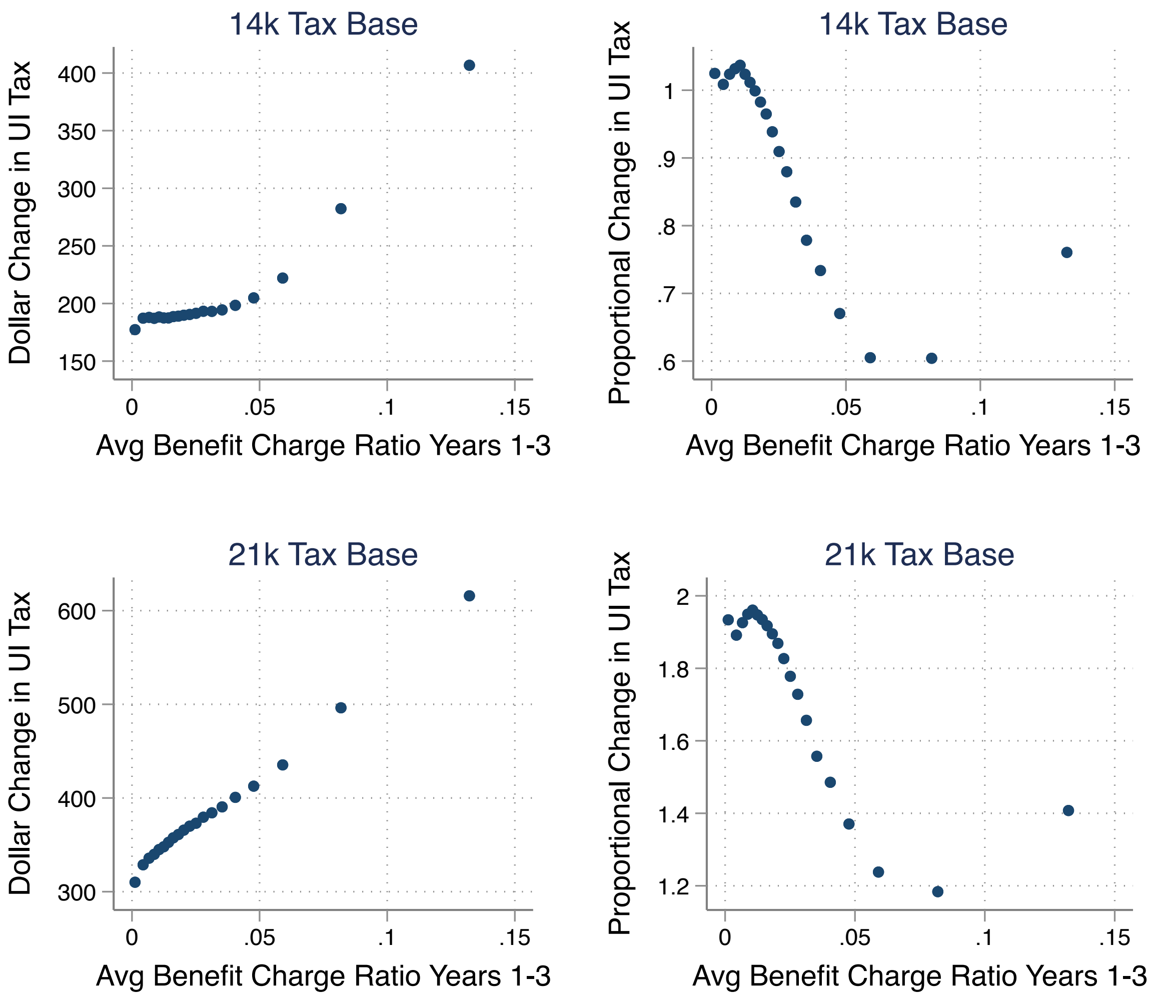
Note: N = 641,721. Histograms are weighted by employment. Models a doubling of the tax base that begins in 2019, with rates adjusting in 2020 (Year 2).

Figure 5: Mean Tax Cost by Worker-level Earnings



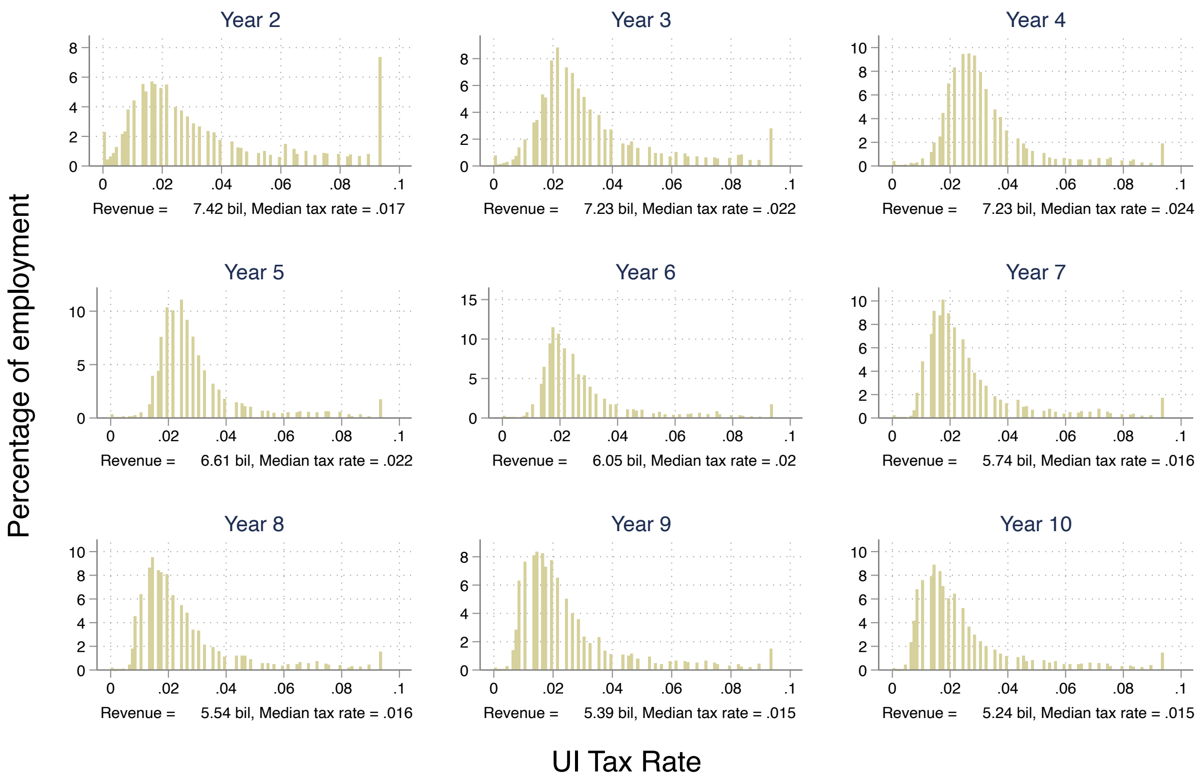
Notes: N = 16,294,638 individuals. Plots the mean increase in Year 5 taxes paid per person, by workers' total annual earnings.

Figure 6: Experience Rating Across Base Increases



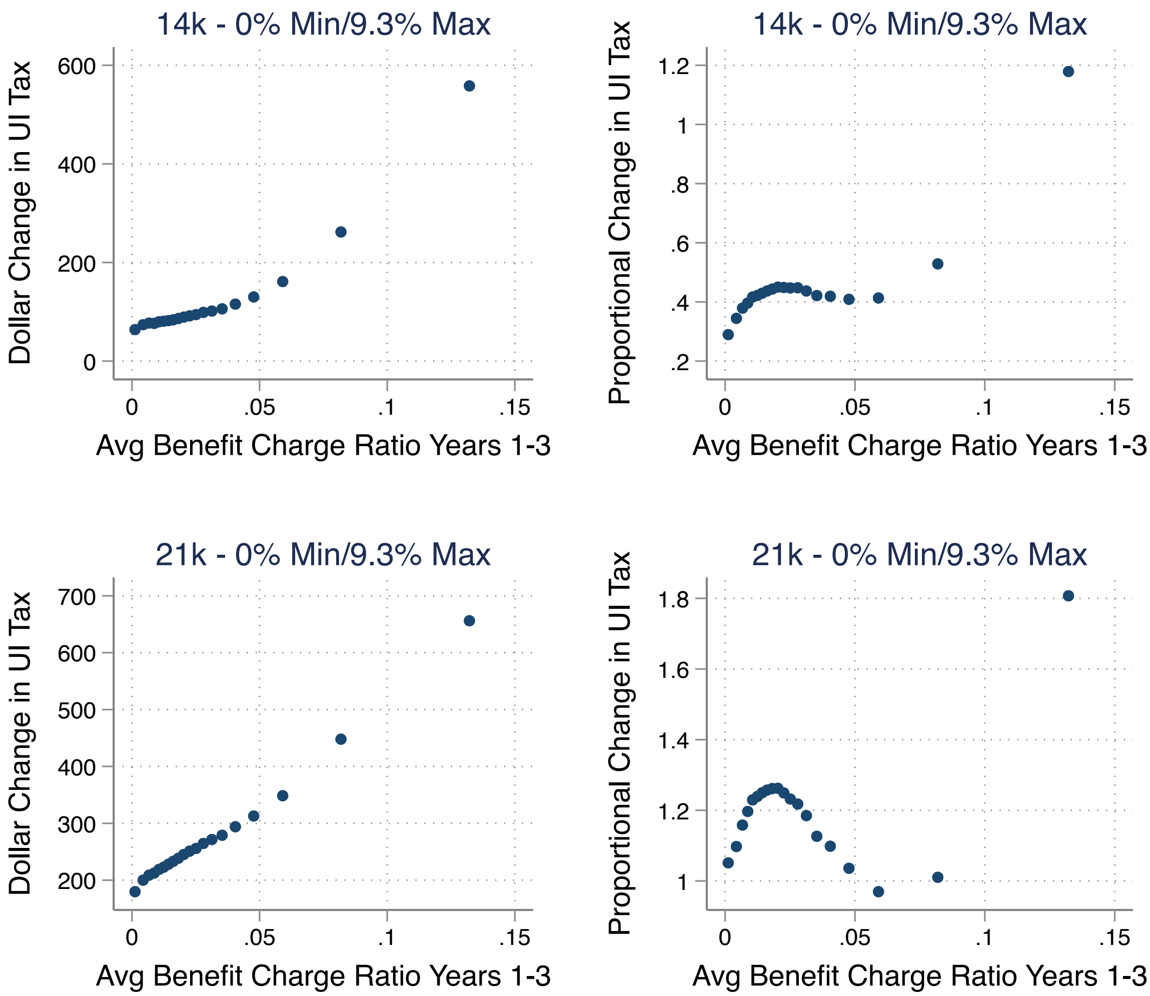
Note: N = 627,953. Excludes 13,768 firms with taxable payroll of less than \$7000. The x-axis plots ventiles of simulated charges, calculated as a percentage of each firm's original taxable payroll. On the y-axis, the change in UI tax is calculated as the difference between Year 5 taxes paid under a base increase, and Year 5 taxes paid under the 7k base. On the left side, the dollar change is calculated by dividing the tax increase by maximum monthly employment. On the right side, the proportional change is calculated by dividing the tax increase by Year 5 taxes paid under the 7k base.

Figure 7: 10-Year Simulation of 14k Tax Base, 0% Min rate, and 9.3% Max rate



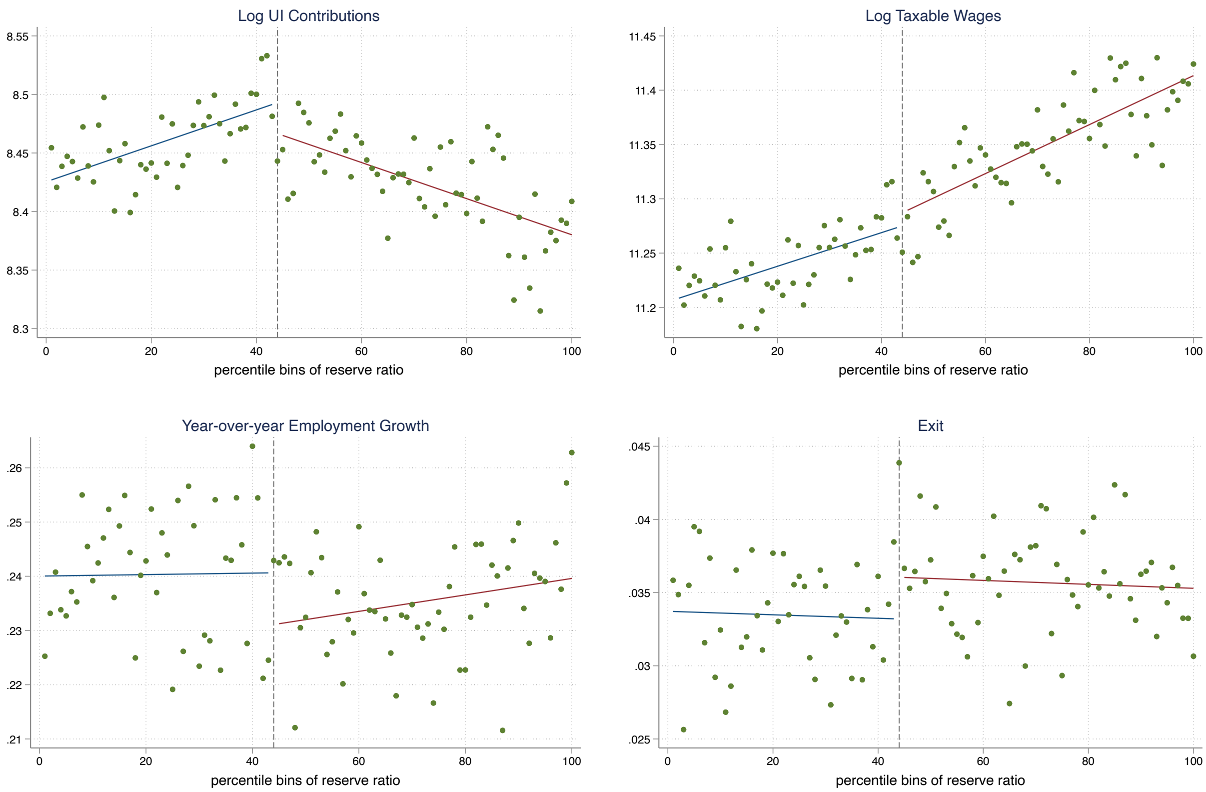
Note: N = 641,721. Histograms are weighted by employment. Models a doubling of the tax base that begins in 2019, with rates adjusting in 2020 (Year 2). Starting in year 2, the maximum tax rate is increased from 6.2 to 9.3 percent, such that the new maximum occurs at an RR of -0.12. The minimum tax rate is decreased from 1.5 to 0 percent with a corresponding flattening of the slope between 0 and 6.2%, such that the new minimum still occurs at an RR of 0.2.

Figure 8: Experience Rating Across Alternative Reforms



Note: N = 627,953. Excludes 13,768 firms with taxable payroll of less than $7000. The x-axis plots ventiles of simulated charges, calculated as a percentage of each firm's original taxable payroll. On the y-axis, the change in UI tax is calculated as the difference between Year 5 taxes paid under a base increase, and Year 5 taxes paid under the 7k base. On the left side, the dollar change is calculated by dividing the tax increase by maximum monthly employment. On the right side, the proportional change is calculated by dividing the tax increase by Year 5 taxes paid under the 7k base.

Figure 9: Firm Outcomes Around RKD Threshold



Note: N = 292,770 observations at the employer-year level. Includes 172,035 unique employers in 2015-2019 with reserve ratios between -0.05 and 0.05 that ever employed 3 or more workers, and with taxable wages of at least 10k in year $t-1$. Each graph plots the binned scatterplot of an outcome variable, with unconditional best fit lines to the left and right of the reserve ratio equals zero threshold.

Table 1: Summary Statistics (2019)

A. Employer Level

	All Firms	Simulation	Excluded
UI tax rate	3.6%	3.6%	3.6%
Share at min rate	8.9%	10.0%	4.7%
Share at max rate	14.8%	17.0%	6.0%
Reserve Ratio	7.9%	9.0%	3.2%
Employment	20	24	8
Taxable wages ($k)	162	189	53
Total wages ($k)	1246	1490	244
Share new entrant	8.5%	0%	43.3%
Share exiter	3.5%	0%	17.7%
N	798,256	641,721	156,535

B. Job Level

	All Firms	Simulation	Excluded
UI tax rate	4.2%	4.2%	3.8%
Share at min rate	2.0%	2.1%	1.4%
Share at max rate	26.9%	27.8%	10.4%
Taxable wages	5306	5335	4771
Total wages	41119	41992	25075
Share w/ only one employer	47.3%	48.1%	31.6%
N	23,938,616	22,703,680	1,234,936

Notes: Excludes non-experience rated firms. Simulation sample covers firms that entered by 2018:Q2 and survived until 2020:Q1. Bottom panel excludes 5.3 million jobs that do not match to employer-level data.

Table 2: California versus Rest of United States (2019)

	California	Rest of United States
A. Labor Force Composition		
Age	41.6	41.7
Female	45.7%	47.6%
White	59.7%	74.3%
Black	5.4%	13.3%
Hispanic	37.9%	15.4%
Asian	16.3%	5.0%
HS Grad or Equiv	87.9%	91.1%
Bachelor's or Higher	37.1%	34.7%
B. Industry Shares		
Agriculture	2.8%	0.8%
Construction	5.9%	5.9%
Manufacturing	8.7%	10.3%
Retail Trade	11.0%	12.5%
Information	3.6%	2.1%
Prof/Sci/Tech Services	8.8%	7.4%
Healthcare	15.9%	16.0%
Food/Hospitality	11.3%	11.1%
C. Unemployment Insurance		
Average Weekly Wage	$1368	$1126*
UI Claim Rate	3.2%	2.1%
Maximum Weekly Benefit	$450	$452
Average Weekly Benefit	$338	$378*
Average Duration (weeks)	17.4	14.8*
UI Taxable Wage Base	$7000	$18,739

Sources: Panel A calculated from the 2019 American Community Survey, restricting to respondents in the labor force. Panel B calculated from the 2019 Quarterly Census of Employment and Wages. Panel C calculated from the Department of Labor UI Data Summary for 2019:Q4. Starred values denote averages for the entire US including CA. UI claim rates are calculated by dividing initial claims by covered employment.

Table 3: Net Revenues Raised ($bil)

Policy	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Total
7k baseline	1.34	0.36	0.00	-0.18	-0.40	-0.66	-0.70	-0.67	-0.60	-0.72	-2.23
14k baseline	5.21	4.01	3.55	3.31	2.53	1.69	1.21	0.93	0.78	0.53	23.75
gradual to 21k	3.09	3.57	4.96	6.29	5.61	4.86	4.18	3.39	2.67	2.02	40.64
Comparison to Alternative Policies											
7k baseline	1.34	0.36	0.00	-0.18	-0.40	-0.66	-0.70	-0.67	-0.60	-0.72	-2.23
0% min/9.3% max	1.34	-0.02	-0.29	-0.36	-0.50	-0.67	-0.60	-0.50	-0.38	-0.46	-2.44
14k baseline	5.21	4.01	3.55	3.31	2.53	1.69	1.21	0.93	0.78	0.53	23.75
0% min/9.3% max	5.21	2.94	2.47	2.37	1.63	0.88	0.57	0.43	0.37	0.14	17.01
gradual to 21k	3.09	3.57	4.96	6.29	5.61	4.86	4.18	3.39	2.67	2.02	40.64
0% min/9.3% max	3.09	2.75	3.92	5.04	4.29	3.49	2.82	2.11	1.55	0.97	30.03

$N = 641,721$. Net revenues calculated as annual contributions minus annual charges. Total Year 1 charges = $3.7b, Yr 2 charges = $4.5b, Yr 3 charges = $4.8b, and average charges in Yrs 4-10 = $5.1b. Gradual transition increases base to 10k in Yr 1, 13k in Yr 2, 17k in Yr 3, and 21k in Yrs 4-10.

Table 4: Share of Non Experience-Rated UI Benefit Charges

	3-years at max rate	3-years at min rate	Rest of firms	3-years at max rate	3-years at min rate	Rest of firms
	Baseline Schedule			*0% min rate/ 9.3% max rate*		
7k base	42.6%	1.1%	56.3%	27.1%	0.3%	72.6%
14k base	27.9%	0.3%	71.8%	8.4%	0.2%	91.5%

$N = 641,721$. Reports the share of UI benefit charges generated by firms persistently (ie: 3 consecutive years) at the maximum or minimum rate, based on the steady state of our simulation model (years 5-7). 7k baseline has 17% of taxable payroll at max and 3% at min. 14k baseline has 9% of taxable payroll at max and 0.4% at min.

Table 5: Regression Kink Discontinuity Estimates (2015-2019)

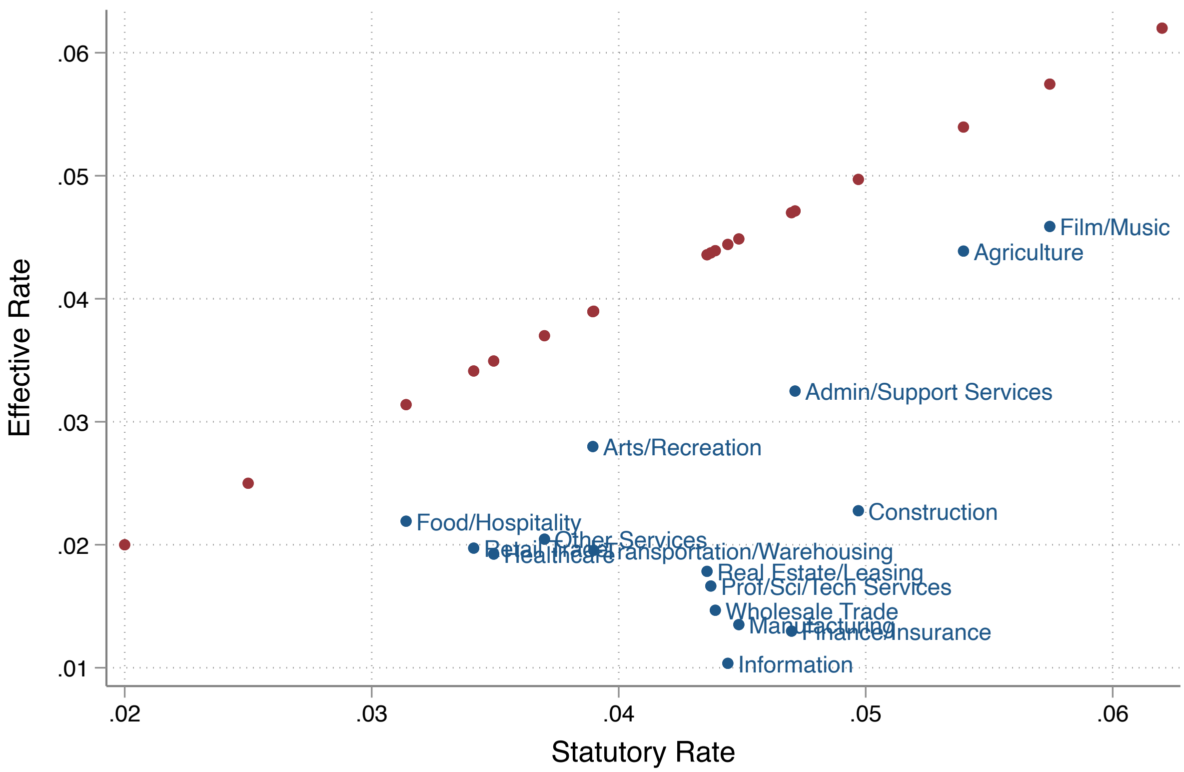
	(1) log(Contributions)	(2) log(Taxable wages)	(3) Empl Growth	(4) Exit
D	0.036***	0.003	0.009**	-0.003**
	(0.003)	(0.003)	(0.004)	(0.001)
Reserve Ratio	-4.060***	0.202***	0.372***	-0.085***
	(0.076)	(0.076)	(0.092)	(0.031)
D*Reserve Ratio	4.142***	-0.108	-0.191	0.061
	(0.115)	(0.115)	(0.140)	(0.047)
log(taxwages$_{t-1}$)	0.994***	0.994***	-0.074***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.000)
log(emp$_{t-1}$)	0.000***	0.000***	0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-2.801***	0.014	1.072***	0.071***
	(0.009)	(0.009)	(0.010)	(0.004)
R^2	0.889	0.889	0.045	0.011
Mean Outcome	8.439	11.303	0.238	0.035
Year FE	X	X	X	X
4-digit NAICS FE	X	X	X	X
N	292,770	292,770	292,770	292,770

Includes 172,035 unique employers in 2015-2019 with reserve ratios between -0.05 and 0.05 that ever employed 3 or more workers, and with taxable wages of at least 10k in year $t-1$. D is an indicator for having a negative reserve ratio (ie: assigned maximum tax rate). Robust standard errors in parentheses. ** $p < 0.05$, *** $p < 0.01$

Supplemental Appendix

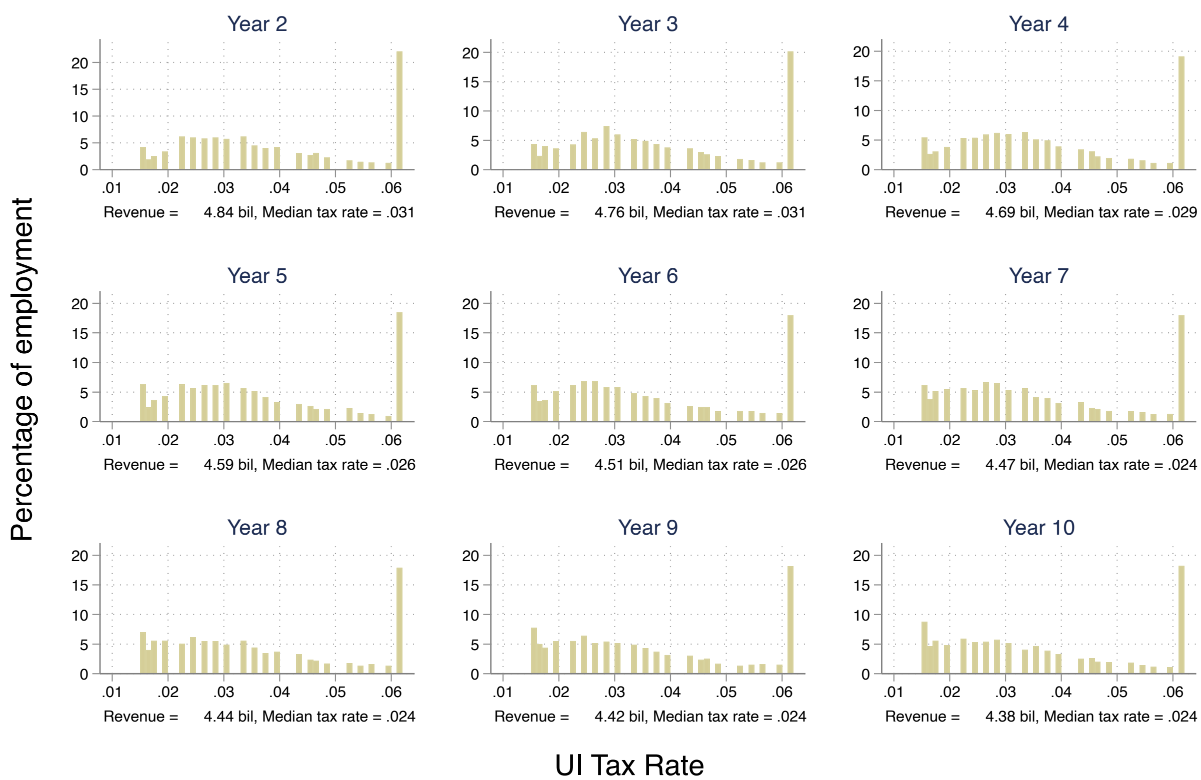
A.I Appendix Figures and Tables

Figure A.1: Scatterplot of Statutory versus Effective Rates, by Sector (2019)



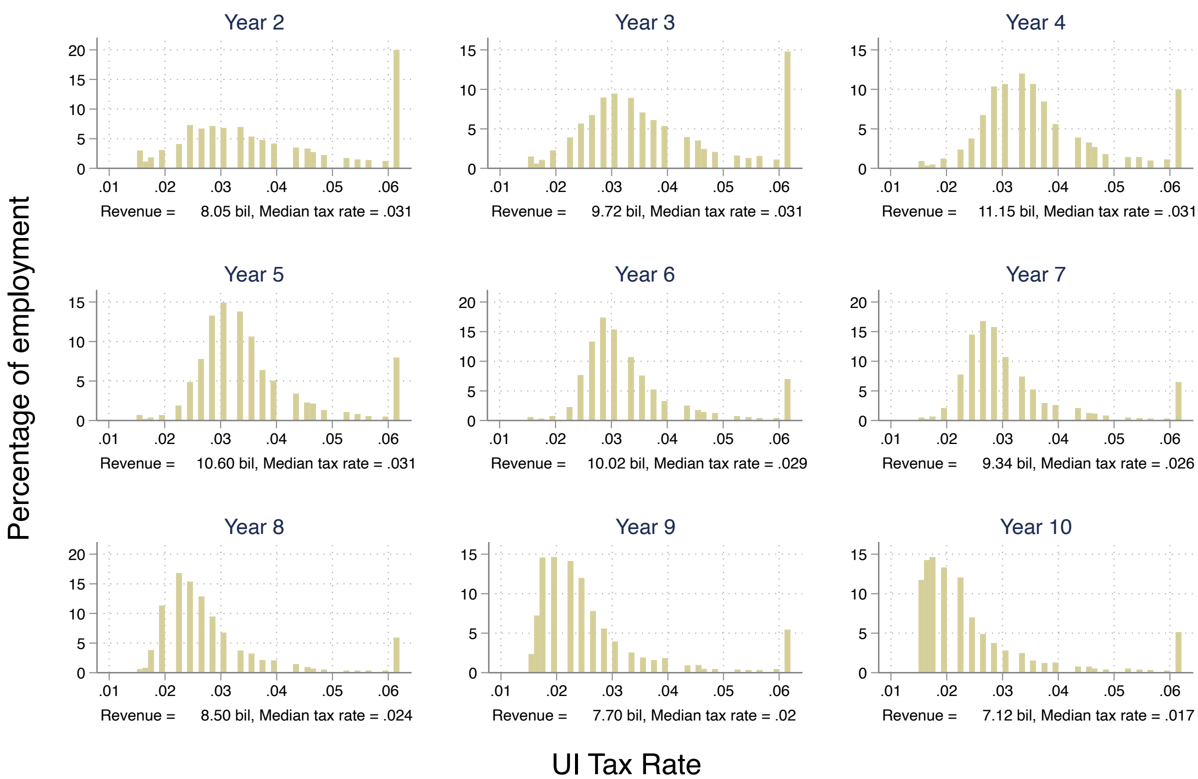
Note: Red dots represent the 45 degree line. Each plotted point takes the average across all workers in a 2-digit NAICS sector. NAICS 512 (Film/Music) is separately plotted from the rest of NAICS 51 (Information).

Figure A.2: 10-Year Simulation of Baseline 7k Tax Base



Note: N = 641,721. Histograms are weighted by employment.

Figure A.3: 10-Year Simulation of Gradual Transition to 21k Tax Base

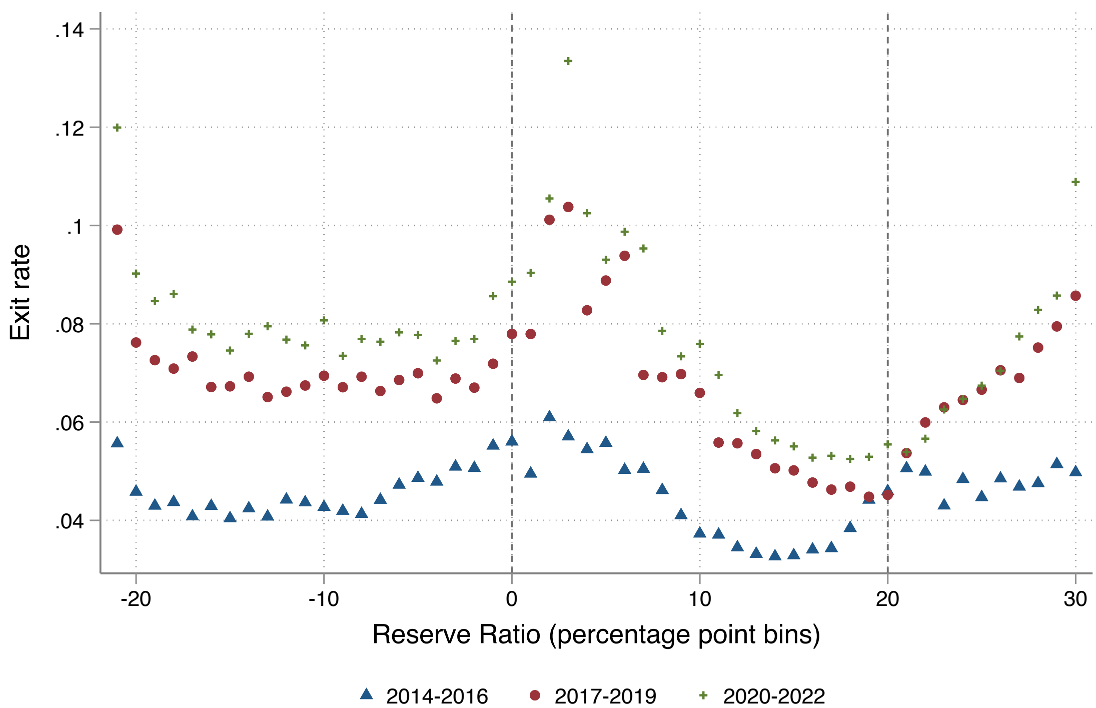


Note: N = 641,721. Histograms are weighted by employment. Models a gradual transition to 21k, with base increases to 10k in year 1, 13k in year 2, 17k in year 3, and 21k in years 4-10.

Figure A.4: Distribution of Worker-level Earnings

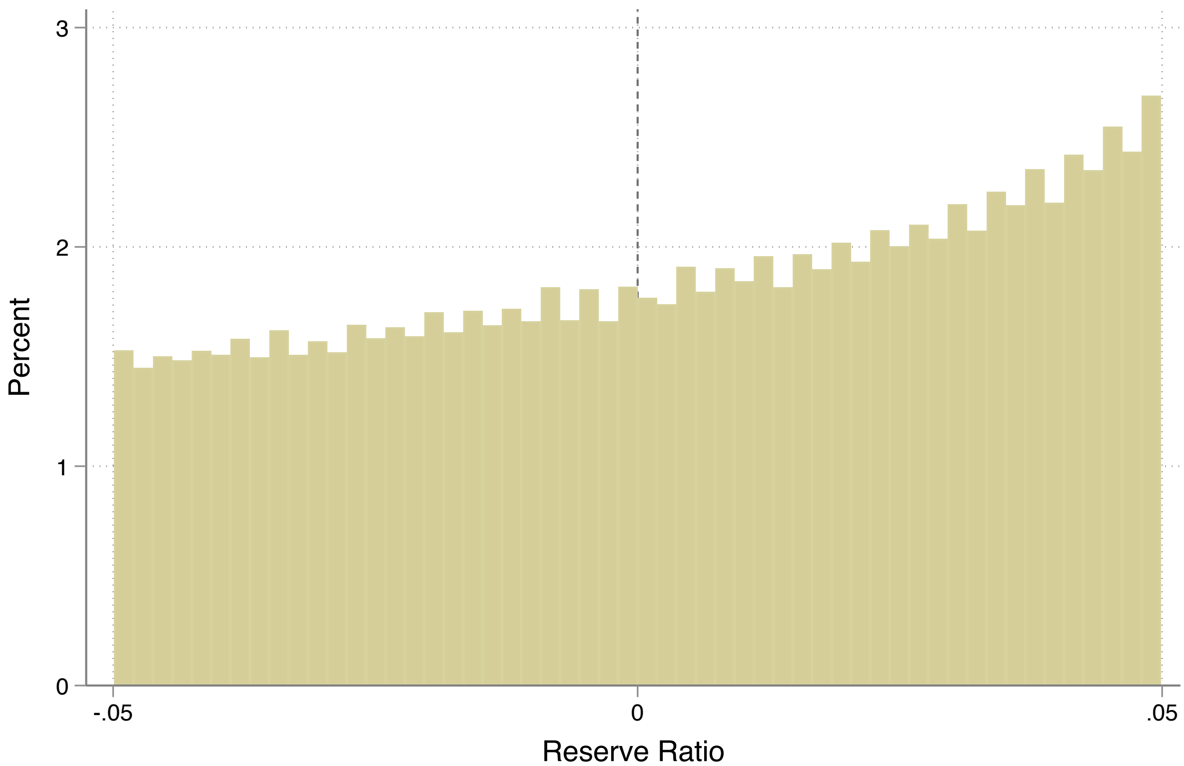
Note: N = 10,129,460 individuals. Aggregates earnings over all jobs included in our simulation sample. Workers with earnings below $1000 or above $50,000 are dropped. There are 4.34 million single job holders earning 50k or more, and there are 1.02 million multiple job holders earning 50k or more.

Figure A.5: Exit Rates Across Reserve Ratio Distribution



Note: Plots the share of exiting firms in each percentage point bin of reserve ratios. The dashed lines indicate the maximum rate at zero, and the minimum rate at 20.

Figure A.6: No evidence of bunching around maximum tax rate threshold



Note: N = 292,770 observations at the employer-year level. Includes 172,035 unique employers in 2015-2019 with reserve ratios between -0.05 and 0.05 that ever employed 3 or more workers, and with taxable wages of at least 10k in year $t-1$.

Table A.1: Net Revenues Raised Under Alternative Minimum Rate Policies ($bil)

Policy	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Total
7k baseline	1.34	0.36	0.00	-0.18	-0.40	-0.66	-0.70	-0.67	-0.60	-0.72	-2.23
9.3% max	1.34	1.04	0.57	0.29	0.00	-0.28	-0.32	-0.28	-0.21	-0.33	1.83
0% min/9.3% max (no slope change)	1.34	1.01	0.55	0.28	-0.01	-0.29	-0.33	-0.30	-0.23	-0.34	1.67
0% min/9.3% max (with slope change)	1.34	-0.02	-0.29	-0.36	-0.50	-0.67	-0.60	-0.50	-0.38	-0.46	-2.44
14k baseline	5.21	4.01	3.55	3.31	2.53	1.69	1.21	0.93	0.78	0.53	23.75
9.3% max	5.21	4.90	4.00	3.57	2.74	1.89	1.42	1.15	1.00	0.74	26.62
0% min/9.3% max (no slope change)	5.21	4.87	3.99	3.57	2.74	1.89	1.42	1.14	0.97	0.67	26.47
0% min/9.3% max (with slope change)	5.21	2.94	2.47	2.37	1.63	0.88	0.57	0.43	0.37	0.14	17.01

$N = 641,721$. Net revenues calculated as annual contributions minus annual charges.
Year 1 charges = $3.7b, Year 2 charges = $4.5b, and average charges in Years 3-10 = $5.0b.
The last row of each panel corresponds to the 0% min/9.3% max scenarios in Table 3.

A.II Simulation Model

A.II.1 Inferring Employer-level UI Benefit Charges

While we observe annual reserve ratios and tax contributions for experience-rated firms, we do not observe any measure of employer-specific UI benefit charges. Nevertheless, it is possible to use the Reserve Ratio (RR) formula and data starting from 2015:Q3 to infer a firm's UI charges in 2019 (technically the charges from 2018:Q3 to 2019:Q2, the latest four quarters included in the RR formula).

$$RR_{2020} = \frac{Reserves_{2020}}{\frac{1}{3}(TaxablePay_{2016:Q3-2019:Q2})}$$
$$\text{where } Reserves_{2020} = Reserves_{2019} + Contrib_{2018:Q3-2019:Q2} - Charges_{2018:Q3-2019:Q2}$$

We can then solve for 2019 Charges using the following expression:

$$\begin{aligned} Charges_{2018:Q3-2019:Q2} &= Reserves_{2019} - Reserves_{2020} + Contrib_{2018:Q3-2019:Q2} \\ \text{where } Reserves_{2019} &= RR_{2019} * \frac{1}{3}(TaxablePay_{2015:Q3-2018:Q2}) \\ Reserves_{2020} &= RR_{2020} * \frac{1}{3}(TaxablePay_{2016:Q3-2019:Q2}) \end{aligned}$$

Just under one-third of employers had zero UI benefit charges in 2019. The median benefit charge ratio (charges divided by mean taxable payroll) was equal to 0.8% and the 99th percentile was 26%. For the purposes of our simulation, we winsorize charge ratios at 15% (affecting 3 percent of employers).

One limitation of the RR formula is that reserve ratios are left censored at -0.21; any employers that fall below this threshold are assigned the minimum possible RR of -0.21. This means that once a firm hits a reserve ratio of -0.21, we can't infer anything about whether their reserves are going up or down. In practice only 3 percent of employers were observed with reserve ratios of -0.21 in both 2019 and 2020, and as a solution we automatically assign these employers the maximum charge ratio of 15%.

A.II.2 Predicting Future Benefit Charges

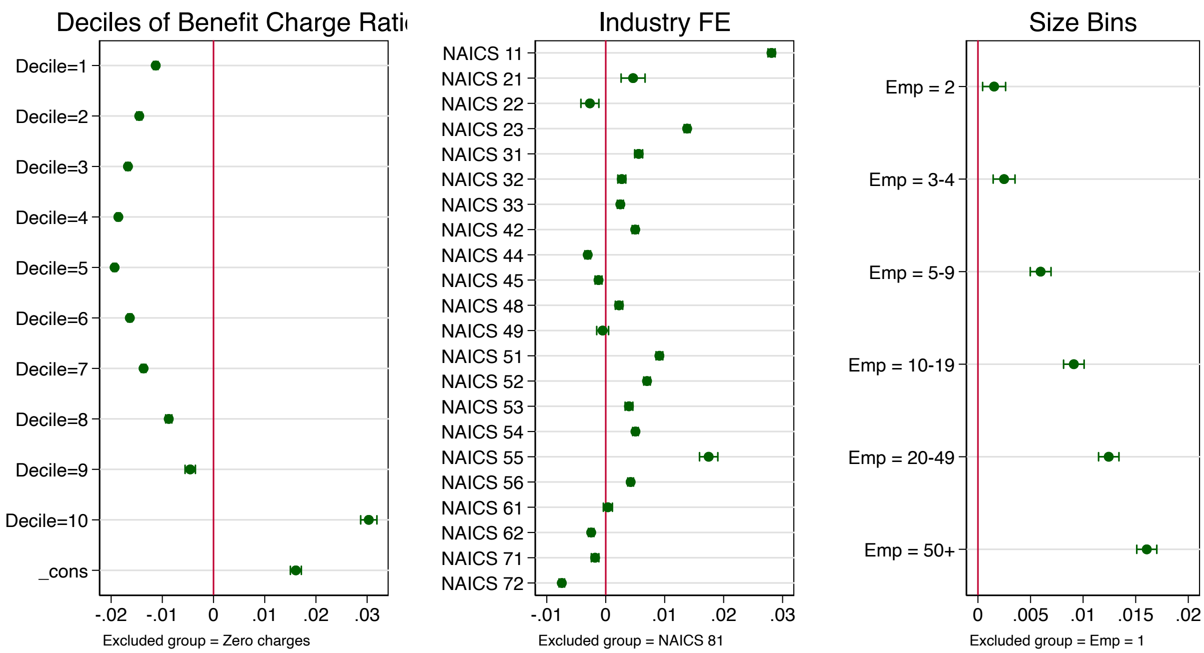
To predict the evolution of employer-specific UI benefit charges for our simulation, we fit a simple model of charge ratios in year $t+1$ using observed charge ratios in year t. In order to estimate this model, we use the distribution of UI benefit charges in 2018 to predict the distribution of UI benefit charges in 2019. These employer-specific UI benefit charges are inferred based on the methodology described in the previous section.

Because total charges (in dollars) are a function of employer size, we calculate the charge ratio $ratio_{i,t}$ by dividing total charges in year t by mean taxable payroll over the last three years (ie: the denominator of the RR formula). We then estimate the following regression, weighted by 2018 employment:

$$ratio_{i,2019} = \Sigma_{n=1}^{10} \beta_n [bin_i = n] + \gamma ratio_{i,2018} + \mu_{i,2018} + \epsilon_i$$

In addition to $ratio_{i,2018}$, we include deciles of benefit charge ratios for non-zero charges (bin_i). $\mu_{i,2018}$ includes the following fixed effects for employer characteristics: county, 2-digit NAICS industry, and six firm size bins.[1] The figure below plots all of our estimated coefficients except the 58 county FEs, which are excluded for brevity, and the coefficient on $ratio_{i,2018}$), which is equal to 0.284 (std error = 0.005).

Figure A.7: Estimated Coefficients



Notes: $N = 598,735$ employers with nonmissing 2018 and 2019 benefit charges. Regression weighted by 2018 employment, and also includes the 2018 benefit charge ratio and 58 county fixed effects. R-squared = 0.50, and RMSE = 0.0295.

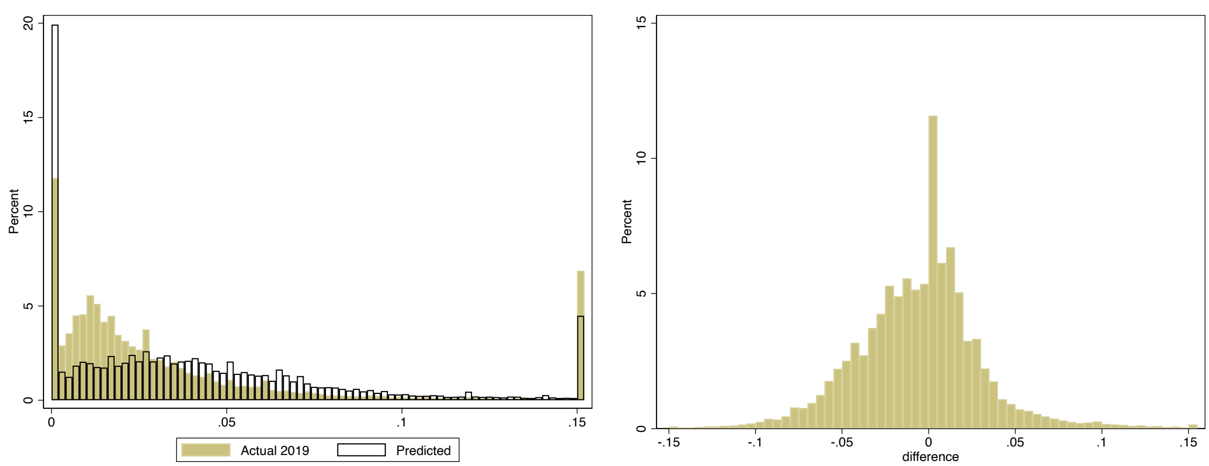
Since it is possible to get negative values when using a linear probability model to predict future benefit charges, we set all negative values equal to zero. This allows us to maintain a mass of employers with zero charges in every year of the simulation, consistent with the observed mass of employers with no charges in the administrative data. Furthermore, our model is only based on the prior year's charges, but in reality some firms are persistently at the maximum tax rate. To build in some of this persistence in layoff behavior, we also flag firms that are far beyond the maximum tax rate (ie: are observed to have reserve ratios below -0.2 in 2019 and 2020). For these firms, we shift their predicted benefit charge ratio up by 0.05 before winsorizing to a maximum value of 0.15. Under the 14k base increase, this assumption results in a \$3b loss in net revenues over 10 years, and reduces the share of UI benefit charges generated by firms persistently at the maximum tax rate by 11 percentage points.

[1] Multi-establishment employers that do not report a headquarter county are grouped together, and are the omitted group in the county FEs. The following firm size bins are based on maximum quarterly employment: 2, 3-4, 5-9, 10-19, 20-49, and 50+ (single-employee firms are the omitted group).

Finally, we simulate the potential for large exogenous shocks by randomly assigning the maximum value, $\hat{rate}_i = 0.15$, to one percent of the firm population in each year. We believe this is a realistic addition given our assumption of no employment decline or recessions during our 10-year simulation. Because of their temporary nature, employers are able to pay back their charges and these shocks do not have a significant impact on net revenues. Without them, total net revenues would only be about 1 percent higher under the 14k base increase.

The figure below shows that our prediction model matches the actual 2019 benefit charge ratio distribution relatively well, although it overestimates the share of employers at zero, and underestimates the share just above zero. The differences are relatively symmetric about zero, but after converting into dollars total predicted charges are roughly 11 percent greater than actual charges. To account for this in our simulation model we scale down predicted charges by 10 percent after converting into dollars.

Figure A.8: Model Fit



Notes: Left panel plots distribution of 2019 benefit charge ratios, where yellow bars represent the actual ratios, and black bars represent the predicted ratios using our model. Ratios above 0.15 are winsorized. Right panel plots a histogram of the difference between each firm's actual 2019 ratio and their predicted 2019 ratio. All plots are employment-weighted.

A.II.3 Simulating Tax Revenues

We base our simulation sample on the firm distribution in 2019 (referred to as Year 1 in our simulation). Our simulation sample includes 641,721 employers that entered by 2018:Q2, have positive payroll in 2019, and survived until 2020:Q1. By restricting to survivors, we are able to use observed reserve ratios in 2020 to infer 2019 UI benefit charges using the methodology described in section A.II.1.

Year 1 of our simulation requires no assumptions, as we simply calculate each employer's taxable earnings under the new tax base, and multiply by the actual employer-specific tax rates which are pre-determined before the calendar year begins. Thus the Year 1 revenues collected from each employer are simply equal to $\tau_{2019} *$ taxable earnings.

Starting in Year 2, both the employer-specific tax rate and taxable earnings now need to be simulated. We make the albeit strong assumption of fixing payroll at 2019 levels, so that taxable earnings can remain fixed throughout our 10-year simulation. To simulate employer tax rates, we model the evolution of UI benefit charges using the following process: Given each employer's actual 2019 benefit charge ratio, we simulate their Year 2 benefit charge ratio using the prediction model described in section A.II.2. Then the simulated Year 2 ratio is used to predict their benefit charge ratio in Year 3. Simulated Year 3 ratios are then used to predict ratios in Year 4, and so on and so forth. Because our prediction model is in terms of benefit charge ratios (which span from zero to 0.15), we multiply each employer's predicted charge ratio by their mean taxable payroll from 2016:Q3-2019:Q2 to obtain a dollar measure of predicted benefit charges.

Equipped with simulated UI benefit charges, we can then use the RR formula to compute each employer's tax rates from one year to the next. To compute Year 2 rates, we start with the actual 2020 employer reserves observed in our data in the numerator, and add in Year 1 revenues while subtracting Year 2 benefit charges. Importantly, the tax base increase will also be gradually incorporated into the denominator of the RR.

$$\text{Year 2 RR} = \frac{Reserves_{2020} + \text{Year 1 Rev} - \text{Year 2 Charges}}{\frac{1}{3}(OldTaxablePay_{2016:Q3-2018:Q4} + NewTaxablePay_{2019:Q1-Q2})}$$

$$\text{Year 3 RR} = \frac{Reserves_{Yr2} + \text{Year 2 Rev} - \text{Year 3 Charges}}{\frac{1}{3}(OldTaxablePay_{2017:Q3-2018:Q4} + NewTaxPay_{2019:Q1-Q4} + NewTaxPay_{2019:Q1-Q2})}$$

$$\text{Year 4 RR} = \frac{Reserves_{Yr3} + \text{Year 3 Rev} - \text{Year 4 Charges}}{\frac{1}{3}(OldTaxablePay_{2018:Q3-2018:Q4} + 2 * NewTaxPay_{2019:Q1-Q4} + NewTaxPay_{2019:Q1-Q2})}$$

$$\text{Year 5 RR} = \frac{Reserves_{Yr4} + \text{Year 4 Rev} - \text{Year 5 Charges}}{NewTaxablePay_{2019:Q1-Q4}}$$

A.III Alternative Simulation Using 2022 Data

Our baseline simulation model begins in 2019, the last full calendar year before the Covid-19 pandemic. This is to avoid the impact of UI claim forgiveness that occurred in response to the pandemic, which moved the entire distribution of employers down the tax schedule. In this section we show that our main conclusions are robust to using the 2022 distribution of employer reserve ratios as well. There is a clear difference in the overall levels of net revenue and experience rating, but the comparisons across alternative policies are still consistent with our 2019 results.

Table A.2: Net Revenues Raised ($bil) – 2022

Policy	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Total
7k baseline	0.81	0.10	-0.46	-0.42	-0.61	-0.65	-0.58	-0.67	-0.70	-0.72	-3.91
14k baseline	4.02	3.52	3.22	3.38	2.56	1.87	1.45	1.01	0.74	0.57	22.34
gradual to 21k	2.26	2.94	4.35	6.35	5.88	5.33	4.65	3.62	2.69	2.09	40.17
Comparison to Alternative Policies											
7k baseline	0.81	0.10	-0.46	-0.42	-0.61	-0.65	-0.58	-0.67	-0.70	-0.72	-3.91
0% min/9.3% max	0.81	-1.04	-1.36	-1.01	-0.97	-0.81	-0.59	-0.58	-0.51	-0.48	-6.55
14k baseline	4.02	3.52	3.22	3.38	2.56	1.87	1.45	1.01	0.74	0.57	22.34
0% min/9.3% max	4.02	1.26	1.48	2.10	1.43	0.88	0.63	0.31	0.13	0.03	12.26
gradual to 21k	2.26	2.94	4.35	6.35	5.88	5.33	4.65	3.62	2.69	2.09	40.17
0% min/9.3% max	2.26	0.90	2.44	4.71	4.38	3.84	3.18	2.21	1.46	0.94	26.32

$N = 674,302$. Net revenues calculated as annual contributions minus annual charges. Year 1 charges = $3.9b, Year 2 charges = $4.6b, and average charges in Years 3-10 = $5b. Gradual transition increases base to 10k in year 1, 13k in year 2, 17k in year 3, and 21k in years 4-10.

Table A.3: Share of Non Experience-Rated UI Benefit Charges – 2022

	3-years at max rate	3-years at min rate	Rest of firms	3-years at max rate	3-years at min rate	Rest of firms
		Baseline Schedule			*0% min rate/ 9.3% max rate*	
7k base	29.5%	2.8%	67.7%	13.6%	1.1%	85.4%
14k base	14.6%	0.77%	84.6%	3.6%	0.42%	95.9%

$N = 674,302$. Reports the share of UI benefit charges generated by firms persistently (ie: 3 consecutive years) at the max or min rate, based on the steady state of our simulation model (years 5-7). 7k baseline has 10% of taxable payroll at max and 6% at min. 14k baseline has 4% of taxable payroll at max and 1% at min.

A.IV Employer Taxes and UI Benefits Generosity

Another motivation for California or any other state to increase revenues to its UI system through tax base increases is that it could finance raising the generosity of UI benefits. Since 2005, the maximum weekly benefit in California's UI system has stood at $450 (thereby declining in inflation-adjusted terms) while the average weekly benefit among all other states increased by 56 percent. During that period, California fell from the 7th most generous state on this metric of benefit generosity to the 32nd most generous by 2024.

To investigate whether states with increases in their taxable wage base tend to have larger increases in the generosity of their maximum weekly UI benefits, we estimate state-by-year level two-way fixed effects difference-in-differences specifications of the following type:

$$(1) \quad \log(\text{benefit}_{st}) = a_t + b_1 \cdot \log(\text{TAXBASE}_{st}) + m_s + e_{st}$$

$$(2) \quad \log(\text{benefit}_{st}) = a_t + b_1 \cdot \log(\text{TAXBASE}_{st}) + b_2 \cdot \text{MINRATE}_{st} + b_3 \cdot \text{MAXRATE}_{st} + m_s + e_{st}$$

Given that UI benefits and the UI taxable wage base are jointly determined, we do not assign a strict causal interpretation to our results, which are summarized in columns 1 and 2 of the following table. In both cases, the coefficient estimate for the taxable wage base is highly statistically significant. Both estimates imply that on average, a within-state increase of 10 percent in a state's taxable wage base is associated with approximately a 2.1 percent increase in its maximum weekly UI benefit. In contrast, the coefficient estimates for both the minimum and maximum tax rates are much smaller in magnitude and neither point estimate is statistically significant. These results strongly suggest that a state's taxable wage base for unemployment insurance often coincides with and may facilitate an increase in the generosity of UI benefits in a state.

Table A.4: UI Taxes and Benefit Generosity (1983-2024)

	All States		Indexed	Non-indexed
	(1)	(2)	(3)	(4)
log(base)	.214***	.215***	.325*	.203**
	(.058)	(.057)	(.166)	(.089)
min rate		.008		
		(.014)		
max rate		.012		
		(.008)		
State and Year FEs	X	X	X	X
N	2,142	2,137	714	1,428

Regressions at the state and year level. Robust standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

One possible explanation for the strong within-state relationship between UI benefit generosity and the UI tax base is indexing. About one-in-three states index their UI tax bases to average wages in the state, and in most cases these same states index their maximum weekly UI benefits as well (Duggan et al, 2023). For these states, a relationship between these two variables would to some extent be mechanical. In most of the remaining states, it is usually necessary for policymakers to enact legislation to revise either the tax base or the maximum weekly benefit. States that index have significantly higher average tax bases than non-indexing states ($43.0k versus $11.3k in 2024) and significantly higher average weekly benefits ($653 versus $483) as well.

To investigate whether the relationship between within-state variation in UI benefits and the UI tax base varies between indexing and non-indexing states, we next estimate specification (1) separately for the two groups of states. As expected, the relationship is somewhat stronger for the 17 indexing states than in the 34 remaining states, as a comparison of the estimates for β_1 in columns (3) and (4) for indexing (0.325) and non-indexing (0.203) states shows, though it is statistically significant for both groups of states. Taken together, these results demonstrate that state-level changes in UI benefit generosity are strongly positively associated with changes in the UI taxable wage base for both indexing and non-indexing states. This also suggests a potential confounding factor of many previous studies that have leveraged within-state variation in UI benefit generosity to estimate the effects on worker behavior including unemployment duration and wages.